



EUROEPI2010

**Epidemiology and Public Health
in an Evolving Europe**

XXXIV CONGRESSO NAZIONALE AIE



AIE ASSOCIAZIONE
ITALIANA DI
EPIDEMIOLOGIA



Under the auspices and with contribution of / Con il patrocinio e il contributo di

REGIONE
TOSCANA



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***EUROEPI*2010**

**EPIDEMIOLOGY
AND PUBLIC HEALTH
IN AN ENVOLVING EUROPE**

S c i e n t i f i c P r o g r a m

Saturday 6 November 2010 • PALAZZO VECCHIO • SALONE DEI CINQUECENTO • 16.00-18.15

OPENING CEREMONY

- 16.00** Welcome from the Municipality of Florence
16.20 Welcome and Greetings from AIE and IEA
N. Pearce (New Zealand), A. Seniori Costantini (Italy), R. West (UK)
16.45 The population of Europe: an uncertain future
M. Livi Bacci (Italy)
17.15 Education, social class and poverty
F. Bernardi (Italy)
17.45 From IEA Florence 1999 to Florence 2010: a decade of epidemiologi in society
R. Saracci (Italy)



Sunday 7 november 2010 • AUDITORIUM • 8.45-11.00

- 8.45** Welcome of the dean of the Medicine's School, University of Florence
G.F. Gensini

Plenary Session

INEQUALITIES IN HEALTH

Chairmen: C. Borrell (Spain), G. Costa (Italy)

- 9.00** Comparing the state of health inequalities around Europe
J.P. Mackenbach (The Netherlands)
9.30 The Marmot Review and the WHO Review: thoughts on social determinants of health
J. Allen (UK)
10.00 New perspectives for the contribution of epidemiologic investigation: life course and longitudinal studies
M. Goldberg (France)
10.45 Discussion
Discussant: F. Paoli (Belgium)

11.00-11.30 *Coffee break*



Sunday 7 november 2010 • AUDITORIUM • 11.30-13.00

Parallel Session

INEQUALITIES IN HEALTH I

Chairmen: H.J. de Koning (The Netherlands), R. Zanetti (Italy)

- 11.30** Socioeconomic and geographic differences in waiting times for cardiovascular elective surgery in Piedmont (Italy)
G. De Luca, A. Petrelli, T. Landriscina, G. Costa (Italy)
11.45 Reduction in number of hospital admissions of patients with HIV/Aids. Socioeconomic inequalities in Portugal, from 2000 to 2008
M.F. Pina, H. Barros (Portugal)
12.00 Socio-economic status and health care expenditures after acute myocardial infarction
S. Cascini, S. Narduzzi, V. Belleudi, M. Arcà (Italy)
12.15 Social variations in birth weight over the 30-years period in Northwest Russia: closing the gap by marital status, widening the gap by occupation
A. Kozlovskaya, J. Odland, A. Gribovski (Russia, Norway)
12.30 Ethnic differences in parental problem perception and perceived need for 5-6- year old children with a high score on the SDQ
F. Bevaart, F. Van Oort, F. Verhulst (The Netherlands)
12.45 Health behaviours, socioeconomic position and mortality: contrasting evidence from the British Whitehall II and the French GAZEL cohorts
S. Stringhini, A. Dugravot, M. Shypley, M. Goldberg, M. Zins, M. Kivimaki, M. Marmot, S. Sabia, A. Singh-Manoux (France, UK)

13.00-14.00 *Lunch*

Sunday 7 November 2010 • SALA VERDE • 11.30-13.00

Parallel Session

CANCER EPIDEMIOLOGY

Chairmen: L. Bisanti (Italy), T. Luostarinen (Finland)

11.30 One-carbon metabolism, epigenetics and cancer: results from EPIC

P. Vineis (UK)

11.45 Cumulative coffee consumption and reduced risk of oral and oropharyngeal cancer

M.G.H. Biazevic, T.N. Toporcov, L.D.B. Rotundo, R.S. Brasileiro, M.B. de Carvalho, J.F. de Góis Filho, L.P. Kowalski, J.L.F. Antunes (Brazil)

12.00 Polymorphisms in DNA repair genes, chemotherapy and survival in bladder cancer

C. Sacerdote, F. Ricceri, S. Guarrera, S. Polidoro, P. Gontero, P. Destefanis, G. Cucchiara, G. Matullo, P. Vineis (Italy, UK)

12.15 Risk of second malignant neoplasms after rare childhood solid tumors: up to 50 years of follow-up in 11 countries

Maule, G. Scélo, G. Pastore, P. Brennan, K. Hemminki, J.H. Olsen, Tracey, E. Pukkala, E. Weiderpass Vainio, D.H. Brewster, S. Tamaro, K.-S. Chia, V. Pompe-Kirn, E.V. Kliewer, J.M. Tonita, C. Martos, J.G. Jonasson, F. Merletti, P. Boffetta (Italy, France, Sweden, Denmark, Australia, Finland, Norway, UK, Canada, Singapore, Slovenia, Spain, Iceland)

12.30 Time trends of childhood cancer in Italy, 1976-2007: data-driven hypotheses or hypothesis-driven modelling?

P. Pisani, M.L. Mosso, M. Maule, T. Cena, D. Alessi, A. Rasulo, V. Macerata, M. Nonnato, C. Magnani, F. Merletti, G. Pastore (Italy)

12.45 SETIL Study (Italian epidemiological study on the aetiology of childhood leukemia, lymphoma and neuroblastoma): risk of childhood cancers in relation to parental occupational exposure

L. Miligi, C. Magnani, A. Benvenuti, P. Legittimo, S. Mattioli, A. Salvan, A. Ranucci, SETIL Working Group: G. Assennato, F. Barone Adesi, I. Belletti, L. Bisanti, R. Calisti, S. Cannizzaro, A. Cappelli, F. Cavarani, M. Cuttini, E. Celentano, P. Cocco, R. Haupt, U. Kirchmayer, S. Lagorio, F. Merlo, G. Miceli, D. Mirabelli, L. Minelli, F. Pannelli, A. Polichetti, S. Risica, R. Rondelli, S. Silvestri, L. Sommani, S.V. Torregrossa, G.A. Tozzi, L. Troeschel, A. Veraldi, P. Zambon (Italy)

13.00-14.00 Lunch



Sunday 7 November 2010 • SALA ADUA 2 • 11.30-13.00

Parallel Session

CHRONIC DISEASES

Chairmen: H.W. Hense (Germany), F. Merletti (Italy)

11.30 The impact of diabetes mellitus and cardiovascular diseases on mortality of people with AIDS in Italy

A. Zucchetto, S. Pennazza, B. Suligoi, M. Pace, S. Bruzzzone, A. De Paoli, L. Camoni, L. Dal Maso, G. Rezza, D. Serraino (Italy)

11.45 Effect of an adherence programme on cardiovascular events in high-risk patients with hypercholesterolemia

J. Müller-Nordhorn, H. Englert, K. Wegscheider, H. Völler, F. Sonntag, W. Meyer-Sabellek, E. Windler, H.A. Katus, S.N. Willich (Germany)

12.00 Metabolic syndrome and mortality in Russian adults: a 9-years follow-up study

O. Sidorenkov, O. Nilssen, A.M. Grjibovski (Norway)

12.15 Indices of central and peripheral body fat: association with non-fatal acute myocardial infarction

A. Oliveira, F. Rodríguez-Artalejo, M. Severo, C. Lopes (Portugal, Spain)

12.30 Diabetes and cancer risk in a Portuguese urban cohort

J. Bastos, N. Lunet (Portugal)

12.45 Cardiovascular risk assessment: an important measure for cardiovascular diseases prevention in primary care

L. Palmieri, R. Rielli, O. Brignoli, A. Cuffari, C. Donfrancesco, S. Giampaoli (Italy)

13.00-14.00 Lunch



Sunday 7 November 2010 • SALA ONICE • 11.30-13.00

Parallel Session

OCCUPATIONAL HEALTH I

Chairmen: P.A. Bertazzi (Italy), K. Straif (France)

- 11.30 The IARC Monographs Vol. 100. A review and update on occupational carcinogens**
K. Straif (France)
- 11.55 Cultural and psychosocial determinants of musculoskeletal illness and disability: implications for prevention**
D. Coggon (UK)
- 12.20 Is there an epidemic of occupational asthma in Europe?**
M. Kogevinas (Spain)
- 12.45 Night shift work, melatonin, estradiol and mammographic density in nurses. Preliminary results**
B. Peplonska, E. Reszka, J. Gromadzinska, A. Bukowska, W. Sobala, J.-A. Siegstad-Lie, G. Ursin (Poland, Norway)
- 13.00-14.00 Lunch**



Sunday 7 November 2010 • SALA 4 • 11.30-13.00
Parallel Session

METHODS I

Chairmen: A. Biggeri (Italy), J. Olsen (Denmark)

- 11.30 Treatment-effect mediation in trials of complex interventions**
G. Dunn (UK)
- 12.00 Simultaneous and selective inference in epidemiology**
Y. Benjamini (Israel)
- 12.30 Modelling interactions with continuous variables**
W. Sauerbrei, P. Royston (Germany, UK)
- 12.45 Investigating delayed effects and harvesting in temperature-mortality association in the USA and Spain**
A. Gasparrini, B. Armstrong, A. Tobias, J. Diaz (UK, Spain)

13.00-14.00 Lunch



Sunday 7 November 2010 • AUDITORIUM • 14.00-16.00
Plenary Session

ENVIRONMENT AND HEALTH

Chairmen: F. Forastiere (Italy), N. Pearce (New Zealand)

- 14.00 Effects on health of climate change**
R. Bertollini (Switzerland)
- 14.30 Environmental factors and children neurodevelopment: the experience of birth cohorts**
J. Sunyer (Spain)
- 15.00 Urban pollution and cardiovascular diseases**
A. Peters (Germany)
- 15.30 Discussion**
Discussant: P. Vineis (UK)

16.00-17.00 Coffee break and Poster sessions



Sunday 7 November 2010 • AUDITORIUM • 17.00-18.30
Parallel Session

ENVIRONMENT AND HEALTH I

Chairmen: S. Skerfving (Sweden), J. Sunyer (Spain)

- 17.00 Public health impact for long-term, low level mixed element exposure in susceptible population strata - The EU Project PHIME**
S. Skerfving (Sweden)
- 17.30 Spatial analysis of mortality in an area contaminated by chromium, arsenic, mercury and boron**
F. Minichilli, E. Bustaffa, M. Amadori, L. Cori, A. Pierini, A.M. Romanelli, M.A. Protti, M.A. Vigotti, F. Bianchi (Italy)

- 17.45 Prevalence of diabetes mellitus in the Seveso cohort 30 years after the accident**
L. Cavaliere D'Oro, M. Rognoni, D. Consonni, P.A. Bertazzi, A.C. Pesatori (Italy)
- 18.00 Colorectal cancer and disinfection by-products in Italy and Spain**
C. Bosetti, C.M. Villanueva, E. Righi, V. Moreno, G. Aggazzotti, G. Castaño-Vinyals, G. Carrasco, A. Tavani, M. Bustamante, R. Talamini, F. Pisa, P. Rantakokko, M. Kogevinas, M. Nieuwenhuijsen, C. La Vecchia (Italy, Spain, Finland)
- 18.15 Reproductive effects of exposure to incinerator emissions-Moniter Project (Monitoring the Incinerators in the Territory of Emilia-Romagna region)**
S. Candela, A. Ranzi, F. Luberto, P. Marzaroli, L. Bonvicini, A. Evangelista, A. Freni Sterrantino, P. Angelini, C. Ancona, F. Forastiere (Italy)



Sunday 7 November 2010 • SALA VERDE • 17.00-18.30

Parallel Session

AGING AND DISABILITY / HEALTH CARE / END OF LIFE

Chairmen: E. Lynge (Denmark), G. Miccinesi (Italy)

- 17.00 End-of-life care in different European countries: the EURO SENTI-MELC study**
L. Van den Block (Belgium)
- 17.30 Work, social support and leisure protect elderly against functional loss, EPIDOSO study, São Paulo, Brazil, 1991-1999**
E. Dorsi, A. Xavier, L. Ramos (Brazil)
- 17.45 Remission of depressive symptoms reduces mortality of elderly subjects: results from the Italian Longitudinal Study on Aging**
L. Galluzzo, E. Scafato, C. Gandin, S. Ghirini, G. Farchi (Italy)
- 18.00 Smoking and disability retirement. A register based follow-up study**
O. Rahkonen, J. Lahti, M. Laaksonen, S. Karvonen, O. Pietiläinen, T. Lallukka, E. Lahelma (Finland)
- 18.15 Chronic CMV infection in the very elderly: associations with co-morbidity, disability and frailty**
C. Mathei (Belgium)



Sunday 7 November 2010 • SALA ADUA 2 • 17.00-18.30

Parallel Session

COMMUNICABLE DISEASES

Chairmen: H. Barros (Portugal), S. Salmaso (Italy)

- 17.00 Rich and healthy or poor and sick - Infection and inequality**
J. Giesecke (Sweden)
- 17.30 The contribution of epidemiology to the response to the pandemic: the Italian experience**
S. Declich (Italy)
- 18.00 Risk of infection in active TB contacts: results from a contact investigation program in Turin (Italy)**
E. Migliore, A. Borraicino, I. Baussano, S. Mercadante, P. Piccioni, A. Carosso, M. Bugiani (Italy)
- 18.15 Adoption of preventive measures during the influenza A epidemic in Spain**
M. Nebot, F. Agüero, A. Perez, G.-C. Xavier, M.J. Lopez (Spain)



Sunday 7 November 2010 • SALA ONICE • 17.00-18.30

Parallel Session

REPRODUCTIVE AND INFANT HEALTH

Chairmen: A. Grjibovski (Russia), E. Righi (Italy)

- 17.00 Maternal blood IGFs, cord blood IGFs and lipids, and size at birth: implications for adult dyslipidemia**
E. Pinto, E. Ramos, J.T. Guimarães, I. dos Santos Silva, H. Barros (Portugal, UK)
- 17.15 Independent risk factors for burns in children under 5 using a national primary care dataset**
E. Orton, J. West, D. Kendrick, L. Tata (UK)
- 17.30 Epidemiology of apparent life-threatening events in Northern Italy**
Monti, P. Borrelli, I. Popa, B. Corso, S. Tajè, A.C. Niespolo, A. Lepore, Bonarrigo, C. Fratti, S. Pisani, M. Stramba-Badiale, L. Nosetti, L. Nespoli, C. Montomoli (Italy)
- 17.45 Relationship between life events and psychosomatic complaints during adolescence/youth: a structural equation model approach**
E. Villalonga-Olives, C.G. Forero, M. Erhart, J.A. Palacio-Vieira, Valderas, M. Herdman, M. Ferrer, L. Rajmil, U. Ravens-Sieberer, Alonso (Spain, Germany, UK)

- 18.00 Intervention for smoking cessation nested within a web-based birth cohort (the NINFEA study)**
E. Pivetta, F. Merletti, L. Richiardi (Italy)
- 18.15 Topical corticosteroid fear in parents of preschool children with atopic dermatitis in Severodvinsk, Northwest Russia**
O. Koshkina, A. Grijbovski (Russia, Norway)



Sunday 7 November 2010 • SALA 4 • 17.00-18.30
Parallel Session

MENTAL HEALTH

Chairmen: M. Kogevinas (Spain), G. Tibaldi (Italy)

- 17.00 Consequences of workplace bullying for employee mental health problems**
E. Lahelma, T. Lallukka, M. Laaksonen, T. Partonen, O. Rahkonen (Finland)
- 17.15 Association of obesity and health behaviour with physician-diagnosed depression - Results of a nationwide population-based study in Germany**
M. Busch, C. Scheidt-Nave, U. Hapke, H. Hölling, G. Mensink (Germany)
- 17.30 MiniCog and Mini Mental: agreement in a cross sectional study with an elderly sample**
D. Costa, M. Severo, S. Fraga, H. Barros (Portugal)
- 17.45 Sense of coherence and quality of life in adolescents with congenital heart defects: a register-based 1-year follow-up study**
B. Neuner, M. Busch, J. Wellmann, H.W. Hense (Germany)
- 18.00 Mental health and bullying among students**
A. Perez, X. Garcia-Continente, M. Nebot (Spain)
- 18.15 Smoking and mental disorders: beyond plausible associations**
K. Landolt, V. Ajdacic-Gross, M.P. Hengartner, A. Gamma, J. Angst, W. Rössler (Switzerland)



Sunday 7 November 2010 • AUDITORIUM • 18.30-19.30

EUROPEAN YOUNG EPIDEMIOLOGIST (EYE) MEETING



Monday 8 November 2010 • AUDITORIUM • 8.30-10.30
Plenary Session

LIFESTYLES AND CHRONIC DISEASES PREVENTION

Chairmen: D. Palli (Italy), R. West (UK)

- 8.30 The EPIC project. The role of nutrition, obesity and metabolic syndrome and their lifestyle determinants in cancer aetiology**
E. Riboli (UK)
- 9.00 Prevention of chronic diseases**
F. Berrino (Italy)
- 9.30 The contribution of epidemiology to the study of tobacco epidemics**
A.E. Fernandez Muñoz (Spain)
- 10.00 Discussion**
Discussant: U. Keil (Germany)
- 10.30-11.00 Coffee break**



Monday 8 November 2010 • AUDITORIUM • 11.00-13.00

Parallel Session

LIFESTYLES

Chairmen: M. Juhl (Denmark), S. Panico (Italy)

11.00 Alcohol-attributable burden of cancer incidence in 8 European countries

M. Schütze, H. Boeing, T. Pischon, J. Rehm, T. Kehoe, G. Gmel, A. Olsen, A. Tjønneland, C. Dahm, K. Overvad, F. Clavel Chapelon, M.-C. Boutron Ruault, A. Trichopoulou, V. Benetou, D. Zylis, R. Kaaks, S. Rohrmann, D. Palli, F. Berrino, R. Tumino, P. Vineis, L. Rodríguez, A. Agudo, M.-J. Sánchez, M. Dorronsoro, M.-D. Chirlaque, A. Barricarte, P. Peeters, C. van Gils, K.-T. Khaw, N. Wareham, N. Allen, T. Key, P. Boffetta, M. Jenab, N. Slimani, D. Romaguera, P. Wark, E. Riboli, M. Bergmann (Germany, Canada, Denmark, France, Greece, Italy, Spain, The Netherlands, UK, USA)

11.15 A protective effect of the Mediterranean diet for cutaneous melanoma

C. Fortes, S. Mastroeni, F. Melchi, M.A. Pilla, G. Antonelli, D. Camaione, M. Alotto, P. Pasquini (Italy)

11.30 Influences of physical activity and sedentary behavior on adolescent medicine use in 17 countries

A. Borraccino, R.J. Iannotti, P. Lemma, F. Cavallo (Italy, USA)

11.45 Association between alcohol consumption and bone strength in Korean adults: the Korean Genomic Rural Cohort Study

J. Park, L. Jin, S. Chang, S. Koh, K. Kim, S. Ryu, T. Lee, J. Song (Korea)

12.00 The association with sociodemographic factors is different for fruit and vegetables consumption: results from a STEPS survey in Mozambique

P. Padrão, O. Laszczyńska, C. Silva-Matos, A. Damasceno, N. Lunet (Portugal, Mozambique)

12.15 Worksite canteen availability and usage among Finnish employees

S. Raulio, E. Roos, R. Prättälä (Finland)

12.30 Built environment and obesity: a contextual analysis of a population based cohort in the metropolitan area of Paris (France)

E. Cadot, J. Martin, J. Vallée, P. Chauvin (France)

12.45 Risk factors for childhood obesity in Italy

A. Lamberti, A. Spinelli, P. Nardone, G. Baglio, The OKkio alla SALUTE Group (Italy)

13.00-14.00 Lunch



Monday 8 November 2010 • SALA VERDE • 11.00-13.00

Parallel Session

CANCER SCREENING

(Organized by the Italian National Center for Screening Monitoring - ONS)

Chairmen: H.J. de Koning (The Netherlands), N. Segnan (Italy)

11.00 Evaluating the impact of mammography screening programmes on incidence of breast cancer

H.J. de Koning (The Netherlands)

11.20 Epidemiological estimates of overdiagnosis in breast cancer screening; Florence and internationally

M. Zappa (Italy)

11.35 Mammography screening and overdiagnosis in Denmark

E. Lynge (Denmark)

11.50 Discussion

12.00 Is breast cancer screening a useful tool to tackle health inequalities? A study in Emilia-Romagna Region

B. Pacelli, E. Di Felice, S. Cavuto, N. Caranci, L. Cisbani, M.P. Fantini, R. De Palma, M. Biocca, S. Candela (Italy)

12.15 Self-sampling vs. reminder letter. Increasing attendance at screening for cervical cancer

A. Virtanen, A. Anttila, T. Luostarinen, P. Nieminen (Finland)

12.30 Offering people a choice for colorectal cancer screening. Attendance and detection rate in Torino and Verona

C. Senore, P. Armaroli, L. Bennazzato, A. Ederle, A. Fantin, N. Segnan (Italy)

12.45 Evidence-based European guidelines for quality assurance in cancer screening programmes

P. Armaroli, S. Minozzi, N. Segnan, J. Patnick, L. von Karsa (Italy, UK, France)

13.00-14.00 Lunch



Monday 8 November 2010 • SALA ADUA 2 • 11.00-13.00

Parallel Session

ENVIRONMENT AND HEALTH II

Chairmen: F. Barbone (Italy), A. Peters (Germany)

11.00 The effects of particulate air pollution on hospital admissions for cardiac diseases in potentially sensitive subgroups. A multicity case-crossover analysis

P. Colais, A. Faustini, L. Bisanti, E. Cadum, A. Cernigliaro, S. Mallone, B. Pacelli, M. Serinelli, L. Simonato, M. Stafoggia, M.A. Vigotti (Italy)

11.15 Does air pollution trigger infant mortality in Western Europe? A case-crossover study

H. Scheers, S.M. Mwalili, C. Faes, F. Fierens, B. Nemery, T.S. Nawrot (Belgium, Kenya)

11.30 Impact of aircraft noise on cardiovascular diseases. The Cologne-Bonn Airport Study

E. Greiser, C. Greiser, K. Janhsen (Germany)

11.45 Short-term effects of ozone on out-of-hospital coronary deaths: a case-crossover analyses in Tuscany

D. Nuvolone, D. Balzi, M. Chini, D. Scala, F. Giovannini, A. Barchielli (Italy)

12.00 PM10 exposure and asthmatic symptoms: a panel study of children living in the provinces of Ferrara and Rovigo (Italy)

A. Freni Sterrantino, A. Ranzi, C. Sartini, A. De Togni, G. Casale, R. Cavallini, L. Gallo, F. Forastiere, P. Lauriola (Italy)

12.15 Joint effects of temperature and air pollution in 10 Mediterranean cities: results from the CIRCE Project

A. Analitis, K. Katsouyanni, P. Michelozzi, D. D'Ippoliti, F. De Donato, M. Leone, T. Wolf, B. Menne (Greece, Italy)

12.30 Traffic noise exposure and occurrence of myocardial infarction in Pisa (Italy)

M.A. Vigotti, M. Nolli, C. Corsini, C. Chiari, M. Bonfanti, M. Protti, G. Licitra (Italy)

12.45 The use of distributed lag non-linear models to investigate the effect of high temperature on mortality and harvesting effect in Rome and Athens

M. Leone, A. Gasparrini, D. D'Ippoliti (Italy, UK)

13.00-14.00 Lunch



Monday 8 November 2010 • SALA ONICE • 11.00-13.00

Parallel Session

OCCUPATIONAL HEALTH II

Chairmen: D. Coggon (UK), L. Simonato (Italy)

11.00 Occupational exposure to iron and welding fumes and the risk of lung cancer: a whole-population-based cohort study in Finland

S.S. Siew, T. Kauppinen, P. Kyyrönen, P. Heikkilä, E. Pukkala (Finland)

11.15 Incidence of malignant pleural mesothelioma after occupational and household exposure to asbestos in the period 1990-2008

D. Ferrante, S. Tunesi, D. Mirabelli, B. Terracini, C. Magnani (Italy)

11.30 Lung cancer among construction workers in a population-based case-control study

D. Consonni, S. De Matteis, A.C. Pesatori, J.H. Lubin, S. Wacholder, M. Tucker, N.E. Caporaso, P.A. Bertazzi, M.T. Landi (Italy, USA)

11.45 Advances in the retrospective assessment of occupational exposures: results from the multicentre European case-control study epilymph

S. Kleefeld, G. Satta, T. Nonne, M. Meloni, P. Cocco (Ireland, Italy)

12.00 Do work characteristics explain educational inequalities in work ability?

R. Kaikkonen, O. Rahkonen, R. Gould, S. Koskinen (Finland)

12.15 The impact of flexibilization on workplace safety: the case of young Italian workers

R. Leombruni, A. Bena, M. Giraudo (Italy)

12.30 Changes in DNA methylation patterns in workers of a Thai industrial estate and nearby residents

M. Peluso, A. Munnia, V. Bollati, P. Srivatanakul, M. Ceppi, P. Boffetta, A. Baccarelli (Italy, Thailand, USA)

12.45 Role of asbestos clearance in explaining different mortality time trends from pleural and peritoneal cancer. A paradigm shift in the epidemiology of mesothelioma?

F. Barone Adesi, D. Ferrante, D. Mirabelli, B. Terracini, C. Magnani (Italy)

13.00-14.00 Lunch



Monday 8 November 2010 • SALA 4 • 11.00-13.00

Parallel Session

TOBACCO

Chairmen: A.E. Fernandez Muñoz (Spain), S. Gallus (Italy)

11.00 Impact of cigarette price on demand for tobacco products

S. Gallus (Italy)

11.30 The monitoring of Italian smoking ban after five years

L. Spizzichino, D. Galeone, M. Giaccio (Italy)

11.45 Predicting future smoking prevalence in Italy

G. Carreras, G. Gorini, L. Iannucci (Italy)

12.00 Exposure to benzene as a carcinogen from the secondhand smoke in hospitality venues in Spain

M.J. Lopez, M. Nebot, L. Vinyoles, G. Muñoz, F. Centrich, Sánchez-Martínez, A. Schiaffino, J.A. Pascual, E. Fernández (Spain)

12.15 Observed smoking in car: results of a study from the Regional Health Prevention Service of Veneto, Northern Italy

L. Tagliapietra, F. Michieletto, F. Allegri, R. Boffi, R. Mazza, C. De Marco, A.A. Ruprecht, G. Invernizzi, G. Frison, L. Sbrogiò (Italy)

12.30 Tobacco smoke and risk of childhood leukaemia: findings from the SETIL case-control study

A. Farioli, P. Legittimo, S. Mattioli, L. Miligi, A. Benvenuti, A. Ranucci, A. Salvan, C. Magnani, SETIL Working Group (Italian Epidemiological Study on the Aetiology of Childhood Leukaemia, Lymphoma and Neuroblastoma): G. Assennato, L. Bisanti, S. Cannizzaro, M. Cuttini, E. Celentano, P. Cocco, R. Haupt, U. Kirchmayer, S. Lagorio, F. Merlo, L. Minelli, F. Pannelli, A. Polichetti, S. Risica, R. Rondelli, S.V. Torregrossa, P. Zambon (Italy)

12.45 Tobacco smoking, alcohol drinking, and the risk of nasopharyngeal cancer in Italy

J. Polesel, R. Talamini, L. Barzan, A. Zucchetto, E. Bidoli, L. Dal Maso, E. Negri, M. Libra, M. Montella, C. La Vecchia, D. Serraino (Italy)

13.00-14.00 Lunch



Monday 8 November 2010 • AUDITORIUM • 13.00-14.00

ANNUAL GENERAL MEETING OF THE INTERNATIONAL EPIDEMIOLOGICAL ASSOCIATION EUROPEAN FEDERATION (EEF-IEA)



Monday 8 November 2010 • AUDITORIUM • 14.00-16.00

Plenary Session

IMMIGRATION AND HEALTH

Chairmen: L.J.M.W. Devillé (The Netherlands), W. Ricciardi (Italy)

14.00 Old and new lessons from migrants studies

K. Hemminki (Germany)

14.30 Migrants' health data in Europe: what epidemiology needs and what is missing

L. Cacciani (Italy)

15.00 Forged migration: people and epidemiology in crisis

F. Checchi (UK)

15.30 Discussion

Discussant: R. Saracci (Italy)

16.00-16.30 Coffee break and Poster sessions



Monday 8 November 2010 • AUDITORIUM • 16.30-17.30

Parallel Session

INEQUALITIES IN HEALTH II

Chairmen: M. Davoli (Italy), B. Kocic (Serbia)

16.30 A weighted socio-economic status index in mental health: local or national weights?

R. Pertile, V. Donisi, D. Salazzari, A. Fiorillo, M. Percudani, C. De Rosa, L. Confalonieri, F. Amaddeo (Italy)

16.45 The role of contextual socioeconomic circumstances and segregation on mortality: analysis of time variations in the city of Turin, Northwest Italy

C. Marinacci, M. Demaria, G. Costa (Italy)

- 17.00 Scenarios of future lung cancer incidence by educational level: modelling study in Denmark**
G. Menvielle, I. Soerjomataram, E. de Vries, G. Engholm, J. Barendregt, J.W. Coebergh, A. Kunst (France, The Netherlands, Denmark, Australia)
- 17.15 The Commission to Reduce Social Inequalities in Health in Spain. Reviewing evidence, prioritising proposals and issuing policy recommendations**
D. Malmusi, C. Borrell, L. Artazcoz, E. Díez, M.I. Pasarín, M. Rodríguez Sanz on behalf of the Commission to Reduce Social Inequalities in Health in Spain (Spain)



Monday 8 November 2010 • SALA VERDE • 16.30-17.30
Parallel Session

ENVIRONMENT AND HEALTH III

Chairmen: G. Assennato (Italy), N. Pearce (New Zealand)

- 16.30 Human biomonitoring in the area around the petrochemical site of Gela, Sicily-Italy**
F. Bianchi, E. Bustaffa, L. Cori, M. Imbriani, F. Minichilli, S. Migliore, C. Minoia, A. Ronchi, R. Turci (Italy)
- 16.45 Cancer mapping in Alpine regions 2001-2005: geographical distribution of cancer incidence and mortality in the eastern alpine regions**
F. Vittadello, S. Tognazzo, L. Battisti, F. Bellù, H. Concin, L. Dal Maso, S. Ess, H. Frick, J. Klocker, J. Lettner, A. Bordoni, G. Tagliabue, R. Tessandori, V. Zadnik, W. Oberaigner (Italy, Austria, Switzerland, Slovenia)
- 17.00 Total and cancer mortality patterns in the West Bank Regions**
E.A.L. Gianicolo, N.M.E. Abu-Rmeileh, M.A. Vigotti, M. Portaluri, R. Giacaman (Italy, Palestinian National Authority)
- 17.15 Source apportionment of polycyclic aromatic hydrocarbons (PAHs) and carcinogenic risk estimate in Taranto, Italy**
M. Serinelli, C. Calculli, I. Galise, L. Bisceglia, A. Pollice, G. Assennato (Italy)



Monday 8 November 2010 • SALA ADUA 2 • 16.30-17.30
Parallel Session

HEALTH CARE

Chairmen: D. Greco (Italy), M. Maggini (Italy)

- 16.30 Monitoring the prevalence of diabetes and the quality of care using electronic health data**
R. Gnani, R. Picariello, G. Bruno, C. Giorda, G. Costa (Italy)
- 16.45 Predictors of dropout from the German disease management program for diabetes mellitus type II**
B. Fullerton, B. Pöhlmann, F.M. Gerlach, A. Erler (Germany)
- 17.00 Validation of the strengths and difficulties questionnaire in a multiethnic population of 5/6 years**
C. Mieloo, W. Jansen, H. Raat, M. Donker (The Netherlands)
- 17.15 Women's reasons for low attendance in the cervical cancer screening programme: experience from Estonia**
P. Veerus, A. Kivistik (Estonia)



Monday 8 November 2010 • SALA ONICE • 16.30-17.30
Parallel Session

VIOLENCE

Chairmen: F. Checchi (UK), P. Fate - Moghadam (Italy)

- 16.30 Exposure to genocide and to environmental disasters and mental ill health of the affected populations**
J. Lindner, O. von Ehrenstein (Germany, USA)
- 16.45 Characteristics of women victims of violence attending ED in Lazio region, Italy in 2008**
S. Farchi, A. Polo, D. Di Lallo, G. Guasticchi (Italy)
- 17.00 Preventing violence and unintentional injuries in Europe: from international collaboration to local implementation. A WHO survey**
F. Mitis, D. Sethi, F. Racioppi (Italy)
- 17.15 War damages both winners and losers. Is statistics able to realize it?**
V. Gennaro, S. Salerno (Italy)

Monday 8 November 2010 • SALA 4 • 16.15-17.30

Parallel Session

METHODS II

Chairmen: E. Cadum (Italy), E. Villalonga Olives (Spain)

16.15 Methods and infrastructure of epidemiologic research examples from the IEA Rapid Response Committee

J. Olsen (Denmark)

16.30 Harmonising definitions of adverse events among 8 European healthcare databases participating in the EU-ADR project

R. Gini, P. Avillach, P.M. Coloma, F. Mougin, J.-C. Dufour, F. Thiessard, M. Joubert, G. Mazzaglia, C. Giaquinto, C. Fornari, R. Herings, J. Hippisley-Cox, M. Molokhia, L. Pedersen, A. Fourrier-Réglat, M. Fieschi, M. Sturkenboom, J. Van Der Lei, A. Pariente, G. Trifirò on behalf of EU-ADR Group (Italy, France, The Netherlands, UK, Denmark)

16.45 Parametric and nonparametric approaches to model growth in infancy using comparative data from two birth cohorts

C. Pizzi, B.L. De Stavola, I. dos Santos Silva, F. Merletti, L. Richiardi (Italy, UK)

17.00 Possible role of unmeasured confounding by smoking in the evaluation of environmental factors associated with preterm births

A. Ranzi, S. Candela, N. Caranci, L. Bonvicini, F. Luberto, P. Lauriola, F. Forastiere (Italy)

17.15 Effects of survey design settings on population estimates of clinical parameters and lifestyle indicators in a regional general population survey

C. Schmidt, D. Alte, H. Völzke, N. Friedrich, R. Valliant (Germany, USA)



Monday 8 November 2010 • AUDITORIUM • 17.30-18.15

EUROPEI2010 CLOSING CEREMONY AND MACCACCARO AWARD

17.30 Guest Lecture "Aging"

L. Ferrucci (USA)

18.00 Maccacaro Award

R. Saracci (Italy)



Monday 8 November 2010 • AUDITORIUM • 18.15-20.15

AIE SOCIAL MEETING

POSTER SESSIONS

AGING AND DISABILITY

P1 Are diseases becoming less disabling?

C. van Gool, N. Hoeymans, S. Picavet (The Netherlands)

P2 Limiting longstanding illness and self-reported chronic diseases in community-dwelling adults in a telephone health survey in Germany

J. Fuchs, C. Lange, C. Scheidt-Nave (Germany)

P3 Orthovoltage X-ray therapy improves quality of life in patients with knee monoosteoarthritis

M. Makarova, M. Valkov, A. Grjibovski (Russia, Norway)

P4 Neuro-psychogeriatric stimulation and rehabilitation mediated by computers and Internet, a controlled study

A. Xavier, E. Dorsi, G. Olivieri, T. Batista, L. Pedrosa, J. Santos, R. Berger, M. Baldin, E. Iida, A. Quialheiro, L.R. Ramos, D. Sigulem (Brazil)

P5 E-mail use, autonomy and independence among urban elder citizens: results from EPIFLORIPA study, Florianópolis, Brazil, 2009

E. Dorsi, S. Ione, L. Ramos, C. Bernardo, D. Antes, S. Josenei, M. Aziz, M. Corseuil, H. Corseuil, K. Santos, D. Juliana, C. Carvalho, J. Barcellos, A. Boing, A.F. Boing, A. Xavier (Brazil)

P6 E-mail use protect elderly against disability, results from EPIFLORIPA study, Florianopolis, Brazil, 2009

A. Xavier, I. Schneider, L. Ramos, C. Bernardo, D. Antes, J. Santos, M. Aziz, M. Corseuil, H. Corseuil, K. Santos, J. Destro, C. Carvalho, J. Barcellos, A. Boing, A.I. Boing, E. Dorsi (Brazil)

P7 Vegetative state and minimally conscious state: a systematic review of incidence and prevalence studies

D. Drigo, F.E. Pisa, E. Biasutti, F. Barbone (Italy)

- P8 Socioeconomic differences in the young and elderly breast cancer patients**
E. Bastiaannet, A.J.M. De Craen, P.J.K. Kuppen, M. Aarts, L.G.M. Van der Geest, C.J.H. Van de Velde, R.G.J. Westendorp, G.J. Liefers (The Netherlands)
- P9 Social differences in progression to disability among elderly**
E. Ferracin, C. Marinacci, F. Vannoni, L. Iannucci, R. Gnani, M. Demaria, G. Costa (Italy)
- P10 Influence of chronic morbidity on early retirement**
A. d'Errico, T. Li Ranzi, G. Costa (Italy)
- P11 Hip fracture incidence. A men's problem**
M.F. Pina, C. Oliveira, S. Alves (Portugal)
- P12 Hip and knee arthroplasties in Portugal and Brazil. Is quality of life a priority?**
M.F. Pina, D. Xavier, M. Magalhães, R. Gracie, F. Viacava, A.I. Barros, J. Martins, F. Carpinteiro, P. Costa (Portugal)

CANCER SCREENING

- P13 Women's knowledge and attitudes regarding breast cancer in Western Greece**
G. Mantsouranis, I. Lentzas, Z. Tsantoula, D. Lianas, C. Sambazioti, P. Koutsogiannou, G. Tsiros, E. Jelastopulu (Greece)
- P14 Prostate specific antigen testing and prostate cancer incidence in Northeastern Italy: a population-based study**
S. Birri, J. Polesel, A. Zucchetto, L. Dal Maso, R. Talamini, E. Bidoli, E. Clagnan, L. Zanier, D. Serraino (Italy)

COMMUNICABLE DISEASES

- P15 Results of three years tuberculosis screening in Portuguese healthcare workers. Serial testing with the interferon-gamma release assay**
A. Nienhaus, J. Torres Costa (Germany, Portugal)
- P16 Hepatitis C virus vertical transmission and mode of delivery: a meta-analysis**
V. Di Ciommo, M.C. Graziani, L. Ravà (Italy)
- P17 EpiSouth: a framework of collaboration for communicable diseases surveillance and training in the Mediterranean area**
M.G. Dente, M. Fabiani, F. Riccardo, V. Alfonsi, R. Gnesotto, G. Putoto, F. Simon Soria, P. Barboza, Kojouharova, R. Vorou, C. Montagna, C. Martin de Pando, F. Ait-Belghiti, K. Mellou, N. Vladimirova, Declich (Italy, Spain, France, Bulgaria, Greece)
- P18 Cervical cancer prevention: insight from dynamic modeling**
I. Baussano, G. Garnett, N. Segnan, P. Vineis, G. Ronco (UK, Italy)
- P19 Tuberculosis management based on directly observed treatment short course: efficacy of a pilot project implemented in a region of Western Greece**
G. Tsiros, N. Charokopos, A. Foka, I. Spiliopoulou, K. Chrysanthopoulos, E. Jelastopulu (Greece)
- P20 Living conditions of patients with tuberculosis and their household members**
G. Tsiros, N. Charokopos, P. Voila, A. Tsiros, I. Spiliopoulou, K. Chrysanthopoulos, E. Jelastopulu (Greece)
- P21 Implementation of directly observed treatment short course strategy in household contacts of patients with tuberculosis**
G. Tsiros, N. Charokopos, P. Voila, A. Tsiros, I. Lentzas, I. Spiliopoulou, K. Chrysanthopoulos, E. Jelastopulu (Greece)
- P22 Human immunodeficiency virus (HIV) infection in North-West Russia**
T. Yurchenko, A. Grijbovski (Russia)
- P23 The effects of educational intervention on health care workers' beliefs and attitudes about HIV/AIDS-related issues**
B. Kocic, B. Petrovic (Serbia)

DIET AND LIFESTYLES

- P24 Polymorphisms in GSTM1, GSTT1, coffee consumption and cutaneous melanoma risk**
C. Fortes, S. Mastroeni, L. Innocenzi, A. Gianluca, P. Pasquini, F. Venanzetti (Italy)
- P25 Hand pattern and early-onset prostate cancer risk**
A.A. Rahman, A. Lophatananon, S. Stewart Brown, D. Harriss, J. Anderson, T. Parker, D. Easton, Kote-Jarai, R. Pocock, D. Dearnaley, M. Guy, L. O'Brien, R.A. Wilkinson, A.L. Hall, E. Sawyer, Page, J.-F. Liu, R.A. Eeles, K. Muir (UK)
- P26 The prevalence of overweight in relation to lifestyle factors in Lithuanian adult population**
V. Kriaucioniene, J. Petkeviciene (Lithuania)
- P27 "Forchetta e Scarpetta" (fork and sneakers: programme to promote healthy lifestyles in children and adolescents**
D. Galeone, M.T. Menzano, M.T. Scotti, M.T. Silani, S. Teti, D. D'Addesa (Italy)
- P28 A physical activity and diet intervention trial to reduce mammographic breast density in postmenopausal women**
G. Masala, D. Ambrogetti, M. Assedi, I. Ermini, S. Caini, R. Bonardi, D. Occhini, C. Calónico, E. Gelain, C. Saieva, S. Salvini, D. Palli (Italy)

- P29 Depressive symptoms and alcohol use among adolescents**
I. Pinto, S. Fraga, E. Ramos (Portugal)
- P30 Media use by schoolchildren and associated factors**
X. Garcia-Continente, A. Pérez, M. Nebot (Spain)
- P31 Cancer survivorship and health-related behaviors: a cohort study in Porto, Portugal**
L. Figueiredo, L. Antunes, M.J. Bento, N. Lunet (Portugal)
- P32 How distances to urban green spaces can influence physical activity in teenagers of Porto community. The EPItteen (Epidemiological Health Investigation of Teenagers in Porto) cohort**
A. Magalhães, E. Ramos, M.F. Pina (Portugal)
- P33 Fish consumption in relation to early signs of atherosclerosis**
A.W. Turunen, A. Jula, L. Suominen-Taipale, S. Männistö, H. Kiviranta, J. Marniemi, T. Vartiainen, P.K. Verkasalo (Finland)
- P34 Nutrition Surveillance System in Bulgaria. Trends in dietary intake and nutritional status of Bulgarian population**
S. Petrova, P. Dimitrov (Bulgaria)
- P35 Underweight and overweight in children aged under five years in Bulgaria**
S. Petrova, V. Duleva, P. Dimitrov, L. Rangelova (Bulgaria)
- P36 The importance of communication in behavioural risk factors surveillance systems: the Italian experience PASSI 2006-2010**
V. Possenti, B. De Mei, S. Menna, E. Benelli, C. Cattaneo, S. Baldissera, N. Bertozzi, S. Camprostrini, G. Carrozzi, P. D'Argenio, A. D'Argenzio, P. Fateh-Moghadam, G. Ferrante, V. Minardi, A. Perra, S. Salmaso, M.O. Trinito, S. Vasselli (Italy)

HEALTH CARE

- P37 Identifying chronic obstructive pulmonary disease in the primary health care with PiKo-6 device**
E. Andreeva, N. Sividova, A. Grijbovski (Russia, Norway)
- P38 Inpatient management of patients with thyroid cancer in Germany: an analysis of the nationwide diagnosis related groups-statistic 2005-2006**
P. Trocchi, A. Kluttig, C. Sekulla, H. Dralle, A. Stang (Germany)
- P39 Costs of treatment of osteoarthritis by orthovoltage X-ray therapy in comparison with standard methods**
M. Makarova, M. Valkov, L. Titova, A. Grijbovski (Russia, Norway)
- P40 Uncompleted visits to the emergency department and subsequent return visits, hospitalization and mortality: a prospective study**
V. Rafnsson, O. Gunnarsdottir (Island)
- P41 Assessing health services: outcomes of intraoperative radiotherapy for breast cancer. A systematic review**
P. Cantero Muñoz, M. Pérez-Ríos, A. Ruano-Ravina (Spain)
- P42 Intraoperative radiotherapy for colorectal cancer. A systematic review**
P. Cantero Muñoz, M. Pérez-Ríos, A. Ruano-Ravina (Spain)
- P43 The burden of coronary heart disease hospital admissions in Portugal between 1997 and 2008**
A. Ribeiro, M.F. Pina (Portugal)
- P44 Appropriateness of positron emission tomography use in oncology: a regional audit**
C. Monagheddu, C. Galassi, A. Biggi, G. Bisi, E. Inglese, M. Mancini, V. Contu, F. Giunta, A. Marra, L. Ballini, A. Liberati, O. Bertetto, G. Ciccone (Italy)
- P45 Short-term complications after laparoscopic or open cholecystectomy. An observational study using large health information system databases**
M. Stafoggia, N. Agabiti, A.P. Barone, D. Fusco, M. Davoli, C.A. Perucci (Italy)
- P46 Effect of chronic therapy with statins in patients with acute myocardial infarction**
C. Sorge, U. Kirchmayer, A.P. Barone, N. Agabiti, D. Fusco, V. Belleudi, M. Davoli, C.A. Perucci (Italy)
- P47 Antibiotic prescription: a public health problem?**
J. Gomes Dias, C. Carvalho, M.F. Pina, D. Mendonça (Portugal)
- P48 The activity space as a determinant of the participation in preventive health-care activities**
J. Vallée, E. Cadot, F. Grillo, I. Parizot, P. Chauvin (France)
- P49 Inequalities in management of diabetes: from epidemiology to organizational models in Italy**
C. Mamo, M. Maggini, R. Gnani, E. Gelormino, S. Bellini, R. D'Elia, G. Costa (Italy)
- P50 Main causes of pediatric hearing loss in South Nicaragua**
S. Forti, G. Pasta, L. Del Bo (Italy)
- P51 New tools for health risk assessment of policies in a European framework**
N. Linzalone, F. Bianchi, E. Bustaffa, L. Cori (Italy)
- P52 Amyotrophic lateral sclerosis: results from Tuscany registry of rare diseases**
A. Pierini, F. Pieroni, F. Minichilli, M. Rial, F. Bianchi (Italy)

- P53 Hospital cancer incidence estimation in a small local health area, 2006-2008**
M. Rognoni, L. Cavalieri d'Oro, L. Marchiol, M. Repossi, E. Merlo, A. Di Maggio (Italy)
- P54 Preliminary results of the Italian SENTInel network Monitoring End-of-Life Care (SENTI-MELC) Study, year 2009**
F. Giusti, A. Bonacchi, S. Bertolissi, L. Van den Block, L. Deliens, G. Miccinesi (Italy, The Netherlands)
- P55 The role of age in the seasonality of coronary heart disease hospital admissions in Portugal**
A. Ribeiro, M.F. Pina (Portugal)
- P56 Case-crossover studies addressing triggering factors for heart failure hospitalization: systematic review and meta-analysis**
E. Fontes, O. Laszczynska, A. Azevedo, N. Lunet (Portugal)
- P57 Machine learning approaches in a case control study: Parkinson disease and Manganese**
G. Parrinello, S. Guazzetti, R. Lucchini, S. Calza (Italy)

MENTAL HEALTH

- P58 Time trends in suicide in Brazil between 1980 and 2005**
M. Peres, F. Brzozowski, G. Soares, J. Benedet, A. Boing (Brazil)
- P59 Chronic pain and quality of life in schizophrenic patients**
J.G. de Almeida, P.E. Braga, C. Andruccioli de Mattos Pimenta (Brazil)
- P60 Sentinel surveillance of severe mental disorders in Italy: the S.E.ME System**
I. Lega, I. Cascavilla, D. Del Re, A. Picardi, A. Gigantesco (Italy)
- P61 Different patterns of co-occurrence of tobacco and cannabis use with common mental disorders**
V. Ajdacic-Gross, M.P. Hengartner, K. Landolt, A. Gamma, J. Angst, W. Rössler (Switzerland)
- P62 Epidemiology of depression in Greece: frequency; risk factors; clinical profile and treatment**
E. Giourou, P. Kallianezos, G. Tsiros, G. Mantsouranis, E. Jelastopulu (Greece)
- P63 Schizophrenia in Greece: epidemiology, clinical evaluation and assessment of performance**
E. Jelastopulu, E. Giourou, E. Moratis, A. Mestousi, G. Tsiros, E. Alexopoulos (Greece)
- P64 The retrospective measurement of childhood maltreatment in the general adult population**
C. Schmidt, A. Schulz, H.J. Grabe (Germany)
- P65 Association between grip strength and cognitive function in older Europeans. Longitudinal results from the Survey of Health, Ageing and Retirement in Europe (SHARE)**
M. Busch, U. Grittner, B. Neuner, M. Rapp, M. Aichberger (Germany)

MORTALITY AND SURVIVAL

- P66 Trend mortality from cardiovascular diseases in Belgrade during the period 1991-2007**
I. Ratkov, S. Sipetic (Serbia)
- P67 Coronary heart disease mortality in Portugal. After a quarter of century, geographical disparities remain**
A. Ribeiro, M.F. Pina, C. Lopes (Portugal)
- P68 Two-years mortality after evidence based drug therapy of acute myocardial infarction: preliminary results from a population-based cohort study in Rome, Italy**
U. Kirchmayer, V. Belleudi, N. Agabiti, D. Fusco, M. Stafoggia, M. Arcà, M. Davoli (Italy)
- P69 Epidemiology of childhood cancer in the Arkhangelsk region of Russia in 2000-2009**
N. Glukhareva, M. Valkov, A. Grjibovski (Russia, Norway)
- P70 Trends in suicide mortality in the Arkhangelsk region, Northwest Russia**
Z. Varakina, A. Vyazmin, A. Sannikov, A. Grjibovski (Russia, Norway)
- P71 APC analysis of multiple sclerosis mortality: an international comparison**
V. Ajdacic-Gross, M. Schmid, A. Tschopp, M. Bopp, F. Gutzwiller (Switzerland)
- P72 Maternal mortality in Italy: a record-linkage study**
S. Senatore, S. Donati, A. Ronconi, Regional Maternal Mortality Working Group (Italy)
- P73 Mortality in the elderly, due to proximal femur fracture: one year follow-up study**
S.M. Campos, M.F. Pina, A. Trigo Cabral (Portugal)
- P74 Impact of waiting time before radiation treatment after breast cancer surgery: retrospective cohort analysis with fractional polynomials**
M. Di Nicola, P. Chiodini, S. Signoriello, G. Cortese, D. Genovesi (Italy)
- P75 Epidemiology of mild anemia in non-dialysis CKD: a prospective cohort study in outpatient renal clinics**
S. Signoriello, P. Chiodini, L. De Nicola, R. Minutolo, P. Zamboli, G. Conte, SIN TABLE CKD Study Group (Italy)

OBESITY AND METABOLIC SYNDROME

- P76 Obesity risk and related factors in housewives versus employed women in Iran**
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E. Chellini, L. Giordano, E. Anghinoni, A. Iossa, C. Bellati, E. Grechi, G. Gorini, A. Coppo, F. Di Stefano, M.R. Giovacchini, F. Talassi, A.M. Badiali, V. Cacciarini (Italy)

- P201 Smoking in car: monitoring pollution of particulate matter as mass and as particle number, of organic volatile compounds and of carbon monoxide. Evaluating the most suitable environmental tobacco smoke marker, and the effect of opening the driver's window**

G. Invernizzi, A.A. Ruprecht, R. Mazza, C. De Marco, L. Tagliapietra, F. Michieletto, F. Allegri, L. Sbrogiò, R. Boffi (Italy)

VIOLENCE

- P202 Social inequality and the risk of violence**

M. Pacchin (Italy)

- P203 Epidemiology of child injuries in the Arkhangelsk region, Russia**

Z. Varakina, A. Vyazmin, A. Sannikov, A. Grjibovski (Russia, Norway)

- P204 Violence against persons aged 60 - 84 in the European region**

J. Lindert, J.L. Castillo, F. Torrez-Gonzalez, G. Lamura, E. Ioannidi, M. Stankunas, H. Barros, J. Soares (Germany, Spain, Italy, Greece, Lithuania, Portugal, Sweden)

- P205 A method to classify determinants of domestic violence against women**

F. Giannandrea, S. Iezzi (Italy)

- P206 Amount of exposure, risk-driving patterns and frequency of road crashes among students of the University of Granada**

E. Jiménez-Mejías, S. Rodríguez-Guzmán, M. Nogueras-Ocaña, J. de Dios Luna-del-Castillo, P. Lardelli-Claret, J.J. Jiménez-Moleón (Spain)

Opening ceremony

PALAZZO VECCHIO - SALONE DE' CINQUECENTO

Welcome and greetings from AIE and IEA

Europe today is a community of change and diversity. On one hand it has an ageing population and on the other there is the ingress of young immigrants from both neighbouring and far-flung states. There is a tendency within communities, especially amongst the young, to adopt similar lifestyles, but also a differential awareness across social classes of the impact of lifestyles on health, seen for example, in acceptance of advice of health agencies and public health officials.

Air pollution has not decreased substantially in Europe's urban areas and neither has pollution of water and soil, due to industry and waste processing activities. In addition new risks, some associated with climate change, have been identified, especially for older people and fragile populations.

There is a strong sense of necessity and urgency to find strategies to improve the health of individuals and communities, to guarantee deprived people the same level of assistance and healthcare, to offer beneficial primary and secondary prevention programs, and to find acceptable and equitable solutions for all communities in a Europe, that is under economic stress.

Epidemiologists can contribute to this effort by measuring the impact of changes and diversifications on the health of individuals and populations, both by analyzing the risks associated with harmful exposures and by evaluating the outcomes of different treatment regimens or health care strategies, evaluating the 'natural experiment' whereby countries within Europe may be adopting differing strategies to address common public health problems.

The Italian Epidemiological Association and the European Epidemiology Federation of the International Epidemiological Association have chosen to meet in Florence this year, continuing the tradition of the European Federation of Epidemiology, to give European researchers the opportunity of sharing experiences, knowledge, methods, ideas and proposals for epidemiological research in a changing and diversifying Europe.

On behalf of the Italian Epidemiological Association, the European Epidemiology Federation, and the International Epidemiological Association, we, Adele Seniori Costantini, Robert West, and Neil Pearce would like to welcome all delegates to this conference in Florence. We trust that you will find both science and discussions with colleagues interesting, stimulating and enjoyable and hope that you will enjoy your stay in Florence

Adele Seniori Costantini

Italian Epidemiological Association (AIE)

Robert West

*International Epidemiological Association (IEA), European Councillor, Chairman,
IEA European Epidemiology Federation*

Neil Pearce

International Epidemiological Association (IEA), President

THE POPULATION OF EUROPE: AN UNCERTAIN FUTURE

Massimo Livi Bacci
University of Florence, Italy

The future of the Europe's population, in the next few decades, is much less certain than many assume. There are, of course, some trends that are not controversial: the aging process will continue; fertility will presumably remain below replacement levels; the continent will continue to receive immigrants.

If the aging process is, by and large, a mechanical consequence of past trends in fertility and mortality, and therefore can be projected with little incertitude, the course of fertility remains uncharted. Even a modest recovery – while remaining below replacement – could have considerable effects on rates of growth and the age structure. Although immigration will continue, its intensity will depend on policy choices that are very controversial everywhere.

As far as survival and life expectancy are concerned, there is a general consensus that improvement will continue. But this favourable trend will depend on the sustainability of health systems, under strain because of budgetary problems.

**EDUCATION, SOCIAL CLASS AND POVERTY**

Fabrizio Bernardi
European University Institute, San Domenico di Fiesole, Italy

The aim of this paper is to highlight key issues in current research on social inequality and poverty. It thus focuses on educational expansion and inequality of educational opportunities, changes in the post-industrial occupational structures and new patterns of poverty. In doing it also shortly discusses possible trade-offs and policy options faced by contemporary western societies, in each of these areas.

FROM IEA-FLORENCE 1999 TO IEA-FLORENCE 2010: A DECADE OF EPIDEMIOLOGY IN SOCIETY

Rodolfo Saracci
CNR Pisa, Italy

In 1999 the XV World Congress of Epidemiology of the IEA took place in Florence. For the first time more than a thousand participants attended. A novel feature was the ample room given in the plenary sessions to other disciplines at the border of epidemiology: demography, economics, community genetics, molecular biology, occupational health, environmental research, health services research. The subsequent decade has abundantly shown how factors investigated by these disciplines are rapidly, deeply and extensively affecting the population health, directly impacting on the role of epidemiology.

Within this scenario has epidemiology, and is it likely to become, more or less relevant to health? I'll explore this question through three examples, each embodying contradictory aspects. First, the renewed attention to the issue of false positive results in epidemiological studies and to its practical consequences. Second, what horizons for public health are actually opened – rather than being just hoped for – by the results hitherto available from the impetuous development of genetic epidemiology. Third, the simultaneous but crossing trends towards greater equity in health and the incessant development of macroeconomic and financial factors promoting greater inequalities.

These examples highlight that epidemiology may potentially become even more relevant to health but that, contrary to a naïve view (to some extent justified in the socially progressive thirty years after World War II), actual benefits to the whole population can only accrue if epidemiologists do not limit themselves to produce impeccable results through research, leaving to others to decide what, and when, to do with them.

PLENARY SESSION Inequalities in health

Chairmen:

Carme Borrell (Barcelona, Spain), Giuseppe Costa (Torino, Italy)

COMPARING THE STATE OF HEALTH INEQUALITIES AROUND EUROPE

Johan Mackenbach
University Medical Center, Rotterdam, NL

Although socioeconomic inequalities in health are present in all countries with available data, comparative studies show that there are great variations in the magnitude of health inequalities within Europe. For example, socioeconomic inequalities in mortality appear to be relatively small in Southern Europe, and very large in Central and Eastern Europe.

In my presentation I will present the results of an on-going work which attempts to explain these variations in terms of specific diseases and specific determinants of mortality: cancer, cardiovascular disease, health-related behaviour, material conditions, health care utilization etc. I will use these results to answer the following question: why do health inequalities persist in modern welfare states?



THE MARMOT REVIEW: THE WHO CONCLUSIONS ON SOCIAL HEALTH DETERMINANTS

Jessica Allen
Global Health Equity Group, University College, London, UK

Professor Sir Michael Marmot has published widely on the social determinants of health, and their impact upon health inequalities still widespread within and between countries.

He chaired the Commission for Social Determinants of Health (CSDH), published the Strategic Review of Health Inequalities (the Marmot Review) in February 2010 and is in the early stages of writing a WHO-commissioned Review of Social Determinants and the Health Divide in the WHO region of Europe, which spans 53 countries. Dr Allen was Project Director on the Marmot Review and will talk about the findings. She is presently Co-Director

of the European Review, and will outline health inequalities across Europe and how the Review will address them.



NEW PERSPECTIVES FOR THE CONTRIBUTION OF EPIDEMIOLOGIC INVESTIGATION: LIFE COURSE AND LONGITUDINAL STUDIES

Marcel Goldberg
INSERM, Villejuif, France

Life course epidemiology is the reference approach for studying social determinants of health. The presentation will review the main methods of studying the life course, including birth cohorts and longitudinal studies, and linked-register data sets. We will describe the major models of life course epidemiology: critical periods, accumulation, and pathways. Accumulation is the underlying social process driving life course trajectories, while the critical period and pathway models mainly concern specific types of aetiological process. The life course approach is not opposed to cross-sectional and current effects, since major social disruption can have a large and immediate impact on health.

Some methodological issues for the future of life course epidemiology will be discussed. As birth cohorts with a long follow-up are scarce, many life course data are collected retrospectively: we need to know which items of information are recalled with what degree of accuracy over how many decades; and what methods of collecting these retrospective data maximise accuracy and duration. Second, we need to rely on well-phenotyped data, and not only on self-reported health conditions, and to define and measure properly the social position of individuals. Finally, taking advantage of the overwhelming diversity of European societies, European comparative studies can play an important part in the future development of life course epidemiology.

PARALLEL SESSION

Inequalities

Chairmen:

Harry J de Koning (Rotterdam, Netherlands), Roberto Zanetti (Turin, Italy)

Giuliana De Luca et al. [001]

Socioeconomic and geographic differences in waiting times for cardiovascular elective surgery in Piedmont (Italy)

Maria Fátima Pina, Henrique Barros [002]

Reduction in number of hospital admissions of patients with HIV/Aids. Socioeconomic inequalities in Portugal, from 2000 to 2008

Silvia Cascini et al. [003]

Socio-economic status and health care expenditures after acute myocardial infarction

Anna Kozlovskaya et al. [004]

Social variations in birth weight over the 30-years period in Northwest Russia: closing the gap by marital status, widening the gap by occupation

Floor Bevaart et al. [005]

Ethnic differences in parental problem perception and perceived need for 5-6- year old children with a high score on the SDQ

Silvia Stringhini et al. [006]

Health behaviours, socioeconomic position and mortality: contrasting evidence from the British Whitehall II and the French GAZEL cohorts

- 001 -

SOCIOECONOMIC AND GEOGRAPHIC DIFFERENCES IN WAITING TIMES FOR CARDIOVASCULAR ELECTIVE SURGERY IN PIEDMONT (ITALY)

De Luca G,¹ Petrelli A,² Landriscina T,² Costa G³

¹University of Calabria, Department of Economics and Statistics, Cosenza, Italy; ²Piemonte Region, Epidemiology Unit, Grugliasco, Torino, Italy; ³University of Turin, Department of Clinical and Biological Sciences, Turin, Italy

Introduction. Waiting lists for elective surgery are considered a fair mechanism of rationing, aimed at guaranteeing access to health care independently to socioeconomic status and area of residence. Recent international studies shows inequity in cardiovascular interventions.

Objectives. Evaluating socioeconomic and geographic differences in waiting times for cardiovascular elective surgery in Piedmont Region (Italy).

Methods. The study has been realized using regional Hospital Discharge Database (2006-2008). Specific interventions were considered: coronary artery by-pass, angioplasty, coronarography and endoarterectomy. Socioeconomic position was measured by educational level. Cox models were fitted on time between hospitalisation and surgical intervention. Models were adjusted by gender, age, comorbidity, supply (Local Health Authority provider) and year of entry. Interactions among covariates and time were tested in order to take into account non proportional hazards.

Results. For all selected surgical interventions, significant so-

cioeconomic differences were observed after adjusting for gender, age, comorbidity and year of entry. Lower hazard ratios, therefore higher waiting times, were observed for low educated. As for coronary artery bypass, differences decreased after controlling for supply and disappeared after controlling for interaction with time. Socioeconomic differences were confirmed for angioplasty, coronarography and endoarterectomy in the saturated models ($p < 0.01$). All the surgical interventions showed significant geographical differences in waiting times, after adjusting for all the study covariates.

Conclusions. Policies aimed at tackling inequity need to be implemented, acting through revision of enrollment mechanisms in waiting lists in order to reduce inequity in access.



- 002 -

REDUCTION IN NUMBER OF HOSPITAL ADMISSIONS OF PATIENTS WITH HIV/AIDS. SOCIOECONOMIC INEQUALITIES IN PORTUGAL, FROM 2000 TO 2008

Pina ME,¹ Barros H²

¹Faculdade de Medicina, Instituto de Engenharia Biomédica, Instituto de Saúde Pública, U. Porto, Portugal; ²Faculdade de Medicina, Instituto de Saúde Pública, Universidade do Porto, Portugal

Objective. To analyse the trend in the hospital admissions, of patients with HIV/AIDS, in Portugal from 2000 to 2008.

Methods. From the National Hospital Discharge Register, admissions of patients from the Diagnoses Related Group 24 (DRG24) – HIV/AIDS were selected. Principal Components and cluster analysis were used to define socioeconomic conditions of patient's residential area. Age-standardized hospitalization rates (ASHR) were calculated per year and sex, for each cluster.

Results. In the study period, 42,084 admissions occurred (75.9% men) with 12.2% reduction in 2008 compared to 2000. Under 40 years age old there was a decrease of hospital admissions (46.6% in men and 33.5% in women), but an increase of 43.9% (men) and 43.6% (women) above this age was registered. At admission, the mean age of patients increased from 36 to 42 years and from 34 to 40 years old, men and women. Fatality had a reduction from 16.1% to 12.4%, and the mean age of death increased 6 years (men) and 9 years (women). Six socioeconomic clusters were defined. Among men, the reduction of the ASHR (CI95%) per 100,000 inhabitants was observed only in the higher cluster, from 133.4 (128.9-138.0) to 89.9 (86.4-93.5). Among women a slight reduction was observed in the higher cluster, from 37.8 (35.4-40.1) to 36.4 (34.1-38.6) and an accentuated increase in all the others. The Incidence Rate Ratios (IRR) was not different among clusters, except in the higher cluster, with IRR of 6.3 and 5.7 in 2000 and 3.6 and 4.2 in 2008, men and women respectively (lower cluster as reference). Sex ratio (men:women) decreased in five clusters.

Conclusions. From 2000 to 2008 there was a reduction in the HIV/Aids hospitalizations, the fatality decreased, and the patients were older at time of admission and death. There were sex, age and socioeconomic disparities. Decreased in hospitalizations occurred mainly among younger men, from areas with better socioeconomic conditions. Sex ratio decreased nationwide.



- 003 -

SOCIO-ECONOMIC STATUS AND HEALTH CARE EXPENDITURES AFTER ACUTE MYOCARDIAL INFARCTION

Cascini S, Narduzzi S, Belleudi V, Arcà M
Department of Epidemiology, Regional Health Service, Rome, Italy

Introduction. Many epidemiological studies have drawn attention to the association between socio-economic status (SES) and both the occurrence of coronary heart diseases (CHD) and the access to effective treatments for them. Little evidence is available on whether and how SES influences resource consumption in CHD patients.

Objective. To compare health care costs within five years after an event of Acute Myocardial Infarction (AMI) among patients belonging to different SES groups.

Methods. We enrolled 1,999 patients, aged between 18 and 80, living in Rome, discharged alive after an AMI in 2001, and assigned each of them to a SES level corresponding to the census tract of residence (1: high level, 5: low level). Patients were followed-up 5 years with respect to mortality, hospital, outpatient and drug consumption claims and relevant health care costs were attributed. We tested the association between SES and health care cost by fitting a generalized linear model with gamma distribution and logarithmic link. Age, gender, number of previous hospitalizations, co-

morbidities and revascularization during the index episode of care were considered as potential confounders. Confidence limits were calculated using the bootstrap method.

Results. The 5-year average cost per capita increases with decreasing SES (SES1: 19,232€, SES5:22,653€), especially for hospital costs, while others remain constant. The results are confirmed by multivariate analysis (SES5-SES1=3,575€, C.L 95% 1,085€; 6,002€).

Conclusion. In the five years after an episode of AMI, patients with low socio-economic status costs more than better-off patients. This can be due to worse compliance to evidence based therapy and/or to inappropriate use of hospital care. It would be fair to run appropriate health policies to reduce inequalities, achieve better outcomes, and realise significant savings.



- 004 -

SOCIAL VARIATIONS IN BIRTH WEIGHT OVER THE 30-YEARS PERIOD IN NORTHWEST RUSSIA: CLOSING THE GAP BY MARITAL STATUS, WIDENING THE GAP BY OCCUPATION

Kozlovskaya A,¹ Odland J,² Grjibovski A^{1,2,3}

¹International School of Public Health, Northern State Medical University, Arkhangelsk, Russia; ²Institute of Community Medicine, University of Tromsø, Norway; ³Norwegian Institute of Public Health, Oslo, Norway

Introduction. Previous studies from Russia have described large social variations in pregnancy outcomes. However, the information on whether these disparities decreased or increased over time is limited. **Objectives.** To study social variations in preterm birth and birth weight by maternal occupation and marital status from 1973 through 2002 in Monchegorsk, Northwest Russia.

Methods. Data on 24,602 live singleton births with birth weight above 1,000 grams were abstracted from the Kola Birth Registry, which includes virtually all births in Monchegorsk during the study period. Multiple linear regression was used to quantify the influences of maternal occupation and marital status on birth weight with adjustment for maternal age, parity, gestational age, smoking, alcohol consumption and paternal occupation. By dividing the whole period of observation on several shorter periods corresponding to the period of the recent Russian history, we studied whether social disparities in pregnancy outcomes changed over time.

Results. Infants born to unmarried mothers were on average 101g (95%CI: 84-118) lighter and were more likely to be born preterm (OR=1.73, 95%CI: 1.37-2.19) than infants of married women. Women from all other occupations had lighter babies than professionals. The variations in birth weight between the most and the least privileged group by occupation increased from 42g (95%CI: 57-140) in the 1970s to 168g (95%CI: 102-235) in the 2000s. The difference in birth weight between married and single women decreased from 137g (95%CI: 97-178) to 57g (95%CI: 10-104).

Conclusions. The gap in birth weight of infants born to married vs. unmarried mothers has considerably decreased over the 30-years period. At the same time, variations in birth weight increased by maternal occupation. Potential mechanisms behind the findings and limitations of the study will be discussed.

- 005 -

ETHNIC DIFFERENCES IN PARENTAL PROBLEM PERCEPTION AND PERCEIVED NEED FOR 5-6- YEAR OLD CHILDREN WITH A HIGH SCORE ON THE SDQ

Bevaart F, Van Oort F, Verhulst F
Erasmus MC, Rotterdam, The Netherlands

Introduction. Psychosocial problems in young children are frequent and can, if left untreated, severely interfere with everyday functioning and are predictive of mental health problems later. Research has shown that immigrant children have more of these problems than native children, but the sensitivity for their parents to detect such problems seems to be lower. Also, a higher treatment threshold is found for immigrant children. Parental problem perception and perceived need for care are important determinants that can contribute to differences in the use of mental health care. Probably cultural factors influence problem perception and need and form an explanation for lower use of mental health services.

Objective. We aimed to study if ethnic differences in parental problem perception and perceived need for care in different problem areas in young children can be found.

Methods. Cross-sectional study with data for 8,025 out of 11,256 children (5-6 years) eligible for the '08-'09 Rotterdam Youth Monitor. Parents filled out the Strengths and Difficulties Questionnaire (SDQ). A high score was defined as above the 90th percentile. For this group we examined problem perception and need for professional care.

Results. Dutch parents perceive more problems than Antillean, Moroccan and Turkish parents. Ethnic differences in problem perception are found for hyperactivity and emotional problems, but not for conduct problems. On the other hand, perceived need is significantly higher for Moroccan and Turkish parents compared to their Dutch counterparts.

Conclusion. Our results show that within a group with high levels of psychosocial problems, immigrant parents perceive the behaviour of their child as less problematic than Dutch parents, however, the perceived need for care is higher in labour migrants than in Dutch parents. This finding emphasizes the importance for professionals of taking into account parent's cultural background when discussing problems and treatment of their child.



- 006 -

HEALTH BEHAVIOURS, SOCIOECONOMIC POSITION AND MORTALITY: CONTRASTING EVIDENCE FROM THE BRITISH WHITEHALL II AND THE FRENCH GAZEL COHORTS

Stringhini S,¹ Dugravot A,¹ Shypley M,² Goldberg M,¹ Zins M,¹ Kivimäki M,² Marmot M,² Sabia S,¹ Singh-Manoux A¹
¹INSERM U1018, Paris, France; ²UCL, London, UK

Introduction. Reasons for inconsistent evidence on the importance of health behaviours to socioeconomic differences in health are poorly understood.

Objectives. To compare with similar methodology the socioeconomic gradient in smoking, heavy drinking, following an unhealthy diet and being physically inactive and their role in explaining socioeconomic differentials in mortality in two European occupational cohorts.

Results. Analyses were based on 9,771 men and women from the British Whitehall II study and 17,760 from the French GAZEL study. Over a mean follow-up of 19.5 years in Whitehall II and 16.5 years in GAZEL, 693 and 908 participants died in the two cohorts respectively. Socioeconomic differences in mortality were similar in the two cohorts, but health behaviours were more strongly related to socioeconomic position in Whitehall II than in GAZEL, at the beginning and at the end of the follow-up. At baseline the socioeconomic gradient in smoking was almost 3 times greater in Whitehall II than in GAZEL (Odds Ratio (OR)=3.68, 95%CI: 3.11, 4.36 in Whitehall II and 1.33, 95%CI: 1.18, 1.49 in GAZEL for lowest vs highest socioeconomic position) and for unhealthy diet it was almost 6 times greater (OR=7.42, 95%CI: 5.19, 10.60 in Whitehall II and OR=1.31, 95%CI: 1.15, 1.49 in GAZEL for lowest vs highest socioeconomic position). Health behaviours attenuated the socioeconomic gradient in mortality by 75% in Whitehall II but only by 19% in GAZEL.

Conclusion. Health behaviours may play a different role in the explanation of social inequalities in mortality in different cultural settings.

November 7th

PARALLEL SESSION

Cancer epidemiology

Chairmen:

Tapio Loustarinen (Helsinki, Finland), Luigi Bisanti (Milan, Italy)

Valéria Troncoso Baltar et al. on behalf of the EPIC consortium

One carbon metabolism and cancer: investigations in EPIC

Maria Gabriela Haye Biazzevic et al. [007]

Cumulative coffee consumption and reduced risk of oral and oropharyngeal cancer

Carlotta Sacerdote et al. [008]

Polymorphisms in DNA repair genes, chemotherapy and survival in bladder cancer

Milena Maria Maule et al. [009]

Risk of second malignant neoplasms after rare childhood solid tumors: up to 50 years of follow-up in 11 countries

Paola Pisani et al. [010]

Time trends of childhood cancer in Italy, 1976-2007: data-driven hypotheses or hypothesis-driven modelling?

Lucia Miligi et al. [011]

SETIL Study (Italian epidemiological study on the aetiology of childhood leukemia, lymphoma and neuroblastoma): risk of childhood cancers in relation to parental occupational exposure

- invited speaker -

ONE CARBON METABOLISM AND CANCER: INVESTIGATIONS IN EPIC

Valeria Troncoso Baltar,¹ Mattias Johansson,² Paul Brennan,² Shu-Chun Chuang,¹ Zdenko Herceg,² Paolo Vineis,¹ on behalf of the EPIC consortium

¹Imperial College, London, UK; ²International Agency for Research on Cancer, Lyon, France

Introduction. One-carbon metabolism (OCM) is involved in maintaining DNA integrity and regulation of gene expression, which may in turn affect cancer risk. Components of OCM, in particular vitamin B6 and methionine, have recently been implicated in lung cancer risk in a case-control study nested within the European Prospective Investigation into Cancer and Nutrition (EPIC). It is not clear if these factors influence lung cancer risk independently or through a common mechanism.

Methods. We applied structural equations modelling (SEM) to further decipher the mechanisms involved. SEM can be applied to address complex pathways as it allows simultaneous estimation of the structural relations of multiple equations, and the same variable can be dependent in one equation whilst independent in another. Serum biomarkers were analysed from 891 lung cancer cases and 1,747 controls, nested within the EPIC cohort. We investigated the effect on lung cancer risk of three putative mechanisms in the OCM: methylation, DNA synthesis and trans-sulfuration, as well as an anti-inflammatory pathway.

Results & Conclusions. Both methionine and folate levels were

strongly associated with risk, with an 18% and 15% decrease in risk per standard deviation increase in nutrient level, respectively. The conclusions we draw based on SEM are that: (a) folate influences lung cancer risk by modulating both DNA synthesis; (b) methionine modulates lung cancer risk through its influence on methylation; (c) none of the OCM intermediates studied influenced lung cancer risk via the trans-sulfuration pathway; (d) none of the anti-inflammatory markers influenced lung cancer risk. These conclusions warrant further investigation with repeat samples. A second investigation has been conducted on pancreatic cancer with contradictory findings. In addition, we present findings of a study on epigenetics (gene methylation) and lung cancer in the same cohort.

- ♦ -

- 007 -

CUMULATIVE COFFEE CONSUMPTION AND REDUCED RISK OF ORAL AND OROPHARYNGEAL CANCER

Haye Biazzevic MG,¹ Toporcov TN,¹ Drovandi Braga Rotundo L,¹ Sarmiento Brasileiro R,² Brasilino de Carvalho M,² de Góis Filho JF,³ Kowalski LP,⁴ Ferreira Antunes JL⁵

¹School of Dentistry, University of Sao Paulo; ²Hospital Heliópolis; ³Instituto do Câncer Arnaldo Vieira de Carvalho; ⁴Hospital do Câncer A.C. Camargo; ⁵Escola de Artes, Ciências e Humanidades, Universidade de São Paulo, Brazil

Introduction. Controversial findings have been reported on the potential participation of coffee consumption in oral carcinogenesis. Some studies assessing coffee consumption and oral and pha-

ryngeal cancer supported the hypothesis of a protective effect whereas others have not found significant associations.

Objetives. To assess the association between cumulative coffee consumption during lifetime in a country that is one of the largest producers of coffee worldwide, and in which consumption has been historically high.

Methods. We conducted a hospital-based case-control study comprising 143 patients with oral and oropharyngeal squamous cell carcinoma attended at three major hospitals of São Paulo, Brazil, and 240 controls without cancer, recruited from outpatient units of the same hospitals, and matched with cases by sex and age. Associations were assessed by multivariate logistic regression conditioned on socio-demographic and behavioral characteristics.

Results. Tobacco smoking, alcohol drinking and higher intake of bacon and deep fried foods were directly related to disease; the inverse was observed to family income and salad intake. Coffee consumption and tobacco smoking were partially correlated (Spearman correlation coefficient 0.14 among cases, 0.31 among controls). When adjusted for all covariates, a cumulative coffee consumption higher than 18.0 daily liters × year during lifetime was indicated to be protective against disease (adjusted odds ratio 0.39, 95% confidence interval: 0.16-0.94, $p=0.037$).

Conclusions. This observation may have pharmacological implications for clinical medication of these cancers and is relevant to programs aimed at reducing the burden of disease.



- 008 -

POLYMORPHISMS IN DNA REPAIR GENES, CHEMOTHERAPY AND SURVIVAL IN BLADDER CANCER

Sacerdote C,¹ Ricceri E,² Guarrera S,³ Polidoro S,³ Gontero P,⁴ Destefanis P,⁵ Cucchiareale G,⁶ Matullo G,² Vineis P⁷

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Introduction. Bladder cancer (BC) survival is highly influenced by environmental and predisposing genetic factors. In the last decades growing evidence of the major role played by DNA repair systems in the survival after a BC has been provided.

Objetives. The objectives of the study are to assess the relationship between DNA Repair Genes polymorphisms and survival by treatment in bladder cancer patients.

Methods. We conducted a hospital-based case-control investigation at S. Giovanni Battista hospital in Turin, where about half of the incident BC in the Turin metropolitan area are treated. Cases are histologically confirmed incident BC patients, male, aged 40 to 75 years and resident in the Turin metropolitan area. Each patient filled in a questionnaire on history of tobacco smoking, occupational history, 24-hours medication use recall and food habits, and provided a blood sample. We selected 36 Single Nucleotide Polymorphisms (SNPs) in 10 DNA Repair Genes. We analyzed survival on BC patients using a Cox proportional-hazards regres-

sion model for codominant and per-allele scenario, adjusted for age, stage and grading and stratified by therapy (chemotherapy vs no or other therapies).

Results. We identified 456 BC patients which were followed-up for mortality (median follow-up 62 months). In multivariate analysis both stage and grade predicted the outcome in a statistically significant way, after adjustment for age. Our preliminary analyses showed that the variant alleles in two SNPs in ERCC1 gene (rs11615 and rs967591) and in one SNP in APEX (rs1130409) and XPA (rs1800975) confer a significant higher risk of death only in the group not treated with chemotherapy (analyses adjusted by age, stage and grading)).

Conclusions. Our findings suggest a link between DNA repair genes variation and survival in BC patients that become evident in patients not treated with chemotherapy.



- 009 -

RISK OF SECOND MALIGNANT NEOPLASMS AFTER RARE CHILDHOOD SOLID TUMORS: UP TO 50 YEARS OF FOLLOW-UP IN 11 COUNTRIES

Maule MM,¹ Scélo G,² Pastore G,¹ Brennan P,² Hemminki K,³ Olsen JH,⁴ Tracey E,⁵ Pukkala E,⁶ Weiderpass Vainio E,⁷ Brewster DH,⁸ Tamaro S,⁹ Chia K-S,¹⁰ Pompe-Kirn V,¹¹ Kliever EV,¹² Tonita JN,¹³ Martos C,¹⁴ Jonasson JG,¹⁵ Merletti F,¹ Boffetta P²

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Introduction. The survival of children with rare solid cancers has increased but they experience several adverse late effects, including the development of a second malignant neoplasm (SMN).

Objetives. To assess the risk of significant SMNs after a non-central nervous system solid cancer in childhood.

Methods. Individual data on cases of childhood solid cancers in children (0-14 years) and on subsequent SMNs were obtained from 13 population-based registries contributing data for different time periods between 1943 and 2000. Standardised incidence ratios (SIRs) with 95% confidence intervals (CI) and cumulative incidence of SMNs were computed.

Results. We observed 175 SMNs among 10,988 children who survived their first cancer at least one day, yielding a SIR of 4.6 (95% CI: 3.9-5.3). When considering SMNs with at least 10 occurrences, highest relative risks were found for second malignant bone tumors (SIR: 26.4; 95%CI: 16.6-40.0), soft tissue sarcomas (SIR: 14.1; 95%CI: 6.7-25.8), and myeloid leukemia (SIR: 12.7; 95%CI: 6.3-22.8). Increased risks for all malignancies combined were observed

after neuroblastomas (SIR: 11.4; 95%CI: 5.2-21.6), retinoblastomas (SIR: 7.3; 95%CI: 5.4-9.8), renal tumors (SIR: 5.7, 95%CI: 3.8-8.0), malignant bone tumors (SIR: 5.6; 95%CI: 3.7-8.2), soft tissue sarcomas (SIR: 4.7; 95%CI: 3.2-6.8), germ-cell neoplasms (SIR: 2.5; 95%CI: 1.1-4.9), carcinomas (SIR: 2.2; 95%CI: 1.4-3.3). The highest risk of a SMN of any type occurred 5 to 9 years after the first neoplasm (SIR: 9.9; 95%CI: 6.8-13.9). The cumulative incidence of SMNs reached 11.9% (95% CI: 7.5-16.2) 50 years after childhood cancer. It was 2 to 8 times higher among survivors than in the general population throughout the observation period, with the absolute difference increasing up to 50 years of follow-up.

Conclusions. Children who survived a rare malignant solid tumor experience a large increased risk of developing a new malignancy, even many years after their initial diagnosis.

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- 010 -

TIME TRENDS OF CHILDHOOD CANCER IN ITALY, 1976-2007: DATA-DRIVEN HYPOTHESES OR HYPOTHESIS-DRIVEN MODELLING?

Pisani P,¹ Mosso ML,¹ Maule M,¹ Cena T,² Alessi D,¹ Rasulo A,¹ Macerata V,¹ Nonnato M,¹ Magnani C,² Merletti F,¹ Pastore G¹

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Introduction. The risk of cancer in children has been increasing in many populations. The increase concerned both overall and some specific histological types. In Italy incidence increased by 2.3% and 1.8% per year in boys and girls respectively, in the period 1988-2002 (AIRTUM Working Group. Tumori infantili: Incidenza, sopravvivenza, andamenti temporali. *Epidemiol Prev* 2008; 32 suppl 1:1-172).

Objetives. The aim of the study was to update incidence trends with the latest registration period recently completed (up to 2007) and to reason on analytic strategies that can best inform causal hypothesis.

Materials & Methods. The Childhood Cancer Registry of Piedmont (CCRP) is a specialized population-based registry that has been recording childhood malignancies (0 to 14 years) since 1967 following the European rules (www.enrc.com.fr) and the International Classification of Childhood Cancer derived from ICD-O 3rd Edition (www-dep.iarc.fr/accis.htm). Time trends of age-standardized rates (ASR) by classic Poisson regression and joinpoint analysis. Time-series analysis to test the hypothesis of cyclical "outbreaks".

Results. In 1976-2007 there were 3,244 new cases for an annual average population of 625,000 children. Poisson and joinpoint analyses were compatible with continuing increases for all cancer sites (APC=1.3%; 95%CI: 0.9%-1.7%) and the most common subgroups: Acute Lymphoblastic Leukaemia (APC=0.9%; 0.2-1.6), Hodgkin's Disease (APC=2.6%; 0.6%-4.7%), central nervous system (APC=1.9%; 1.2%-2.6%). Significant peaks were observed for less common sites; for example, the ASR rate of liver cancer was 0.7 (95%CI: 0.6-0.8) in 2000-2005 and suddenly raised to 11.1 (95%CI: 3.9-31.9) in 2006-2007.

Conclusions. The results suggest that the long-term increasing trend that lasted 30 years has slowed down and, at least for some histological types, incidence rates might be levelling off. However, classical methods to analyse time trends of rare diseases may not be sufficiently sensitive to underlying systematic components of the phenomenon. Hypothesis-driven analytical approaches may provide clues to plan in-depth studies. We will illustrate examples of how time-series analysis can provide support (or disprove) causal hypotheses on the occurrence of the disease.

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- 011 -

SETIL STUDY (ITALIAN EPIDEMIOLOGICAL STUDY ON THE AETIOLOGY OF CHILDHOOD LEUKEMIA, LYMPHOMA AND NEUROBLASTOMA): RISK OF CHILDHOOD CANCERS IN RELATION TO PARENTAL OCCUPATIONAL EXPOSURE

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Introduction. In the context of the SETIL Study the risk of selected types of childhood cancers in relation to parental occupational exposure was investigated.

Methods. All newly diagnosed cases of leukemia, non Hodgkin Lymphoma (NHL) and neuroblastoma which occurred in children aged 0 to 10 years during the period 1998-2001 were identified. The controls were matched to the leukemia cases for age, sex and province of residence. Study subjects' parents were interviewed by trained interviewers using a structured questionnaire. In the case of occupational history, detailed information was collected on all jobs held using also job specific questionnaires. The collected data were then reviewed in a blind fashion by expert industrial hygienists to estimate the exposure to a list of agents. Analyses were performed using unconditional multivariable logistic regression models, taking into account relevant potential confounders (sex, age, area).

Results. A total of 685 leukemias, 98 NHL, 115 neuroblastomas and 1,047 controls were interviewed. Increased risk of leukemia was found among children whose mothers were exposed to aromatic (OR 1.8; 95%CI: 1.0-3.4) or aliphatic solvents (OR 2.4; 95%CI: 1.2-4.9). Concerning paternal exposure, increased risk of leukemia was observed for mineral oils (OR 1.4 95% CI: 1.1-1.9), diesel exhaust fumes (OR 1.4; 95%CI 1.1-1.8), gasoline exhaust fumes (OR 1.5; 95%CI: 1.0-2.2) and lead exposure (OR 1.7;

95%CI: 1.1-1.5). Increased risk of neuroblastoma was observed among children whose mothers were exposed to aromatic solvents (OR 3.2; 95%CI: 1.1-10.0) and fathers exposed to fungicides (OR 3.6; 95%CI: 1.1-11.5) and herbicides (OR 5.3; 95%CI: 1.4-20.1). Risk of NHL appeared to be related to paternal exposure to oxy-

genated solvents (OR 2.2; 95%CI: 1.1-4.5) and gasoline exhaust fumes (OR 2.5; 95%CI: 1.3-5.2).

Conclusions. Our results suggest that some parental occupational exposures may be a risk factor for the development of selected types of childhood cancer.

PARALLEL SESSION

Chronic diseases

Chairmen:

Franco Merletti (Turin, Italy), Hans-Werner Hense (Muenster, Germany)

Antonella Zucchetto et al. [012]

The impact of diabetes mellitus and cardiovascular diseases on mortality of people with AIDS in Italy

Jacqueline Müller-Nordhorn et al. [013]

Effect of an adherence programme on cardiovascular events in high-risk patients with hypercholesterolemia

Oleg Sidorenkov et al. [014]

Metabolic syndrome and mortality in Russian adults: a 9-years follow-up study

Andreia Oliveira et al. [015]

Indices of central and peripheral body fat: association with non-fatal acute myocardial infarction

Joana Bastos, Nuno Lunet [016]

Diabetes and cancer risk in a Portuguese urban cohort

Luigi Palmieri et al. [017]

Cardiovascular risk assessment: an important measure for cardiovascular diseases prevention in primary care

- 012 -

THE IMPACT OF DIABETES MELLITUS AND CARDIOVASCULAR DISEASES ON MORTALITY OF PEOPLE WITH AIDS IN ITALY

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Introduction. After the introduction of highly active antiretroviral therapies (HAART), an increased incidence of insulin resistance, diabetes mellitus (DM), and cardiovascular diseases has been described in people with HIV/AIDS. However, the impact of such conditions on mortality is still unclear.

Objective. To estimate the risk of death for DM, myocardial infarction (MI), and chronic ischemic heart diseases (CIHD) of Italian people with AIDS (PWA), in comparison with the general population.

Methods. Between 1999 and 2005, 9,662 PWA were diagnosed in Italy. Death certificates were retrieved through a record-linkage with mortality database at the National Institute of Statistics and those reporting DM, MI, or CIHD were reviewed to identify the underlying cause of death. Person-years at risk were computed from date of AIDS diagnosis up to date of death or to December 31, 2006. Standardized mortality ratios (SMRs) were computed, by comparing the observed number of deaths for each condition with the expected ones, from the sex- and age-matched general population.

Results. Out of 3,101 deceased PWA, 43 (1.4%) died for DM or cardiovascular diseases. The SMRs were 6.4 for DM (95%CI: 3.5-10.8), 2.3 for MI (95%CI: 1.4-3.7), and 3.0 for CIHD (95%CI: 1.5-5.2). The excess mortality for DM was especially high in PWA younger than 45 years (SMR=13.8) and among injecting drug users (IDUs, SMR=18.2), and it was restricted to men. SMRs for MI and CIHD were particularly high in women (SMR=9.9 and SMR=14.9, respectively), and the SMR for CIHD was notably high in IDUs (SMR=9.7).

Conclusions. DM and cardiovascular diseases caused a statistically significant excess number of deaths in PWA in comparison with the Italian general population. Understanding the causes of such increased risks will help reducing mortality from non-AIDS defining illnesses. In this perspective, also anti-smoking campaigns may be crucial in making antiretroviral treatments more effective.



- 013 -

EFFECT OF AN ADHERENCE PROGRAMME ON CARDIOVASCULAR EVENTS IN HIGH-RISK PATIENTS WITH HYPERCHOLESTEROLEMIA

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Objective. Adherence to statin therapy is insufficient in patients with hypercholesterolemia. The objective of the study was to assess the effect of an adherence programme on cardiovascular events.

Methods. In the ORBITAL (Open-label primary care study: Rosuvastatin-Based compliance Initiatives linked To Achievement of LDL goals) Study, patients were included with an indication for statin therapy according to the Joint European Guidelines. Patients were enrolled consecutively in 1961 primary care practices. The adherence programme included health education material and telephone calls in regular intervals. Cardiovascular events were defined as myocardial infarction, stroke, or revascularisation during the 3-year follow-up. Health-related quality of life was assessed with the visual analogue scale (VAS).

Results. A total of 7640 patients were included, with 6.4% having at least one cardiovascular event during follow-up. There was no significant difference in events between intervention and control group (relative risk [RR] 1.1, 95% confidence interval [CI] 0.9-1.3). After adjustment for age, sex and baseline cardiovascular risk, risk of event was significantly and inversely associated with VAS scores (RR per unit increase 0.99; 95%CI: 0.98-0.99) and smoking status (never vs. yes) (RR 0.73; 95%CI: 0.53-0.98).

Conclusions. The adherence programme did not have an effect on cardiovascular events in patients with hypercholesterolemia. Health-related quality of life was a major predictor for recurrent clinical events event after adjustment for baseline risk. The importance of smoking prevention needs to be emphasized (ClinicalTrials.gov Identifier: NCT00379249).

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- 014 -

METABOLIC SYNDROME AND MORTALITY IN RUSSIAN ADULTS: A 9-YEARS FOLLOW-UP STUDY

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Introduction. The metabolic syndrome (MetS) is a cluster of risk factors associated with mortality from cardiovascular diseases (CVD). Russia has one of the highest CVD mortality in the world, but its association with MetS remains unknown.

Objective. To estimate the prevalence of MetS and associated CVD and all-cause mortality in northwest Russia.

Methods. Data on 3,555 adults aged 18-90 years were collected in a cross-sectional study in 2000. MetS was defined by the International Diabetes Federation (IDF) and the National Cholesterol Education Program (NCEP) criteria. Vital status of all participants was identified by July 2009. Sex-specific relative risks (RR) for deaths from stroke, Coronary Heart Disease (CHD), CVD and all-causes by the MetS status in 2000 were studied by Poisson regression with adjustment for age, smoking, alcohol intake and history of CVDs.

Results. The age-standardized prevalence of MetS among women

was 19.8% (95%CI: 18.1-21.5), and 23.1% (95%CI: 21.3-24.9) by the NCEP and IDF criteria, respectively. The corresponding proportions for men were 11.5% (95%CI: 10.1-12.9), and 11.0% (95%CI: 9.7-12.4). MetS was positively associated with all studied endpoints except CHD-death in crude analysis. In completely adjusted models the RRs for the NCEP-defined MetS associations with mortality of males and females, respectively, were for CHD: 0.69 (95%CI: 0.28-1.65) and 0.60 (95%CI: 0.12-2.91), for stroke: 3.76 (95%CI: 1.35-10.46) and 1.18 (95%CI: 0.48-2.90), for CVD-death: 1.23 (95%CI: 0.76-2.0) and 1.54 (95%CI: 0.91-2.61), for all-cause death: 1.01 (95%CI: 0.69-1.49) and 1.38 (95%CI: 0.94-2.04). The IDF definition was weaker associated with the studied end-points.

Conclusions. The MetS does not seem to play a major role in CVD and all-cause mortality in northwest Russia. Its effect varies by CVD subcategories. The negative MetS association with CHD calls for examining closer application of the label "CHD" in the Russian routine statistics.

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- 015 -

INDICES OF CENTRAL AND PERIPHERAL BODY FAT: ASSOCIATION WITH NON-FATAL ACUTE MYOCARDIAL INFARCTION

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Introduction. Most studies have focused on the effect of general and central fat on coronary risk, neglecting the potential role of peripheral fat. We aim to assess the effect of measures for general, central and peripheral body fat on the occurrence of non-fatal acute myocardial infarction (AMI).

Methods. Population-based case-control study; cases were patients ≥ 40 years consecutively hospitalized with an incident AMI (n=653), and controls were community participants without previous AMI, selected randomly from the hospitals' catchment area population (n=1,713). Body mass index (BMI), waist circumference (WC), hip circumference, and a skinfolds composite index to estimate the proportion of peripheral subcutaneous fat in the arms were ascertained. Associations were summarized with odds ratios (OR) and 95% confidence intervals (95%CI), obtained from unconditional logistic regression with adjustment for confounders.

Results. WC, and in particular waist-to-hip ratio (WHR), had strong direct associations with AMI risk. Peripheral subcutaneous fat was inversely associated with AMI in women, but directly in men. Using principal component analysis, three uncorrelated factors were identified representing different patterns of fat distribution: 1) generalized fat, with high BMI and WC; 2) central fat, with high WC and WHR; 3) peripheral subcutaneous fat. The first factor showed no significant association with AMI, but the second factor increased AMI risk in each sex (upper vs. lower fourth: OR 12.2; 95%CI: 5.34-27.9 in women; OR 25.0; 95%CI: 14.0-44.7 in men). In contrast, the third factor was inversely associated with AMI in women (upper vs. lower fourth: OR 0.59; 95%CI: 0.36-

0.96) and directly associated in men (OR 2.45; 95%CI: 1.69-3.55; p-value for sex interaction<0.001).

Conclusions. Central fat was associated with increased risk of AMI in women and men, while the peripheral subcutaneous fat index predicted a lower risk of AMI in women and a higher risk in men.

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- 016 -

DIABETES AND CANCER RISK IN A PORTUGUESE URBAN COHORT

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Introduction. High glycaemia may contribute to cancer development and progression, namely among subjects also exposed to other risk factors.

Objective. To quantify the association between diabetes and cancer, according to the exposure to the main risk factors for oncological diseases, in a Portuguese urban cohort.

Methods. A cohort (n=2,485) representative of the non-institutionalised adult inhabitants of Porto was assembled in 1999-2003. Participants were considered diabetic if they had a 12h-fasting blood glucose level >1.25g/l or self-reported diabetes or were being treated with insulin or oral antidiabetic drugs at baseline. Incident cancer (except skin non-melanoma) cases (n=210) were identified through linkage with the regional population based cancer registry after an 8.5-year median follow-up. Age-, gender- and education-adjusted incidence rate ratios (RR), corresponding 95% confidence intervals (95%CI) and P values for interaction were computed using Poisson regression.

Results. The RR for the association between diabetes and cancer was 1.47 (95%CI: 0.87-2.49). No significant differences were observed between the strata-specific estimates by age (<65 years: RR=2.04; 95%CI: 0.97-4.34; ≥65 years: RR=1.30; 95%CI: 0.62-2.71; P=0.363), BMI (kg/m²) (<25: RR=2.85; 95%CI: 0.97-8.42; ≥25: RR=1.25; 95%CI: 0.68-2.91, P=0.201), smoking (smokers: RR=1.76, 95%CI: 0.87-3.58; non-smokers: RR=1.46; 95%CI: 0.65-3.28, P=0.460), alcohol consumption (drinkers: RR=2.30; 95%CI: 0.49-10.66; non-drinkers: RR=1.60; 95%CI: 0.91-2.81, P=0.771) or fruit/vegetables intake (1st third: RR=1.88; 95%CI: 0.82-4.31; 3rd third: RR=1.30; 95%CI: 0.38-4.44, P=0.851).

Conclusions. Despite the limited power of our study, the results suggest that the positive association between diabetes and cancer is stronger among subjects that are not overweight/obese and in those with the lowest exposures to the remaining main cancer risk factors.

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- 017 -

CARDIOVASCULAR RISK ASSESSMENT: AN IMPORTANT MEASURE FOR CARDIOVASCULAR DISEASES PREVENTION IN PRIMARY CARE

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Introduction. The Italian national prevention plan 2005-09 includes 10-year cardiovascular risk (CR) assessment of the Italian general population ages 35-69 years using the CUORE Project risk score (age, sex, systolic blood pressure, total and HDL cholesterol, smoking, diabetes, and hypertension treatment). General practitioners (GPs) were encouraged to collect data on risk factors, to assess CR, and to contribute to the CUORE Cardiovascular Risk Observatory (CRO).

Objectives. The aim of this analysis of data collected by GPs is to evaluate feasibility and effectiveness of CR assessment in primary care.

Methods. A national training program for GPs was launched by the Ministry of Health in 2003. The cuore.exe software, free downloadable for GPs from the CUORE website (www.cuore.iss.it), is the framework for data collection. The CRO provides a platform to analyze data collected on CR assessment and risk factors, and to compare results at the regional and national levels in order to aid health policy makers in their decision process.

Results. By May 2010, 2,858 GPs have downloaded the cuore.exe software; 139,269 CR assessments based on risk factor profile of 117,336 persons were sent to the CRO. Mean level of CR score was 3.0% for women and 8.5% for men; 29% of men and 65% of women were at lower risk (CR <3%), whereas 9.4% of men and 0.4% of women were at very high risk (CR ≥20%). Among 5,948 persons with two risk assessments, 10% shifted to a lower level of risk at one year: mean level of systolic blood pressure decreased by about 2 mmHg, diastolic blood pressure decreased by about 1 mmHg, total cholesterol by 6 mg/dl, HDL-cholesterol increased in women by 0.4 mg/dl; prevalence of smoking decreased by about 4%.

Conclusions. CR assessment can serve importantly for prevention in primary care. The individual risk score is becoming a useful tool for GPs to assess their patients' CR and promote primary prevention by focusing attention on adoption of healthy lifestyles.

PARALLEL SESSION

Occupational health I

Chairmen:

Kurt Straif (Lyon, France), Pier Alberto Bertazzi (Milan, Italy)

Kurt Straif et al.

The IARC Monographs Vol. 100. A review and update on occupational carcinogens

David Coggon

Cultural and psychosocial determinants of musculoskeletal illness and disability: implications for prevention

Manolis Kogevinas

Is there an epidemic of occupational asthma in Europe?

Beata Peplonska et al. [018]

Night shift work, melatonin, estradiol and mammographic density in nurses. Preliminary results

- invited speaker -

THE IARC MONOGRAPHS VOL. 100. A REVIEW AND UPDATE ON OCCUPATIONAL CARCINOGENS

Kurt Straif, Baan R, Grosse Y, Secretan B, El Ghissassi F, Bouvard V, Benbrahim-Tallaa L, Guha N, Freeman C, Galichet L, Coglian V
International Agency for Research on Cancer, Lyon, France

Introduction. In the Vol. 100 series of the IARC Monographs the evidence on all Group 1 carcinogens has been updated.

Methods. Two meetings focused on occupational carcinogens. Evaluations of the evidence in humans and in experimental animals and an overall evaluation of the human carcinogenicity have been developed and tumour sites with sufficient and limited evidence of carcinogenicity and plausible mechanisms have been identified.

Results. Arsenic, beryllium, cadmium, chromium(VI), and nickel compounds cause lung cancer; the latter also cause cancers of the nasal cavity and paranasal sinuses. In addition to lung cancer and mesothelioma, asbestos has now been associated with cancers of the larynx and ovaries. Leather dust has been linked with cancers of the nasal cavity and paranasal sinuses. Several aromatic amines have been associated with cancer of the urinary bladder, and PAH-related exposures with lung or skin cancer, as well as cancer of the urinary bladder in aluminium production. There is now sufficient epidemiological evidence for TCDD and all cancers combined, making TCDD the first agent classified initially in Group 1 based on sufficient animal data and mechanisms, to be later confirmed by increased cancer incidence in humans. 2,3,4,7,8-pentachlorodibenzofuran and 3,3',4,4', 5-pentachlorobiphenyl are complete carcinogens in experimental animals. Together with extensive evidence that they act through the same AhR-mediated mechanism as TCDD, these were classified in Group 1. The classification of formaldehyde in Group 1, based on sufficient evidence in humans of nasopharyngeal cancer, was re-affirmed; there is now also sufficient evidence for leukaemia.

Conclusions. All group 1 occupational carcinogens have been re-affirmed, several new Group 1 carcinogens and additional tumour sites for Group 1 carcinogens have been identified. Two additional Working Groups will build on the data that have been summarized in Volume 100: Tumour-site concordance between humans and experimental animals; mechanisms involved in human carcinogenesis.



- invited speaker -

CULTURAL AND PSYCHOSOCIAL DETERMINANTS OF MUSCULOSKELETAL ILLNESS AND DISABILITY: IMPLICATIONS FOR PREVENTION

David Coggon
MRC Epidemiology Resource Centre, University of Southampton, UK

Musculoskeletal disorders such as low back and arm pain are a major cause of incapacity for work in western countries. They are commonly attributed to physical loading, especially in the workplace, and efforts to prevent their occurrence and minimise their impact have focused largely on ergonomic improvements in working methods. However, when assessed in trials, the benefits of such interventions have been limited.

Moreover, there is strong evidence that the disorders depend also on psychosocial factors, including poor mental health and tendency to somatise.

In addition, it has been hypothesised that their chronicity and the severity of associated disability are importantly influenced by culturally determined health beliefs and expectations. The accumulating epidemiological evidence in support of this theory will be reviewed, and the practical implications for prevention of symptoms and disability will be discussed.



- invited speaker -**IS THERE AN EPIDEMIC OF OCCUPATIONAL ASTHMA IN EUROPE?**

Manolis Kogevinas

Centre for Research in Environmental Epidemiology (CREAL), Barcelona, Spain

Occupational asthma is the most frequent occupational respiratory disease in industrial countries and is defined as asthma caused by an agent specific to the workplace. More than 250 agents in the workplace may produce asthma. Occupational asthma is distinguished into "allergic" that occurs after a latency period and that is caused by high and some low-molecular weight agents, and into "non-allergic" caused predominantly by irritants and that occurs without latency. Occupational asthma surveillance systems exist in several countries and occupations at high risk include farmers, plastic workers, painters, cleaners, nurses, bakers, hairdressers, lab technicians.

Population-based studies in Europe such as the ECRHS, estimate that around 20% of all new-onset adult asthma is occupational. Recent research has focused on the joint evaluation of occupational exposures and genetic factors. Following classical definitions of what is an epidemic, the response to the title question is no, there is no "epidemic" of occupational asthma. However, occupational asthma is a disease for which we know extensively the causes, which continues being the most prevalent occupational respiratory disease in industrialised countries and for which thousands of new cases occur each year.

Under this wider and longer-term perspective, the response to the questions is yes, there is an epidemic; an epidemic for which we know how to prevent the cases, but we do not prevent them.

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- 018 -**NIGHT SHIFT WORK, MELATONIN, ESTRADIOL AND MAMMOGRAPHIC DENSITY IN NURSES. PRELIMINARY RESULTS**Peplonska B,¹ Reszka E,² Gromadzinska J,² Bukowska A,¹ Sobala W,¹ Siegstad-Lie J-A,³ Ursin G⁴¹Department of Occupational and Environmental Epidemiology, Nofer Institute of Occupational Medicine, Lodz, Poland; ²Department of Toxicology andCarcinogenesis, Nofer Institute of Occupational Medicine, Lodz, Poland; ³National Institute of Occupational Health, Oslo, Norway; ⁴Department of Nutrition, University of Oslo, Norway

Introduction. Epidemiological studies have found that long-term night-working women have higher risk of breast cancer than women who do not work at night, with circadian rhythm disruption and suppression of melatonin synthesis as suggested underlying mechanisms. It was also suggested that hormonal alterations in response to night shift work include increase in estradiol levels, and such association has been found in The Nurses Health Study in the US. Estrogen levels may be associated with mammographic density, a strong breast cancer risk factor, although the data so far are inconsistent.

Objectives. To examine associations between night shift work, urinary 6-sulfatoxymelatonin (MT6), plasma estradiol (E2) and percent mammographic density (MD).

Methods. The cross-sectional study included 360 nurses currently working on rotating night-shifts and 365 nurses who work only during the day. Information on breast cancer risk factors and occupational history was collected during in-person interviews. Morning and evening MT6 (ELISA), and E2 levels (ECLIA) were determined. MD was evaluated using the Madena software on digital mammography images (craniocaudal view, left breast). The association between night shift work, MT6, E2, and MD were analyzed using linear regression models. The results were adjusted for age, BMI, season of the year, menstrual cycle phase (in premenopausal women), and current oral contraceptive or hormone therapy use.

Results. Preliminary analyses showed some significant results in postmenopausal nurses including associations between: 1) night shift duration and E2 (increase of E2 by 2% per 1000 hrs of night shift work $p=0.002$), 2) E2 and MT6 (30 pg/ml E2 in lower and 20.6 pg/ml in the upper tertile of MT6, $p=0.03$), and 3) MD and E2 (12.3% vs 15.5% in bottom versus upper quartile of E2; $p=0.03$).

Conclusions. The significant findings in postmenopausal women suggest that long term rotating night shift work in nurses is associated with increased E2 levels.

PARALLEL SESSION

Methods I

Chairmen:

Jordi Sunyer (Barcelona, Spain), Annibale Biggeri (Florence, Italy)

Graham Dunn

Statistical methodologies for efficacy and mechanisms evaluation (EME), with applications to treatment-effect mediation in randomised trials of complex interventions (psychotherapies) for mental health

Yoav Benjamini

Simultaneous and selective inference in epidemiology

Willi Sauerbrei, Patrick Royston [019]

Modelling interactions with continuous variables

Antonio Gasparini et al. [020]

Investigating delayed effects and harvesting in temperature-mortality association in the USA and Spain

- invited speaker -

STATISTICAL METHODOLOGIES FOR EFFICACY AND MECHANISMS EVALUATION (EME), WITH APPLICATIONS TO TREATMENT-EFFECT MEDIATION IN RANDOMISED TRIALS OF COMPLEX INTERVENTIONS (PSYCHOTHERAPIES) FOR MENTAL HEALTH

Graham Dunn

School of Community Based Medicine, University of Manchester, UK

Introduction. We are concerned with the evaluation of the role of intermediate outcomes or process variables (the strength of the therapeutic alliance, changes in beliefs, changes in adherence to psychotropic medication, changes in substance abuse, and so) as explanations of treatment efficacy in randomised trials of cognitive behaviour therapy for psychosis. Although random allocation to treatment conditions eliminates confounding in the estimation of intention-to-treat effects both on the putative mediator and on the final clinical outcome, it does not solve the problem of likely (hidden) confounding in the estimation of the direct and indirect (mediated) effects of treatment on outcome. We are faced with the inferential challenges of an observational study embedded within a trial.

Methods & Results. We illustrate possible solutions to the problem of hidden confounding using instrumental variable models and principal stratification. Based on the analysis of both real and simulated trial data, we compare the findings with those based on assumptions of no confounding (no omitted variables).

Conclusions. The feasibility of the methodology is very dependent on finding good instrumental variables and the assumptions that have to be made for treatment-effect identifiability. The key is trial design. We discuss the challenges for the design of explanatory trials that are implemented to evaluate mediational mechanisms with instrumental variable modelling and principal stratification as part of their data analysis protocol.

- invited speaker -

SIMULTANEOUS AND SELECTIVE INFERENCE IN EPIDEMIOLOGY

Yoav Benjamini

Tel Aviv University, Tel Aviv, Israel

I shall demonstrate that an important characteristic of research in epidemiology is the multiplicity of issues dealt with in a study, resulting in a search for a few discoveries to emerge against the noisy background of the many investigated.

I shall discuss the distinction between concern about simultaneity and concern about selection, and argue that the latter is usually the relevant one in Epidemiology. Using the False Discovery Rate and the False Coverage-statement Rate, I shall present methodology to address this concept.

- ♦ -

- 019 -

MODELLING INTERACTIONS WITH CONTINUOUS VARIABLES

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²MRC Clinical Trials Unit, London, UK

Introduction. In regression models continuous variables are often either categorized or linearity is assumed. However, both approaches can have major disadvantages and modelling non-linear functions may improve the fit. To investigate for interactions between two variables a test of the effect of the product term is popular.

Objectives. To illustrate that miss-modelling of main effects of continuous variables can introduce spurious interactions and to introduce a procedure allowing to investigate for interactions between non-linear functions.

Methods. The multivariable fractional polynomial (MFP) ap-

proach determines simultaneously a suitable functional form and deletes uninfluential variables (Royston & Sauerbrei, 2008; Sauerbrei et al, 2007). Extensions of MFP have been developed to investigate for interactions of continuous covariates with treatment (or more generally with a categorical variable, MFPI) and for two continuous covariates (MFPIgen). Both strategies allow to adjust for other covariates when investigating for interactions (Royston & Sauerbrei, 2004; Royston & Sauerbrei, 2008).

Results. Analyzing two large studies with the Cox-model and respectively the logistic model it will be shown that interactions can be easily overlooked and that mismodelling of non-linear main effects may introduce spurious interactions.

Conclusions. In a multivariable context it is important to model continuous variables sensibly. MFP and its extensions for interactions are useful approaches for this important task.



- 020 -

INVESTIGATING DELAYED EFFECTS AND HARVESTING IN TEMPERATURE-MORTALITY ASSOCIATION IN THE USA AND SPAIN

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Introduction. Several studies have reported that extreme temperatures are associated with a marked increase in mortality, but only few of them investigated the lag pattern in the effects, suggesting

a delay of few days for heat and weeks for cold. In addition, the presence of harvesting has rarely been explored.

Objectives. To analyse delayed effects and harvesting in temperature-mortality association in multi-city datasets from two large countries.

Methods. We performed a 2-stage hierarchical time series analysis on two datasets including data from 108 cities in the USA (1987-2000) and 52 cities in Spain (1990-2004). The city-level model included a spline for time with 10df/year to account for seasonal and long time trends. Non-linear and delayed effects of mean daily temperature were modelled with a distributed lag non-linear parameterization up to 30 lags, using splines with 6df and 5df for the spaces of temperature and lags, respectively. Heat and cold effects are summarised here as the increase in risk for 99th vs. 90th and 1st vs. 10th percentiles of the city-specific temperature distribution. Overall and lag-specific effects were pooled through a random effects meta-analysis based on restricted maximum likelihood.

Results. The two datasets showed differences in both overall and lag-specific effects. Average risks for both heat and cold are higher for Spain (increase of 22.2% [95%CI: 15.0-29.8%] and 16.9% [95%CI: 12.1-21.8%], respectively) than for USA (5.6% [95%CI: 3.2-8.1%] and 4.5% [95%CI: 1.2-7.9%]). In addition, lag patterns are different: the effect of heat lasted up to 9 days in Spain, while was concentrated in the first 3-4 lags in the USA. Duration of cold effects was 25-30 and 10 days, respectively. No evidence of harvesting was found in either datasets for heat or cold.

Conclusion. The results suggested clear differences in the effects of temperature in the two countries, with divergent lag patterns. Several hypotheses may explain these results.

PLENARY SESSION **Environment and health**

Chairmen:

Francesco Forastiere (Rome, Italy), Neal Pearce (Wellington, New Zealand)

EFFECTS ON HEALTH OF CLIMATE CHANGE

Roberto Bertollini
WHO, Geneva, Switzerland

The abstract of this speech is available at the AIE website:
www.epidemiologia.it



ENVIRONMENTAL FACTORS AND CHILDREN NEURODEVELOPMENT: THE EXPERIENCE OF BIRTH COHORTS

Jordi Sunyer
CREAL, Barcelona, Spain

Maturation of the cortex (i.e., wiring: synaptic changes and axonal myelination) during the first years of life is very intensive, and the frontal cortex is the last to mature. This period of life is considered an important window for brain development, since the brain's plasticity decreases with age, and a long period of vulnerability in the developmental process where susceptibility to environmental insults is elevated. Birth cohorts have shown a deleterious role of lead, mercury and organochlorines on neurodevelopment, as well as on clinical phenotypes such as Attention-deficit hyperactivity disorder (ADHD) which is the most common childhood neurobehavioral psychiatric disorder with a prevalence of 8-12% worldwide.

The influence of air pollution on the brain is unknown, with only some preliminary evidence. Ultrafine particles have been found in the olfactory bulb and the cerebrum and cerebellum after inhalation. Animals exposed to high levels of air pollution showed an

increase of proinflammatory cytokines in brain tissue. In children, birth cohorts provided preliminary evidences of an impaired effect in psychometric tests.

Overall, these studies open a new horizon for research on the hazards of environmental pollution. Neurodevelopment and behavioral disorders during childhood being a sensitive marker of the environmental impact on health, not only in the developmental phase but also in relation to diseases later in life.



URBAN POLLUTION AND CARDIOVASCULAR DISEASES

Annette Peters
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Elevated exposures to ambient particulate matter have been associated with cardiovascular disease exacerbation within hours or days. Living in urban areas with high pollution levels is in addition suspected to promote the development of cardiovascular disease. Overall, the evidence available to date is consistent with a causal relationship between fine particulate matter exposure and cardiovascular disease morbidity and mortality (Brook et al. 2010).

While particulate matter in urban area is a complex mixture of particles with different physical and chemical properties, traffic-related particles seem to be of primary concern for cardiovascular diseases. The evidence for this observation will be reviewed and epidemiological studies assessing urban pollution mixtures with different study designs will be discussed to illustrate the evidence.

PARALLEL SESSION Environment and health I

Chairmen:

Staffan Skerfving (Lund, Sweden), Jordi Sunyer (Barcelona, Spain)

Staffan Skerfving

Public health impact of long-term, low-level mixed element exposure in susceptible population strata - the EU project PHIME

Fabrizio Minichilli et al. [021]

Spatial analysis of mortality in an area contaminated by chromium, arsenic, mercury and boron

Luca Cavalieri D'Oro et al. [022]

Prevalence of diabetes mellitus in the Seveso cohort 30 years after the accident

Cristina Bosetti et al. [023]

Colorectal cancer and disinfection by-products in Italy and Spain

Silvia Candela et al. [024]

Reproductive effects of exposure to incinerator emissions - Monitor project (monitoring the incinerators in the territory of Emilia-Romagna Region)

- invited speaker -

PUBLIC HEALTH IMPACT OF LONG-TERM, LOW-LEVEL MIXED ELEMENT EXPOSURE IN SUSCEPTIBLE POPULATION STRATA - THE EU PROJECT PHIME

Staffan Skerfving

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PHIME is an Integrated Project within EU's FP6 (Food quality and safety). It runs 2006-2011 with 35 Partners in 22 countries. The overall aim is to improve the health risk-assessment of environmental exposure to toxic and essential metals, addressing the complexity of exposures, interactions, risk groups (including women, children, the elderly and individuals with genetic susceptibility), nutrition, and mechanisms of action.

Exposure to methylmercury (MeHg) via fish, in the pregnant woman damages the fetal brain. There is an interaction with the positive effect of intake of long chain n-3 polyunsaturated fatty acids (PUFAs). A similar MeHg/PUFA interaction is present for the risk of myocardial infarction.

Exposure to arsenic (As) via drinking water is a major problem in many countries, again a risk for the fetal brain. Detoxification of As is dependent upon genetic traits (gene-environment interaction). The gene frequencies differ between populations, most likely thereby also the risk.

Exposure to cadmium (Cd) is a major public health problem in many countries. Even low exposure means a risk of slight kidney effects, but Cd also has a role in end-stage renal disease. Further, Cd decreases bone mineral density with risk of osteoporotic fractures in elderly women, who are the most susceptible fraction in the population, due to the uptake in women, caused by low iron

stores, and the slow excretion of Cd from the body. The exposure to Cd and lead (Pb) does not differ much between European populations. But while blood-Pb decreases fast after the ban of petrol-Pb, Cd exposure is stable over time. For mercury, the exposure varies geographically because of differences in fish intake and dental practices.

Work within PHIME has increased the understanding of mechanisms for uptake of metals in plants and thus into the human food chains. This will enable preventive measures to be taken in order to reduce the metal burdens and their health consequences.

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- 021 -

SPATIAL ANALYSIS OF MORTALITY IN AN AREA CONTAMINATED BY CHROMIUM, ARSENIC, MERCURY AND BORON

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Introduction. In the Cecina River valley, Tuscany-Italy, contaminations of soil, surface and groundwater by chromium, boron, arsenic and mercury, mainly of natural origin, are well documented. Numerous concentration values detected in surface waters samples, particularly of chromium-VI and arsenic, exceeded the WHO limit for drinking water.

Objectives. To study the spatial distribution of the mortality of the population residing in the polluted area.

Methods. Mortality data were retrieved from the Mortality Reg-

istry of Tuscany Region over 2000-2006. Cancer and non-cancer mortality causes have been analysed by gender in 15 municipalities of the study area plus 66 municipalities included in a 50 km radius circle around the study area, used to calculate the expected deaths. The diseases mapping of the Standardized Bayesian Mortality Ratios (BMRs) and the cluster analysis using the Kulldorff Spatial Scan Statistics considered all the municipalities.

Results. In the whole area, BMRs of total causes and all cancers were homogeneous between municipalities, for both genders. Statistically significant spatial patterns for stomach cancer and non-Hodgkin lymphoma in men emerged inside the study area; mortality for cerebrovascular diseases in men shows a large cluster of municipalities of the study area. Mortality for chronic obstructive pulmonary diseases (COPD) among women shows a cluster in the low valley area. For ischemic heart diseases mortality, some municipalities located in the low valley area are included in significant clusters, for both genders.

Conclusions. Bayesian and clustering analyses identified clusters of municipalities included in the study area, particularly for mortality causes recognised or postulated to be associated with documented environmental exposures. The results are useful to plan advanced environmental health studies, to improve communication activities with the local communities and to address remediation interventions.



- 022 -

PREVALENCE OF DIABETES MELLITUS IN THE SEVESO COHORT 30 YEARS AFTER THE ACCIDENT

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Introduction. The 1976 Seveso, Italy accident caused the contamination of an area by 2,3,7,8-tetrachlorodibenzodioxin (TCDD). Three zones with decreasing soil TCDD levels were delimited: A (highest), B (high) and R (low). The cohort of residents in the contaminated zones and in a surrounding non-contaminated referent area are followed-up for mortality and cancer incidence. A relationship between TCDD and diabetes mellitus (DM) has been postulated based on animal and some epidemiology studies, including ours (a DM mortality increase among women in zone B as of 2001). Recently the Lombardy Region implemented an integrated system (Banca Dati Assisiti, BDA) to identify subjects with selected chronic diseases using several sources (hospital admissions, ambulatory care records, drug consumption), that offers opportunities for epidemiologic research.

Objectives. To estimate the prevalence of DM in the Seveso cohort using BDA.

Methods. Using unique personal identifiers we performed a record-linkage between the Seveso cohort and the local BDA database (years 2006-2008; 1 million people covered) to identify prevalent cases of DM. We restricted the analysis to residents in the area in 1976. With logistic regression we calculated prevalence odds ra-

tios (OR) and 95% confidence intervals (95% CI) for each polluted zone, controlling for gender and age at the accident.

Results. The linkage was 91% successful. We found increased risks of DM in zone B among both genders. Women: OR: 1.40 (95%CI: 1.16-1.70, 119 cases); men: OR 1.28 (95%CI: 1.07-1.53, 137 cases). There were few cases in zone A (men: 15, women: 14) with no increased risks.

Conclusions. These preliminary results add some evidence in favour to the association between TCDD exposure and risk of diabetes. In interpreting the findings one should take into account some limitations (only survivors were studied, no increased risks in the most polluted zone, lack of data on potential confounders).



- 023 -

COLORECTAL CANCER AND DISINFECTION BY-PRODUCTS IN ITALY AND SPAIN

Bosetti C,¹ Villanueva CM,² Righi E,³ Moreno V,⁴ Aggazzotti G,³ Castaño-Vinyals G,² Carrasco G,² Tavani A,¹ Bustamante M,² Talamini R,⁵ Pisa F,⁶ Rantakokko P,⁷ Kogevinas M,² Nieuwenhuijsen M,² La Vecchia C⁸

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Introduction. Experimental data suggest that disinfection by-products (DBPs) are possible colorectal carcinogens, but epidemiological evidence is inconclusive.

Objectives. To evaluate colorectal cancer risk in relation to long-term DBP exposure.

Methods. A case-control study is ongoing in the greater Milan area and the provinces of Pordenone and Udine, Italy, and the metropolitan area of Barcelona, Spain. Cases are incident, histologically confirmed colon and rectal patients, aged 20-85 years and resident in the study areas. Controls are hospital-based (Italy) or population-based patients (Spain) matched to cases by age and sex. Besides data on known or potential risk factors of colorectal cancer, information is collected on residential and water source history, water consumption and use, including ingestion, showering, bathing, dishwashing and swimming pool attendance. Retrospective data on DPB (mainly trihalomethane, THM) levels in the study areas is collected through local water companies.

Results. Based on 400 cases and 363 controls from Italy, and 500 cases and 436 controls from Spain, 46% of Italian subjects and 56% of Spanish subjects drank water from public water at the longest residence (mean duration 37 years in Italy and 35 years in Spain); the remaining consumed water from bottles or other sources. The multivariate odds ratio (OR) for subjects drinking water from public supplies as compared to those drinking bottled water was 1.17 (95%CI: 0.87-1.58) in Italy and 1.18 (95%CI: 0.79-1.77) in Spain. Taking long compared to short shower yield an OR of 1.16 (95%CI: 0.83-1.63) in Italy and of 1.04 (95%CI: 0.80-1.40) in Spain. Mean THM levels in Italy were <10 µg/l, and

ranged between 17.6 and 134 µg/l in Spain. No clear dose-risk relations between residential THM exposure and colorectal cancer risk were observed.

Conclusion. Preliminary results suggest a weak – if any – association between colorectal cancer and DBPs.



- 024 -

REPRODUCTIVE EFFECTS OF EXPOSURE TO INCINERATOR EMISSION: MONITER PROJECT (MONITORING THE INCINERATORS IN THE TERRITORY OF EMILIA-ROMAGNA REGION)

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Introduction. Only few studies investigated the relationship between municipal solid waste incinerator (MSWI) emissions and adverse pregnancy outcomes with controversial results. In Emilia-Romagna Region (ERR) a large study was conducted (Moniter Project) which focused on pollution characteristics and the effects of the 8 MSWI, whose emissions are very low. Particular attention was paid to reproductive outcomes (RO) as they are a possible expression of short-term effects.

Objective. To evaluate a possible association between MSWI exposure and the following RO: sex ratio (SexR), multiple births (MB), preterm births (PTB), small for gestational age (SGA) and low birth weight among at term newborns (LBW).

Methods. The study considered all the newborns (9,950) during the period 2003-2006 in areas within a 4 km radius around the 8 MSWI of ERR. Each newborn was georeferenced and characterized by a specific exposure level to MSWI and other sources of pollution, evaluated using dispersion models. Comparisons were made with the regional rates (Standardized Ratios-SR) and, within the study areas, with logistic regression models adjusting for exposure to other sources of environmental pressures and maternal covariates.

Results. SR were not statistically significant for any RO at any exposure level. As for comparisons within the study areas, SexR, MB and LBW were not associated to incinerator exposure. PTB and, to a lesser extent, SGA showed a significant trend with exposure levels. ORs (CI95%) of higher vs lower exposure were respectively 1.75 (1.25-2.46) and 1.21 (0.93-1.56). Sensitivity analyses confirmed these results. A significant trend could be observed even among very PTB. Stratified analysis of exposure to incinerator by exposure to other sources showed a synergic effect.

Conclusions. PTB seem to be affected by exposure to incinerator emissions, even at a very low level. The effect could be enhanced by concomitant exposure to other sources of polluting substances.

PARALLEL SESSION

Aging and disability/Health care/End of life

Chairmen:

Elsebeth Lynge (Copenhagen, Denmark), Guido Miccinesi (Firenze, Italy)

Lieve Van den Block et al.

End-of-life care in different European countries: the EURO SENTI-MELC study

Eleonora Dorsi et al. [025]

Work, social support and leisure protect elderly against functional loss, EPIDOSO study, São Paulo, Brazil, 1991-1999

Lucia Galluzzo et al. [026]

Remission of depressive symptoms reduces mortality of elderly subjects: results from the Italian Longitudinal Study on Aging

Ossi Rahkonen et al. [027]

Smoking and disability retirement. A register based follow-up study

Catharina Matheï [028]

Chronic CMV infection in the very elderly: associations with co-morbidity, disability and frailty

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END-OF-LIFE CARE IN DIFFERENT EUROPEAN COUNTRIES: THE EURO SENTI-MELC STUDYLieve Van den Block,¹ Bregje Onwuteaka-Philipsen,¹ Guido Miccinesi,² Luc Deliens^{2,3}¹End-of-Life Care Research Group, Vrije Universiteit Brussel, Belgium; ISPO, Firenze, Italy; ³EMGO Institute, Amsterdam, The Netherlands**Introduction.** Even though end-of-life care has become an issue of great clinical and public health importance, there is a lack of population-based and nationwide data monitoring how people are dying.**Objectives.** The EUROpean SENTInel Network Monitoring End-of-Life Care (EURO SENTI-MELC) study aims to describe and compare circumstances surrounding death and care in the last three months of life in different European countries via the use of a representative network of general practitioners (GPs).**Methods.** In 2009, the nationwide Sentinel GP networks in Belgium and the Netherlands, and a GP network covering Northern, Central and Southern regions of Italy, registered all deaths of patients aged +18 years who were part of their practice. For each death, GPs were asked whether or not deaths had occurred suddenly and totally unexpectedly, and registered (amongst others) patient and clinical characteristics, place of death, care settings in the final three months of life and length of stay in each setting, the involvement of general and specialist palliative care, the treatment aim in the last three months of life and advance care planning communication.**Results.** In total 3,541 deaths were registered of which approximately 2/3rd was judged to have occurred non-suddenly. Country differences in end-of-life care provision are explored.**Conclusions.** The EURO SENTI-MELC study provides impor-

tant opportunities for end-of-life care surveillance and cross-country comparisons.

- 025 -

WORK, SOCIAL SUPPORT AND LEISURE PROTECT ELDERLY AGAINST FUNCTIONAL LOSS, EPIDOSO STUDY, SÃO PAULO, BRAZIL, 1991-1999Dorsi E,¹ Xavier A,² Ramos L³¹Universidade Federal De Santa Catarina, Department of Public Health, Florianopolis, Brazil; ²Universidade Do Sul De Santa Catarina, Florianopolis, Brazil; ³Universidade Federal De São Paulo, Department of Preventive Medicine, Brazil**Introduction.** Loss of functional capacity is an important mortality predictor of the elderly, costly to society and health system.**Objective.** To identify risk factors for functional capacity loss of elderly people.**Methods.** Cohort study, with elderly people in São Paulo, Brazil. Were selected 1st interview participants (1991-1992) that were independent or with mild dependence (1-2 activities of daily living-ADL). Functional impairment was defined as dependency on seven or more ADLs. We identified those with functional impairment in 2nd (1994-1995) or third interviews (1998-1999) and compared with those who remain independent, adjusted to demographic variables (age, sex, marital status, race, education, paid work), lifestyle (physical and sexual activity), cognitive status (measured by the mini-mental) morbidity, hospitalization, self-rated health, tooth loss, social support and leisure activities. Crude and adjusted relative risks with 95% confidence intervals were estimated through univariate and multiple Poisson regression, performed at Stata 10.0.**Results.** The incidence of functional loss was 17.8% (13.6 to 21.9), 58 cases in 326 participants. Independent risk factors in final model: age group 70-74 years (65-69 reference) RR=1.9 (0.9-3.8), age

75-79 RR=2.6 (1.3-5.3), age 80 or older RR=5.4 (3.1-9.7), minimal <24 RR=1.8 (1.1-2.9); asthma RR=2, 4 (1.3-4.2), hypertension RR=1.8 (1.2-2.7) and diabetes RR=1.68 (0.94-3.00). Were protective factors: paid work RR=0.3 (0.1-1.0); monthly relationship with friends RR=0.5 (0.3-0.8); watch TV RR=0.5 (0.3-0.9) and handcrafting RR=0.7 (0.4-1.0).

Conclusions. The prevention of functional impairment should include adequate control of chronic diseases and cognitive stimulation. Work and leisure should be valued as well as relationships with friends, including social and cultural infrastructure, accessibility and medical factors that interfere negatively in this issue.

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- 026 -

REMISSION OF DEPRESSIVE SYMPTOMS REDUCES MORTALITY OF ELDERLY SUBJECTS: RESULTS FROM THE ITALIAN LONGITUDINAL STUDY ON AGING

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Introduction. Depression is a very common feature of late life and is frequently associated with higher disability, diseases and mortality risk. Around 12% of individuals aged 65 or older is affected by depressive syndromes in Europe. The impact of longitudinal changes in severity of depressive symptoms (DS) on mortality has been scarcely investigated.

Objectives. To assess whether and to what degree changes in severity of DS over time (stable, remitted, worsened) influence mortality of an Italian elderly cohort.

Methods. The Italian Longitudinal Study on Aging (ILSA) is an extensive three-wave prospective study on a community random sample of 5,632 subjects aged 65-84 years, with 10-year follow-up of vital status. Data analysed in this study refer to the 1,941 subjects who were assessed for DS using the Geriatric Depression Scale (0-9=no DS; 10-19=mild DS; 20-30=severe DS) both at baseline (1992-93) and at second survey (1995-96). Cox proportional hazards (HR) of mortality according to severity of DS at baseline and variations over time are estimated and adjusted for demographic variables, life habits, physical conditions, cognitive decline and functional disabilities.

Results. Both moderate DS (HR 1.55; 95%CI: 1.09-2.21 women; HR 1.51; 95%CI: 1.13-2.02 men) and severe DS (HR 1.91; 95%CI: 1.08-3.37 women; HR 2.35; 95%CI: 1.19-4.65 men) predict mortality. Subjects with worsened DS (HR 1.78; 95%CI: 1.24-2.57 women; HR 1.27; 95%CI: 0.93-1.73 men) show higher mortality risk than those with stable symptoms. Remission of DS is a significantly protective factor, reducing of about 50% the risk of mortality in both genders (HR 0.55; 95%CI: 0.32-0.95 women; HR 0.59; 95%CI: 0.37-0.93 men).

Conclusions. Remission of DS is associated with a reduction in mortality in the elderly. Since most DS remit partially or completely, either spontaneously or with treatment, this may have implications for future preventive and treatment strategies of late-life depression.

- 027 -

SMOKING AND DISABILITY RETIREMENT. A REGISTER BASED FOLLOW-UP STUDY

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Introduction. The health consequences of smoking are well-documented but less is known about the effect of smoking on disability retirement.

Objectives. The aim of this study was to examine the impact of smoking on subsequent disability retirement of various diagnoses among middle-aged public sector employees.

Methods. Baseline survey was collected in 2000-2002 among middle-aged employees of the City of Helsinki (n=6,373, 80% women). Data on disability retirement were obtained from the Finnish Centre for Pensions (2000-2008) and were linked to the questionnaire data using unique person numbers. To examine the independent effect of smoking age, socioeconomic position, working conditions, alcohol drinking, physical activity and body mass index were adjusted for. Hazard ratios (HR) and their 95% confidence intervals were calculated using Cox regression analysis.

Results. There were 511 (7.9%) disability retirement events during the follow-up. Baseline smoking predicted disability retirement. HRs for current smoking among women were 1.71 [95%CI: 1.38-2.10], among men 1.58 [1.06-2.36]. Risk for disability retirement increased with number of smoked cigarettes. Especially strong was the effect among those who smoked more than 20 cigarettes per day, for women HR=2.1 [1.5-3.0], for men HR=2.6 [1.7-4.1]. Age and gender adjusted Hazard ratios due to mental diagnoses were 2.2 [1.4-3.7] and due to musculoskeletal diagnoses 2.1 [1.3-3.2]. Adjusting for confounders attenuated the effects but mainly they remained.

Conclusions. To support quitting smoking among employee may prevent work disability retirement.

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- 028 -

CHRONIC CMV INFECTION IN THE VERY ELDERLY: ASSOCIATIONS WITH CO-MORBIDITY, DISABILITY AND FRAILTY

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Introduction. The highly prevalent cytomegalovirus (CMV) causes severe disease in immuno-compromised individuals. However little is known about the long term effects in immuno-competent persons. A few studies have demonstrated, though not consistently, associations between CMV infection and cardiovascular disease, functional impairment, cognitive decline, frailty and increased mortality.

Objective. To investigate whether CMV infection and/or high CMV antibody titers are associated with comorbidity, disability and/or prevalent frailty in octogenarians.

Methods. Baseline results of the ongoing Belfrail study, a prospective, observational, population-based cohort study including 567

Belgian octogenarians, were analyzed. Socio-demographic characteristics, medical history, biomedical parameters, cognitive, functional and frailty status were compared among CMV+ versus CMV- individuals and among CMV+ persons with antibody titers <250 IU/ml versus >250 IU/ml.

Results. 74% of the population was CMV positive. Univariate analysis showed an association between CMV infection and female gender lower level of education, being widow(er)hood and cognitive impairment. Solely female gender was found independently related to CMV positive serostatus. Univariate associations were detected between high CMV antibody levels (>250 IU/ml) and

age, female gender, widow(er)hood, history of more than 3 diseases and/or cancer, depression, weaker physical performance tests and higher frailty scores. Multivariate analysis showed high CMV antibody levels being independently related to a history of cancer or decompensating heart failure and prevalent frailty.

Conclusions. We could not confirm the findings of previous studies showing associations between CMV infection and comorbidity, functional or cognitive impairment or frailty. However, subclinical reactivation, reflected by high CMV antibody titers, was found to be associated with increased co-morbidity and prevalent frailty.

November 7th

PARALLEL SESSION

Communicable diseases

Chairmen:

Henrique Barros (Porto, Portugal), Stefania Salmaso (Rome, Italy)

Johan Giesecke

Rich and healthy or poor and sick. Infection and inequality

Silvia Declich, Caterina Rizzo and Stefania Salmaso

The contribution of epidemiology to the response to the pandemic: the Italian experience

Enrica Migliore et al. [029]

Risk of infection in active TB contacts: results from a contact investigation program in Turin (Italy)

Manel Nebot et al. [030]

Adoption of preventive measures during the influenza A epidemic in Spain

- invited speaker -

RICH AND HEALTHY OR POOR AND SICK. INFECTION AND INEQUALITY

Johan Giesecke
Stockholm, Sweden

In all European countries, social inequalities are important determinants for communicable diseases just as they are for chronic diseases. Yet rather more is known about the impact of social determinants on non-communicable diseases than for communicable diseases. Tremendous advancements in public health over the last century have reduced the absolute magnitude of inequalities but relative differences remain. Today, infectious diseases are distributed unevenly throughout society, with vulnerable groups bearing a disproportionate burden. These groups are not only negatively impacted by a few "signature infections" such as TB or HIV but rather by a wide array of communicable diseases as documented by an extensive literature review. Moreover, differences in infectious disease burden have been documented by socioeconomic status in every European member state. Thus, there seems to be a need to device targeted interventions for a wide range of communicable diseases in vulnerable groups. Three intervention strategies should be considered: (i) population-at-risk; (ii) population; and (iii) vulnerable population approaches. However, all these strategies have strengths and weaknesses that need to be carefully considered for each situation. Data on social determinants for reported cases of diseases are currently not available to the ECDC, and one could discuss if indicators for social determinants – for example – "education level" should not be reported in order to monitor these interventions and track changes over time. By addressing European disparities in infectious diseases with the most efficacious intervention, health for all can be advanced.



- invited speaker -

THE CONTRIBUTION OF EPIDEMIOLOGY TO THE RESPONSE TO THE PANDEMIC: THE ITALIAN EXPERIENCE

Silvia Declich, Caterina Rizzo and Stefania Salmaso
National Centre for Epidemiology, Surveillance and Health Promotion, Istituto Superiore di Sanità (ISS, National Institute of Health), Rome, Italy

Introduction. In Italy, the 2009 influenza A/H1N1 pandemic virus triggered a public health response mainly based on the 2006 National Pandemic Preparedness and Response Plan, prepared following the identification of the threat posed by the A/H5N1 avian influenza virus. However the response took also extensive advantage from the epidemiological tools developed in advance and swiftly adapted to the ongoing situation.

Objectives & Methods. We report the main epidemiological activities designed during the preparedness period which during the pandemic provided important data for planning and implementing the response and supporting public health communication.

Results. Upgrading of the surveillance systems for seasonal influenza had been set up in "emergency situation" in an Enhanced Epidemiological Surveillance that integrated different data sources (i.e. incidence, mortality, severe cases, hospitalization, emergency room access, drugs purchase rates, pandemic vaccine coverage), allowing a weekly description of the burden of the 2009 pandemic influenza covering different perspectives. In the pre-pandemic period, mathematical models to simulate the spread of air-borne viral infections in the general population were developed, taking into account the Italian age-structure and mobility characteristics. Within a European project (Polymod) the pattern of personal contacts of different age-groups was estimated with a specific survey ad hoc carried out. Within the surveillance, detailed prospectively and retrospectively collected data on the confirmed cases has allowed to estimate the reproduction rate of the H1N1 virus. Results were used and included in the mathematical model to produce scenarios of various degrees of severity. Perception of hazards

in the general population and attitude to follow preventive recommendations, as well as, to accept vaccination was monitored over time.

Conclusions. Epidemiological tools were extremely important while dealing with the uncertainty of the pandemic and provided the basis for risk assessment, public health response and communication. The activities undertaken for pandemic mitigation and containment worked efficiently especially in the early phase. Response to health threats should always be supported by epidemiological data generated by systems or studies maintained in place.



- 029 -

RISK OF INFECTION IN ACTIVE TB CONTACTS: RESULTS FROM A CONTACT INVESTIGATION PROGRAM IN TURIN (ITALY)

Migliore E,¹ Borraccino A,² Baussano I,^{3,4} Mercadante S,⁴ Piccioni P,⁵ Carosso A,⁵ Bugiani M⁵

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Introduction. Tuberculosis (TB) is one of leading causes of disease and death worldwide. Public health measures to control the spread of the infection included different strategies, among which partner notification and contact tracing for stem the tide of infection, in particular for what concerns disadvantage groups.

Objective. To evaluate the role of various factors involved in TB infections for all the contacts incident TB cases identified by Piedmont TB surveillance system between 2000 and 2008.

Methods. Each TB case notified in the city of Turin (North of Italy) by the TB notification systems constitutes the Index Case. The regional compulsory notification system and the Piedmont TB surveillance system (together were able to gather the 84.8% of regional TB cases) supply the Index Cases. Identified cases were divided into three main categories of contagiousness, in relation to laboratory's examination: pulmonary case with a positive sputum (smear result for acid-fast bacilli, AFB); pulmonary case with a negative sputum smear result but with a sputum culture yielding *Mycobacterium tuberculosis* (CULT), and cases with negative sputum and missing or no culture examination, categorized as "other than defined" (OtD). Contacts were defined as household contacts (HC), regular contacts (RC) and occasional contacts (OC) and when reached, were screened for a TB infection. Tuberculin Skin Test (TST) was performed using Mantoux method. The test was interpreted following Italian guidelines recommendations defining as positive a reaction ≥ 5 mm.

Results. A total of 1,339 pulmonary TB cases were collected (70.0% were incident cases). Among these, 839 (62.7%) were screened for contacts: 53.8% were both AFB and CULT positive, the 14.3% were only CULT positive. The median number of contact per case was 9. Overall 4,786 contacts were identified (73.6% HC). A total of 4,463 contacts (93.3% of the identified contacts) were traced; 4,131 of

them were screened for TB infection by performing TST: 28 subjects (0.7%) were found with active TB and 1,786 (43.2%) had a positive TST reaction. Household contacts have a higher risk of TB infection than occasional contacts (OR=1.42; CI95% 0.91-2.20) and the cases AFB positive result significantly more infectious than cases OtD (OR=1.27; CI95% 1.01-1.60).

Conclusions. 93.3% of contact were traced and 86% were tested, in good agreement with the recommendations of the control programmes. The analyses showed an increased risk for close contacts and confirmed the higher contagiousness of case with a AFB positive sputum.



- 030 -

ADOPTION OF PREVENTIVE MEASURES DURING THE INFLUENZA A EPIDEMIC IN SPAIN

Nebot M,¹ Aguero F,¹ Perez A,² Xavier G-C,³ Maria Jose Lopez MJ¹

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Introduction. Novel influenza A (H1N1) has emerged from Mexico in April and has spread throughout the world within several weeks from onset generating a huge public alarm.

Objective. The aim of this study is to describe the preventive measures adopted in the Spanish population against influenza A and the associated factors.

Methods. An anonymous cross-sectional telephone survey using a structured questionnaire were carried in Spain in December 2009 and February 2010. Proportional quota sampling was used to ensure that respondents were demographically representative of the general population, with quotas based on age, sex, province and size of the residence place. CATI methodology was used. Each interview lasted 15 minutes.

Results. A total of 8,913 households were contacted, of whom 1627 completed the interview (response rate: 18.3%). Among the preventive measures recommended by health authorities, the most frequent was covering mouth and nose with a tissue when coughing or sneezing (58,5%) and hand hygiene (38,4%). In multivariate analysis, factors associated with the adoption of key preventive measures were being female (OR 1.44; 95%CI: 1.14 to 1.82), being younger than 35 years (OR 1.41; 95%CI: 1.05 to 1.89), having a high educational level (OR 1.74; 95%CI: 1.27 to 2.38), living in town over 50,000 people (OR 1.30; 95%CI: 1.04 to 1.64), feeling concerned about the probability of getting ill from influenza A (H1N1) (OR 1.53; 95%CI: 1.22 to 1.93), and believe in the effectiveness of recommended measures (OR 1.82; 95%CI: 1.39 to 2.38).

Conclusion. The main measures recommended for the prevention of influenza A were taken for about half of the population, while a quarter did not take any preventive measure and only 10% were vaccinated against influenza A. Sociodemographic factors, as well as beliefs about the usefulness of recommended measures, explain the adoption of these measures.

PARALLEL SESSION

Reproductive and infant health

Chairmen:

Andrei Grjibovski (Oslo, Norway), Elena Righi (Modena, Italy)

Elisabete Pinto et al. [031]

Maternal blood IGFs, cord blood IGFs and lipids, and size at birth: implications for adult dyslipidemia

Elizabeth Orton et al. [032]

Independent risk factors for burns in children under 5 using a national primary care dataset

Maria Cristina Monti et al. [033]

Epidemiology of apparent life-threatening events in Northern Italy

Ester Villalonga-Olives et al. [034]

Relationship between life events and psychosomatic complaints during adolescence/youth: a structural equation model approach

Emanuele Pivetta et al. [035]

Intervention for smoking cessation nested within a web-based birth cohort (the NINFEA study)

Olga Koshkina, Andrei Grjibovski [036]

Topical corticosteroid fear in parents of preschool children with atopic dermatitis in Severodvinsk, Northwest Russia

- 031 -**MATERNAL BLOOD IGFs, CORD BLOOD IGFs AND LIPIDS, AND SIZE AT BIRTH: IMPLICATIONS FOR ADULT DYSLIPIDEMIA**Pinto E,¹ Ramos E,¹ Guimarães JT,² dos Santos Silva I,³ Barros H⁴¹Department Hygiene and Epidemiology, Medical School, Institute of Public Health, Porto University, Portugal; ²Department Hygiene and Epidemiology, Medical School Porto University, Portugal; ³Department of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, UK; ⁴Department Hygiene and Epidemiology, Medical School, Institute of Public Health, Porto University, Portugal**Introduction.** There is on-going interest in unraveling the pathways linking the intra-uterine environment with later development of dyslipidemias and cardiovascular conditions**Objectives.** To examine associations of cord and maternal insulin-like growth factors (IGFs) levels with both birth size and cord lipids.**Methods.** A sample of 196 mother-infant pairs enrolled in "Geração XXI", a Portuguese birth cohort, was studied. Maternal and umbilical blood samples were drawn at delivery. Serum IGF-1, IGF-2 and IGF-3 levels were determined in all maternal and cord samples, and serum total cholesterol, HDL cholesterol (HDLc) and triglycerides (TG) were measured in cord samples. Linear regression models were used to examine association between IGFs, cord lipids and birth size measures.**Results.** Both maternal and cord IGF-1 levels were positively associated with birth size, but in mutually-adjusted analyses only the cord IGF-1 effect persisted (for each standard deviation increment in log IGF-1 cord levels birth weight increased by 371g (95%CI:

287g; 456g). Similarly, cord IGF-1 was positively associated with length, head circumference and ponderal index at birth. After adjustment for IGF-1 levels, neither maternal nor cord IGF-2 or IGF-3 levels were independently associated with birth size. Cord IGF-1 levels were positively associated with cord HDLc levels and negatively associated with cord TG levels. Birth size was also negatively associated with cord TG levels, but the effect disappeared on adjustment for cord IGF-1.

Conclusions. Birth size presents a stronger association with cord than maternal IGF1 levels. Cord IGF-1 levels were associated with both birth size and cord lipid levels. These findings are consistent with the hypothesis that the associations between small birth size and cardiovascular diseases later in life may be partly mediated through in utero changes in lipid metabolism which persist throughout life.**- 032 -****INDEPENDENT RISK FACTORS FOR BURNS IN CHILDREN UNDER 5 USING A NATIONAL PRIMARY CARE DATASET**Orton E,¹ West J,² Kendrick D,¹ Tata L²¹Division of Primary Care, Community Health Sciences, University of Nottingham, UK; ²Division of Epidemiology and Public Health, Community Health Sciences, University of Nottingham, UK**Introduction.** In the UK, unintentional burns are an important cause of hospital admission and emergency department attendance

in pre-school children. Most pre-school children are registered with a general practitioner in the UK but little work has been undertaken using routinely collected primary care data to identify those at increased risk of burns, to whom effective interventions could be offered.

Objectives. To identify independent risk factors for medically attended burns in children under 5 using a case control study design and a large primary care dataset.

Methods. The study utilised a primary care dataset where mothers and their children have been linked using The Health Improvement Network (THIN) database from the UK. Cases were all children under 5, registered in THIN with a diagnosis of a burn. Up to 10 control children per case were matched on the general practice. Conditional multivariate logistic regression was used to quantify the independent risk factors for burn injury.

Results. The study included 3,649 cases and 34,721 controls. The risk of burn was 30% higher in boys than girls (OR 1.32; 95%CI: 1.23-1.42). The risk of burn at was highest among children in their second year of life with a 2.4-fold increase compared to younger children (OR 2.43; 95%CI: 2.23-2.65). There was an increased risk of burns with birth order, where the 4th and subsequent born children was nearly 3 times more likely to suffer a burn compared to the first born (OR 2.62; 95%CI: 1.78-3.86). More deprived children, those with younger mothers and those whose mothers had postnatal depression also had an increased risk.

Conclusions. This study gives the most precise, population based estimates of the risk of burns in the UK related to child and family factors to date. Routinely collected primary care data can be used to identify pre-school children at increased risk of burns and families whose children are at increased risk can be offered effective interventions.

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- 033 -

EPIDEMIOLOGY OF APPARENT LIFE-THREATING EVENTS IN NORTHERN ITALY

Monti MC,¹ Borrelli B,¹ Popa I,¹ Corso B,¹ Tajè S,² Niespolo AC,² Lepore A,² Bonarrigo D,³ Fratti C,⁴ Pisani S,³ Stramba-Badiale M,⁵ Nosetti L,² Nespoli L,² Montomoli C¹

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Introduction. ALTE (Apparent Life-Threatening Event) is defined as an episode that is frightening to the observer, characterised by apnoea, colour change, marked change in muscle, choking or gagging; yet there is no International Classification of Disease (ICD) code classifying this event and no clear evidence of specific risk factors. Incidence estimates vary a lot: literature tends to report selected groups of infants, with the risk of reporting bias, while the lack of an ICD code limits the use of administrative databases. Aims. To estimate the incidence of ALTE in northern Italy and to investigate its risk factors.

Methods. We used two data sources from the Varese and Pavia provinces: 1) hospital admission records (SDO) 2002-2006 and 2)

a cohort of 9389 healthy newborns enrolled 2001-2007 (information on ECG screening, pregnancy, socio-demographic characteristics, child care practices, familiarity and infant's behaviour) and followed-up during infancy. We calculated ALTE incidence and compared children that experienced ALTE with the other children of the cohort.

Results. 1) Out of 74,435 SDO of infants below the first year of age, 245 infants (61% males) were admitted with primary diagnosis codes that are putative for ALTE: ICD-9 codes 786.09 (dyspnoea and respiratory difficulties) and 780.57 (unspecified sleep apnoea); suggesting a mean incidence of 4.1 per 1,000 live births in the first year of life. 18 babies had multiple SDO for ALTE. 98 cases (40%) were considered idiopathic (lack of other clinical abnormalities). 2) Out of the 1709 newborns followed-up during infancy, 24 ALTE (46% males) were reported. The consequent mean incidence of the event in the cohort is 14 per 1,000 live births. Significant risk factors found to be associated to ALTE were passive smoking (p=0.01), snoring familiarity (p=0.003) and gastro-oesophageal reflux (p=0.01).

Conclusions. ALTE surveillance and prevention must be improved, integrating administrative and clinical data sources.

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- 034 -

RELATIONSHIP BETWEEN LIFE EVENTS AND PSYCHOSOMATIC COMPLAINTS DURING ADOLESCENCE/YOUTH: A STRUCTURAL EQUATION MODEL APPROACH

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Introduction. To assess the contribution of life events (LEs) on psychosomatic complaints in adolescents/youths taking into account a theoretical model including contextual, triggering, intermediate and immediate factors.

Objective. To estimate the prevalence of MetS and associated CVD and all-cause mortality in northwest Russia.

Methods. The Spanish Kidscreen follow-up study measures health related factors of 454 Spanish adolescents/youths and one of their parents (two assessments, 3 years apart). Based on a theoretical model derived from a literature review, psychosomatic complaints (Health Behaviour in School-aged Children scale) were hypothesized to be affected by: a) contextual factors measured at baseline and considered at distal level with a protective effect: financial resources, home life and social support and peers (Kidscreen) and parents' mental health (SF-12); b) triggering factors: LEs (Coddington Life Events Scales, and classified into two typologies: desirability and familiarity); c) intermediate factors as potential mediators in a person's response to stress: same as distal level variables but measured at follow-up; d) immediate cause: mental health stability in a proximal level (Strengths and Difficulties Questionnaire

combining baseline and follow-up measures); and e) gender and age. The model was tested using structural equation modelling.

Results. The structural model yielded a good fit (CFI=0.95, TLI=0.93, RMSEA=0.04). Boys had more psychosomatic complaints than girls ($\beta=0.40$, $p<0.05$) but girls reported experiencing more LEs ($p<0.05$). Only undesirable LEs showed a significant negative effect on psychosomatic complaints. This relationship was indirect (total indirect effect: -0.10; $p<0.05$). Home life and mental health stability were protective factors of psychosomatic complaints in the presence of LEs ($\beta=0.41$ and $\beta=-0.15$; $p<0.05$).

Conclusions. The experience of undesirable LEs increases the probability of psychosomatic complaints, but this relation would be determined by previous levels of home life and mental health stability.



INTERVENTION FOR SMOKING CESSATION NESTED WITHIN A WEB-BASED BIRTH COHORT (THE NINFEA STUDY)

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Introduction. Pregnancy is a favorable time for counseling on smoking cessation. We tested an intervention for smoking cessation among participants in the NINFEA study (www.progettoninfea.it), a web-based cohort recruiting pregnant women in Italy and following up their children.

Objectives. We aimed at assessing whether providing information on the availability of smoking-cessation centers to active smokers during pregnancy decreases smoking habit at 6 and 18 months after delivery. This study is intended as a proof-of-concept for online interventions nested in web-based cohort studies

Methods. Participants in the NINFEA birth cohort complete a 1st online questionnaire during pregnancy and two other questionnaires at 6 and 18 months after delivery. All questionnaires include information on smoking. At the time of the first questionnaire, women who reported being active smokers or having quit smoking during early pregnancy have been randomised between 1) receiving no intervention and 2) receiving online information on health effects of prenatal and post-natal exposure to smoking and on closest public anti-tobacco centers in which the woman can receive help to quit smoking.

Results. 207 women were randomized: 103 were in the treatment group (who received information on smoking cessation) and 104 in the control group (who did not received information). Currently 151 women have completed the 1st follow-up questionnaire at 6 months after delivery. By November 2010 follow-up of random-

ized women will be completed and results on the intervention will be available.

Conclusions. This study demonstrates the possibility to nest and test individually targeted preventive interventions within web-based birth cohort. We will use this setting to test other similar interventions.



- 036 -

TOPICAL CORTICOSTEROID FEAR IN PARENTS OF PRE-SCHOOL CHILDREN WITH ATOPIC DERMATITIS IN SEVERODVINSK, NORTHWEST RUSSIA

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Introduction. Topical glucocorticoids (TGC) play an important role in treatment of atopic dermatitis (AD) in children. International studies demonstrated high prevalence of topical glucocorticoids fear (TGCF) in parents of children with AD. The evidence from Russia is almost non-existent.

Objectives. To assess the prevalence of TGCF in parents of children with AD attending kindergartens in Severodvinsk, as well as to assess compliance to TGC treatment and parental knowledge of AD causation and management.

Methods. A cross-sectional study. Altogether, 272 parents of children from all kindergartens in Severodvinsk (Northwest Russia) with recorded AD in medical documentation filled out an anonymous questionnaire on various aspects of beliefs and practices of TGC use, knowledge of AD causation and management, socio-demographic characteristics and compliance to treatment. Data were analyzed using Pearson's chi-squared tests and Fisher's exact tests.

Results. TGCF was observed in 91.9% (95%CI: 88.7, 95.2) of respondents. Among parents, whose children were prescribed TGC, 56.7% (95%CI: 48.9, 64.4) admitted having been non-compliant with treatment. Medical personnel was the most common source of TGC knowledge (59.9% of respondents) followed by medical literature (32.4%) and the Internet (25.7%). Only 23.5% (95% CI: 18.5, 28.6) of parents showed a good knowledge of AD causation and management. Parental and child characteristics were not associated with TGCF. Higher education ($p=0.016$) and male gender of a responding parent ($p=0.024$) were associated with non-compliance to TGC treatment.

Conclusions. The study results showed the high prevalence of TGCF and non-compliance to TGC treatment in parents of children with AD attending kindergartens in Severodvinsk. Parental knowledge of AD causation and management needs to be improved.

PARALLEL SESSION

Mental health

Chairmen:

Manolis Kogevinas (Barcelona, Spain), Giuseppe Tibaldi (Italy)

Eero Lahelma et al. [037]

Consequences of workplace bullying for employee mental health problems

Markus Busch et al. [038]

Association of obesity and health behaviour with physician-diagnosed depression: results of a nationwide population-based study in Germany

Diogo Costa et al. [039]

MiniCog and Mini Mental: Agreement in a cross sectional study with an elderly sample

Bruno Neuner et al. [040]

Sense of coherence and quality of life in adolescents with congenital heart defects: a register-based 1-year follow-up study

Anna Perez et al. [041]

Mental health and bullying among students

Karin Landolt et al. [042]

Smoking and mental disorders: beyond plausible associations

- 037 -

CONSEQUENCES OF WORKPLACE BULLYING FOR EMPLOYEE MENTAL HEALTH PROBLEMS

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Introduction. Bullying is a common problem at workplaces with potentially long-lasting adverse consequences for employee well-being. Longitudinal studies are scarce and the consequences of workplace bullying for mental health are poorly understood.

Objective. To study whether workplace bullying is prospectively associated with mental health problems as indicated by psychotropic medication among women and men.

Methods. The participants were employees of the City of Helsinki aged 40-60 from the Helsinki Health Study cohort baseline surveys in 2000-02 (n=8,960, response 67%). Workplace bullying included those who reported being currently bullied and those having been previously bullied. Data on purchases of psychotropics were available from the Finnish Social Security Institute registers before the baseline survey and over a follow-up by the end of 2007. Using the unique personal identification number the register data were linked to the baseline survey data for those consenting for such linkage (78%). Hazard ratios (HR) adjusted for age were calculated using Poisson regression analysis, excluding those with psychotropic medication 1.5 years prior to the baseline survey.

Results. At baseline 5% of both women and men were currently

bullied, and 19% of women and 13% of men had been previously bullied. Compared to the never bullied (HR 1.00) the currently bullied were more likely have psychotropic medication during the follow up among women (HR 1.54; 95%CI: 1.15-2.10) as well as men (HR 2.60; 95%CI: 1.58-4.30). The previously bullied were also more likely to have psychotropic medication but somewhat less than the currently bullied.

Conclusions. The bullied employees are disproportionately prescribed psychotropics, suggesting that they run the risk of developing mental problems as a consequence of bullying. Workplace bullying is an occupational and public health issue of concern which should be tackled in order to safeguard employee mental health and well-being.



- 038 -

ASSOCIATION OF OBESITY AND HEALTH BEHAVIOUR WITH PHYSICIAN-DIAGNOSED DEPRESSION: RESULTS OF A NATIONWIDE POPULATION-BASED STUDY IN GERMANY

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Introduction. Depression and obesity are widespread health problems that both have major public health implications. The evidence for an association between obesity and depression and the role of health behaviours in this relationship is inconclusive.

Objectives. To examine the association of obesity and health-re-

lated lifestyle behaviours with prevalence of physician-diagnosed depression in the general population in Germany.

Methods. In the "German Health Update 2009", cross-sectional health data of a nationally representative sample of 21,262 German residents aged 18 years or older were collected by computer-assisted telephone interviews. The association of physician-diagnosed depression within the last 12 months with obesity (body mass index $\geq 30 \text{ kg/m}^2$) and five lifestyle behaviours (sport, daily physical activity, fruit and vegetable consumption, smoking status, alcohol drinking) was analysed in logistic regression analysis adjusted for socio-demographic and psychosocial factors and somatic co-morbidities.

Results. The 12-month prevalence of physician-diagnosed depression was 6.3% (women 8.0%, men 4.5%). Among women 15.7% were obese and among men 16.3%. Participants with depression were older and more often females, obese, physically inactive and smokers but consumed less alcohol than other participants. In multiple logistic regression analysis, obesity (odds ratio (OR) 1.33; 95%CI: 1.15-1.54), current smoking (OR 1.28; 95%CI: 1.13-1.46) and infrequent sport were associated with a higher prevalence of depression, while daily physical activity and fruit and vegetable consumption showed no association with depression.

Conclusions. Obesity, depression and health behaviours were closely associated in this cross-sectional study. The promotion of healthy behaviour should be integrated in public health interventions targeted at prevention of depression. The causality of the observed associations should be examined in prospective cohort studies.

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- 039 -

MINICOG AND MINI MENTAL: AGREEMENT IN A CROSS SECTIONAL STUDY WITH AN ELDERLY SAMPLE

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Introduction. Researchers working with older people, commonly assess their cognitive impairment, in an attempt to minimize bias related to the quality of recalled information.

Objective. To compare two instruments of cognitive impairment assessment, the Mini-Mental State Examination (MMSE) and the MiniCog, emphasizing their agreement in classifying participants based on guidelines for their use and to evaluate the discrimination index of all items.

Methods. A cross-sectional evaluation of 609 community participants aged ≥ 60 years. Trained interviewers applied a battery of scales, including the MMSE and the MiniCog. Cohen's Kappa and respective 95% confidence intervals (CI) were calculated to assess the overall agreement. Two-parameter Item Response Theory models (difficulty and discrimination parameters) was used to assess the discrimination. Cronbach alphas were computed to assess reliability.

Results. Considering MMSE cut-point for scores 23/24, 3.1% participants would be "cognitive impaired" and 6.2% for the cut-point

scores 24/25. Following MiniCog's cut-point score of 2/3, 11.3% of participants would be impaired. For MMSE cut-point 23/24 and MiniCog 2/3, we observed a Cohen's kappa of 0.116 (95%CI: -0.073; 0.305) and of 0.258 (95%CI: 0.101; 0.415) for cut-point 24/25. MMSE's group items for "attention and calculation" had the highest discrimination index (0.8830), followed by MMSE's group "orientation" (0.7185) and MMSE's group "recall" (0.7100). MiniCog obtained an index of 0.7015. MMSE Cronbach alpha was 0.6108 and MiniCog's alpha was 0.2776. MMSE's group items "attention and calculation" isolated alpha was 0.5197.

Conclusions. Agreement between the two scales seems fragile in our sample. The discriminative and reliability analysis, suggest a better performance for the subsets of MMSE compared with the MiniCog.



- 040 -

SENSE OF COHERENCE AND QUALITY OF LIFE IN ADOLESCENTS WITH CONGENITAL HEART DEFECTS: A REGISTER-BASED 1-YEAR FOLLOW-UP STUDY

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Introduction. Sense of coherence (SOC) is a resource for health and quality of life (QoL) in adults.

Objective. Aim of this investigation was to study the cross-sectional and longitudinal association of SOC with QoL in adolescents with congenital heart defects (CHD).

Methods. Observational study among 770 adolescents aged 14-17 years from a national CHD register. SOC was measured at baseline with the SOC-L9 questionnaire. At baseline and at 12-months follow-up QoL was measured with the KINDL-R questionnaire, evaluating overall well-being and six subscales. The association of SOC with QoL at baseline (cross-sectional association) and at follow-up (longitudinal association) was evaluated by marginal models using stepwise adjustments for relevant covariates. Independence of the association of SOC with QoL was defined as <10% change in estimates in fully adjusted models compared with unadjusted models.

Results. SOC was independently associated with overall well-being. The odds ratios per additional SOC-point in fully adjusted models equaled 0.84 (95%CI: 0.77-0.92) in cross-sectional assessment and 0.68 (95%CI: 0.60-0.75) in longitudinal assessment. SOC was further independently associated with all KINDL-R-sub-scales in both cross-sectional and longitudinal assessment except for physical well-being. But even in physical well-being, the association with SOC even in fully adjusted models remained significant: The OR per additional SOC-point equaled 0.64 (95%CI: 0.50-0.78) in cross-sectional and 0.46 (95%CI: 0.32-0.60) in longitudinal assessment.

Conclusions. Except for physical well-being, SOC is independently associated with QoL in adolescents with CHD. SOC predicts QoL over a one-year period.

- 041 -**MENTAL HEALTH AND BULLYING AMONG STUDENTS**

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Introduction. An important proportion of mental health problems initiates at the end of childhood or early adolescence.

Objectives. To describe mental health status of students from high conflictive educational centers and to study its association with bullying.

Methods. Cross-sectional study. A questionnaire was administered among a sample of students from two high schools of Barcelona, asking for health-related behaviors and attitudes, including mental health (Strengths and Difficulties Questionnaire, SDQ) and bullying. We also asked their teachers about their perception of school environment considering norms, conflicts and respect. A logistic regression analysis was performed using a dichotomic construct of SDQ scale (normal versus limit or abnormal).

Results. 91,9% (N=442; 50,7% boys) of the students and 95,7% (N=22) of the teachers answered the questionnaires. SDQ mean was 10,8 (DE=4,4) among boys and 11,2 (DE=4,9) among girls. The multivariate analysis adjusted by age and socioeconomic status showed significant association between limit/abnormal SDQ score and being involved in bullying. Among boys, the Odds Ratio (OR) were 3,1 (95%CI: 1-9,9) for bullied students; 3,4 (95%CI: 1,3-9,1) for bullies and 9,4 (95%CI: 1,7-50,8) for those who were both, bullied and bullies. OR for girls were 6,7 (95%CI: 2,5-17,7); 9,4 (95%CI: 2,4-36,2) y 9,4 (95%CI: 2,1-41,5). Among teachers, more than 80% declared that students were aware of the inadequate behaviors and the consequences of breaking rules. 27,3% thought that relations among students were based on aggression.

Conclusions. Being involved in bullying is associated with worse mental health status. The association is higher among bullied boys who are also bullies and among bully girls, regardless of their victim condition. These results emphasize the need of preventive interventions focused on improving adolescents' mental health and their relations in the school environment.

**- 042 -****SMOKING AND MENTAL DISORDERS: BEYOND PLAUSIBLE ASSOCIATIONS**Landolt K,¹ Ajdacic-Gross V,¹ Hengartner MP,¹ Gamma A,² Angst J,² Rössler W¹¹Department of General and Social Psychiatry, Psychiatric University Hospital, Zurich, Switzerland; ²Psychiatric University Hospital, Zurich, Switzerland

Introduction. It is well known that people with mental disorders tend to use tobacco more often than healthy people. Conversely, persons who are smokers tend to have more often a mental disorder than non-smokers. Beyond these basic findings, there are surprising blank areas in this field of research. This presentation addresses three of them.

Objectives. Firstly, following the dimensional concept of mental disorders we recalculated the prevalence of lifetime smokers after including subthreshold disorders in the analysis (Landolt, K. et al., in press). Secondly, we examined the risk factors for the onset of smoking in young adulthood as opposed to adolescence (Ajdacic-Gross V. et al., 2009). Thirdly, we are examining the hypothesis that smoking not only precedes but often also causes mental disorders.

Methods. The analyses used data from the Zurich Study, based on a stratified community sample of 591 persons born in 1958 and 1959. Assessments have been done in 1979, 1981, 1986, 1988, 1993 and 1999. Information on age at onset, tobacco use and on psychiatric symptoms according to DSM-III, DSM-III-R and DSM-IV was assessed by a half-structured questionnaire. Most analyses were based on binary or polytomous logistic regressions.

Results. Firstly, the percentage of lifetime smokers was higher in persons with a lifetime psychiatric diagnosis (72%) and persons with subthreshold disorders (60%) than in those without any diagnosis (40%). Secondly, only depression and dysthymia were associated with adult onset smoking, whereas adolescent onset of smoking was strongly associated with later mood disorders, parental smoking, extroverted personality, discipline problems and rebelliousness in youth. Thirdly, bipolar disorders and dysthymia show the closest association with smoking. In particular, dysthymia with a typical age at onset beyond the age of 30 seems to be triggered by smoking.

Conclusions. We have only just begun to understand the associations between smoking and mental disorders. The more psychiatric epidemiology progresses, the more challenges for research will come to light.

PLENARY SESSION

Lifestyles and chronic diseases prevention

Chairmen:

Robert West (Cardiff, UK), Domenico Palli (Firenze, Italy)

THE EPIC PROJECT. THE ROLE OF NUTRITION, OBESITY AND METABOLIC SYNDROME AND THEIR LIFESTYLE DETERMINANTS IN CANCER AETIOLOGY

Elio Riboli
Imperial College, London, UK

The EPIC programme has substantially contributed to the scientific evidence linking nutrition, physical activity, obesity and cancer risk.

EPIC is a prospective cohort study in which 521,000 study subjects in 10 European countries have agreed to participate and have provided lifestyle data and blood samples at baseline, between 1993 and 1998. During the follow-up up to 2010, data on over 60,000 incident cancer cases have been collected as well as data on causes of death. In addition several waves of follow-up questionnaires have permitted to collect data on changes in lifestyle and health conditions.

While the role of obesity in the aetiology of endometrial cancer was already known in the seventies, it was with scepticism that the scientific community looked at the first epidemiological findings, appeared in the 80s, indicating that being physically inactive and overweight was associated with a modest but significant increased incidence (or mortality) of several cancers, including colon, kidney, breast, and prostate.

The existence of such an association is currently widely accepted and the next step in the research is to better identify which type the biological mechanisms, particularly which combinations of genetic and host factors explain the role of obesity in cancer aetiology. The results of EPIC have supported a key role of insulin resistance, as one of the underlying mechanisms linking obesity, metabolic syndrome with cancer, particularly cancer of the colorectum, endometrium and breast after menopause. However, there are some complexities in the obesity-insulin resistance-cancer link that are not straightforward or fully understood.

A major open issues is the observation that obesity and high C-peptide levels are associated with increased breast cancer risk after menopause while before menopause obese women have slightly reduced breast cancer risk.

A second puzzling observation is that type 2 diabetes seems to be associated with a slightly decreased risk of developing prostate cancer.

Understanding of these apparently opposite effects of obesity and insulin resistance at different period in biological life and for different cancers is the object of on-going research within EPIC.



PREVENTION OF CHRONIC DISEASES

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The most prevalent risk factor for "western" chronic disease is the metabolic syndrome (MS), conventionally defined by the presence of at least three of the following: hypertension, hyperglycemia, hypertriglyceridemia, low plasma HDL-cholesterol levels, and large waist circumference. Other prominent characteristics of MS, which was also called insulin resistance syndrome, syndrome X, and the deadly quartet, include obesity, hyperinsulinemia, hyperuricemia, hypercholesterolemia, elevated markers of chronic inflammation, and, in women, hyperandrogenic status. Such a cluster was originally described as a major risk factor for diabetes and coronary heart disease, but in the last 10 years or so it became clear that MS is associated also with increased risk of developing Alzheimer disease, non-alcoholic fatty liver disease and cirrhosis, arthritis, gout, gallstones, psoriasis, and several cancers: of the liver, colon, rectum, pancreas, breast, endometrium, bladder, kidney. Evidence is increasing that MS also affects breast and bowel cancer prognosis. Actually MS is a marker of increased bioavailability of growth factors.

Randomized controlled trials and observational studies have shown that MS is preventable – and may regress – through a comprehensive dietary modification, e.g. Mediterranean or macrobiotic diet, or moderate calorie restriction, and physical activity. Specific dietary determinants of MS include saturated and hydrogenated fat, calorie and protein dense food, salt, and low consumption of unrefined cereals, omega-3 and vegetables.

Almost 30% of western countries adults have MS. Pharmacological treatment of MS traits has dramatically decreased cardiovascular mortality; nevertheless the prevalence of MS is increasing and remains a major determinant of health expenditure. Governments, the food and advertising industry, and society in general have major responsibility in allowing MS determinants to flourish, thus reducing the chances of healthy aging.



THE CONTRIBUTION OF EPIDEMIOLOGY TO THE STUDY OF TOBACCO EPIDEMICS

Esteve Fernandez
Autonomous University of Barcelona, Spain

Introduction. Smoking bans have been implemented in several countries, territories and cities to protect the public and workers from the harmful effects of secondhand smoke (SHS).

Objective. To review the extent to which smoke-free policies reduce the exposure to SHS and how epidemiology has contributed to it.

Methods & Results. The Italian Law banning smoking in workplaces including hospitality premises entered into force on January 10th, 2005. Even if the law allowed smoking rooms, actually only 1-2% of hospitality premises built them. After the law, SHS exposure dropped a 60-97%. In new outdoor areas for smokers, SHS exposure in winter reaches levels recorded in indoor areas before the law. In only 2% of about 20,000 inspected areas in 2005-2009, customers were still smoking. Cigarette sales decreased of 2% annually in 2004-2009, and smoking prevalence of about 1.5-3.0% annually in men and 1.3-5.0% in women in 2004-2008. Four studies in Italian areas have analyzed trends of cardiovascular disease before and after the ban, showing an 8-13% decrease in hospital admissions. A smoking ban in workplaces was

introduced in Spain on January 1st, 2006. Smoking was banned in indoor workplaces and public places, whereas in hospitality premises >100m² owners can provide a smoking area, and in premises <100m² owners may choose whether to be smoke-free or not. A 60-97% reduction in SHS exposure was recorded in offices from the public and private sector. Similar reductions were only found in hospitality premises where smoking was totally banned. Significant reductions in salivary cotinine concentration (63.7%) and in the frequency of respiratory symptoms (98.1%) were recorded in non-smoker hospitality workers where smoking was completely banned.

Conclusions. Epidemiology has contributed to the evaluation of smoke-free bans. There is a need to urge national governments throughout Europe to adopt comprehensive smoke-free policies without exceptions.



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PARALLEL SESSION

Lifestyles

Chairmen:

Mette Juhl (Copenhagen, Denmark), Salvatore Panico (Naples, Italy)

Madlen Schütze et al. [043]

Alcohol-attributable burden of cancer incidence in 8 European countries

Cristina Fortes et al. [044]

A protective effect of the Mediterranean diet for cutaneous melanoma

Alberto Borraccino et al. [045]

Influences of physical activity and sedentary behavior on adolescent medicine use in 17 countries

Jong Park et al. [046]

Association between alcohol consumption and bone strength in Korean adults: the Korean Genomic Rural Cohort Study

Patrícia Padrão et al. [047]

The association with sociodemographic factors is different for fruit and vegetables consumption: results from a STEPS survey in Mozambique

Susanna Raulio et al. [048]

Worksite canteen availability and usage among Finnish employees

Emmanuelle Cadot et al. [049]

Built environment and obesity: a contextual analysis of a population based cohort in the metropolitan area of Paris (France)

Anna Lamberti et al. [050]

Risk factors for childhood obesity in Italy

- 043 -

ALCOHOL-ATTRIBUTABLE BURDEN OF CANCER INCIDENCE IN 8 EUROPEAN COUNTRIES

Schütze M,¹ Boeing H,¹ Pischon T,¹ Rehm J,² Kehoe T,² Gmel G,² Olsen A,³ Tjønneland A,³ Dahm C,⁴ Overvad K,⁵ Clavel Chapelon F,⁶ Boutron Ruault M-C,⁶ Trichopoulou A,⁷ Benetou V,⁷ Zylis D,⁷ Kaaks R,⁸ Rohrmann S,⁸ Palli D,⁹ Berrino F,¹⁰ Tumino R,¹¹ Vineis P,¹² Rodríguez L,¹³ Agudo A,¹⁴ Sánchez M-J,¹⁵ Dorronsoro M,¹⁶ Chirlaque M-D,¹⁷ Baricarte A,¹⁸ Peeters P,¹⁹ van Gils C,¹⁹ Khaw K-T,²⁰ Wareham N,²¹ Allen N,²² Key T,²² Boffetta P,²³ Jenab M,²⁴ Slimani N,²⁴ Romaguera D,²⁵ Wark P,²⁵ Riboli E,²⁵ Bergmann M¹

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cer Epidemiology Research Programme, Barcelona, Spain; ¹⁵Andalusian School of Public Health, Granada, Spain; ¹⁶Public Health Department of Gipuzkoa and Ciberesp, San Sebastian, Spain; ¹⁷Department of Epidemiology, Murcia Regional Health Council, Spain; ¹⁸CIBER Epidemiología y Salud Pública (CIBERESP), Granada, Spain; ¹⁹Julius Center for Health Sciences and Primary Care, University Medical Center, Utrecht, The Netherlands; ²⁰Department of Public Health and Primary Care, University of Cambridge, UK; ²¹MRC Epidemiology Unit Cambridge, UK; ²²Cancer Epidemiology Unit, Nuffield Department of Clinical Medicine, University of Oxford, UK; ²³The Tisch Cancer Institute, Mount Sinai School of Medicine, New York, USA; ²⁴International Agency for Research on Cancer, IARC, Lyon, France; ²⁵Department of Epidemiology and Biostatistics, School of Public Health, Imperial College, London, UK

Introduction. Estimations on the alcohol-attributable burden of cancer in Europe are sparse and so far based on indirect data.

Objectives. To compute the burden of cancer attributable to alcohol consumption in France, Italy, Spain, United Kingdom, The Netherlands, Greece, Germany and Denmark based on direct relative risk estimates from a cohort study.

Methods. Relative risks for former and lifetime consumers of alcohol were computed based on 109,118 men from six and 254,870 women from eight countries participating in the European Prospective Investigation into Cancer and Nutrition (EPIC)-study using multivariate-adjusted Cox-regression models. Relative risk esti-

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mates were combined with representative alcohol exposure information to compute alcohol-attributable fractions (AAF) for current and former consumption of alcohol and for alcohol consumption higher than the recommended upper limit (two drinks per day for men with ~24g alcohol, one for women with ~12g alcohol). AAFs were combined with the cancer incidence data from the GLOBOCAN 2002-database to estimate the annual number of alcohol-attributable cancer cases.

Results. Among men and women, 53% (95%CI: 44-62%) and 28% (8-47%) of upper aero-digestive tract, 34% (11-56%) and 14% (-9-38%) of liver, 17% (9-25%) and 5% (-1-10%) of colorectal, and 5% (2-8%) of female breast cancer incidence were attributable to current and former alcohol consumption in the European countries selected. The major part of the AAFs occurred due to alcohol consumption higher than the recommended upper limit with 32,000 out of 49,000 alcohol-related cancer cases in men and 16,000 out of 19,000 alcohol-related cases in women.

Conclusions. In Western Europe, a substantial proportion of cancer cases is attributable to alcohol consumption, especially due to consumption higher than the recommended upper limit. These data strongly support current political efforts to reduce and to avoid alcohol consumption in order to prevent cancer incidence.

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- 044 -

A PROTECTIVE EFFECT OF THE MEDITERRANEAN DIET FOR CUTANEOUS MELANOMA

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Introduction. Many studies have investigated the Mediterranean diet as a risk factor for cancer, none of which has included cutaneous melanoma. The latter is usually fatal, rendering knowledge about prevention extremely important. We assessed the role of some food components of the Mediterranean diet and cutaneous melanoma.

Methods. A hospital-based case-control study was conducted in the inpatient wards of IDI-San Carlo Rome, Italy including 304 incident cases of cutaneous melanoma and 305 controls, frequency matched to cases. Information on socio-demographic characteristics, medical history, smoking, sun exposure, pigmentary characteristics and diet was collected. Logistic regression was the method used to estimate odds ratio and 95% confidence intervals.

Results. After careful control for several sun exposure and pigmentary characteristics, we found a protective effect for weekly consumption of fish (OR 0.65; 95%CI: 0.43-0.97), shellfish (OR 0.53; 95%CI: 0.31-0.89), fish rich in n-3 fatty acids (OR 0.52; 95%CI: 0.34-0.78), daily tea drinking (OR 0.42; 95%CI: 0.18-0.95; p trend=0.025), and high consumption of vegetables (OR 0.50; 95%CI: 0.31-0.80, p trend=0.005) in particular carrots, cruciferous and leafy vegetables and fruits (OR 0.54; 95%CI: 0.33-0.86 p trend=0.013), in particular citrus fruits. No association was found for alcohol consumption and any other food items.

Conclusion. Overall, our findings suggest that some dietary factors present in the Mediterranean diet might protect from cutaneous melanoma.

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- 045 -

INFLUENCES OF PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOR ON ADOLESCENT MEDICINE USE IN 17 COUNTRIES

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Introduction. Physical activity (PA) has been related to a variety of positive health indices and sedentary behavior (SB) has been related to negative health indices.

Objective. The present analyses examine relationships of adolescent PA and SB with medicine use (MU) and the potential mediating effect of symptoms for common health problems.

Methods. Self-reported PA, SB, MU for four common health problems (headache, stomachache, difficulties sleeping, and nervousness), and symptoms for common health problems were assessed in nationally representative samples of 11-, 13-, and 15-year-old students in 17 countries participating in the Health Behavior in School-Aged Children study (N=76,863).

Results. In hierarchical linear models, there were significant country effects for all relationships. Moderate PA and vigorous PA were negatively related to symptoms and to MU and SB was positively related to symptoms and MU. Furthermore, it appears that self-reported symptoms mediated the relationship between PA and MU, eliminating the effect of moderate PA and reducing the effect of vigorous PA.

Conclusions. Adolescents who spend more time engaged in sedentary activities are more likely to take medicine for common health problems but the effect of physical activity on reduced medicine use may be a function of experiencing fewer health problems. Cultural differences in these relationships need to be recognized.

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- 046 -

ASSOCIATION BETWEEN ALCOHOL CONSUMPTION AND BONE STRENGTH IN KOREAN ADULTS: THE KOREAN GENOMIC RURAL COHORT STUDY

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Introduction. Previous studies have reported an inconsistent relationship between alcohol consumption and bone health. However,

er, most studies showing a significant relationship between alcohol consumption and bone status have been in Western countries; and subjects have usually been postmenopausal women.

Objectives. To investigate the association of alcohol consumption with bone strength in Korean adults.

Methods. Data were from the Korean Genomic Rural Cohort Study, which is an ongoing population-based study of adults aged 40 to 70 years from 5 regions. A total of 7,713 participants (3,368 men, 4,345 women) were surveyed about their annual consumption of alcohol such as soju, beer, makkolli, wine, and whisky. Bone strength was measured by stiffness index using the calcaneal quantitative ultrasound method.

Results. Annual age-specific decrease rate in the stiffness index of women was 2.7 times higher than that of men (0.463% for women, 0.169% for men). After adjustment for eligible covariates, the relative risk of reduced bone strength compared with nondrinkers was 0.52 (95%CI: 0.33-0.83) in men who drank 4 to 5 cups of soju for an amount of 29.626 to 49.375 g of alcohol per day and 0.61 (95%CI: 0.38-0.86) in men who drank 6 to 7 cups of soju for an amount of 49.376 to 69.125 g of alcohol per day. For women, results suggested that the risk of reduced bone strength was lower in the moderate-consumption group but no significant relationship was found between alcohol consumption at any level and bone strength.

Conclusions. Our population-based study suggests that the decrease rate of stiffness index with age is higher in women than in men. Secondly, alcohol consumption has a J-shaped relationship with risk of reduced bone strength.

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- 047 -

THE ASSOCIATION WITH SOCIODEMOGRAPHIC FACTORS IS DIFFERENT FOR FRUIT AND VEGETABLES CONSUMPTION: RESULTS FROM A STEPS SURVEY IN MOZAMBIQUE

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Introduction. Insufficient fruit and vegetables intake is responsible for 0.4 % of all deaths in Africa, but the impact of low consumption is expected to become higher due to growing urbanization and increasing burden of the diseases of affluence.

Objective. To describe fruit and vegetables consumption in Mozambican adults, according to socio-demographic characteristics, among urban and rural populations.

Methods. A national representative sample of 3,323 Mozambicans aged 25-64 years was evaluated in 2005 following the World Health Organization Stepwise Approach to Chronic Disease Risk Factor Surveillance (STEPS). The usual fruit and vegetables consumption (frequency and quantity) were used to estimate the average daily intake. Prevalences and age-, education- and family income-adjusted prevalence ratios (PR) with 95% confidence intervals (95%CI) were computed.

Results. Less than 5% of the Mozambicans reported the minimum recommended intake of 5 daily servings of fruit/vegetables. The prevalences of a daily consumption consumption of at least 2 servings were 17.8% (95%CI: 15.2-20.4) for fruit and 18.7% (95%CI: 13.8-23.6) for vegetables. Both fruit and vegetables were more often consumed by women and in rural settings. In urban areas the prevalence of fruit intake increased with education (≥ 6 years vs. < 1 year: women, PR=3.11, 95%CI: 1.27-7.58; men, PR=3.63, 95%CI: 1.22-10.81) but not with income (≥ 801 USD vs. 0-64 USD: women, PR=0.92, 95%CI: 0.47-1.81; men, PR=1.19, 95%CI: 0.47-2.97). Conversely, vegetable consumption was less frequent in the more educated urban men (≥ 6 years vs. < 1 year: PR=0.30, 95%CI: 0.10-0.94) and in the more affluent rural women (≥ 801 USD vs. 0-64 USD: PR=0.32, 95%CI: 0.13-0.81).

Conclusion. The different association between sociodemographic factors and fruit and vegetables consumption supports the need for discriminating their intake, in etiological research and when designing health promotion programs.

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- 048 -

WORKSITE CANTEN AVAILABILITY AND USAGE AMONG FINNISH EMPLOYEES

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Introduction. In Finland lunch is the most important meal of the day. On workdays it is mainly eaten at worksite canteens or, especially among women, as a packed meal at workplace's break room. Worksite canteen can be useful place for improving employees' diets by offering servings that are balanced according to dietary guidelines, moreover, foods served at worksite canteen serve as a model for an optimal diet. Well-planned catering services at workplaces could since have major effects on nutrition and well-being of employees as well as on public health.

Objectives. This study examined the availability of canteens to Finnish employees, and the associations between the availability and employee's socio-demographic background and workplace characteristics. A further aim was to study the employees' lunch place choices according to employee's socio-demographic factors and characteristics of the workplace when the worksite canteen is available.

Methods. Data were obtained from cross-sectional health surveys among employed Finnish adults aged 19-64 years (2,659 men, 2,926 women).

Results. Worksite canteen is best available to well-educated white-collar workers working in large workplaces at capital area. The most unsatisfactory situation is among men working at small workplaces with physically demanding jobs, and private enterprisers. However, even when the canteen is on hand, less-educated female unskilled blue-collar workers still eat packed lunches instead eating at canteen.

Conclusions. There is obvious lack of worksite canteens among less-educated male workers with physically demanding jobs. These men are typically construction workers or lorry drivers who have mobile work and tight schedules to keep. Eating at canteen is not

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an option for them. Effort to improve the possibilities to have lunch at canteens or restaurants offering healthy, nutritious lunches should be made. Also barriers for canteen use should be studied.

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- 049 -**BUILT ENVIRONMENT AND OBESITY: A CONTEXTUAL ANALYSIS OF A POPULATION BASED COHORT IN THE METROPOLITAN AREA OF PARIS (FRANCE)**

Cadot E, Martin J, Vallée J, Chauvin P
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Introduction. Recent researches suggest that neighborhoods characteristics are at least as significant as individual characteristic in identifying risk factors of obesity. But, explicit hypotheses about the pathway through which environment might influence obesity is still needed. Built environment can encourage or prevent physical activity and therefore constitute a risk factor for obesity.

Objectives. We hypothesize that obesity has a strong spatial dimension related to the built environment of residence. The objective of the study was to describe disparities in the prevalence of obesity according to an index of "walkability".

Methods. We use data from the SIRS cohort which is a longitudinal health and socio epidemiological survey of a random sample of 3,000 households initiated in 2005 in Paris metropolitan area. Obesity was defined as a body mass index of 30 or above, and is self-reported. The neighborhoods of residence were classified into 4 categories according to a walkability index. We used multilevel regression models that encompassed both individual and neighborhoods' characteristics.

Results. About 10% of the adult populations of the Paris metropolitan area were obese in 2005. Several individual determinants appeared to be strongly associated with obesity, including physical inactivity. After adjustment for individual characteristics, contextual analysis highlights a significant effect of area of residence. As well, a significantly lower prevalence of obesity was observed in the wealthiest neighborhoods (aOR=0,48; 95%CI: 0,28-0,82) and a lower prevalence in the more walkable neighborhoods among women (aOR=0,69; 95%CI: 0,43-1,11).

Conclusion. These results suggest that built environment may play

a role in the risk of obesity, apart from individual factors. More specific analysis will help us to understand what property (land mix use, intersection density etc.) play a major role in the likelihood of obesity.

- ◆ -

- 050 -**RISK FACTORS FOR CHILDHOOD OBESITY IN ITALY**

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Introduction. The prevalence of childhood obesity is increasing in Europe. In 2007 the Italian National Institute of Health started a national surveillance system of obesity in children of primary school age (OKkio alla SALUTE).

Objectives. To estimate the prevalence of childhood overweight and obesity among Italian schoolchildren and to examine the main risk behaviour (nutrition, physical activity, sedentary).

Methods. Cluster sampling in all Italian regions was used to identify the third primary classes for participation. Parents, children and teachers completed brief questionnaires to study the risk behaviour of children. Children were weighed and measured by trained local health staff. The body mass index was calculated and cut-offs of the International Obesity Task Force were used to define overweight and obesity.

Results. 47,807 children were measured in the period 2008-2009: 23% were overweight (95%CI: 22.7-23.8%) and 12% were obese (95%CI: 11.5-12.5%). The prevalence of overweight and obesity together was higher in the south (43%) and in children of women with lower educational attainment (39%). Unhealthy eating habits and sedentary behaviour show the same pattern: for example, not eating breakfast was more common in the south (15% vs. 7% in the north) and in children with lower educated mothers (13% vs. 6%). Also children watching TV >3 hours a day were less frequent in the north (17% vs 32% in the south) and when their mother had a higher level of education (32% vs. 58%).

Conclusions. In Italy the overall prevalence of childhood overweight, obesity and their risk factors were high, with a strong north south gradient, and associated with mother's educational level.

November 8th

PARALLEL SESSION

Cancer screening

Chairmen:

Harry de Koning (Rotterdam, Netherlands), Nereo Segnan (Turin, Italy)

Harry de Koning

Evaluating the impact of mammography screening programmes on incidence of breast cancer

Marco Zappa

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- invited speaker -

EVALUATING THE IMPACT OF MAMMOGRAPHY SCREENING PROGRAMMES ON INCIDENCE OF BREAST CANCER

Harry de Koning

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Introduction. Mammography screening can reduce breast cancer mortality by more than 30% in women who are actually screened 1-3, but the harms of screening are less well established. One of the downsides of screening is overdiagnosis, i.e. the detection of breast cancers that would not have surfaced during a woman's life-time if no screening had taken place.

Objectives. The risk of overdiagnosis in breast cancer screening is strongly debated, with estimates varying between 1% and 54%. The objective of this study is to explain such variations, using the gradual implementation of mammography screening in the Netherlands as example.

Methods. The observed breast cancer incidence in women aged 0-100 was compared to the predicted incidence without screening, during the implementation phase of the screening programme (1990-1997), the phase in which the upper age limit of the programme was extended (1998-2001), and during the steady state phase of screening programme (2002-2006).

Results. Overdiagnosis was calculated as the difference in the number of breast cancers with and the predicted number of breast cancers without screening. By estimating overdiagnosis annually

between 1990 and 2006, the importance of the time at which overdiagnosis is measured was illustrated. To enable a comparison between various overdiagnosis estimates, the rate was calculated for women aged 0-100, women in the screening age and older, and women in the screening age only.

Conclusion. In this study, differences between key studies on overdiagnosis will be discussed.



- invited speaker -

EPIDEMIOLOGICAL ESTIMATES OF OVERDIAGNOSIS IN BREAST CANCER SCREENING; FLORENCE AND INTERNATIONALLY

Marco Zappa

ISPO, Florence, Italy

Recently the occurrence of overdiagnosis as a consequence of mammographic screening programme has been pointed out (Biesheuvel et al, 2007). Several papers have faced with this issue although estimates of overdiagnosis are quite different. How can we explain such controversial results? First of all, excess of incidence, which is necessary consequence of breast cancer screening in order to achieve the wished outcomes, is not overdiagnosis. Furthermore the differences in the overdiagnosis estimates depend on the used methods and measures. In this situation finally the crucial point is to as-

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sess, in a real situation, the ratio between the number of saved lives and the number of cases overdiagnosed.

We will present a review of the more updated data (Puliti and Paci, 2009). Furthermore we will present the first result (not yet published) in terms of lives saved and overdiagnosed cases of the cohort of about 51,000 women invited for the first time in 1991-1993 within the screening programme of the city of Florence. We divided the cohort into 3 groups, namely frequent attenders (women who complied the first two invitations), never attenders (women who did not complied both the first two invitations) and irregular attenders (women who complied only one of the first two invitations). These 3 cohorts have been followed for 17 years in terms of incidence and mortality from breast cancers.

The problems of comparability will be discussed. The results of mortality reduction, overdiagnosis and ratio between these two outcomes will be presented.

- ◆ -

- invited speaker -**MAMMOGRAPHY SCREENING AND OVERDIAGNOSIS IN DENMARK**

Elsbeth Lynge, Sisse Njor
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Introduction. While reduction in breast cancer mortality is the aim of mammography screening, overdiagnosis is the most serious of the potential negative side-effects.

Objectives. To determine overdiagnosis in two well-established mammography screening programmes in Denmark (Copenhagen and Fyn).

Methods. Cohort study of women targeted by screening including both the period up to age 70 where they were offered screening and the period beyond age 70. Breast cancer incidence in the screening period was compared with breast cancer incidence in the pre-screening period, controlling for the trend in breast cancer incidence over the same time interval in non-screening regions of Denmark. Poisson regression was used for analysis. To take account of lead time in person years at risk, also cumulative incidence proportions were analysed.

Results. The incidence analysis pointed to a 9% (95%CI: 2% - 17%) overdiagnosis in Copenhagen and 3% (95%CI: -6% - 14%) in Fyn. The analysis of cumulative incidence proportions is in progress.

Conclusions. Overdiagnosis is methodologically difficult to estimate, but the risk of overdiagnosis should be taken into account in advising women on mammography screening. Differences in overdiagnosis between programmes should be used to explore ways of minimizing overdiagnosis.

- ◆ -

- 051 -**IS BREAST CANCER SCREENING A USEFUL TOOL TO TACKLE HEALTH INEQUALITIES? A STUDY IN EMILIA-ROMAGNA REGION**

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Introduction. Differences in survival for breast cancer related to socioeconomic status (SES) are well documented in the literature. Breast cancer screening, even in Northern-European countries with good adherence, has not resulted in a significant reduction in these SES-related differences in survival. In Emilia-Romagna region since 2001 (with total coverage) all women aged 50-69 have been offered a proactive screening program, which includes rapid diagnostic and treatment pathways for positive cases. Average adherence is about 70%.

Objectives. To evaluate whether this screening modality reduces SES related differences in breast cancer survival.

Methods. Regional Breast Cancer Registry (BCR) was linked with Mortality Registry to determine vital status and cause of death. BCR was also linked with Census' individual database to obtain individual SES data: 14,689 (63.3%) of eligible cases were linked and comparison between linked and not linked women was performed. Kaplan-Meier specific 5-year survival and Cox hazard ratio (HR) were calculated separately for 3 age groups (30-49, 50-69, 70-89) and 2 incidence periods (1997-2000, 2001-2003) adjusting for age and stage.

Results. No significant difference was detected between linked and not linked women by stage and survival. Differences in survival by educational level were found in the first period in all age groups with lower values for women with low education; in the second period these differences disappeared only for women aged 50-69. Cox models confirmed these results (age group 50-69; HR [95%CI] high education vs low, first period: 0.66 [0.44-0.98]; second period 1.02 [0.55-1.89]) and highlighted a different pattern in each age group, with the youngest ones showing a persistent difference in survival even after the adjustment for stage.

Conclusions. In the current ongoing debate about the effectiveness of screening in reducing mortality, it should be noted that a screening program entailing a rapid, free pathway of diagnosis and treatment is able to level out the difference in survival for more deprived women.

- ◆ -

- 052 -**SELF-SAMPLING VS. REMINDER LETTER: INCREASING ATTENDANCE AT SCREENING FOR CERVICAL CANCER**

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Introduction. The attendance to and coverage of the Finnish cervical cancer screening programme is higher than 70%, although only a few municipalities take measures to increase the attendance. The attendance rate is lower than 70% in the capital region and among women in their thirties. Reminder letter is the recommended and self-sampling high-risk human papillomavirus test a potential alternative way to increase screening attendance.

Objectives. The aim was to compare self-sampling and reminder letter as means to increase attendance and coverage in a randomized screening trial with two intervention arms.

Methods. The non-attendees to organized cervical cancer screening in Espoo in capital region in 2008 were randomized to receive a self-sampling kit (1,130 women) or a reminder letter (3,030 women). Both arms received a questionnaire concerning recent gynecological health history and previous Pap-smears. Relative risks (RR) for attendance were estimated by log-binomial regression.

Results. Attendance rate in the self-sampling arm was 30% and in the reminder letter arm 26%. The age, mother tongue and invitational mode adjusted RR for attendance in self-sampling arm compared to reminder letter was 1.13 (95%CI: 1.01-1.25). In both arms, a fifth of the attendees could be considered underscreened, having at least 5 years since previous Pap-smear. Approximately 17 self-sampling kits or 19 reminder letters were needed to be sent to get one underscreened woman to attend. Self-sampling was particularly successful in increasing coverage among immigrants.

Conclusions. Self-sampling kit was comparable or slightly more successful in increasing attendance than a reminder letter, but the effects on screening coverage were similar in both intervention arms.



- 053 -

OFFERING PEOPLE A CHOICE FOR COLORECTAL CANCER SCREENING. ATTENDANCE AND DETECTION RATE IN TORINO AND VERONA

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Introduction. In Verona and Torino colorectal cancer screening is performed using flexible sigmoidoscopy (FS) once in the life in 60 (Verona) or 58 years old (Torino) people and immunological faecal occult blood testing (FIT) to people non compliant to sigmoidoscopy.

Objectives. To determine the feasibility and covering rate of screening program and the detection rate for adenomas and cancer.

Methods. Subjects aged 60 are enrolled with a personal invitation letter signed by the GP. Subjects who report a personal history of colorectal cancer, colorectal polyps or inflammatory bowel disease, colonoscopy within the previous 5 years or a medical condition that would preclude a benefit from screening are excluded from invitation. FS are performed by a gastroenterologist with flexible endoscopes. Bowel preparation is limited to a single enema self-administered at home. Subjects found to have one distal polyp >5 mm (≥ 10 mm in Turin) or at least one adenoma (one advanced adenomas or >2 adenomas in Turin) at sigmoidoscopy are referred for colonoscopy. People who do not respond to the invitation for FS are invited to FIT (cut off 100 ng/ml). High risk (HR) adenoma is defined as an adenoma with high grade dysplasia, or villous component >20%, or size >9 mm.

Results. FIT can increase the proportion of people having screening by 25%. The overall coverage is higher in Verona than in Turin, the difference in participation rate being similar for FS and FOBT.

As in both programmes males show a higher attendance rate to FS, while females show a higher attendance rate to FOBT, this strategy allows for achieving a similar coverage in both genders. FIT in people not attending to FS can contribute to detect an additional consistent number of high risk adenomas (0.6%) and cancers (0.1%) in the invited population.

Conclusions. A screening program offering FS to people aged 58 to 60 followed by the FIT to non-attenders to FS is feasible, and it increases the effectiveness.



- 054 -

EVIDENCE-BASED EUROPEAN GUIDELINES FOR QUALITY ASSURANCE IN CANCER SCREENING PROGRAMMES

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Introduction. In 2003, the Council of the European Union (EU) recommended implementation of population-based breast, cervical and colorectal cancer screening programmes with quality assurance at all levels. To assist Member States (MS), the European Commission produced European Guidelines for Quality Assurance (EGQA) in cervical and breast cancer screening. EGQA in colorectal cancer screening and a supplement on improving prevention of cervical cancer using HPV vaccination and testing will be published in 2010.

Objectives. To develop evidence-based EGQA in cancer screening.

Methods. An editorial board (EB) appointed a multidisciplinary team of authors who are experts in cervical and colorectal cancer screening, and a Literature Group (LG) (for retrieval, evaluation and synthesis of relevant literature). Authors defined clinical questions (Patient-Intervention-Comparison-Outcome-Study method) for sensitive and specific bibliographic searches (Medline, Embase, Cochrane library); articles suggested by experts were also considered. A study design hierarchy and inclusion/exclusion criteria were developed for each kind of question (effectiveness, diagnostic accuracy, acceptability etc.). The methodological quality of the studies was assessed using validated checklists. For each question, evidence tables (ET) and summary documents (SD) with a synthesis of results and the level of evidence were produced. The level of evidence and the strength of the recommendations was produced. After receiving ET and SD, authors wrote chapter drafts based on evidence and personal clinical experience. Drafts were circulated among authors, LG, external reviewers, and the EB to develop consensus on the final recommendations and other content.

Results & Conclusions. EGQA permit implementation of organized screening programs and QA systems. The need for regular updating and continuous improvement justifies a structured, evidence-based approach to GL production, publication and dissemination.

PARALLEL SESSION

Environment and health II

Chairmen:

Fabio Barbone (Udine, Italy), Annette Peters (Neuherberg, Germany)

Paola Colais et al. [055]

The effects of particulate air pollution on hospital admissions for cardiac diseases in potentially sensitive subgroups. A multicity case-crossover analysis

Hans Scheers et al. [056]

Does air pollution trigger infant mortality in Western Europe? A case-crossover study

Eberhard Greiser et al. [057]

Impact of aircraft noise on cardiovascular diseases. The Cologne-Bonn Airport Study

Daniela Nuvolone et al. [058]

Short-term effects of ozone on out-of-hospital coronary deaths: a case-crossover analyses in Tuscany

Anna Freni Sterrantino et al. [059]

PM10 exposure and asthmatic symptoms: a panel study of children living in the provinces of Ferrara and Rovigo (Italy)

Antonis Analitis et al. [060]

Joint effects of temperature and air pollution in 10 Mediterranean cities: results from the CIRCE Project

Maria Angela Vigotti et al. [061]

Traffic noise exposure and occurrence of myocardial infarction in Pisa (Italy)

Michela Leone et al. [062]

The use of distributed lag non-linear models to investigate the effect of high temperature on mortality and harvesting effect in Rome and Athens

- 055 -

THE EFFECTS OF PARTICULATE AIR POLLUTION ON HOSPITAL ADMISSIONS FOR CARDIAC DISEASES IN POTENTIALLY SENSITIVE SUBGROUPS. A MULTICITY CASE-CROSSOVER ANALYSIS

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Introduction. Several studies have shown that particulate air pollution with aerodynamic diameter less than 10 micrometers (PM10) is associated with increased risk of hospital admissions for cardiovascular causes. However, only few studies focused on subgroups of population susceptible to these effects.

Objective. Objective of the study was to estimate the short-term

association between PM10 and cardiac hospital admissions in 9 Italian cities and to identify susceptible population subgroups based on demographic characteristics and chronic diseases.

Methods. A "time-stratified" case-crossover design was conducted to evaluate the association PM10-hospitalization for cardiac diseases (in particular, acute coronary syndrome (ACS), arrhythmias and conduction disorders (A-CD) and heart failure (HF)). The effect modification was assessed by means of interaction. Data on air pollution and hospital admissions were collected for the period 2001-2005, complete with information on age, sex and chronic conditions from two-year previous hospitalizations.

Results. 167,895 hospitalizations with a diagnosis of cardiac disease in 65+ year old people were considered. The excess risk for 10 µg/m³ increase in PM10 was highest at lag 0 (1.03%; 95%CI: 0.69-1.38) and decreased on the following days. The effect was higher for ACS (1.13%; 95%CI: 0.37-1.89, lag 0-1) and for HF (1.37%; 95%CI: 0.74-2.00, lag 0) than for A-CD (1.00%; 95%CI: 0.22-1.78, lag 0). In the subgroup analysis, the women were at higher risk of hospital admissions for cardiac diseases (1.29%; 95%CI: 0.84-1.75) than men and an effect modification between

genders was observed for the relationship PM10-HF (1.99%; 95%CI: 1.17-2.82; p-REM=0.022). Those aged 75-84 years are likely to be susceptible to particulate with a high effect on ACS at lag 0-1 (2.61%; 95%CI: 1.49-3.75; p-REM=0.001). There was a suggestion for hypertension, previous A-CD, and previous HF to be effect modifiers of the association PM10-HF.

Conclusion. A strong and acute (lag 0) effect of PM10 on hospitalizations for cardiac diseases was found in Italian cities. A greater susceptibility of women and for particular age groups was detected. Among the clinical conditions investigated, only few (previous arrhythmias, previous heart failure and hypertension) were suggested as effect modifiers.



- 056 -

DOES AIR POLLUTION TRIGGER INFANT MORTALITY IN WESTERN EUROPE? A CASE-CROSSOVER STUDY

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Introduction. Numerous studies show associations between fine particulate air pollutants (PM10) and mortality in adults. We investigated short-term effects of elevated PM10 levels on infant mortality in Flanders, Belgium, and studied whether the EU limit value protects infants from the air pollution trigger.

Methods. In a case-crossover analysis based on data from all 2382 infants who died from non-traumatic causes before the age of one year during the period 1998-2006, we estimated the risk of dying in relation with the outdoor PM10 concentrations at the infant's residence (interpolated to the municipality level) on the day of death and up to 3 days earlier. Control days were matched on temperature in order to control for confounding by variations in daily temperature.

Results. During the study period, the mean daily PM10 concentration averaged 31.9 µg/m³ (SD 13.8). In the entire population, the risk of death increased by 4% (95%CI: 0-8%, P=0.045) for a 10 µg/m³ increase in daily mean PM10 on the day of death. However, the association between mortality and daily air pollution was only significant for infants of two to four weeks of age (late neonates, N=372), in whom the risk of death increased by 11% (1-22%, P=0.028) per 10 µg/m³ increase in PM10. In this age class, infants were 1.74 (1.18-2.58; P=0.006) times more likely to die on days with a mean PM10 above 50 µg/m³, than on days below this cut-off, the EU limit value. We calculated that on days above the EU limit value, 43% (15-61%) of the late neonatal mortality was triggered by an acute increase of air pollution.

Conclusion. Even in an affluent region in Western Europe, where infant mortality is low, days with higher particulate air pollution are associated with an increased risk of infant mortality. The current EU limit value for PM10, which is allowed to be exceeded on 35 days per year, does not prevent triggering infant mortality.

- 057 -

IMPACT OF AIRCRAFT NOISE ON CARDIOVASCULAR DISEASES. THE COLOGNE-BONN AIRPORT STUDY

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Introduction. Since 1977 several investigators have demonstrated an impact of aircraft noise (AN) on hypertension and/or cardiovascular diseases (CD). A preceding study in the vicinity of Cologne-Bonn International Airport (CBIA) showed an increase of amount of cardiac drugs prescribed with increasing AN. CBIA is an airport with unlimited night-time traffic and a major air cargo hub.

Objectives. To investigate the impact of night-time AN on cardiovascular disease risk.

Methods. Geo-referenced environmental noise data (aircraft, road, railroad) were linked to hospital discharge diagnoses of 1.020.528 persons living in the vicinity of CBIA insured in 8 German sickness funds (residential addresses geo-referenced) in a case-control design. Study population came to more than 55% of the total population of the study region (Cologne City and 2 adjacent counties). Confounders were in addition to age environmental noise, prevalence of social welfare recipients of residential quarters and interaction of AN*age.

Results. With increasing age risk increase for all CD is decreasing. Increases are larger in women. For night-time (11 p.m.-1 a.m.) AN of 50 dB(A) and age of 50 the odds ratios are for all CD in men 1.22 (95%CI: 1.08-1.39), in women 1.54 (95%CI: 1.36-1.75); for acute myocardial infarction in men 1.18 (95%CI: 0.90-1.54), in women 1.54 (95%CI: 1.10-2.18); for heart failure in men 1.52 (95%CI: 1.22-1.88), in women 1.59 (95%CI: 1.29-1.95); for stroke in men 1.36 (95%CI: 1.00-1.85), in women 1.36 (95%CI: 1.00-1.84). Analyses stratified by prevalence of social welfare quartile showed no risk increase in highest quartile, although prevalence of all CD was increasing with prevalence of social welfare recipients.

Conclusions. This major study contributes additional evidence linking AN to cardiovascular diseases.



- 058 -

SHORT-TERM EFFECTS OF OZONE ON OUT-OF-HOSPITAL CORONARY DEATHS: A CASE-CROSSOVER ANALYSES IN TUSCANY

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Introduction. Air pollutants levels have been widely associated with increased hospital admissions and mortality for cardiovascular disease. Few studies have focused on effects of pollutants on out-of-hospital coronary deaths.

Objectives. To analyse the short-term effects of ozone on out-of-hospital coronary deaths in Tuscany (Italy).

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Methods. Out-of-hospital coronary deaths, daily ozone concentrations and daily meteorological parameters were collected for the period 2002-2005, in six urban areas of Tuscany. A time-stratified case-crossover approach was applied and area-specific conditional regression models were fitted, adjusting for meteorological data and a set of time-dependent variables. Bi-pollutant models were fitted to simultaneously analyse the combined effects of other pollutants (CO, NO₂ and PM10). Analyses were restricted to summer period. Hospitalization during the 3 years before death were considered to identify comorbidities. Pooled effect estimates were derived from random-effect meta-analyses.

Results. 4,966 cases of out-of-hospital deaths were identified (50,7% men and 49,3% women). Meta-analytical results showed an OR=1.066 (95%CI: 1.016-1.120) for increasing of 10 µg/m³ of O₃ levels (lag 0-5). More susceptible subgroups were elderly people (+75 years), females and patients with ischemic diseases. Results of bi-pollutant models showed an independent effect of O₃ on out-of-hospital deaths.

Conclusions. This study adds evidence to the short-term adverse effects of ozone on cardiovascular mortality, suggesting a need for specific interest on more vulnerable subjects.

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- 059 -

PM10 EXPOSURE AND ASTHMATIC SYMPTOMS: A PANEL STUDY OF CHILDREN LIVING IN THE PROVINCES OF FERRARA AND ROVIGO (ITALY)

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Introduction. The provinces of Ferrara and Rovigo are recognized as areas of high environmental pressures, due to traffic along several highways and industrial plants. The local authorities promoted a study to evaluate the short term effect of air pollution on asthmatic symptoms in school-aged children living in these districts.

Objectives. The aim of this study was to investigate the association between PM10 exposure and the daily changes in asthmatic symptoms in a selected group of schoolchildren.

Methods. A panel data study was undertaken in which 69 children (aged 6-7 and 13 years), identified as asthmatic by a standardized screening questionnaire, agreed to be monitored for eight weeks. Each subject filled a baseline questionnaire and recorded daily information on asthmatic symptoms (wheezing, cough, phlegm,), drug consumption and daily activities. GIS tools allowed a better definition of the residential exposure to air pollution combining environmental and geographic variables. PM10 daily data were provided by the regional Environmental Agency. Based on environmental and demographic data, three areas were identified: residential, industrial, rural. The association between pollution and symptoms has been investigated using generalized linear mixed models and conditional logistic regression.

Results. The effect estimates were calculated for an increase of

10 mg/m³ PM10. We observed an increased risk for cough (OR=1.05; CI95%: 1.00-1.11), phlegm (OR=1.01; CI95%: 1.03-1.117), and at least one symptom (OR=1.06; CI95%: 1.01-1.19). A stratified analysis by area indicated that the effects were stronger in the residential area.

Conclusion. PM10 exposure was significantly associated with an increase of asthmatic symptoms, with differences between areas at different environmental pressures. The small number of participants in each area, however, preclude firm conclusions.

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- 060 -

JOINT EFFECTS OF TEMPERATURE AND AIR POLLUTION IN 10 MEDITERRANEAN CITIES: RESULTS FROM THE CIRCE PROJECT

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Introduction. Climate and meteorology are known to affect health. Climate change is expected to modify and enhance both the air-pollution profiles and the human health effects. There is accumulating evidence for synergy between temperature and air pollution. Within the framework of the CIRCE project (Climate Change and Impact Research: the Mediterranean Environment) we studied the joint effect of apparent temperature and air-pollution on mortality.

Methods. Mortality, meteorological and air-pollution data from 10 cities around the Mediterranean were available (Athens, Bari, Barcelona, Istanbul, Lisbon, Palermo, Rome, Tel Aviv, Tunis and Valencia). We used GEE models to estimate the confounding and synergistic effects between temperature and air-pollution on total natural and cause-specific mortality. The effect of apparent temperature on mortality was estimated before and after adjustment for air-pollution. To investigate possible synergy we included interaction terms between each pollutant and apparent temperature.

Results. The effect of temperature on mortality was consistently smaller when we adjusted for air-pollution. The largest effect was observed when we controlled for PM10 which resulted in a reduction of about 15% in the temperature effect estimate. There is some evidence for a synergistic effect between temperature and pollution. We observe higher temperature effect in days with higher PM10 and ozone concentrations. The synergistic effect is significant in the elderly. Specifically, in a day with low PM10 levels (25th percentile of the distribution) the increase in mortality associated with an increase of 1 °C is 2.37% (1.15, 3.60) whilst the increase in day with high PM10 levels (75th percentile) is 3.02% (1.71, 4.35).

Conclusions. There is evidence for a synergistic effect between PM10, ozone and high temperature on mortality. Adjustment for particles should be applied in the estimation of the effect of temperature on mortality.

- 061 -**TRAFFIC NOISE EXPOSURE AND OCCURRENCE OF MYOCARDIAL INFARCTION IN PISA (ITALY)**Vigotti MA,¹ Nolli M,² Corsini C,³ Chiari C,² Bonfanti M,⁴ Protti M,⁵ Licitra G²¹Biology Department, Pisa University, Italy; ²ARPAT, Tuscany Region, Italy; ³Biology Department, Pisa University, Italy; ⁴Pisa Municipality, Italy; ⁵IFC-CNR, Pisa, Italy

Introduction. Several studies have suggested a relationship between traffic noise and ischemic heart Disease, in particular acute myocardial infarction (MI).

Objectives. To analyse the association between residential exposure to road traffic noise and MI incidence in Pisa, Italy.

Methods. Incidence of first MI in the period 2002-2006 was obtained from mortality and hospitalization data (1998-2006). Residential address and geographical coordinates was available for each subjects together with age and gender data. Traffic noise exposure was estimated at the buildings façades of the house of each subjects from the 3D noise maps of Pisa. The exposure estimates were done by Environmental Protection Agency of Tuscany Region according to the new acoustic indicators and interim methods issued by European Directive 2009/49/CE.

Results. 823 MI cases were identified in 2002-2006 (480 males) among 12,710 residents (5,774 males) living in 1,296 different buildings. Incidence rates were computed by sex, age groups (30-49;50-69;70+ years) and nocturnal noise levels (55Db). MI incidence rates were higher among males living in building with high level of nocturnal traffic noise exposure (≥ 55 Db): the rate ratio between high/low noise levels was 1.08 at age 30-49, 1.19 at age 50-69, 1.35 over 70 years. Among women MI incidence rates were about 50% lower than those of male and with similar trend by age.

Conclusions. This preliminary results support the presence of an association between occurrence of first myocardial infarction and high levels of nocturnal traffic noise exposure at the place of residence. Further analyses should consider the residence duration and the possibility of confounding from air pollution exposure and socioeconomic status.

- 062 -**THE USE OF DISTRIBUTED LAG NON-LINEAR MODELS TO INVESTIGATE THE EFFECT OF HIGH TEMPERATURE ON MORTALITY AND HARVESTING EFFECT IN ROME AND ATHENS**Leone M,¹ Gasparrini A,² D'Ippoliti D¹¹Lazio Region Department of Epidemiology, Rome, Italy; ²Department of Social and Environmental Health Research London School of Hygiene & Tropical Medicine, UK

Introduction. There is evidence that the temperature-mortality relationship is non-linear and persists for several days following the exposure. Recently a new flexible framework has been developed to represent both aspects simultaneously.

Objectives. To estimate the impact of maximum apparent temperature (Tappmax) on mortality and the harvesting effect in two out of ten participating cities to the CIRCE EU-funded project (Athens and Rome), using distributed lag non-linear models (DLNMs).

Methods. The analysis considered the mortality and Tappmax time series of Rome (1992-2006) and Athens (1994-2004), restricted to the warm season (Apr-Sept). DLNMs are based on the definition of a "cross-basis", a bi-dimensional space of functions which simultaneously describes the shape and lag dimension of the dose-response relationship. Here the cross-basis was built using two cubic regression splines using a 30-day lag window. The effect was summarized by the percent variation in total mortality for a 1°C increase in Tappmax above the threshold. The model was adjusted for holidays, day of the week and month, pressure, wind speed, NO₂ and time trends.

Results. The percentage increase in daily mortality for a 1°C increase in Tappmax was estimated, showing an heterogeneity of the effect at different temperatures in the two cities. In Rome the highest effect was observed from 31 to 32°C, and from 32 to 33°C (10.2% increase), whereas in Athens the highest effect was from 36 to 37°C (2.4%). The cumulative effect was 29.8% and 40.8% respectively. A harvesting effect was observed in Athens after 10 days but not in Rome; the shape of the distributed lag indicated that the effect is limited to the first week.

Conclusions. Results show that the effect of heat and its temporal structure are different between cities, and confirm the importance to taking into account the lag dimension to obtain a valid estimate.

PARALLEL SESSION

Occupational health II

Chairmen:

David Coggon (Southampton, UK), Lorenzo Simonato (Padova, Italy)

Sie Sie Siew et al. [063]

Occupational exposure to iron and welding fumes and the risk of lung cancer: a whole-population-based cohort study in Finland

Daniela Ferrante et al. [064]

Incidence of malignant pleural mesothelioma after occupational and household exposure to asbestos in the period 1990-2008

Dario Consonni et al. [065]

Lung cancer among construction workers in a population-based case-control study

Silke Kleefeld et al. [066]

Advances in the retrospective assessment of occupational exposures: results from the multicentre European case-control study epilymph

Risto Kaikkonen et al. [067]

Do work characteristics explain educational inequalities in work ability?

Roberto Leombruni et al. [068]

The impact of flexibilization on workplace safety: the case of young Italian workers

Marco Peluso et al. [069]

Changes in DNA methylation patterns in workers of a Thai industrial estate and nearby residents

Francesco Barone Adesi et al. [070]

Role of asbestos clearance in explaining different mortality time trends from pleural and peritoneal cancer. A paradigm shift in the epidemiology of mesothelioma?

- 063 -

OCCUPATIONAL EXPOSURE TO IRON AND WELDING FUMES AND THE RISK OF LUNG CANCER: A WHOLE-POPULATION-BASED COHORT STUDY IN FINLAND

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Introduction. Exposure to iron fumes and dust and welding fumes is widespread and may increase the risk of lung cancer.

Objective. The aim of this study was to identify associations between exposure to iron and welding fumes and the incidence of lung cancer among Finnish men.

Methods. The cohort of all economically active Finnish men, born in 1906-1945, who participated in the national census in 1970 was followed through the Finnish Cancer Registry for lung cancer cases (N=30,137) during 1971-1995. Their census occupations in 1970 were converted to estimates of cumulative exposure to iron and welding fumes with the Finnish job-exposure matrix on the basis of likelihood, average level, and estimated duration of exposure. Relative risk estimates for categorized cu-

mulative exposure were defined by a Poisson regression, adjusted for smoking, socioeconomic status, and exposure to asbestos and silica dust.

Results. The relative risks for lung cancer increased as the cumulative exposure to iron and welding fumes increased. The relative risks in the highest exposure category was 1.35 (95%CI: 1.05-1.73) for iron and 1.15 (95%CI: 0.90-1.46) for welding fumes. The respective relative risks estimated for squamous-cell carcinoma of the lungs were 1.94 (95%CI: 1.35-2.78) and 1.55 (95%CI: 1.08-2.24). There was no excess risk of small-cell carcinoma in any exposure category.

Conclusions. Occupational exposure to iron and welding fumes was associated with an increase in lung cancer risk, mainly that of squamous-cell carcinoma. The simultaneous exposure to both of these agents and other potential work-related carcinogens complicates the interpretation of the independent roles of the risk factors.

- ◆ -

- 064 -

INCIDENCE OF MALIGNANT PLEURAL MESOTHELIOMA AFTER OCCUPATIONAL AND HOUSEHOLD EXPOSURE TO ASBESTOS IN THE PERIOD 1990-2008Ferrante D,¹ Tunesi S,¹ Mirabelli D,² Terracini B,² Magnani C¹¹Università del Piemonte Orientale "A. Avogadro", Alessandria, Novara, Vercelli and CPO Piemonte, Italy; ²Centre for Cancer Epidemiology and Prevention, CPO Piemonte, Turin, Italy

Introduction. Asbestos is the main etiological agent of pleural malignant mesothelioma (MM). Since most asbestos exposure is work-related, mesothelioma is an occupational disease in the majority of cases. Para-occupational cases are described in household contacts of asbestos workers, mainly because of exposure via clothes used at work. Monitoring of asbestos related malignancies is still relevant for estimating long term risks in exposed.

Objectives. To evaluate MM incidence in the largest Italian cohort of asbestos exposed workers, i.e. the Eternit factory, and in the cohort of their wives.

Methods. 3,434 workers and 1,780 workers' wives were followed for more than 40 years. The incident cases of MM were searched in the Mesothelioma Registry of Piedmont and only histologically confirmed cases were considered. We computed expected numbers of MM and standardized incidence ratios (SIRs) from the age and sex specific incidence rates for the period 1990-2008 using indirect standardization. Trends were evaluated by latency and exposure duration.

Results. Overall, in the period 1990-2008, in the Eternit plant, 57 cases (42 men and 15 women) were observed against 2.05 expected (SIR=27.76; 95%CI: 21.03-35.97) and in the wives' cohort 14 cases against 0.75 expected (SIR=18.56; 95%CI: 10.15-31.14). Risk increased with exposure duration and latency. In wives, SIRs increased significantly after 30 years of latency (13 cases, 0.64 exp.). In workers SIRs were: latency =30 years SIR=29.87 (95%CI: 22.24-39.28) and duration =20 years, SIR=40.10 (95%CI: 26.86-57.60). Multivariate analyses are in progress for investigating the effect of cessation of exposure and other variables on MM risk.

Conclusion. The present study confirms the increased risk of MM among workers and their wives and its relationship with duration of exposure and latency.



- 065 -

LUNG CANCER AMONG CONSTRUCTION WORKERS IN A POPULATION-BASED CASE-CONTROL STUDYConsonni D,¹ De Matteis S,² Pesatori AC,¹ Lubin JH,² Wacholder S,² Tucker M,² Caporaso NE,² Bertazzi PA,¹ Landi MT²¹Unit of Epidemiology, Fondazione IRCCS Ca' Granda Ospedale Maggiore and Università degli Studi, Milan, Italy; ²Division of Cancer Epidemiology and Genetics, National Cancer Institute, NIH, Bethesda, USA

Introduction. Working in the construction sector may entail exposure to known/suspected lung carcinogens, including asbestos and crystalline silica. In 2002-05, in a population-based case-control study (Environment And Genetics in Lung cancer Etiology, EAGLE) performed in Lombardy, Italy, 2,100 incident lung can-

cer cases and 2,120 population controls were enrolled. This study offers the opportunity to explore the role of several determinants in lung cancer etiology.

Objective. To examine lung cancer risk among construction workers.

Methods. Lifetime occupational histories (industries/jobs) were coded according to international classifications. We studied men never employed in occupations known or suspected to entail a carcinogenic risk for the lung, respectively termed list A (including insulators and pipe coverers, roofers, asphalt workers, painters) and list B occupations (including operators of excavating machines). We calculated, for jobs in the construction sector, odds ratios (OR) and 95% confidence intervals (95%CI) adjusted for area, gender, age, No. of jobs, cigarette smoking (ever/never, pack-years, time since quitting), and other tobacco smoke (ever/never).

Results. There were 1,015 cases and 1,171 controls never employed in list A/B occupations. Among them, no elevated risk was found for the whole construction sector. We found 123 cases (8.0%) and 76 controls (4.7%) who had ever worked as bricklayers (OR: 1.4; 95%CI: 0.9-2.0). The ORs varied across the largest morphology groups (p=0.005): we found no increased risk for adenocarcinoma (OR: 0.8; 95%CI: 0.5-1.3, 31/406=7.6% exposed), increases for squamous (OR: 1.7; 95%CI: 1.0-2.8, 48/304=15.8% exposed) and small cell carcinomas (OR: 1.9; 95%CI: 1.0-3.7, 17/96=17.7% exposed).

Conclusion. These results indicate that working as a bricklayer was associated with increased lung cancer risk. The finding is coherent with previous studies and plausible in view of the potential for exposure to several carcinogens.



- 066 -

ADVANCES IN THE RETROSPECTIVE ASSESSMENT OF OCCUPATIONAL EXPOSURES: RESULTS FROM THE MULTICENTRE EUROPEAN CASE-CONTROL STUDY EPILYMPHKleefeld S,¹ Satta G,² Nonne T,² Meloni M,² Cocco P²¹National University of Ireland, Galway, Ireland; ²University of Cagliari, Italy

Introduction. Recent applications of occupational exposure assessment techniques in case-control studies have originated important findings on lymphoma risk associated with occupational exposure to solvents and to ethylene oxide.

Objectives. We herein describe methodological features of the multicentre European case-control study EPILYMPH, and its results on solvents and ethylene oxide.

Methods. 2,348 lymphoma cases and 2,462 controls participated in a case-control study in six European countries. Exposure to 43 agents was assessed by occupational health experts, based on a complete occupational history and specific 14 job-modules. For each exposure, the following metrics were assessed in a three step semi-quantitative scale: a) confidence in their own assessment (1 = possible, but not probable; 2 = probable; 3 = certain); b) intensity of exposure (0 = unexposed; 1 = low; 2 = medium; 3 = high); and c) frequency of exposure (0 = unexposed; 1 = 1-5% work time; 2 = 5-30% work time; 3 = >30% work time). Cumulative exposure for each solvent and for ethylene oxide was determined by summing up and catego-

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rizing the respective cumulative exposure scores over each study subject's own work history. The Fisher's combined probability test was used to test the associations.

Results. Increasing trends in risk of follicular lymphoma and CLL were highly significant by combining three independent metrics of exposure to solvents overall, benzene, toluene and xylene (BTX), styrene, gasoline and other solvents. The same positive findings were obtained for ethylene oxide, a group 1 human carcinogen according to IARC, for which human evidence from epidemiological cohort studies was considered as insufficient.

Conclusions. Our results show the validity of retrospective assessment of occupational exposures, when applied by occupational health experts, in occupational epidemiology studies.



- 067 -

DO WORK CHARACTERISTICS EXPLAIN EDUCATIONAL INEQUALITIES IN WORK ABILITY?

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Introduction. Lengthening work careers by preventing early retirement due to work disability is an increasingly important social, economic and public health issue. Socioeconomic inequalities in work ability make this issue even more challenging as work disability and the ensuing early retirement are particularly common in the lower socioeconomic groups.

Objectives. The aim of this study was to examine whether working conditions explain socioeconomic inequalities in work ability.

Methods. The data were derived from the Health 2000 Survey including people aged 30-64 years (n=5,867, response rate exceeding 90%). The main outcome variable was the work ability (WA) score. The level of education was classified in three groups. The explanatory factors included physical, chemical and psychosocial work characteristics. Odds ratios (OR) with 95% confidence intervals (95% CI) were calculated.

Results. Differences in WA according to educational level were clear among men (OR 5.19, 95%CI: 3.82-7.05) and women (OR 3.09, 95%CI: 2.36-4.03). Physical workload explained a third of the inequalities among men and more than a third among women. Chemical exposures at work explained 29% of the inequalities in WA among men and a third among women. Job control explained one fifth of men's and 46% of women's inequalities in WA. Other psychosocial work factors explained less, job demands 15% of men's and 22% of women's inequalities in WA. Model with all main effects (fully adjusted model) explained 40% of men's and one half (52%) of women's inequalities in WA were explained with work characteristics.

Conclusions. Work characteristics explained a large part of the socioeconomic inequalities in work ability. Both physical and psychosocial work characteristics had significant role. Improvements in working conditions reduce work disability and inequalities in work ability.

- 068 -

THE IMPACT OF FLEXIBILIZATION ON WORKPLACE SAFETY: THE CASE OF YOUNG ITALIAN WORKERS

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Introduction. In the last two decades Italy has witnessed an important deregulation of labour market institutions which brought about a huge increase in job insecurity, particularly for young workers. The international literature has shown that job insecurity has detrimental effects on psychological morbidity. Temporary employment has been associated with a higher risk of occupational injuries. The effect of flexibilization on workplace security has been less explored in Italy, where no longitudinal studies were available on this issue.

Objectives. To study the relations between precarious working careers and workplace security in a sample of young workers employed in the Italian private sector.

Methods. We extracted a 1% sample of individuals working in the private sector in Italy from the National Social Security Administration archives. For each subject a detailed description of the career has been compiled between 1985-2004. The work histories has been matched on an individual basis to work injuries, excluding commuting accidents, drawn from the National Insurance Institute for Employment Injuries. The final sample includes about 60,000 work episodes and 2,000 injuries per year. The injury risk has been studied with a Poisson model, controlling for the main individual- job- and firm characteristics. We considered a range of measures of precarity, both cross section (type of contract; a notional measure of job insecurity) and longitudinal, exploring various classifications of precarious careers.

Results. Preliminary results show that young precarious workers face a significantly higher risk of injury both with respect to prime age workers and to young ones with stable careers.

Conclusions. The deregulation of labour market is having an impact on the health and safety of workers. Current policies for workplace injury prevention should be adapted to deal with the more flexible relations that are occurring today between workers and firms.



- 069 -

CHANGES IN DNA METHYLATION PATTERNS IN WORKERS OF A THAI INDUSTRIAL ESTATE AND NEARBY RESIDENTS

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Introduction. Map Ta Phut Industrial Estate in (MIE) Thailand is the location of the largest steel, oil refinery and petrochemical factory complexes in the South-Eastern Asia. Recent studies have shown that air pollution can induce change in gene-specific and global DNA methylation.

Objectives. We conducted a cross-sectional study to analyse the

change in gene-specific and global DNA methylation in the leukocytes of 67 petrochemical MIE workers, 58 nearby Map Tha Put (MTP) residents and 48 subjects living in a control district but without proximity to industrial sources.

Methods. We have investigated whether air pollution exposure modifies the levels of DNA methylation in (LINE-1 and ALU 1 as a surrogate of genome-wide methylation. We have also evaluated the gene specific of p53 and p16 tumour suppressor gene. Bisulfite-PCR pyrosequencing was used to quantitate DNA methylation in the Thai samples.

Results. The level of LINE-1 methylation (% mC) was reduced in MIE workers in respect to district controls ($p=0.001$). No effect was found against MIE residents. A difference was observed between the LINE-1 methylation patterns of controls and those of MTP residents ($p=0.017$), but not with those of MIE workers.

Conclusions. Considering the role of DNA methylation changes in carcinogenic process, we would recommend measures aimed at reducing exposures to air pollution emitted from the Thai industrial estate.

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- 070 -

ROLE OF ASBESTOS CLEARANCE IN EXPLAINING DIFFERENT MORTALITY TIME TRENDS FROM PLEURAL AND PERITONEAL CANCER. A PARADIGM SHIFT IN THE EPIDEMIOLOGY OF MESOTHELIOMA?

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Introduction. Models based on the multistage theory of carcino-

genesis predict that the rate of mesothelioma increases monotonically as a function of time since first exposure (TSFE) to asbestos. Predictions of long-term occurrence of mesothelioma are, however, still unverified because of the limited follow-up of most epidemiological studies. Some authors have suggested that the increase in mesothelioma rate with TSFE might be attenuated by clearance of asbestos from the lungs.

Objectives. We estimated mortality time trends from pleural and peritoneal cancer in a cohort of 3,434 asbestos-cement workers, followed for more than 50 years.

Methods. The functional relation between mesothelioma rate and TSFE was evaluated using both the traditional mesothelioma multistage model, and a model generalized to include a term representing fibers elimination over time.

Results. 177 deaths from pleural and 73 from peritoneal cancer occurred during 1950-2009. The rate of pleural cancer increased during the first 35 years after start of exposure and reached a plateau thereafter. In contrast, the rate of peritoneal cancer increased monotonically with TSFE. The model allowing for asbestos elimination fitted the data better than the traditional model for pleural but not for peritoneal cancer. The elimination model estimated an asbestos elimination rate of 5% per year.

Conclusions. The risk of pleural cancer, rather than showing an indefinite increase, could reach a plateau when a sufficiently long time has elapsed since exposure. A possible explanation for this trend is asbestos clearance from the workers' lungs. Should this be the case, the number of pleural malignancies predicted by currently used models could be overestimated. Peritoneal cancer showed a different trend, suggesting no fiber clearance from peritoneum. The different behaviour of pleural and peritoneal cancer mortality also suggests that the time trends of these neoplasms should be analyzed separately.

PARALLEL SESSION

Tobacco

Chairmen:

Angel Esteve Fernandez Muñoz (Barcelona, Spain), Silvano Gallus (Milan, Italy)

Silvano Gallus

Impact of cigarette price on demand for tobacco products

Daniela Galeone, Giaccio Mario [071]

The monitoring of Italian smoking ban after five years

Giulia Carreras et al. [072]

Predicting future smoking prevalence in Italy

Maria Jose Lopez et al. [073]

Exposure to benzene as a carcinogen from the secondhand smoke in hospitality venues in Spain

Laura Tagliapietra et al. [074]

Observed smoking in car: results of a study from the Regional Health Prevention Service of Veneto, Northern Italy

Andrea Farioli et al. [075]

Tobacco smoke and risk of childhood leukaemia: findings from the SETIL case-control study

Jerry Polesel et al. [076]

Tobacco smoking, alcohol drinking, and the risk of nasopharyngeal cancer in Italy

- invited speaker -

IMPACT OF CIGARETTE PRICE ON DEMAND FOR TOBACCO PRODUCTS

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Introduction. The WHO Framework Convention on Tobacco Control (FCTC), an evidence-based treaty developed in response to the globalization of the tobacco epidemic and ratified by more than 170 countries, recommends price and tax measures to reduce the demand for tobacco (Article 6).

Objectives. To study price and taxation of cigarettes and other tobacco products, and their implications on tobacco use among the adult population.

Methods. We conducted a systematic literature review to select all the publications providing data on the price or tax elasticity on demand for tobacco products, using individual-level data on adults, performing up to February 2010 a PubMed search, retrieving publications on the World Bank, and checking the reference list of articles of interest. This study was conducted within the Pricing Policies and Control of Tobacco in Europe (PPAC-TE) project and the results will be published in IARC *Handbook on Tobacco Control* volume 14.

Results. Overall, we found 76 original papers or reports from studies using individual data on adults. Surveys conducted both

in high and low to middle income countries indicate that the overall price elasticity (i.e., the change in cigarette consumption according to a change in tobacco price) of adult smoking ranges between -0.2 and -0.6, with about half of the effect of price on smoking prevalence and half on intensity. Increased taxation has a measurable, although limited, effect on smoking cessation. Higher cigarette taxes tend to be associated with switch towards cheaper brands or other products. Surveys conducted in the USA and other high income countries indicate that between 30 and 50% of the general population would support tax increases, and such a support becomes appreciably greater (60 to 80%) whenever revenues are devoted to measures for tobacco control.

Conclusions. Prevalence and intensity of smoking among adults are inversely related to price. Increases in prices are likely supported by populations. We confirm therefore that price and tax measures are effective, feasible and important means of reducing tobacco consumption.

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- 071 -

THE MONITORING OF ITALIAN SMOKING BAN AFTER FIVE YEARS

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Ministry of Health, Rome, Italy

Introduction. On January 10th, 2005, a smoking ban in all enclosed places has been implemented in Italy.

Objective. To evaluate the results after five years of enforcement on exposure, prevalence, initiation and cessation of smoking and tobacco consumption.

Methods. The surveillance activities of the Italian Ministry of Health involve the collaboration of different stakeholders in order to implement the strategy and collect data.

Results. Prevalence of smokers reduced from 23.8% to 23%, the average number of cigarettes smoked reduced from 14.8 to 14 in 2009. Hospital admissions for Acute Myocardial Infarction show a reduction of 5% in 2005 and 4% in 2006 in people aged <70 years. Italian data from the surveillance system on health behaviour (PASSI) show that 41% of smokers tried to quit but 80% failed; only 60% of smokers report their GP suggested to stop smoking and 94% quit by themselves. Nicotine Replacement Treatments sales increased in the year after the ban but thereafter decreased to a lower (-6%) level respect to 2004. Sales of drugs like Bupropion and Varenicline rocked up to 1,500%. Sales of cigarettes decreased by -9.8% from 2004 to 2009 but Roll Your Own products sales increased by +139%. From 2007 more than 8,200 controls have been conducted by police, with 632 infractions (7.7%), but only 233 (2.8%) to people smoking where not allowed. As a consequence of a regional prevention department study, more than 2,400 public and more than 3,800 private offices have been monitored, smokers have been found in 1.5% and 2% of cases respectively; more than 90% interviewed said workers respect the law.

Conclusion. Laws are more effective than voluntary agreements; smoke-free policy is the first ever example of strategy in Italy that has been evaluated in its application. Scientific and synergic approach to evaluation is feasible and helpful to the strategy improvement.

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- 072 -

PREDICTING FUTURE SMOKING PREVALENCE IN ITALY

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Introduction. Smoking prevalence in Italy decreased by 37% from 1980 to now. This is due to changes in smoking initiation and cessation rates and is in part attributable to the development of tobacco control policies.

Objectives. This work aims to estimate the age- and sex-specific smoking initiation and cessation probabilities for different time periods and to predict the future smoking prevalence in Italy, assuming different tobacco control policies.

Methods. A dynamic model to describe the smokers evolution in time was developed. Smoking initiation and cessation probabilities were estimated by fitting the model with historical prevalence data for Italy. Uncertainty on prevalence data was taken into account with probabilistic sensitivity analysis, by assuming that the data follows a Dirichlet distribution. The model was then used to forecast future smoking prevalence till 2050 under four scenarios: a scenario with initiation and cessation probabilities unvaried at 2009

(1), half 2009 initiation probabilities (2), double 2009 cessation probabilities (3) and both half 2009 initiation and double 2009 cessation probabilities (4).

Results. The estimated initiation probabilities had different values and trends by gender and age-group. Smoking prevalence in women (17% in 2009) will reach in 2050 the values 13.4%, 9.1%, 9.0% and 6.0% under scenarios 1, 2, 3 e 4 respectively. In men smoking prevalence (29.5% in 2009) will reach in 2050 23.6%, 16.1%, 18.4% and 12.2%.

Conclusions. The future smoking prevalence under scenarios arising from the development of tobacco control policies not yet implemented in Italy was predicted. Such policies could be further tax increases, mass media interventions, packages pictorial warnings, enforcement of the sales to minors, reimbursement of tobacco cessation treatments with a further development of National Quitlines. Even so, smoking prevalence will remain over 10% for males. Further measures should be implemented.

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- 073 -

EXPOSURE TO BENZENE AS A CARCINOGEN FROM THE SECONDHAND SMOKE IN HOSPITALITY VENUES IN SPAIN

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Introduction. Hospitality workers are the only occupational sector unprotected by the Spanish smoking law. The exposure to carcinogens in these workers has not been studied in this country so far.

Objective. The objective of this study is to measure the benzene levels, as well as environmental nicotine as an SHS specific marker, in a sample of hospitality venues.

Methods. Cross-sectional study carried out between November 2009 and April 2010. 50 hospitality venues from Barcelona were randomly selected by smoking regulation (smoking allowed / smoking banned). Benzene and nicotine were measured using passive samplers exposed for a whole week. All the samplers were analyzed using gas chromatography/mass spectrometry. Data from 37 venues are available so far. Median and interquartile ranges (IQR) have been assessed by type of smoking regulation. Spearman's correlation between both markers has been assessed.

Results. The benzene median concentration in venues where smoking is allowed (n=21) was 6.16 µg/m³ (IQR 4.40-8.03), and the nicotine concentration 12.96 µg/m³ (IQR 6.81-19.98). In those venues where smoking is banned (n= 16), the median benzene concentration is 2.83 µg/m³ (IQR 2.56-3.09) and the nicotine concentration 0.08 µg/m³ (0.02-0.20) µg/m³. Differences between venues where smoking is allowed and those where it is banned are statistically significant (p <0.05). In 62% of hospitality venues allowing smoking, the benzene levels exceed the air quality standard recommended by the European Union in ambient air (5 µg/m³). Only one venue from those where smoking is banned exceeded this

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standard. The correlation between benzene and nicotine is positive and significant ($p < 0.05$).

Conclusions. Four years after the implementation of the Spanish smoking law, hospitality workers from venues where smoking is allowed are exposed to benzene levels linked to high risk of cancer and other diseases. A total smoking ban in hospitality venues is urgently needed in Spain.

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- 074 -

OBSERVED SMOKING IN CAR: RESULTS OF A STUDY FROM THE REGIONAL HEALTH PREVENTION SERVICE OF VENETO, NORTHERN ITALY

Tagliapietra L,¹ Michieletto F,² Allegri F,² Boffi R,³ Mazza R,³ De Marco C,³ Ruprecht AA,⁴ Invernizzi G,⁴ Frison G,⁵ Sbrogiò L⁶

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Introduction. Smoking in car represents an exposure to extremely high levels of environmental tobacco smoke (ETS). Preventing ETS exposure of children inside cars is a priority in the agenda of WHO. Phone survey on smokers' attitudes about smoking in cars have been carried out. However, no observational studies of the act of smoking in car in the real world have been so far reported in European Community. Setting. An observational study at crossings and roundabouts, involving 90 prevention technicians of Regional Health Service of Veneto Region.

Objectives. To evaluate the frequency of people smoking inside cars or heavy/light duty vehicles, and the presence of children exposed to passive smoking on board.

Methods. Prevention technicians had to record driver's or passengers' sex and presumed age, to verify if drivers or passengers were smoking, and if there were children on board.

Results. 5,928 cars were examined, males accounted for 61% of drivers, smoking in car was reported in 409 (7%), the smoker being mostly only the driver (88%), only the passenger was the smoker in 8% of cases, and both the driver and a passenger in 4% of cases. Cars with observed smoking with children were 7 (1% of overall 762 with children on board). Smoking was observed in 12% of heavy/light duty vehicles.

Conclusion. In spite of the efforts to limit the dangers of ETS among people, smoking in car is still a common behaviour. Although observed smoking in car in the presence of children was found to be infrequent, too many children are still exposed every-day to ETS in cars.

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- 075 -

TOBACCO SMOKE AND RISK OF CHILDHOOD LEUKAEMIA: FINDINGS FROM THE SETIL CASE-CONTROL STUDY

Farioli A,¹ Legittimo P,² Mattioli S,¹ Miligi L,² Benvenuti A,² Ranucci A,³ Salvan A,⁴ Magnani C,³ SETIL Working Group (Italian Epidemiological

Study on the Aetiology of Childhood Leukaemia, Lymphoma and Neuroblastoma: Assennato G, Barone Adesi F, Belletti I, Bisanti L, Calisti R, Cannizzaro S, Cappelli A, Cavariani F, Cuttini M, Celentano E, Cocco P, Haupt R, Kirchmayer U, Lagorio S, Merlo F, Miceli G, Mirabelli D, Minelli L, Pannelli F, Polichetti A, Risica S, Rondelli R, Silvestri S, Sommani L, Torregrossa SV, Tozzi GA, Troeschel L, Veraldi A, Zamboni P)

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Introduction. Tobacco smoke could cause childhood leukaemia through at least two different pathways: 1) prenatal parental smoking; 2) childhood exposure to environmental tobacco smoke (ETS).

Objectives. To explore these two possible risk factors for acute lymphoblastic leukaemia (ALL) and acute myeloid leukaemia (AML), we analyzed data collected in a large case control study (SETIL) primarily designed to evaluate the role of electromagnetic fields in childhood haematopoietic malignancies.

Methods. We focused on incident cases (with informed consent) of ALL ($n=602$) and AML ($n=83$) in 14 Italian Regions during 1998-2001, individually matched (2:1) by age, sex and Region with controls randomly drawn from the general population (matching was broken in the present analysis). We conducted separate logistic regressions for ALL and AML, conditioned to Region and adjusted for child age and sex.

Results. Analysis of AML data showed a 3-way interaction ($p=0.003$) between paternal preconception smoking, maternal smoking during pregnancy, and maternal age. Remarkably, heavy smokers (>10 cigarettes/day) appeared to be at raised risk of having a child affected by childhood AML when maternal age was <30 years (OR 5.4; 95%CI 1.6-18.2; reference category, never-smoker parents); we were unable to find any sign of smoking-related risk above this cut-off (based on median maternal age). No clear association emerged for ETS. Analysis of ALL data showed raised risk for children regularly exposed (≥ 1 cigarette/day) to ETS (OR 1.5; 95%CI 1.1-2.0; reference, never exposed); intriguingly, risk appeared more pronounced (OR 2.5; 95%CI 1.4-4.4) in "late-onset" cases (age ≥ 6 years). No association was detected with prenatal exposure.

Conclusion. We hypothesize that young maternal age could modulate risks of childhood AML determined by parental smoking (plausibly due to age-related metabolic differences). This study also supports the concept that childhood exposure to ETS could be a risk factor for ALL.

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- 076 -

TOBACCO SMOKING, ALCOHOL DRINKING, AND THE RISK OF NASOPHARYNGEAL CANCER IN ITALY

Polesel J,¹ Talamini R,¹ Barzan L,² Zucchetto A,¹ Bidoli E,¹ Dal Maso L,¹ Negri E,³ Libra M,⁴ Montella M,⁵ La Vecchia C,³ Serraino D¹

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Introduction. Nasopharyngeal cancer (NPC) is rare in Western Countries, with tobacco smoking being a well-recognized risk factor. Conversely, the role of alcohol drinking is still debated.

Methods. We conducted a hospital-based case-control study in Italy on 150, histologically-confirmed, NPC cases aged 18-76 years and 450 cancer-free patients (controls) admitted to general hospitals for acute conditions. Cases and controls were matched according to gender, age, and residence. Logistic regression was used to estimate odds ratios (OR) and corresponding 95% confidence intervals (CI).

Results. Overall, current smokers did not show significantly higher risk of NPC than non smokers (OR=1.52; 95%CI: 0.89-2.60).

Nevertheless, statistically significant associations were found for smoking ≥ 15 cigarettes/day (OR=1.98; 95%CI: 1.05-3.75), for smoking duration ≥ 32 years (OR=2.17; 95%CI: 1.09-4.34), and for age at beginning smoking under 18 years (OR=2.09; 95%CI: 1.06-4.13). Alcohol drinking was not significantly associated with NPC risk. However, an increased NPC risk for total alcohol intake ≥ 28 drinks/week (OR=2.91; 95%CI: 1.06-8.00) was observed among current smokers.

Conclusion. The present study reports, for the first time in Europe, a positive association between tobacco smoking and NPC risk with alcohol drinking that seemed to enhance the carcinogenic effect of smoking.

PLENARY SESSION

Immigration and health

Chairmen:

WLJM Devillé (Utrecht, Netherlands), W Ricciardi (Rome, Italy)

DISEASE ETIOLOGY AND PREVENTION: OLD AND NEW LESSONS FROM IMMIGRANT STUDIES

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Objectives. Studies of migrants have provided valuable insight into the etiology of cancer pointing out to the importance of environmental factors. We review recent results on the Swedish immigrant studies and compare them to the literature from elsewhere.

Methods. We used the nation-wide Swedish Family-Cancer Database to calculate standardized incidence ratios (SIRs) for defined cancers among immigrants and among their children compared to the native Swedes. The Database comprises 12 million individuals covering the Swedish population of the past 100 years. The Database records the country of birth for each subject. A total of 1.8 million individuals were foreign born, Finns and other Scandinavians being the largest immigrant groups.

Results. Large differences exist between the immigrant groups and native Swedes; the smallest difference (1.9-fold) was for myeloma and the largest was for melanoma (25-fold, for which East Asians had a rate of only a few % of the Swedish rate). For both myeloma and melanoma, native Swedes had the highest incidence. Native Swedes showed the lowest rate of no cancer. For some immigrant groups, rates far exceeding the Swedish rates were observed, e.g., liver ("other Africans") and thyroid cancers (South-east Asians). Chileans show high rates not only for testicular cancer, but also for stomach cancer. In line with the previous publications, the differences to the native Swedes were smaller than in the parental generation.

Conclusions. Comparison of the results between the first and the second generation immigrants suggest that the first two decades of life are important in setting the pattern for cancer development in subsequent life. Birth in Sweden sets the Swedish pattern for cancer incidence, irrespective of the nationality of descent, while entering Sweden in age 20s is already too late to influence the environmentally imprinted program for the cancer destiny.



MIGRANTS' HEALTH DATA IN EUROPE: WHAT EPIDEMIOLOGY NEEDS AND WHAT IS MISSING

Laura Cacciani,¹ Aldo Rosano,¹ Silvia Bruzzone,² Nadia Mignolli,² Gabriella Guasticchi¹

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Introduction. European countries are currently facing increasing migration flows. They host many people coming especially from traditionally low-income countries that experience poverty, discrimination, and barriers to access healthcare services. In 2008, 31.8 million foreign citizens lived in the EU 27 out of which about 20.0 million were non-EU citizens.

Objectives. To investigate on: availability of migrant-sensitive data; migrants' health; healthcare accessibility and quality, health promotion and prevention.

Methods. A review of research projects initiated by different European Research Institutes and of published literature was performed, and the most significant experiences were described.

Results. The heterogeneity of ethnic groups between and within countries, contextual differences in their living conditions and in the health policies of host countries, and different approaches in collecting migrant-sensitive data limit the possibility of comparison. Reproductive health, work injuries, and infectious diseases are health topics at increased risk among migrant populations. Dietary changes, the acquisition of the host country's life styles, and aging increase the risk of diabetes, cardiovascular diseases, and cancer. All these aspects affect mortality rates as well. Few studies on accessibility and quality of healthcare have been published. Drawbacks have been identified in health systems in most of the countries, such as communication obstacles, and cultural and socioeconomic issues that lead to increasing vulnerability of the migrant population. Studies on prevention of non-infectious diseases are reported in few EU countries.

Conclusions. EU authorities have emphasized that the lack of data on migrant status and ethnicity impedes their policies to fight discrimination, with implications on health. Many studies have been initiated on migrants during the last decade in order to fulfil this need, but lack of coordination and sharing of objectives between and within promoting agencies limits the possibility of bringing the different experiences together.



FORCED MIGRATION: PEOPLE AND EPIDEMIOLOGY IN CRISIS

Francesco Checchi

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Forced migration as a result of armed conflict or natural disasters nearly always results in excess morbidity and mortality, mostly from infectious diseases. This session will review the disease dynamics underlying these pernicious effects, and consider how different cri-

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sis typologies engender specific risks in light of trends in the demographics and setting of forced migration worldwide. There are great challenges and opportunities for epidemiologists working with forcibly displaced populations settings. These include

documenting mortality, rapidly assessing health status, detecting epidemic threats, and helping to adapt the armamentarium of preventive and curative interventions. The session will highlight current issues in these domains and propose ways forward.

PARALLEL SESSION Inequalities in health II

Chairmen:

Marina Davoli (Rome, Italy), Biljana Kocic (Nis, Serbia)

Riccardo Pertile et al. [077]

A weighted socio-economic status index in mental health: local or national weights?

Chiara Marinacci et al. [078]

The role of contextual socioeconomic circumstances and segregation on mortality: analysis of time variations in the city of Turin, Northwest Italy

Gwenn Menvielle et al. [079]

Scenarios of future lung cancer incidence by educational level: modelling study in Denmark

Davide Malmusi et al. on behalf of the Commission to Reduce Social Inequalities in Health in Spain [080]

The Commission to Reduce Social Inequalities in Health in Spain. Reviewing evidence, prioritising proposals and issuing policy recommendations

- 077 -

A WEIGHTED SOCIO-ECONOMIC STATUS INDEX IN MENTAL HEALTH: LOCAL OR NATIONAL WEIGHTS?

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Introduction. Several groups of ecological variables, as poverty, socio-economic deprivation and social fragmentation, are often positively associated with higher levels of psychiatric hospital use and a previous study conducted in South-Verona showed an inverse association between socio-economic status (SES) index of area where patients live and community-based psychiatric services utilization.

Objectives. To compare results of various hierarchical regression models on psychiatric contacts using as independent variable two different SES indexes calculated respectively with factor loadings on national data (Italy) and on local data (Provinces), adjusted for socio-demographic and clinical variables.

Methods. All hospitalizations, domiciliary, day care and outpatient contacts were collected for patients recruited in a multicenter project with at least one contact with Verona, Bollate (Milan) and Avellino Mental Health Services during January-June 2009. The Verona SES index was calculated using the 2001 Italian population census data. Nine composite variables, as proportion of census block residents, were identified for the SES index construction. The SES index was calculated for each census block, and it was assigned to each patient living in a specific census block. A hierarchical regression model with Poisson distribution and the SES index with national weights was compared to an identical model using the SES index with local weights. This comparison was computed for each type of contact and within each province.

Results. The sample was composed by 2,759 patients, geocoded to find out the specific SES index through their own census block: belonging to more deprived census blocks significantly increased patient's length of stay and day care contacts especially in Milano and Avellino, but not domiciliary and outpatient contacts. A modest percentage increase came out from the inclusion of SES index in the models (min. 0.09%, max. 11.1% of total variance).

Conclusions. In a multicenter study in which a comparison between centres is needed, a SES index with national weights is required, while in a zoning study where the goal is the comparison between socio-economic classes within the study area, a SES index with local weights is required.



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THE ROLE OF CONTEXTUAL SOCIOECONOMIC CIRCUMSTANCES AND SEGREGATION ON MORTALITY: ANALYSIS OF TIME VARIATIONS IN THE CITY OF TURIN, NORTHWEST ITALY

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Introduction. Health effect of contextual socioeconomic deprivation was documented: it is not known if it relates to impact of residential segregation by socioeconomic position.

Objectives. To analyse mortality distribution across areas, trying to disentangle effects of individual socioeconomic circumstances, neighbourhood deprivation and socioeconomic segregation.

Methods. The study was conducted with data from Longitudinal Study of Turin, a city with one million residents distributed across nearly 3,700 census tracts nested within 92 wards, 23 neighbour-

hoods and 10 districts. Three cohorts of persons aged 15 years or older, recorded in censuses of 1971, 1981, and 1991 were selected and followed up for 10 years after each census. Socioeconomic composite deprivation index was computed at all area levels through at censuses (cumulating data on education, occupational class, lone-parent families, household ownership, deprivation and crowding). District segregation was computed through Neighbourhood Sorting Index (NSI) on distribution of census tracts socioeconomic deprivation across wards. General mortality was analysed as a function of time, neighbourhood deprivation and district NSI, using multilevel Poisson models stratified by sex and adjusted for age, area of birth, and individual education and housing conditions.

Results. Among people aged less than 65 years, we found a significant and independent increase in death risk with increasing district NSI (IRR=1.20; 95%CI:1.05-1.37 and IRR=1.12; 95%CI:1.02-1.24, respectively, among men and women), stable over time; moreover, residents in deprived neighbourhoods showed a significant 10% higher death risk, compared to resident in rich neighbourhoods. No effect of segregation was found among elderly, which showed a significant 5% higher death risk if living in deprived neighbourhoods.

Conclusions. Disentangling effect of segregation and deprivation could support different sector policies addressed to contexts.



- 079 -

SCENARIOS OF FUTURE LUNG CANCER INCIDENCE BY EDUCATIONAL LEVEL: MODELLING STUDY IN DENMARK

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Introduction. As any public health policy aiming at reducing social inequalities in smoking would affect lung cancer incidence several years after its implementation, it is crucial to develop tools to estimate the timing and the magnitude of the impact of such policies.

Objectives. To model future trends in lung cancer incidence in Denmark by education under different scenarios for cigarette smoking.

Methods. Lung cancer incidence until 2050 was modelled using the Prevent software under a baseline scenario and four alternative scenarios for smoking reduction: decreasing initiation rates among the young, increasing cessation rates among smokers, a scenario combining both changes, and a levelling-up scenario in which all people acquired the smoking rates of highly educated. Danish household surveys (1987-2005) and cancer registry data combined with individual education status from Statistics Denmark were used for empirical input.

Results. Under the baseline scenario, lung cancer rates are expected to decrease for most educational groups during the next decades, but educational inequalities will increase further. Under the alterna-

tive scenarios, an additional decrease in lung cancer rates will be observed from 2030 onwards, but only from 2050 onwards under the initiation scenario. The cessation and the combined scenarios show the largest decrease in lung cancer rates for all educational groups. However, in none of these scenarios, the relative differences between educational groups would reduce. A modest decrease in these inequalities will be observed under the levelling-up scenario.

Conclusion. We showed that relative inequalities in lung cancer incidence rates will tend to increase. It may be reduced to a small extent if smoking rates of low educated people were to converge towards those of high educated. A large decrease in lung cancer rates will be observed in all educational groups however, especially when focusing both on initiation and cessation strategies.



- 080 -

THE COMMISSION TO REDUCE SOCIAL INEQUALITIES IN HEALTH IN SPAIN. REVIEWING EVIDENCE, PRIORITISING PROPOSALS AND ISSUING POLICY RECOMMENDATIONS

Malmusi D, Borrell C, Artazcoz L, Díez E, Pasarín MI, Rodríguez Sanz M, on behalf of the Commission to Reduce Social Inequalities in Health in Spain
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Introduction. In October 2008, the Directorate General of Public Health of the Spanish Ministry of Health and Social Policy set up a Commission of 18 members with the mandate of elaborating proposals of interventions to reduce health inequalities.

Objectives. To describe the process and main outcomes of the Commission's work.

Methods. To reach a consensus on the most important interventions, the Commission 1) prepared four preliminary chapters on conceptual framework and principles for policy, data on health inequalities and their social determinants in Spain, policies to reduce inequalities in Europe, and in Spanish regional health plans; 2) reviewed evidence and international policy documents (mainly "Closing the Gap in a Generation" by the WHO Commission on Social Determinants) and prepared a first draft of proposals; 3) convened 44 experts in 8 workgroups to review the different areas of the draft and to prioritise recommendations according to their importance, opportunity and urgency; 4) prepared a final document incorporating suggestions from experts outside the health sector and including examples of "best practice" policies in Spain.

Results. The final document includes 27 general recommendations and 167 specific proposals with three levels of priority, divided in 14 areas of action, including the distribution of power and resources; living and working conditions through the life course; healthy settings; health services; information systems, research and training. The document is now being disseminated and discussed with regional public health authorities and other stakeholders.

Conclusions. For the epidemiologists involved in it, the Commission's work is representing an exciting opportunity to bridge the gap between research and policy. As one of the first documents of this kind in a southern European country, it represents a progress. The creation of organisms that stipulate alliances across sectors and a strong political will are needed in the near future.

PARALLEL SESSION

Environment and health III

Chairman:

Giorgio Assennato (Bari, Italy), Neal Pearce (Wellington, New Zealand)

Fabrizio Bianchi et al. [081]

Human biomonitoring in the area around the petrochemical site of Gela, Sicily, Italy

Fabio Vittadello et al. [082]

Cancer mapping in Alpine regions 2001-2005: geographical distribution of cancer incidence and mortality in Eastern Alpine regions

Emilio Antonio Luca Gianicolo et al. [083]

Total and cancer mortality patterns in the West Bank regions

Maria Serinelli et al. [084]

Source apportionment of polycyclic aromatic hydrocarbons (PAHs) and carcinogenic risk estimate in Taranto, Italy

- 081 -

HUMAN BIOMONITORING IN THE AREA AROUND THE PETROCHEMICAL SITE OF GELA, SICILY, ITALY

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Introduction. Close to the town of Gela (Sicily, Italy) a petrochemical site is operating since 1962. A power station, chemical plants and an oil refinery plant are included. In 1990 a large area around the site was declared "at high risk of environmental crisis"; in 2000 a subarea was designated "Reclamation Site of National Interest". Extremely high concentrations of hazardous chemicals have been measured in soil, surface and groundwater, in marine water and sediments. Mortality, hospital discharges and birth defects were reported higher than neighbouring areas and other references. Mortality 1960-2002 of petrochemical workers showed an increased lung cancer risk for residents in Gela.

Objective. Exposure assessment of residents' population by using of human biomonitoring (HBM).

Methods. Several metals (As, Be, Cd, Cu, Hg, Pb, Se, Sb, Tl, V) in urine and blood, and organochlorinated compounds (OCs) in serum (59 PCB congeners and 12 pesticides) were measured in individual samples. Randomly selected subjects (N=186) and volunteers (N=76) from 42,545 residents aged 20-44 were collected. Individual interviews by questionnaire were conducted. Geometric means and percentiles were compared with data obtained in two Italian areas without industrial plants, existing Threshold Limit Values, data from European HBM and US-NHANES.

Results. Arsenic showed several individual samples with moderate

to high concentration values, both in urine and in blood (in urine random samples: GM=16.4 µg/l; P75=48 µg/l; P95=352 µg/l). Exposure levels for the other metals and OCs were comparable to references, with the exception for few outliers values.

Conclusions. Arsenic speciation and re-analysis of altered markers were recommended and are in progress. The results of the first Gela HBM survey suggest interventions to reduce industrial pollution, and deeper investigations on pathways of exposure and on exposure-effects associations, to set up an environment and health surveillance system.

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CANCER MAPPING IN ALPINE REGIONS 2001-2005: GEOGRAPHICAL DISTRIBUTION OF CANCER INCIDENCE AND MORTALITY IN THE EASTERN ALPINE REGIONS

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Objective. The aim of the project was to analyse the geographical distribution of cancer incidence and mortality in Alpine regions, based on stable estimates of the geographic distribution for the main cancer sites.

Methods. 14 Cancer Registries covering alpine regions in Austria, Italy, Switzerland and the national Registry of Slovenia participate in this project. For the years 2001-2005, incidence data have been collected by the participating registries, mortality data are the official mortality files in the respective countries. The study area consists of 219 geographical units, having a median population of 19,383 persons. The total population covered is more than 6 millions. The 12 most important tumour sites or group of sites are examined. For each Registry, age standardized incidence and mortality ratios, together with 95% confidence intervals are analysed. In order to achieve a stable estimate of the underlying pattern and to approach the true underlying risk pattern we applied a Bayesian hierarchical model proposed by Besag, York and Mollié. This model takes adjacency of regions into account. We show only the smoothed maps. In addition, some data quality indices (DCO proportions, M:I ratio and proportion of histologically verified cases) are shown.

Results. Males. For all cancer sites except non melanoma skin cancer and prostate cancer, we observe a gradient from low incidence in Austria and Switzerland to high incidence in Italy (except Trentino and South Tyrol). Slovenia ranks at an intermediate position. For prostate cancer, there is a large variation in incidence, even within the same country, but markedly higher in Austrian regions (without higher risk in mortality). Concerning lung cancer, significantly higher incidence is observed in Varese, Sondrio, Veneto and Slovenia. Also for head&neck cancer and liver cancer, we see a strong north to south gradient, namely high rates in most but not all Italian areas, and lower rates in Austria and Switzerland. **Females.** Aside from a significant excess in Veneto, no strong variation is seen for all cancer sites combined. The variability in incidence is generally lower compared to males, and concerns cervix uteri, stomach and lymphomas. For breast cancer, we see the highest rates in some Italian Areas (Veneto, Varese, Sondrio) and the lowest in Slovenia and St. Gallen. For most Italian areas we observe higher incidence for stomach cancer. For cervix cancer we see high incidence and mortality risk in Slovenia, Carinthia and Tyrol. For the other sites, we observe smaller variation.

Conclusions. Although the study area may share many socio-demographic characteristics, a relevant risk gradient in both incidence and mortality is observed, especially among males. Screening activities may also contribute to the variation observed, but can explain only a small part of the variation observed. The large variation of liver cancer, head&neck cancer and all cancer sites combined for males need further investigations and should lead to public health actions.

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- 083 -

TOTAL AND CANCER MORTALITY PATTERNS IN THE WEST BANK REGIONS

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Introduction. Since the year 2000, the West Bank has been divided into small areas separated by check points and by the separation wall. These segregation measures have affected peoples mobility and accessibility to health services. The epidemiological situation in the occupied Palestinian territory is similar to the one in the developing countries. The burden of the communicable diseases is decreasing compared to the increasing burden of the non-communicable diseases. Cardiovascular diseases are the leading cause of death followed by cancer (Palestinian Authority Ministry of Health).

Objectives. To study whether total mortality and cancer specific mortality rates vary in the different Regions of the West Bank and over a ten years period.

Methods. Causes of death data were obtained from the Palestinian Health Management Information Centre (HMIC) – Palestinian Ministry of Health (MoH) for the years 1999-2009. Standardized Mortality Ratios (SMR) have been calculated (reference West-Bank).

Results. A total of 34,628 deaths were reported during the period between 1999 and 2009. The highest SMR for all causes mortality was found in the north-western governorates of the West Bank and the southern governorates and the lowest SMR was found in the eastern. There was difference in SMR between males and females in Ramallah governorate with higher SMR among males. The cancer SMR had similar pattern as all cause SMR. Bethlehem and Nablus have the highest SMR for males and females. Low SMR was found for Jerusalem governorates. This does not reflect the real situation in Jerusalem as these numbers are collected only for Palestinians living Jerusalem area that is under the Palestinian Authority control.

Conclusions. The regional variation in SMRs among Palestinian regions in the West Bank indicates specific risk factors and determinants that cluster in certain areas. These variations might also reflect inaccessibility of health services that has to be further investigated.

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- 084 -

SOURCE APPORTIONMENT OF POLYCYCLIC AROMATIC HYDROCARBONS (PAHS) AND CARCINOGENIC RISK ESTIMATE IN TARANTO, ITALY

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Introduction. In 2009 the reference value of benzo(a)pyrene (BaP) in ambient air of 1.0 ng/m³ has been exceeded in the urban district of Taranto surrounding the industrial area, where several large plants are located, including an integrated cycle steel plant. In such cases regional authorities are required to develop specific programs to comply with reference value including measures on principal emission sources.

Objectives. To identify emission sources and quantify relative contribution to the PAHs levels; to estimate health impact associated to PAHs exposure in general population.

Methods. For the source apportionment multivariate receptor models have been used. Data of monthly average concentration of PAHs measured in 4 locations in Taranto in two periods (May

2008-December 2008; January 2009-December 2009) have been collected. With US-EPA UNMIX software 5 different models have been applied: for each one, UNMIX estimates profiles of unknown sources and uses diagnostic tools to identify main sources and which chemical species are significant for analysis. To compute the lung cancer risk the WHO unit risk estimate for BaP (8.7×10^{-5} ng/m³) has been adopted.

Results. Preliminary results show that the models employed identify 3 to 4 emission sources. Profile and temporal trends of each

one have been described. Estimated profiles have been compared with measured ones. Based on the average annual BaP level measured (1.3 ng/m³), 2 excess cancer cases in the population of Taran-to district are estimated following a lifetime exposure.

Conclusions. Among different emissive sources, the analysis identifies theoretical sources (namely, coke oven batteries) whose profiles, compared with observed data, allow to identify dominant contributions to PAHs pollution and to design corrective actions to reduce environmental and health impact.

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PARALLEL SESSION

Health care

Chairmen:

Donato Greco (Rome, Italy), Marina Maggini (Rome, Italy)

Roberto Gnani et al. [085]

Monitoring the prevalence of diabetes and the quality of care using electronic health data

Birgit Fullerton et al. [086]

Predictors of dropout from the German disease management program for diabetes mellitus type II

Cathelijne Mieloo et al. [087]

Validation of the Strengths and Difficulties Questionnaire in a multi ethnic population of 5/6 years

Piret Veerus, Alice Kivistik [088]

Women's reasons for low attendance in the cervical cancer screening programme: experience from Estonia

- 085 -

MONITORING THE PREVALENCE OF DIABETES AND THE QUALITY OF CARE USING ELECTRONIC HEALTH DATA

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Introduction. Diabetes prevalence is increasing worldwide and is a major cause of morbidity and mortality. To improve the quality of diabetes care, surveillance systems monitoring the occurrence of the disease, the process and the outcomes of care are needed to allow timely identification of critical points.

Objectives. To report the results of a population-based surveillance program based on administrative databases, implemented in Torino, Italy.

Methods. People with known diabetes were identified through administrative data sources. Prevalence adjusted for undercount was estimated using the capture-recapture method. Indicators of the process of care were calculated by linking diabetic population with all laboratory tests and specialist medical examinations reimbursed in the following year by the National Health System. Finally, diabetic and non diabetic populations were linked to mortality and hospital discharge databases to monitor the incidence of cardiovascular complications and mortality in the following 4 years.

Results. Diabetes prevalence was 4.8%, highest among low educated people, moreover among women. Only one third of patients had undergone a comprehensive assessment according to established guide-lines. The process of care differed according to age and clinical variables, but socioeconomic differences were absent. Diabetics had more cardiovascular complications and highest mortality risk than non-diabetics, but social differences were low in diabetic men and absent among diabetic women in the presence of social differences in non-diabetics.

Conclusions. A low-cost surveillance program to monitor the

quality of diabetes care using routinely collected administrative data is feasible. We were able to identify a large cohort of persons with diabetes, to monitor several indicators of the process of care and of outcome, and to explore both clinical and socioeconomic differences that allow to identify some strengths and weakness of the care system.



- 086 -

PREDICTORS OF DROPOUT FROM THE GERMAN DISEASE MANAGEMENT PROGRAM FOR DIABETES MELLITUS TYPE II

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Introduction. In 2003, disease management programs (DMP) for diabetes mellitus type II (DM II) were introduced on a national scale in Germany. All statutory sickness funds are required to offer these programs, but participation is voluntary. It remains a topic of debate whether patients who are treated in the DMP are really in need of disease management and vice versa. A few studies have investigated whether there is a selection bias regarding DMP enrolment, but knowing which patients drop out of the program over time and which factors influence this process is also important.

Objectives. To identify factors at enrolment associated with future dropout from the DMP DM II.

Methods. Our analysis is based on routine data submitted to a large German sickness fund every 3 to 6 months as part of the DMP DM II. We included all patients who enrolled in the DMP between July 2004 and December 2005. A person was identified as a dropout if no DMP documentation was available for them in 2007, if they had not died during the year, and if they were insured

with the sickness fund for at least 300 days. We compared variables assessed at DMP enrolment between dropouts and patients who remained in the program. The risk of dropout was modelled using univariate and multivariate logistic regression.

Results. Of 11,977 DMP participants who enrolled in 2004/2005, 637 had dropped out by 2007. Dropout was negatively associated with retirement status and attendance of the recommended annual ophthalmologic exam. It was positively associated with recommended nutritional referral, presence of a foot problem or debilitating co-morbidity. Patients who experienced hypoglycaemic events or suffered from one or less secondary conditions also showed a higher tendency towards dropout.

Conclusions. We see two different trends of dropout: 1. People still working, without many secondary diseases, but with a recommendation for behavioural change. 2. Patients suffering from debilitating secondary conditions.

- ◆ -

- 087 -

VALIDATION OF THE STRENGTHS AND DIFFICULTIES QUESTIONNAIRE IN A MULTI-ETHNIC POPULATION OF 5/6 YEARS

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Introduction. Research has shown that early detection and treatment of emotional and behavioural problems in childhood is possible and leads to benefits regarding development, well-being and health. For accurate identification of problems proper screening tools are needed. Many studies in different countries point out that the Strengths and Difficulties Questionnaire (SDQ) is a promising screening instrument. The validity of the SDQ among younger children (under 7 years old) has received little attention thus far. Little is also known on the validity among lower socio-economic groups with diverse ethnic backgrounds. There is a strong need for these data though in the preventive child health care. Therefore, this study focusses on the validation of the SDQ in 5-7 year olds.

Objectives. To describe the test properties (reliability, validity, sensitivity, specificity, predictive value, interrater agreement) of both the parent and teacher form of the SDQ among 5-7 year olds.

Methods. Parents and teachers of 5-7 year olds eligible for a routine health assessment living in the Rotterdam-Rijnmond area were asked to fill out the SDQ. A random sample was asked to fill out the Child behavior checklist (CBCL) and the Teacher Report Form (TRF). Clinical scores on the CBCL, TRF and referral to youth care or child mental health care will be used as criteria to determine predictive validity, sensitivity and specificity. All results will be analysed for different ethnic minorities and different socio-economic groups.

Results. Over 8,000 parents and 8,900 teachers participated in

this study. The internal consistency of the SDQ parent and teacher form is good (both $\alpha=0.8$). The parent SDQ is acceptable for children with Moroccan and Cape Verdean background ($\alpha=0.7$). For all other groups the parent and teacher SDQ is good ($\alpha=0.8$). During the congress more test properties will be presented.

Conclusions. The SDQ is a promising screening instrument for 5-7 year olds in a large varied population.

- ◆ -

- 088 -

WOMEN'S REASONS FOR LOW ATTENDANCE IN THE CERVICAL CANCER SCREENING PROGRAMME: EXPERIENCE FROM ESTONIA

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Introduction. Cervical cancer is the 6th most common cancer site among women in Estonia with world standardised incidence rate being 15.4 and world standardised mortality rate 6.2 per 100,000 in 2006. Organised cervical cancer screening was started in 2006, the population-based coverage with screening is 30%.

Objectives. The objective of the present study was to find out reasons for low attendance in the organised cervical cancer screening programme and women's wishes for improving the programme.

Methods. An anonymous survey both in the Estonian and Russian language was mailed to a random sample of women in the screened population together with the invitation to screening. The questionnaire contained questions about women's knowledge about cervical cancer and screening, and wishes for changes in the organised screening programme.

Results. From 2,942 women who received the questionnaire, 761 (26%) returned it within one month. The mean age of respondents was 43 years. Nearly half of the respondents (46%) live in towns, most of them are married or cohabitant (76%). About 81% of Estonian-speaking respondents and 44% of non-Estonians were aware of the screening programme. Among Estonians, 82% wanted to participate in the screening programme, among non-Estonians the willingness was 92%. Most respondents (71%) were satisfied with the present organisation of the screening programme. They wanted to make an appointment by phone (84%) and to have the test taken by a midwife (93%). Women wished to receive information about the test result by phone (35%), by e-mail (34%) or by mail (29%). Most respondents (75%) preferred to receive information about screening by mail together with the personal invitation, not from TV, women's magazines or health care workers.

Conclusions. In Estonia, women wish to be individually and delicately informed about cervical cancer screening. Russian-speaking women need more information about the screening programme in their mother language.

November 8th

PARALLEL SESSION

Violence

Chairmen:

Francesco Checchi (London, Great Britain), Pirous Fateh-Moghadam (Trento, Italy)

Jutta Lindner, Ondine von Ehrenstein [089]

Exposure to genocide and to environmental disasters and mental ill health of the affected populations

Sara Farchi et al. [090]

Characteristics of women victims of violence attending EDs in Lazio Region, Italy in 2008

Francesco Mitis et al. [091]

Preventing violence and unintentional injuries in Europe: from international collaboration to local implementation. A WHO survey

Valerio Gennaro, Silvana Salerno [092]

War damages both winners and losers. Is statistics able to realize it?

- 089 -

EXPOSURE TO GENOCIDE AND TO ENVIRONMENTAL DISASTERS AND MENTAL ILL HEALTH OF THE AFFECTED POPULATIONS

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Introduction. Almost 350 million persons have died from traumatic events in the 20th century. Almost 250 million persons have died from genocide. In the same time period almost 100 million persons have died from environmental disasters, which can be defined as natural made disaster. Exposure to genocide means exposure to a type II trauma, exposure to a natural made disaster means exposure to a type I trauma.

Objectives. We systematically reviewed available studies on effects of exposure to type I and type II trauma and the mental health impact.

Methods. We systematically reviewed published papers located by the following keywords *genocide, *disaster, *mass violence, *trans-generational effects, *type I trauma, *type II trauma and *depression, *anxiety and *post traumatic stress disorder in Pubmed and Science Citation Index published 1980-2007. Additionally, articles were hand searched in English and German journals. Included were studies on mental health after the type I or the type II trauma; excluded were case reports and studies with less than 100 people, remaining 224 studies to be analyzed.

Results. Prevalence rates of depression, anxiety and posttraumatic stress disorder varied (2%-88%). Prevalence rates of mental ill-health were higher after exposure to genocide than after exposure to environmental disasters. Associations between assessment methods (self-administered vs. clinician administered questionnaires) and prevalence rates of mental-illness were found. Studies assessing mental health with self-administered questionnaires had lower

prevalence rates than studies assessing mental health with clinician administered instruments.

Conclusions. The studies investigated are heterogeneous, but still suggest several provisional conclusions. The prevalence rate of mental ill-health after type I and type II traumas may be looked upon as a conditional probability depending on the nature of the traumatic event (man-made vs. natural-made).



- 090 -

CHARACTERISTICS OF WOMEN VICTIMS OF VIOLENCE ATTENDING EDs IN LAZIO REGION, ITALY, IN 2008

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Introduction. Violence against women is a significant health problem; it was estimated in Italy that about 31% of the women have been victims of violence once in life.

Objectives. Aim of this study is to describe characteristics of women victims of violence (VV) attending the EDs in the Lazio region in 2008.

Methods. Using the Emergency Information System, visits of women, (≥15 years), in the 60 EDs, for a violent trauma have been analysed. For the VV identified, we considered the last episode and searched for ED attendances in 2007/08 in order to identify other accesses. We performed a preliminary analysis of socio-demographic and clinical factors of VV.

Results. In 2008, 9,707 ED attendances of women VV were found (1.1% of the ED visits) corresponding to 8,763 women (prevalence=35.9x10,000). The 41.3% had only one attendance, the 13.2% were visited for violent causes more than once (median n=2; range:2-13) and the remaining were visited by the ED for other causes (median n=2; range: 2-89). Ranking of the first five principal diagnoses for the latter group was: injury/poisoning (45.5%),

symptoms/signs/ill-defined conditions (15.0%), mental disorders (7.6%), diseases of the musculoskeletal system (6.4%) and complications of pregnancy/ birth/ puerperium (5.1%). Among women who had repeat aggressions median age was 37, the 18.2% were foreigners, 95.3% had a "non urgent/non appropriate for ED" triage code, and the 78.5% were discharged at home. The 2.4% of the women victims of repeat violence were sexual abuses.

Conclusions. This study shows high prevalence of violence against women in Lazio region, Italy. Most of the women have been visited by the ED several times before the violent episode, often for traumatic causes. The ED seem to be a place where it is possible to identify potential victims. Further research will be oriented in the identification of a cohort of new cases, and in the description of the epidemiology of this phenomenon.



- 091 -

PREVENTING VIOLENCE AND UNINTENTIONAL INJURIES IN EUROPE: FROM INTERNATIONAL COLLABORATION TO LOCAL IMPLEMENTATION. A WHO SURVEY

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Introduction. Injuries are the 3rd leading cause of death in the WHO European Region and pose a threat to economic and social development. 800,000 deaths due to injuries are observed every year and 63% of them could be prevented if all the countries had lowest rate observed in Europe.

Objectives. Presenting the results of a WHO report (Preventing injuries in Europe: from international collaboration to local implementation), the final outcome of a 3-year project between WHO and the EC in the framework of the Public Health Programme (2003-2008), on progress achieved by European countries in implementing WHO resolution EUR/RC55/R9 and the European Council Recommendation on the prevention of injury and the promotion of safety.

Methods. Country profiles were developed using a questionnaire completed by health ministry focal people. Information was provided on progress in delivering on key items of WHO resolution (national policy development, capacity building, trauma service, surveillance and multisectoral approach) and on the implementation of 99 evidence-based programmes to prevent unintentional injuries and violence and on the cross-cutting risk factors of alcohol and socioeconomic inequality.

Results. There were responses from 47 of the 51 WHO European Member States that have focal people. Good progress is taking place, and the resolution catalysed change in 75% of the countries responding. The development of national policies for 10 individ-

ual types of injury and violence varied from 95% for road safety to 40% for preventing drowning. Implementation of programmes to prevent all types of injury and violence varied in countries, and the median score was 73% for all these together.

Conclusions. The publication report documents that the health sector needs to commit more to the widespread implementation of effective programmes both in number and coverage and to engage with other stakeholders in a multisectorial response to prevent injuries and violence.



- 092 -

WAR DAMAGES BOTH WINNERS AND LOSERS. IS STATISTICS ABLE TO REALIZE IT?

Gennaro V,¹ Salerno S²

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Introduction. War or peacekeeping missions would be discouraged if we looked at the total number of lethal and non lethal cases, both acute and chronic, even in family members, of the staff enrolled. When epidemiological studies of these particular groups are accidentally or intentionally deviated and flattened from a mere statistical point of view, reassuring and paradoxical results are obtained. In cohort studies the exposed population appears normal or even healthier than the unexposed one.

Objectives. To check both the quality and the reliability of epidemiological studies on personnel sent on war or peacekeeping missions, highlighting the main limitations, biases and errors frequently encountered.

Results. The analysis of the major studies show many limitations and errors, among which: 1. the lack of both environmental and health information is considered as evidence of no risk; 2. the population exposed under the law limits is considered unexposed; 3. the synergistic effects of exposures are not evaluated; 4. the exposure is rarely fully analyzed; 5. the exposed population is not separated from the unexposed one; 6. only rare diseases are studied; 7. the detection of all cases is not systematic; 8. the follow-up period does not cover the entire latency period; 9 the military personnel and staff who went on missions are wrongly compared with the general population; 10. attributable cases are not quantified; 11. the statistical interpretation is privileged to the epidemiological one.

Conclusions. In many epidemiological studies, demonstrable biases and errors are the cause of wrong reassuring findings and conclusions. Only through both independent and transparent reanalysis it will be possible to confirm the reliability of negative studies. Finally, a systematic and in-depth analysis of both limitations and errors included in many papers may reveal their randomness or voluntariness.

November 8th

PARALLEL SESSION

Methods II

Chairman:

Ennio Cadum (Turin, Italy), Ester Villalonga Olives (Barcelona, Spain)

Jørn Olsen

Methods and infrastructure of epidemiologic research. Examples from the IEA rapid response committee

Rosa Gini et al. on behalf of EU-ADR group [093]

Harmonising definitions of adverse events among 8 European healthcare databases participating in the EU-ADR project

Costanza Pizzi et al. [094]

Parametric and nonparametric approaches to model growth in infancy using comparative data from two birth cohorts

Andrea Ranzi et al. [095]

Possible role of unmeasured confounding by smoking in the evaluation of environmental factors associated with preterm births

Carsten Schmidt et al. [096]

Effects of survey design settings on population estimates of clinical parameters and lifestyle indicators in a regional general population survey

- invited speaker -**METHODS AND INFRASTRUCTURE OF EPIDEMIOLOGIC RESEARCH. EXAMPLES FROM THE IEA RAPID RESPONSE COMMITTEE****Jørn Olsen**

University of Aarhus, Denmark; UCLA, USA

Epidemiologists need to have access to data on health and exposures in human populations to do research. In most situations they also need funding and permissions from an increasing number of committees and agencies before they can ask the people for permission to provide their experience to research.

Not all try to make it as easy as possible for researchers to meet the public demand for knowing what is safe and how to get the best possible health care. Some of these obstacles are necessary and reasonable, but not all, and too often are epidemiologists passive bystanders in the debate.

In order to avoid unreasonable threats to the infrastructure for doing epidemiologic research the IEA has taken initiatives to go into the debate, presenting points of view which we hope will be taken up and discussed. In this presentation a review of the latest problems will be presented in the hope to further stimulate the debate for how we best make sure that important health problems can be addressed and communicated without undue delays or censorship.

**- 093 -****HARMONISING DEFINITIONS OF ADVERSE EVENTS AMONG 8 EUROPEAN HEALTHCARE DATABASES PARTICIPATING IN THE EU-ADR PROJECT**

Gini R,¹ Avillach P,² Coloma PM,³ Mouglin F,⁴ Dufour J-C,⁵ Thiessard F,⁴ Joubert M,⁵ Mazzaglia G,⁶ Giaquinto C,⁷ Fornari C,⁸ Herings R,⁹ Hippisley-Cox J,¹⁰ Molokhia M,¹¹ Pedersen L,¹² Fourrier-Réglat A,¹³ Fieschi M,⁵ Sturkenboom M,³ Van Der Lei J,³ Pariente A,¹³ Trifirò G^{14,15} on behalf of EU-ADR group

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Introduction. Detection of clinical events from diverse electronic sources of information such as hospital discharge claims (HOSP), death registries (DEATH), laboratory values (LAB), and general practice databases (GP) may be useful for various epidemiological purposes. In particular, the EU-ADR project aims to detect adverse events deemed to be important in pharmacovigilance. Eight databases (DBs) from four countries, combining different sources of information, participate in the project. A common conceptual framework was lacking to describe harmoniously the algorithm by which each DB detected each event.

Objectives. Describe the algorithms that 8 different DBs used to identify 6 events: Acute myocardial infarction (AMI), Acute Renal Failure (ARF), Anaphylactic Shock (AS), Bullous Eruption (BE), Rhabdomyolysis (RHABD), Upper Gastrointestinal Bleeding (UGIB). Benchmark corresponding incidence rates (IRs).

Methods. A list of medical concepts corresponding to each event of interest was provided and projected to the DSs' different coding systems (ICD9, ICD10, READ, ICPC) and natural languages through the Unified Medical Language System (UMLS). Specific sources of information contained in each DB were classified in a common framework and DBs with similar structures were asked to search for concepts within the same sources.

Results. Concepts were mainly searched for in GP diagnoses and primary diagnoses of HOSP, but for some events DEATH (AMI, ARF, AS) and LAB (RHABD) were independently used by DBs having them. Resulting age-adjusted IRs vary as follows across DBs: 1-2/1,000PY (AMI), 3-7/10,000PY (UGIB), 2-12/100,000PY (AS), 2-17/100,000PY (BE), 1-8/100,000PY (RHABD), 3-49/100,000PY (ARF).

Conclusions. It is possible to describe event extractions from heterogeneous DBs in a common conceptual framework. Residual differences in IRs may be due either to differences in the underlying populations or to differences in the characteristics (structure, coding system) of the DBs.

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- 094 -

PARAMETRIC AND NONPARAMETRIC APPROACHES TO MODEL GROWTH IN INFANCY USING COMPARATIVE DATA FROM TWO BIRTH COHORTS

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Introduction. Growth models aim at summarising individual growth data into a reduced number of parameters. These are then used to compare growth patterns between individuals or populations. Analyses of this type of data often involve parametric linear mixed models, despite their rigid algebraic form often leading to poor fits of individual growth curves data. Recently semi-parametric generalizations of these models have been proposed. These allow a common non-parametric specification of the shape of the growth trajectory (e.g. via regression splines) while individual departures from that shape are modelled via normally distributed random effects.

Objectives. Our objective is to compare the performance of parametric and semi-parametric mixed models in analyses of early weight growth using data from two comparative birth cohorts.

Methods. Data from two European birth cohorts will be used: the Geração XXI, based in Portugal, and the web-based Italian NINFEA study. The effect of time-fixed (maternal smoking during pregnancy) and time-varying (feeding type) exposures will be considered.

Results. The two studies vary in terms of ages and numbers of growth measurements and of data completeness and quality. Preliminary analyses show that parametric mixed models are influenced by the timing of growth measurements, with the cohort with sparser observation points (NINFEA) having a weaker association with maternal smoking. In contrast the semi-parametric models lead to more consistent results across the two cohorts. The extension of these models to include a time-varying exposure is under-

going as well as the examination of the contribution of confounding factors and data completeness on these results.

Conclusions. In comparison with standard parametric approaches, more flexible semi-parametric models appear to be more appropriate to describe the complex process that characterises infant growth and to study its determinants. User friendly routines were used for their implementation.

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- 095 -

POSSIBLE ROLE OF UNMEASURED CONFOUNDING BY SMOKING IN THE EVALUATION OF ENVIRONMENTAL FACTORS ASSOCIATED WITH PRETERM BIRTHS

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Introduction. Smoking during pregnancy is a well-known risk factor for birth outcome, especially low birth weight and preterm birth. In studies evaluating the role of environmental factors, individual information on maternal smoking are often unavailable. The possibility of confounding remains and conclusions on possible environmental causes of preterm births are difficult.

Methods. Within a large study in the Emilia Romagna region on health effects of air pollution due to incinerators (Monitor Project), a study investigated birth outcomes in a population of 9950 newborns. An odds ratio (OR) of 1.75 (CI95%: 1.25-2.46) have been estimated for preterm births among women living in the highest exposure category. The possibility of confounding from maternal smoking remains. Within this framework, we applied an indirect method proposed two decades ago for occupational exposure and lung cancer (Axelson & Stenland, 1988) to estimate the percentage of smokers required in the group with the highest exposure to incinerator to justify the excess risk that has been found.

Results. Assuming a relative risk of preterm births due to smoke equal to 2.7 (the highest value of all Confidence Intervals of studies from literature), and given a percentage of smokers during pregnancy of 6.67% in Emilia Romagna Region (from Birth Certificates), we estimated the proportion of mothers smoking in pregnancy in the highest exposed group that is compatible with the relative risk obtained from the study on pollution due to incinerators (OR=1.75). A total of 52% of smokers in the group highly exposed to incinerator group are necessary to attribute the relative risk of preterm births to smoke habits instead to exposure to incinerators, that is 8 times higher than the percentage estimated in the whole area.

Conclusions. This exercise indicate that maternal smoking is an unlikely confounder in this study. This method can be applied to other possible unmeasured factors in environmental epidemiology.

- ◆ -

- 096 -**EFFECTS OF SURVEY DESIGN SETTINGS ON POPULATION ESTIMATES OF CLINICAL PARAMETERS AND LIFESTYLE INDICATORS IN A REGIONAL GENERAL POPULATION SURVEY**Schmidt C,¹ Alte D,¹ Völzke H,¹ Friedrich N,¹ Valliant R²¹University of Greifswald, Germany; ²University of Michigan and Joint Program in Survey Methodology, University of Maryland, USA

Introduction. Surveys frequently deviate from simple random sampling, including unequal probability sampling, stratified sampling, and multistage sampling. Ignoring these design elements may severely bias results. Despite this, design elements are often ignored in statistical analyses and potentially adverse effects remain unascertained.

Objectives. This work assesses the influence of design misspecifications on point and variance estimates with regard to lifestyle indicators and clinical parameters in a multistage survey in West Pomerania, Eastern Germany.

Methods. Data analysis was based on the Study of Health in Pomerania (SHIP). The sample comprised 4,308 subjects aged

20-79 years. A two stage sampling scheme was adopted from the World Health Organization's (WHO) MONICA Project. Effects of different survey design settings comprising weights, stratification, clustering, and finite population correction on point and variance estimates of lifestyle indicators and clinical parameters were systematically assessed.

Results. Misspecifications of the survey design substantially affected standard errors of all outcomes. Their range as compared to the correct setup varied substantially from -72% and +200%, depending on the type of misspecification. Ignoring the sampling design led to minor differences in variance estimates from the complete setup while several partial setups performed worse. Weighting predominantly affected point estimates of lifestyle factors.

Conclusions. The incomplete implementation of survey design elements may introduce more bias than completely neglecting them. If subgroups are sampled at different rates, weighting is of particular relevance with regard to prevalence estimates of lifestyle indicators.

Poster Session

Aging and disability

- P1 -

ARE DISEASES BECOMING LESS DISABLING?

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Introduction. Changes in disease patterns in the population affect the extent to which strategies to support independence are effective in the prevention of functional and physical decline.

Objectives. To study changes in the effect of disease prevalence on the prevalence of mobility limitations.

Methods. Analyses on self-reported Health Interview Survey data on morbidity and mobility between 2002 and 2007, representative for persons 12 years and older in the Dutch population, yielded disease prevalences, odds ratios (ORs), and population attributable fractions (PAFs) on the effect of disease prevalence on the prevalence of mobility limitations.

Results. The prevalence of nearly all chronic diseases increased over the period 2002-2007: between 3% (chronic neck and back problems) and 41% (diabetes mellitus). The prevalence of mobility limitations remained stable over this period. The extent to which cancer, coronary heart diseases, diabetes mellitus, and lung diseases were associated with mobility limitations (ORs) increased from 1.0, 1.1, 1.6, and 1.7 to 1.3, 1.8, 1.9, and 1.8 respectively. The extent to which vision problems, chronic neck and back problems, arthritis, and chronic gastro-intestinal problems were associated with mobility limitations (ORs) decreased from 3.7, 3.6, 2.9, and 1.3 to 3.1, 2.9, 2.5, and 1.0 respectively. Changes in PAFs of these conditions confirmed the above pattern.

Conclusions. Mobility limitations in the Dutch population can increasingly be attributed to the survival of previously fatal diseases, such as cancer and coronary heart disease. On the other hand, chronic diseases such as vision problems, chronic neck and back problems, and arthritis constitute less of a problem in terms of mobility limitations. This might be explained by better screening or treatment options, as well as better disease management.



- P2 -

LIMITING LONGSTANDING ILLNESS AND SELF-REPORTED CHRONIC DISEASES IN COMMUNITY-DWELLING ADULTS IN A TELEPHONE HEALTH SURVEY IN GERMANY

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Introduction. Chronic diseases are of increasing importance due to their impact on health expenditure and the ageing of the population. The Minimal European Health Module (MEHM), a short questionnaire including longstanding limiting illness (LLI), has been widely used in European health surveys as a measure of chronic disease morbidity. Evidence regarding the validity of this measure is scarce.

Objectives. To examine the association between self-reported LLI

and self-reported chronic conditions in a population-based telephonic survey.

Methods. 21,261 individuals completed in 2008/09 a computer-assisted telephonic interview, covering a variety of different chronic conditions as well as the MEHM. Chi Square statistics and logistic regression were applied to examine the association between LLI and self-reported chronic conditions.

Results. Overall 30.5% of respondents (32.4% females; 28.5% males) reported LLI. Of these, 88.4% also reported at least one specific chronic condition as compared to 45.9% without LLI. The average number of chronic health problems was significantly higher among those with than those without LLI (2.84 vs 0.81, $p < 0.001$). Notably, the proportion of persons reporting LLI increased significantly with age. The most prevalent conditions among persons with LLI were back pain, osteoarthritis and hypertension. Participants aged 18-64 without LLI showed low prevalence in all given conditions. In contrast, those aged 65+ reported hypertension, hypercholesterolemia and sensory limitations. Logistic regressions showed higher odds ratios for stroke, osteoarthritis and heart failure in people up to 64 years with LLI as well as renal failure, osteoarthritis and rheumatoid arthritis in the elderly.

Conclusions. The LLI question is likely to underestimate chronic disease morbidity among the elderly. Further research seems necessary to explore a revised wording of the question and whether groups of specific health problems may be queried separately.



- P3 -

ORTHOVOLTAGE X-RAY THERAPY IMPROVES QUALITY OF LIFE IN PATIENTS WITH KNEE MONOOSTEOARTHRITIS

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Introduction. Osteoarthritis (OA) is one of the most common causes of chronic pain leading to decrease in the quality of life (QoL).

Objectives. To compare effects of different treatments on QoL among Russian OA patients.

Methods. We studied patients with OA of the knee joints confirmed by Altman criteria, II-III stage (Kellgren-Lawrence), and 1-2 stage disability who were treated with structure/disease modifying anti-osteoarthritis drugs (S/DMOAD) - chondroitine and glucosamine sulfates 1000 mg a day during 2 month or with orthovoltage X-ray therapy (XRT) with a total dose of 4.8 Gray in 10 fractions 3 times a week. A standard validated SF-36 questionnaire was filled in by the patients before treatment and after 12 month to assess patients' QoL. Altogether, 143 patients were assigned either to S/DMOAD (n=71) or to XRT (n=72) treatment. T-tests were used to compare the means on each of the sub-scales between the groups both at the beginning of the study and after 12 months.

Results. There were no differences between the groups by any of the following initial characteristics: Physical Functioning (PF), Role Physical (RP), Bodily Pain (BP), General Health (GH), Vitality (VT) So-

cial Functioning (SF), Role Emotional (RE) and Mental Health (MH). After 12 months, the mean values for the S/DMOAD and the XRT groups were: PF: 58.1 (16.9) vs 70.2 (16.6), $p<0.001$; RP: 48.3 (23.5) vs 72.5 (25.1), $p<0.001$; BP: 32.5 (15.5) vs 21.9 (18.0), $p<0.001$; GH: 39.7 (12.7) vs 30.5 (14.3), $p<0.001$; VT: 62.5 (12.8) vs 55.2 (16.9), $p=0.004$; SF: 31.8 (21.7) vs 31.7 (20.8), $p=0.982$; RE: 34.3 (34.9) vs 51.2 (37.7), $p=0.006$ and MH 46.1 (11.6) vs 49.9 (10.6), $p=0.045$. The most pronounced difference was observed for RP and RE.

Conclusions. Russian OA patients treated with XRT had better QoL than those treated with S/DMOAD therapy as estimated by SF-36 questionnaire after one year of observation.

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- P4 -

NEURO-PSYCHOGERIATRIC STIMULATION AND REHABILITATION MEDIATED BY COMPUTERS AND INTERNET, A CONTROLLED STUDY

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Introduction. Computers and internet provide progressive mind exercises to prevent and rehabilitate cognitive decline.

Objectives. To study the impact of a neuro-psychogeriatric stimulation and rehabilitation methodology.

Methods. A longitudinal intervention controlled study with community elder people to compare changes in Mini-Mental State Examination (MMSE) score before and after 20 sessions of Neuro-Psychogeriatric Stimulation and Rehabilitation Mediated by Internet and Computers (NPSRMIC). Intervention and control groups were invited from same university specialized outpatient ambulatories. Eligibility criteria: above 54 years, both genders, at least 1 year of schooling, exclusion criteria: nursing home, blindness, deafness, upper limbs paralysis. Each NPSRMIC workshop has 20 bi-weekly sessions with 1,5 hours each, groups of 5 to 15 elders. Analysis was bivariate, multivariate, Cox regression model to estimate RR and paired samples T test.

Results. Were done 19 NPSRMIC workshops in informatic laboratories, 121 participants and 79 controls, 74% female, age 70.1 (± 10.05) years, schooling 8.86 (± 4.9) years, sedentarism 54%, depression 32%, diabetes 19%, hypertension 64%, dyslipidemia 36%, tobacco exposition 35%, hypothyroidism 11%, obesity 25%, cardiovascular disease or stroke 18%, initial MMSE 25.42 (± 4.60), Activities of the Daily Living score 13.14 (± 3.2). No statistical differences between the groups among the variables above. The MMSE of intervention group improved from 25.39 \pm 4.47 to 26.95 \pm 4.05 ($p=0.000$) and unchanged in control group ($p=0.359$). The intervention group had a RR of 3.35 (95%CI: 1.28-8.79) $p=0.014$ to improve 4 points in final MMSE. The control group had a RR of 7.86 (95%CI: 1.74-35.49) $p=0.07$, to lose 3 points in final MMSE, adjusted for gender, age, education, functional status and health variables.

Conclusions. This neuro-psychogeriatric stimulation and rehabilitation methodology can prevent cognitive loss and improve cognitive status.

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- P5 -

E-MAIL USE, AUTONOMY AND INDEPENDENCE AMONG URBAN ELDER CITIZENS: RESULTS FROM EPIFLORIPA STUDY, FLORIANÓPOLIS, BRAZIL, 2009

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Introduction. Electronic mail (e-mail) use can promote elders health, improving autonomy and independence.

Objectives. To estimate factors associated to e-mail use by elderly.

Methods. Sectional, observational, population based survey. Sample size: 1,580 individuals with 60 years or more, residents in Florianópolis urban area, Santa Catarina State, south Brazil. Outcome: e-mail use without difficulty. Covariates: gender, age, level of education, retirement, remunerated work, tobacco and alcohol use, self-perception of health, cognitive impairment (mini-mental state examination-MMSE, cutpoints by scholarship), rheumatism, depression, tendinitis, stroke, arthritis, diabetes, cancer, hypertension, cardiopathy, falls, dependency in three or more activities of daily living (ADLs), monthly contact with friends, annual group convivence. Crude and adjusted prevalence ratios (PR) estimated by univariate and multiple Regression of Cox, significance level 95%, at SPSS 15.0.

Results. 1,524 elderly were interviewed, mean age 70.7 (range 60 to 104 years old), 64.6% women, 9.8% illiteracy, 22.7% 12 or more years of schooling. The prevalence of e-mail use was 18.4% (CI95%: 16.4%-20.4%). Independent factors associated to lower prevalence in multiple analysis were: age 70 to 79 years (PR=0.67; CI95%: 0.50-0.90); 80 or more years (PR=0.44; CI95%: 0.24-0.83); dependency in three or more ADLs (PR=0.53; CI95%: 0.37-0.76) and cognitive impairment (PR=0.72; CI95%: 0.56-0.92). The level of education was the only factor independently associated with higher prevalence of e-mail use: elderly with 5 to 8 years schooling had PR=4.6; CI95%: 2.4-8.8; and 9 to 11 years schooling a PR=10.9; CI95%: 5.9-20.1; those with 12 or more the PR=20.6; CI95%: 11.7-36.4.

Conclusions. Higher age, functional dependency and cognitive impairment are factors that make it difficult the e-mail use by elderly, despite health conditions and morbidity. On the other hand, the e-mail use can be facilitated by higher education.

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- P6 -

E-MAIL USE PROTECT ELDERLY AGAINST DISABILITY, RESULTS FROM EPIFLORIPA STUDY, FLORIANOPOLIS, BRAZIL, 2009

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Introduction. Elderly disability is influenced by predisponent factors (sociodemographic), intra-individual factors (life style, morbidity) and extra-individual (health services, social support). Electronic mail (e-mail) use can reduce disability by improving autonomy and independence.

Objectives. To estimate e-mail use effect on elderly disability, adjusted for sociodemographic, health and cognitive status.

Methods. Sectional, observational, population based survey. Sample size: 1,580 individuals with 60 years or more, residing in Florianopolis city urban area, south Brazil. Outcome: dependency in three or more activities of daily living (ADLs). Covariates: e-mail use without difficulty, gender, age, level of education, remunerated work, tobacco and alcohol use, self-perception of health, cognitive impairment (mini-mental state examination, cutpoints by scholarship), morbidities, falls, monthly contact with friends. Crude and adjusted prevalence ratios (PR) estimated by univariate and multiple Regression of Cox, significance level 95%, at SPSS 15.0.

Results. 1,524 elderly were interviewed, mean age 70.7 (range 60 to 104 years old), 64.6% women, 9.8% illiteracy, 22.7% 12 or more years of schooling. The prevalence of dependency in three or more ADLs was 39.1% (CI95%: 36.6%-41.6%). Independent factors associated to higher prevalence in multiple analysis were: age 70 to 79 years (PR=1.3; CI95%: 1.1-1.6); 80 or more years (PR=2.3; CI95%: 1.8-2.8); cognitive impairment (PR=1.2; CI95%: 1.1-1.4), poor health perception (PR=2.3; CI95%: 1.7-2.9), rheumatism (PR=1.4; CI95%: 1.2-1.6), depression (PR=1.2; CI95%: 1.1-1.5), stroke (PR=1.4; CI95%: 1.1-1.7) and cardiopathy (PR=1.2; CI95%: 1.1-1.5). The e-mail use was the only factor independently associated with lower prevalence of dependency (PR=0.5; CI95%: 0.4-0.7).

Conclusions. The e-mail use suggested a protective effect against disability, maybe through cooperation and interaction mechanisms, to be evaluated by further longitudinal studies.



- P7 -

VEGETATIVE STATE AND MINIMALLY CONSCIOUS STATE: A SYSTEMATIC REVIEW OF INCIDENCE AND PREVALENCE STUDIES

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Introduction. This review evaluates the methods and results of studies on incidence and prevalence of Vegetative State (VS) and Minimally Conscious State (MCS).

Methods. VS and MCS incidence and/or prevalence studies, published from 1966 to April 19, 2010 in all languages, were systematically searched in PubMed, in grey literature and relevant bibli-

ographies. The assessment of methodological features of full-text articles according to defined criteria was performed by two independent reviewers.

Results. Out of 19 identified publications, 6 were not informative, 12 included original information (7 were from Europe, 3 from USA, 1 from Japan and 1 from Israel) and 1 was a systematic review (2005). VS frequency showed high variation: incidence from 5 to 25 per million population (PMP) in the US, prevalence 2-28 PMP in Europe and 40-168 PMP in USA. Case definition differed since 5 studies were limited to persistent VS and only 4 included MCS. Due to inconsistent diagnostic consensus over time, various authors used different case definitions. Two studies used the Multi Task Force Society criterion (*New Eng J Med*, 1994) and 2 applied the Jannet and Plum definition (*Lancet*, 1972). In 9 studies no criteria were specified. Validation of potential cases through a neurological examination was performed in 4 studies. Case ascertainment was limited to institutionalized patients. Difficulties in obtaining valid estimates of prevalence and incidence of VS and MCS are due to: small number of studies, heterogeneous case definition, uncertain completeness of case ascertainment, variation of diagnostic criteria and type of population base.

Conclusions. The worldwide variability in VS frequency is due to methodological heterogeneity but may also reflect true differences across populations or over time because of differences in the frequency of causes of brain damage and in survival of patients. Survival is influenced by emergency and intensive care treatment and post acute assistance.



- P8 -

SOCIOECONOMIC DIFFERENCES IN THE YOUNG AND ELDERLY BREAST CANCER PATIENTS

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Introduction. Socially deprived females with breast cancer have a decreased survival, usually associated with higher stage of disease. However, differences between young and elderly patients have not been studied.

Objectives. Aim of this study was to assess differences in survival according to socioeconomic status (SES) and age for females with breast cancer in the Netherlands.

Methods. All females diagnosed 1995-2005 were selected (Netherlands Cancer Registry). Patients were linked to Netherlands Institute for Social Research which keeps record of SES. Relative Survival (RS) was calculated as ratio between survival observed and survival that would have been expected based on corresponding general population. Relative Excess Risks (RER) were calculated and Relative Survival was stratified according to SES and age (elderly: 65 years or older).

Results. Overall, 127599 patients were included. For younger patients 10-years RS was 80.7% (79.8-81.5) for the highest socioeconomic group and 77.2% (76.2-78.3) for the lowest socioeconomic

group (RER 1.2; 95%CI. 1.1-1.3; $p < 0.001$) adjusted for age, year, grade, stage and treatment. For the elderly 10-years RS was 75.6% (73.2-78.0) and 69.2% (67.0-71.4) with an adjusted RER 1.2 (95%CI: 1.1-1.3; $p < 0.001$). Over time, RS increased for all ages and socioeconomic groups. However, for younger patients RS did increase at a higher rate for the higher SES (RER 0.93) while in the elderly for the lowest SES (RER 0.96). Survival differences between the young and elderly patients were most prominent in the lowest SES.

Conclusions. Socioeconomic differences for young and elderly breast cancer patients were observed. For younger patients survival increased most in the higher socioeconomic groups while the opposite was true for elderly; survival differences remained most prominent in the lower socioeconomic groups. Policies aimed at the reduction of socioeconomic health inequalities might be important to improve survival of breast cancer.

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SOCIAL DIFFERENCES IN PROGRESSION TO DISABILITY AMONG ELDERLY

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Introduction. Italian elderly showed stronger social inequalities in disability status than in chronic morbidity. It is not known if this is related to speedier progression between morbidity and disability among socially disadvantaged.

Objectives. To estimate transition probabilities towards mild and severe disability, and their variations by social position, among national cohorts of elderly.

Methods. Data collected on Activity of Daily Living from the last three National Health Interview Surveys (1994, 2000, 2005) were used to classify Italian population aged 60 years or older according to disability level at each survey (able, mild=any non maximum difficulties in equilibrium, walking and up&go functions, severe=at last one maximum functional limitation). Life tables of elderly population were computed, stratified by gender, age, education and disability, through data from Turin longitudinal Study; they were applied to national prevalences of disability status by birth-cohorts, gender and education (primary or less, lower secondary or higher), in order to estimate inter-surveys transitions probabilities among disability levels, assuming not reversible, and death.

Results. Men with lower education showed higher probability of occurrence of mild disability, compared to higher educated, among 60-64 cohorts in 1994 and the differential keeps constant with ageing. This difference is less pronounced in the male cohorts born before and irrelevant among women. Transition probability from mild to severe disability seems to be higher among less educated in younger male and female cohorts, especially in the first part of ageing process, while cohorts born before showed higher transition probabilities among more educated.

Conclusions. Different progressions to disability by education were found. Estimates are based on surviving elderly at surveys; selection could explain inversion of social differentials among older cohorts.

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- P10 -

INFLUENCE OF CHRONIC MORBIDITY ON EARLY RETIREMENT

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Introduction. Early retirement is common in Italy and, because of population aging, concern has been expressed on the economic burden of providing pensions to relatively young people for decades.

Objectives. To examine the association between early retirement and presence of chronic diseases in a representative sample of the Italian population, and to estimate the Population Attributable Risk (PAR) for chronic morbidity.

Methods. The study population consisted of women 45-54 years and men 45-59 years, employed at some time in the past (18,261 people), who participated in a national cross-sectional survey in 2005. By means of a standardized questionnaire, information was collected on employment status, a list of 24 chronic diseases and socio-demographics. The outcome was being retired at the time of the survey. The association with chronic conditions was assessed through stepwise logistic regression, stratified by gender and adjusted for potential confounders ($p < 0.05$), including other chronic diseases, age, education, occupational social class, area of residence and employment in the public administration.

Results. In the final multivariable model, the risk of early retirement among men was significantly increased by myocardial infarction, other heart diseases and arthritis, together with age, education, occupational social class and area of residence. Among women, it was associated with malignant tumours and neurological disorders other than Parkinson's disease, dementia and stroke, and with age, area of residence and employment in the public administration. The PAR for chronic diseases was 11.6% among men and 4.7% among women.

Conclusions. Only a minor proportion of early retirement was attributable to chronic diseases. The high risks associated with lower education and lower occupational class after adjusting for chronic diseases indicate that the social gradient in early retirement is not attributable to differences in health status between social classes.

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- P11 -

HIP FRACTURE INCIDENCE. A MEN'S PROBLEM

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Introduction. Osteoporotic Hip Fractures (OHF) are a serious public health problem that tends to increase with the aging of population.

Objectives. To analyze the trend and seasonality of OHF incidence in Portugal, between 2000 and 2008.

Methods. All registers of patients aged 50+ years from the National Hospital Inpatients Data Registers, with hip fracture (ICD9.CM codes 820.x), caused by low impact were included. A time series with the absolute number of OHF per month, corrected for the number of days/ month, was constructed. For trend analysis, the seasonality effect was removed. The variation rate was calculated by linear regression. The seasonality pattern was captured by removing the trend and isolating the component attributed to random fluctuation (residuals). Residual validation was made.

Results. 78,005 (77.3% women) hip fractures were registered. Mean age (\pm SD) was 78.0 ± 10.1 and 81.0 ± 8.5 respectively for men and women. An increasing trend ($p \leq 0.001$) was observed, more accentuated among men (14.6%) than in women (12.0%), corresponding to a yearly increase of 1.6% and 1.3% respectively. Seasonality was observed, being the pattern among women with a lower incidence in June and a higher incidence in December (variation rate 31.8%), while among men the seasonality has one month of delay, being the lower incidence in July and the highest in January (variation rate 24.5%).

Conclusions. Results showed an increase trend in the incidence of OHF in Portugal, higher among men. The seasonal effect was more accentuated in women. The OHF are a severe health problem in the elderly, with high fatality rates, especially among men. With the increasing of men's life expectancy, and the aging of population, it is expected a decrease in the ratio women/men. Traditionally, OHF has been seen as a problem of elderly women and little attention has been given to men. Although, results showed that more prevention actions should be directed to men.

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- P12 -

HIP AND KNEE ARTHROPLASTIES IN PORTUGAL AND BRAZIL. IS QUALITY OF LIFE A PRIORITY?

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Introduction. Total Hip and Knee Arthroplasties (THA and TKA) are standard of care for degenerative joint diseases.

Objectives. To the evolution of THA, TKA and revisions (THR and TKR), in Portugal and Brazil, from 1997 to 2007.

Methods. National Data from hospital admissions were used. Procedures coded with 81.51 and 81.53 respectively for THA and THR and 81.54 and 81.55 respectively for TKA and TKR were selected (International Classification of Diseases, 9th Revision, Clinical Modification). Age Standardized Incidence Rates (ASIR), 100,000 persons/year, were calculated for THA and TKA, (standard population of Europe) using the direct method. Burden of revision was calculated as the ratio of revision surgeries among primary plus revision arthroplasties.

Results. In Portugal, the ASIR of THA increased from 34.5 and

39.6 in 1997 to 41.4 and 47.4 in 2007 (women and men). The revision burden of THR increased from 10.1% to 15.8%. The ASIR of TKA increased from 11.4 and 4.9 in 1997 to 49.3 and 21.6 in 2007 (women and men). The revision burden of TKR decreased from 1997 to 2007, from 7.3% to 6%. In Brazil, the ASIR of THA increased from 5.1 and 5.5 in 1997 and 8.4 and 9.0 in 2007, (women and men). Revision burden of THR increased from 7.1% to 10.6%. The ASIR of TKA increased from 2.2 and 1.1, in 1997 to 3.8 and 1.7 in 2007 (women and men). The revision burden of TKR increased from 4.3% (1997) to 13.6% (2007).

Conclusions. Observed increase in ASIR of THA and TKA in Portugal and Brazil follows other international studies. In Portugal ASIR of THA and TKA are lower than in EUA and Canada. In Brazil, the ASIR of THA and TKA are far from what is observed in developed countries, being about 20% of the rates in Portugal. We believe that disparities are not related to differences in risk, rather reflects difference in health priorities. Arthroplasties help to reduce pain and improve the quality of life of patients and this might not have the same priority in all countries.

Cancer screening

- P13 -

WOMEN'S KNOWLEDGE AND ATTITUDES REGARDING BREAST CANCER IN WESTERN GREECE

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Introduction. Breast cancer is by far the most frequent type of cancer in women with an estimated 430,000 new cases and 132,000 deaths in 2006 for the entire Europe.

Objectives. The aim of this study was to investigate women's knowledge, experience and attitudes concerning breast cancer in Western Greece.

Methods. A survey was carried out from January-February 2010, including 510 female patients, who visited both, urban and rural health centers/units in the region of Western Greece. Demographic and socioeconomic data were recorded as well as their attitudes and knowledge related to breast cancer development and prevention.

Results. A total of 510 women were interviewed. Mean age was 45 years and 18% declared having family history of breast cancer. Knowledge of risk factors of breast cancer mentioned 47%, whereas 23% were completely uninformed. Statistically significant differences ($p < 0.05$) were observed between the educational level and knowledge/being informed of breast cancer development and prevention. Women with higher education were better informed. More than a third (40%) of the women believes that no prevention is possible and more than a half (53%) of the women declared never had

undertaken a mammography. 73% declared not visiting a physician for breast cancer examination. The great majority (89.6%) expressed their wish of more and better information and health education in regard of breast cancer and possible preventive measures.

Conclusions. A high percentage of women living in Western Greece are not satisfactorily and adequately informed about the factors that modify the risk of breast cancer and the preventive possibilities. There is a need of planning and conducting informative campaigns with respect to the effectiveness of prevention and the benefits of early detection. Furthermore, screening programmes should be made widely available, targeting mainly women with low education.



- P14 -

PROSTATE SPECIFIC ANTIGEN TESTING AND PROSTATE CANCER INCIDENCE IN NORTHEASTERN ITALY: A POPULATION-BASED STUDY

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Introduction. Despite the lack of definitive consensus on the utility of prostate cancer (PC) screening through the prostate specific antigen (PSA) test, the use of PSA has dramatically increased in developed countries.

Objectives. To describe the use of PSA testing and PC incidence rates among men in Friuli Venezia Giulia (FVG), Northeastern Italy, between 1998 and 2008.

Methods. Incidence rates of PC were retrieved from the Cancer Registry of FVG, while data on PSA tests were retrieved from the Regional Health System (RHS) database. RHS has been collecting all diagnostic procedures performed in FVG since 1998, thus allowing us to identify all men aged ≥ 40 years who underwent PSA testing in 1998-2008. We calculated overall and age-specific proportions of men tested with PSA for each calendar year. The joinpoint analysis (i.e., annual percentage change - APC - and 95% confidence intervals, CI) was used to evaluate temporal trends.

Results. Age-specific incidence rate of PC increased from 297/105 in 1998 to 331 in 2005 (APC=2.3; 95%CI: 1.6-3.1), an upward trend was mostly attributable to the increase in the 50-69 age group. Nearly 101,000 men were tested for PSA in FVG in 2008, and the proportion of men tested with PSA increased from 12.7% in 1998 to 30.3% in 2008 (APC=8.8; 95%CI: 7.2-10.4). Increasing trends were observed for all age groups, but they were particularly marked under 60 years of age. Joinpoint analysis revealed a change in PSA testing trends in 2002/2003 for all age groups (overall APC: 17.2 and 3.5 before and after 2002, respectively).

Conclusions. This analysis quantified the widespread use of PSA in FVG and the persisting increase of such screening test in all age groups. Given the heavy economic burden of PSA testing and its potential harms in terms of overdiagnosis, this information should help health policy makers in implementing guidelines on its use.

Communicable diseases

- P15 -

RESULTS OF THREE YEARS TUBERCULOSIS SCREENING IN PORTUGUESE HEALTHCARE WORKERS. SERIAL TESTING WITH THE INTERFERON-GAMMA RELEASE ASSAY

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Introduction. New Mycobacterium tuberculosis (MTB) specific IFN- γ release assays for diagnosing latent tuberculosis infection (LTBI) are available. However data concerning conversion and reversion rates in serial testing of healthcare workers (HCWs) with an Interferon- γ Release Assay (IGRA) are sparse.

Objectives. To analyse variability of IGRA in serial testing of HCW for TB.

Methods. The study population comprises HCWs tested at least twice with QuantiFERON-TB® Gold In-Tube (QFT) for LTBI between February 2007 and September 2009 at the University Hospital of Porto, Portugal. 670 HCWs had two and 252 HCWs had three consecutive QFTs. Tuberculin Skin Test (TST) was performed simultaneously. QFT was considered positive if INF- $\gamma \geq 0.35$ IU/mL. TST conversion was defined as an increase ≥ 10 compared to a baseline TST < 10 mm.

Results. The second QFT was positive in 4.8% of the 376 HCWs with an INF- γ concentration at baseline below 0.1 IU/mL but in 48.8% of the 41 HCWs with an INF- γ concentration of 0.2 to < 0.35 IU/mL. Out of 74 HCWs with a baseline INF- γ concentration ≥ 3.0 IU/mL 4 (5.4%) reversed to a negative QFT while in those 55 HCWs with a baseline INF- γ concentration ≥ 0.35 to < 0.7 IU/mL about every second HCW showed a negative second QFT (49%). Those 61 HCWs with a TST conversion (increase ≥ 10 mm) were most often (78.7%) negative in both consecutive QFTs. 9 cases of active TB were diagnosed during the study period. All were QFT positive, however two had rather low INF- γ concentrations (0.42 and 0.92 IU/mL).

Conclusions. Our data suggest the use of an uncertainty zone between 0.2 IU/mL and 0.7 IU/mL in serial testing with QFT. As long as the knowledge regarding disease progression in QFT positive persons is limited, in low incidence countries with limited experience in chemoprevention persons pertaining to this zone should rather be retested before being offered preventive chemotherapy. Active TB however needs to be excluded when ever QFT is positive.



- P16 -

HEPATITIS C VIRUS VERTICAL TRANSMISSION AND MODE OF DELIVERY: A META-ANALYSIS

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Introduction. Mother-to-child transmission of hepatitis C virus (HCV) is the main route of infection in paediatric age and may contribute to the reservoir of the virus. The mode of delivery is considered the most important modifiable factor, particularly in mothers with infection from human immunodeficiency virus (HIV).

Objectives. To establish the risk of mother-to-child transmission from viraemic women connected to mode of delivery (vaginal delivery or caesarean section).

Methods. Vertical transmission risk was investigated by a systematic review and meta-analysis. Systematic search of electronic databases was undertaken and 9 observational studies were identified describing HCV transmission from HCV-RNA-positive pregnant women. Data were extracted independently from two investigators. No heterogeneity across the studies was observed and a fixed-effects model was used, calculating the pooled effect with the Mantel-Haenszel method.

Results. The overall transmission risk was 8.54% (95%CL: 7.24-9.99); on further analysis the risk was 6.61% (95%CL: 4.67-9.03) in 6 studies including only HIV-negative women, and 9.49% (95%CL: 7.83-11.36) in 3 studies including women co-infected with HIV. Overall the meta-analysis demonstrated a modest non-significant increased risk of transmission with vaginal delivery (RR 1.13; 95%CL: 0.78-1.62), but in the studies on HIV-negative women vaginal delivery was protective (RR 0.55; 95%CL: 0.20-1.07), whereas in studies including HIV-positive women it seemed to represent a risk factor, albeit not statistically significant (RR 1.45; 95%CL: 0.93-2.25).

Conclusions. Vaginal delivery is not contraindicated in HCV-RNA positive HIV-negative women.

- ◆ -
- P17 -

EPISOUTH: A FRAMEWORK OF COLLABORATION FOR COMMUNICABLE DISEASES SURVEILLANCE AND TRAINING IN THE MEDITERRANEAN AREA

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Introduction. EpiSouth, co-financed by EC-DGSANCO and Italian MoH, is a Network of 26 Countries in the Mediterranean area aimed at creating a framework of collaboration for communicable diseases surveillance and training.

Methods. EpiSouth works through WorkPackages (WP) lead by Public Health Institutes (PHI). The project is coordinated by the main partner (ISS, Italy). Three WPs, "Cross-border epidemic intelligence" (InVS, France), "Vaccine Preventable Diseases and migrants" (NCIPD, Bulgaria) and "Cross-border emerging zoonoses" (HCDCP, Greece), constitute the technical pillars on which the project develops. "Networking" (PTH, Italy) and "Training" (ISCIII, Spain) are WPs dedicated to capacity building.

Results. From an initial involvement of 5 countries EpiSouth in-

cludes now 26 countries of Southern Europe, Balkans, North Africa and Middle-East and international organizations (EU, ECDC and WHO). Several outcomes, including website with a restricted area, 11 electronic bulletins, directories of PHI and human and veterinary public health officials for zoonoses, 3 training courses for 100 epidemiologists, 10 reports derived from assessment surveys, 4 strategic documents, epidemiological weekly bulletins and thematic notes, and an electronic platform for the exchange of alerts within the EpiSouth Network have been accomplished and documents are available at the project's website (www.episouth.org).

Conclusions. EpiSouth succeeded in creating cohesion and concrete collaboration among 26 countries. It fills a geographical area with common public health problems (Balkans and Mediterranean Basin), that is not addressed as a whole neither by European Networks, as it includes also non-EU countries, nor by WHO, as it encompasses three different WHO regional offices. The Project, started in late 2006, will close in June 2010 but a new phase called "EpiSouth Plus", with additional activities and funds also from EC-DGAIDCO, is ready to start at that time.



- P18 -

CERVICAL CANCER PREVENTION: INSIGHT FROM DYNAMIC MODELING

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Introduction. Cervical cancer prevention is progressively shifting the focus towards control and detection of carcinogenic HPV infection. The shift from a non-communicable to a communicable disease epidemiology framework makes it possible to use dynamic modeling to investigate the patterns of transmission of carcinogenic HPV diseases surveillance and training.

Methods. We have adapted a dynamic model of HPV-16 infection and cervical cancer to investigate the role of type specific HPV-16 infection clearance and changes in sexual behavior as determinants of the effectiveness of vaccination and screening among HPV-16 uninfected and infected women, respectively.

Results. Our model-based estimates show that vaccination programs targeting young girls before their sexual debut are most effective when HPV-16 infection are cleared without a development of type specific immune response. This is because, given a specific level of vaccination coverage, the "herd" immunity effect is maximized in non-immune populations. In particular in an unscreened population, the indirect protection of the women would account for some 25% of the overall protection. This would be increased up to 30% by introducing vaccination of boys. An age-period-cohort analysis of our estimates shows that, in an unvaccinated and unscreened population, changes in sexual behaviors would rapidly increase and shift towards younger ages the incidence of pre-cancerous lesions as a function of the increased HPV transmission and of the age groups interested by behavioral changes. Thus, incorporating behavioral data in the model allows for targeting the age groups of women at greatest risk of cervical cancer.

Conclusions. Given the prophylactic nature of the vaccine, immunization programs are expected to be effective among uninfected women, whereas cancer prevention among infected women should rely on cost-effective screening programs. Dynamic modeling estimates should support the design and implementation of vaccination and screening programs.



- P19 -

TUBERCULOSIS MANAGEMENT BASED ON DIRECTLY OBSERVED TREATMENT SHORT COURSE. EFFICACY OF A PILOT PROJECT IMPLEMENTED IN A REGION OF WESTERN GREECE

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Introduction. Tuberculosis (TB) is the most widespread and persistent human infection in the world. The WHO Directly Observed Treatment Short Course (DOTS) strategy was launched in 1994 to address the burden of tuberculosis (TB) globally and to overcome problems of adherence of TB treatment.

Objectives. The purpose of this study was to implement a DOTS programme in a region of Western Greece and to assess the efficacy of the WHO-recommended strategy in newly detected pulmonary tuberculosis cases in comparison to TB cases managed conventionally.

Methods. A prospective study of newly detected cases (from 2005-2009) and a retrospective study of past treated TB cases in Elia, a prefecture of Western Greece were conducted. All specimens were processed according to conventional microbiological procedures for identification of mycobacteria. Comparison of various data (laboratory findings, treatment outcomes, questionnaire-based parameters) was performed between newly detected and past treated TB cases and their household contacts.

Results. A total of 195 subjects were included in the study, 13 new diagnosed cases with 30 household contacts and 41 past treated TB cases with 111 household contacts. Of all bacteriological confirmed new cases, 84.6% were successfully treated, 7.7% died, 7.7% were lost to follow up and none had interrupted the treatment. The TB occurred mainly in men (77%, mean age 45 years) while 31% belonged to vulnerable groups (gypsies, prisoners and resident alien). Chemoprophylaxis was administered to 13.3% of household contacts, whereas among household contacts of past treated 12.6% received chemoprophylaxis and 6.3% a complete antituberculosis regimen because of active tuberculosis.

Conclusions. The pilot implementation of DOTS in Elia revealed feasibility in managing new pulmonary tuberculosis cases. The outcomes indicate higher efficacy in treatment, prevention and decline of TB incidence in comparison to conventional approach of TB management.



- P20 -

LIVING CONDITIONS OF PATIENTS WITH TUBERCULOSIS AND THEIR HOUSEHOLD MEMBERS

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Introduction. Inadequate living conditions of patients with tuberculosis constitute an aggravating factor regarding the disease transmission in family members or other household contacts. These are mainly found in population groups with low socioeconomic status.

Objectives. The purpose of this study was to examine the living conditions of patients with tuberculosis in a region of Western Greece and to consider the possible adverse influence on the disease development and outcome assessment.

Methods. In the period 2006-2009 home visits of newly detected cases of tuberculosis and past treated cases were conducted by a general practitioner, who examined various parameters of habitation, such as aeration, lightness, cleanliness and housekeeping, size of the house and number of members living together.

Results. A total of 54 (38 male, 16 female) patients with tuberculosis were studied. Out of them 63% was living in rural, 20% in semi-urban and 17% in urban area. 15% were illiterate and 54% attended primary school, whereas 24% had secondary and 8% tertiary education, respectively. Aeration was satisfactory in 28%, moderate in 52% and deficient in 16%. Lightness showed similar results (27.8%, 57.4%, 14.8%), whereas the housekeeping was moderate in 33% and unsatisfactory in 43% and the personal hygiene in 46% and in 35%, respectively. More than a third of the patients are living together with other 5 members and 39% with 3-4 members. Regarding the sleeping habits 26% of the patients slept alone in the bedroom, while 74% together with others.

Conclusions. The living conditions of patients with tuberculosis are in less than a third of the cases satisfactory. The majority of the examined families count more than four members. Taking into account the size of house the possible originating conglomeration could facilitate the disease transmission. More attention should be paid to informative and preventive campaigns mainly in vulnerable and low socioeconomic status groups.



- P21 -

IMPLEMENTATION OF DIRECTLY OBSERVED TREATMENT SHORT COURSE STRATEGY IN HOUSEHOLD CONTACTS OF PATIENTS WITH TUBERCULOSIS

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Introduction. The detection and successful treatment of patients

with tuberculosis (TB) in the context of preventive programmes are considered as very important. The same important is the prevention of disease transmission among the household contacts of the patients.

Objectives. The aim of this study was to examine in which way new models of detection and prevention of tuberculosis act in household contacts of patients who developed tuberculosis and to assess the efficacy of these novel strategies in household contacts.

Methods. A total of 141 household contacts of 54 tuberculosis patients were studied in Elia, a prefecture of Western Greece: 30 contacts were related to 13 patients in which Directly Observed Treatment Short Course (DOTS) strategy was applied and 111 contacts related to 41 past treated TB cases, who were managed conventionally.

Results. In the household contacts of DOTS-patients 17% tested Mantoux positive (+) and 43% Mantoux negative (-), whereas in 40% (13 members) Mantoux test was only performed, when starting DOTS management, revealing one (8%) contact to be positive. On the contrary, in the members of past treated TB the following respectively test results were observed: 20% (+), 22% (-) and in 53% no test was performed. Prevention measures among the members of DOTS patients were in 70% in deficit and in 30% completely absent. After the first home visits only in 7,7% of the families insufficient prevention was still observed. In the members of past treated TB, prevention measures were in deficit in 44% and in 49% they were missed completely.

Conclusions. The implementation of DOTS in patients with tuberculosis contributes not only in the successful treatment of the patients, but also in the prevention and detection of possible infection in the household contacts, leading thus to the decrease of tuberculosis incidence in the direct environment.



- P22 -

HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION IN NORTH-WEST RUSSIA

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Introduction. In the Russian Federation there are more people living with HIV than in any other country in Europe. The Arkhangelsk region (Northwest Russia) is a territory with low prevalence of HIV (<50 per 100,000). The first HIV case was diagnosed in the region in 1992, five years after the first HIV case was registered in Russia. However, the information about HIV infection in the region is limited.

Objectives. To describe the main features of the situation with HIV in the Arkhangelsk region in comparison with the situation in Russia in general.

Methods. A descriptive records-based study. All the data were obtained from the annual statistical records of the Arkhangelsk HIV Center from 1992-2009.

Results. Altogether, 535 HIV cases have been registered by the end of the 2009 in the Arkhangelsk region. All registered cases can

be divided into three groups: cases among local population (69.7%), among foreign citizens (5.4%) and citizens from other regions of Russia who are imprisoned in the Arkhangelsk region (24.9%). Most of the infected people are under 35 years old. Heterosexual spread of HIV has become more frequent: while in Russia its role increased from 6% in 2001 to 35% in 2009, as many as 61.6% of new cases were due to heterosexual contacts in the Arkhangelsk region. The number of infected pregnant women is steadily increasing as well as the proportion of women getting the infection: female/male ratio is 1:1.4. About 1% of HIV-positive people are children. More 80% of people with HIV are also infected with hepatitis B. Tuberculosis is the most frequent cause of death among HIV-infected in the region.

Conclusions. The Arkhangelsk region may soon face a rapid HIV spreading both among IDUs and among general population unless the appropriate preventive strategies are applied in the near future. More detailed data on the HIV-prevalence in the region and the reasons behind the data will be presented.



- P23 -

THE EFFECTS OF EDUCATIONAL INTERVENTION ON HEALTH CARE WORKERS' BELIEFS AND ATTITUDES ABOUT HIV/AIDS-RELATED ISSUES

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Introduction. Deficiencies of health care workers' knowledge with regard to HIV/AIDS may lead to negative, discriminatory attitudes toward infected individuals.

Objectives. To assess the impact of a two-day educational intervention on health care workers' HIV/AIDS beliefs and attitudes.

Methods. A pretest-posttest design included two waves of a cross-sectional study of the representative sample of personnel from primary, secondary and tertiary health care in Niš. The intervention included 222 subjects, selected through two-stage stratified sampling (regarding number and occupation in the health care strata). Using random sample method, subjects from different departments were selected. Anonymous self-administered questionnaire was used in the study. Mantel-Haenszel chi-square testing and multiple logistic regression analysis were applied.

Results. Significant improvements were seen in doctors'/ dentists' agreement that all inpatients should be tested for HIV (74% vs. 57%, $\chi^2=3.91$, $p=0.048$), agreement that health care workers should be able to refuse to care an HIV/AIDS patient (8.5% vs. 1%, $\chi^2=5.39$, $p=0.020$), and agreement that HIV-positive status was the individual's own fault (10.2% vs. 1%, $\chi^2=5.39$, $p=0.020$). A significant change was seen in nurses'/laboratory technicians' agreement with restricting HIV-positive health care workers from practicing medicine (43% vs. 34%, $\chi^2=7.69$, $p=0.005$). A multivariate analysis identified participation in the prevention program (OR=0.68; 95%CI: 0.52-0.88) and previously treatment of HIV-infected patients (OR=0.54; 95%CI: 0.32-0.83) as significant predictors of HIV-related attitude change.

Conclusions. Our education program was effective in changing the attitudes and beliefs for most participants in the desired direction. Future, well-coordinated education of HIV/AIDS for all categories of health care workers is recommended as a vital strategy in crusade against negative attitudes toward infected individuals.

Diet and lifestyles

- P24 -

POLYMORPHISMS IN GSTM1, GSTT1, COFFEE CONSUMPTION AND CUTANEOUS MELANOMA RISK

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Introduction. Glutathione-S-transferase genes GSTM1 have been reported to influence UV sensitivity and melanoma risk. There is increasing evidence identifying the role of dietary components in modulating the risk of melanoma. The aim of this study was to investigate GSTM1, GSTT1, coffee consumption and the risk of cutaneous melanoma.

Methods. Within a case-control study aimed to study environmental and occupational risk factors for melanoma conducted in the inpatient wards of IDI-San Carlo Rome, individual patterns at two polymorphic genes (GSTM1 and GSTT1) belonging to Glutathione-S-Transferases family (GSTs) were investigated in 340 subjects (188 cases of melanoma and 152 controls). The genetic analysis were conducted by INAIL. Information on socio-demographic characteristics, diet, smoking history, sun exposure and pigmentary characteristics was collected for all subjects. The association between genetic polymorphisms, coffee consumption and cutaneous melanoma was assessed by logistic regression.

Results. High frequency of coffee drinking (\geq once daily), compared with low frequency consumption of coffee (<7 times weekly) was associated with a protective effect for cutaneous melanoma (OR: 0.43; 95%CI: 0.25-0.73) after controlling for age, sex, education, number of nevi, pigmentary characteristics, tobacco smoking, sun exposure and polymorphic genes. After controlling for other food items simultaneously in the model the protective effect of coffee remained. After stratifying for GSTM1 and GSTT1 genotypes, the protective effect was more pronounced for GSTM1 null genotype (OR: 0.35; 95%CI: 0.15-0.78) and GSTT1 null genotype (OR: 0.031; 95%CI: 0.006-0.30).

Conclusions. Our results show that consumption of coffee is protective for melanoma and GSTM1 and GSTT1 null individuals may benefit more of this protection than GSTM1, GSTT1 positive individuals.

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HAND PATTERN AND EARLY-ONSET PROSTATE CANCER RISK

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Introduction. Ancient civilizations recognised the study of the hand and its finger pattern in relation to health, longevity and personality traits. Even today it remains an area of great interest amongst the palmists, scientists and researchers. But it was only decade ago that the 2D:4D ratio was proposed as a marker of prenatal testosterone exposure. Since then several studies have been conducted to establish the association between ratio of second to fourth digit length (2D:4D) with human behaviour, fertility, sexual orientation and different disease risks, and recently it is known to be associated with certain hormone related diseases developing during adult life. Despite this there have been no studies so far reported on the 2D:4D ratio and prostate cancer risk. This study assesses the association between hand pattern and early-onset prostate cancer risk.

Objectives. To assess the association between pattern of index compared to ring finger on the right hand and early-onset prostate cancer risk.

Methods. We analysed 2D:4D pattern of the right hand and early-onset prostate cancer risk in 526 cases with advanced cancer and 1927 population-based controls age <60 years. Unconditional logistic regression was used to generate odds ratios and 95% CIs. To control for confounding factors, age and social class were added to the model.

Results. Index shorter than ring finger is used as a reference. Index finger longer than ring finger showed a protective effect for early-onset prostate cancer risk, indicative of a protective effect with a 87% risk reduction (OR 0.13, 95%CI: 0.09-0.21) (p value <0.0001). There was no association found between index finger equal to ring finger and those with index finger shorter than ring finger (OR 0.92, 95%CI: 0.72-1.18).

Conclusions. A protective effect of lower prenatal androgenic activity was observed suggesting the importance of hormone modulation in utero on prostate cancer risk.



- P26 -

THE PREVALENCE OF OVERWEIGHT IN RELATION TO LIFESTYLE FACTORS IN LITHUANIAN ADULT POPULATION

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Introduction. The lifestyle factors play an important role in the development of overweight and obesity.

Objectives. To examine the associations between the prevalence of overweight and lifestyle factors in Lithuanian adult population.

Methods. From 1994 to 2008 eight health behaviour surveys have been carried out. For every survey random sample of 3,000 Lithuanians aged 20-64 was taken from the National Population Register. The response rates varied from 61.7% to 74.4%. The study material was collected by mailed questionnaires. The questionnaire contained questions on the sociodemographic characteristics, smoking, consumption of alcohol, nutrition and physical activity habits. Self-reported body weight and height were used to calculate body mass index (BMI).

Results. Over the last fourteen years the prevalence of overweight (BMI > 25 kg/m²) and obesity (BMI > 30 kg/m²) among men has increased from 47% and 11% to 61% and 17%. Almost no changes in proportion of overweight and obese women have been found. Men and women frequently consuming natural milk and spreading butter on the bread were more likely to have excess weight. The consumption of meat products at least 3 times per week in men and eating sweets at least 3 times per week in women was more common among overweight respondents, compared to normal weight. Physical activity was inversely associated with overweight and obesity in both sexes. Overweight was less prevalent among daily smokers than among non-smokers or quitters. More than a half of non-smoking men were overweight, while prevalence of overweight among daily smokers was 43% and among quitters – 74%. The same proportions were in women: 48%, 35% and 47% respectively. The association between alcohol consumption habits and overweight was inconsistent.

Conclusions. Dietary and physical activity interventions should be considered in the development and implementation of National obesity control program in Lithuania.



- P27 -

"FORCHETTA E SCARPETTA" (FORK AND SNEAKERS): PROGRAMME TO PROMOTE HEALTHY LIFESTYLES IN CHILDREN AND ADOLESCENTS

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Introduction. The "Gaining health: make healthy choices easier" programme approved by Italian Prime Minister on 4 May 2007, is designed to prevent chronic disease, and focuses on the main risk factors: a poor diet, the lack of physical exercise, smoking, and alcohol abuse. The strength of this programme lies in the alliance established between health care and education; a system of surveys of behavioural risks among 6-17 age-group has been implemented to systematically gather information on children's and adolescents' nutritional status, physical exercise, behaviour in terms of the risk factors related to NCD (diet, physical activity, smoking and alcohol) as a tool to support programming by the National Health system and by schools.

Methods. The first phase of the project consisted in data collection on a sample of primary schoolchildren, to estimate the prevalence of overweight and obese infants and acquire information on the dietary

situation, feeding habits, level of physical exercise and school programmes to encourage a healthy diet by setting up a monitoring system in the Italian Regions.

Results. Under this project (called "Okkio alla Salute") a specific multimedia educational package has been designed for primary school children which was made available online on the Ministry of Health website to be used in classes. This package, named "Forchetta e scarpetta" ("Fork and Sneakers") comprises five specific teaching modules (plus a teachers' guide) making it possible to dynamically address the issues of healthy eating and exercise, using cartoon-type language with music, illustrations, stimulating questions and quizzes to test the results, to make the learning experience entertaining and to constantly attract the participation and involvement of the children. In addition to the downloadable on-line version, a printed version (folders) has also been produced and is now available encouraging schools to hold meetings to inform teachers and parents, with the support of health-care workers from the local health authorities involved.



- P28 -

A PHYSICAL ACTIVITY AND DIET INTERVENTION TRIAL TO REDUCE MAMMOGRAPHIC BREAST DENSITY IN POST-MENOPAUSAL WOMEN

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Introduction. Mammographic breast density (MBD) is a strong risk factor for breast cancer (BC) and can be modulated by diet and physical activity (PA). We previously reported that a diet rich in vegetables and olive oil and a moderate leisure time PA were associated with lower MBD in a longitudinal study of 1,600 Italian women.

Objectives. To evaluate the ability of an intervention based on a moderate-intensity PA, and/or dietary modification based on plant-foods, with a low glycemic load, low in saturated fats and alcohol and rich in antioxidants, to reduce percent MBD as assessed at baseline and follow-up mammographic examination performed in the frame of the local screening programme.

Methods. We have planned a 24-month factorial randomized trial in healthy, non smokers, non HRT user post-menopausal women (50-69 yrs) with MBD > 50% at baseline. After a visit in which blood and urine samples, anthropometry, dietary and lifestyle information are collected, women are randomized to one of the treatment arms (dietary (DI) intervention, PA intervention, DI+PA intervention) or to the control arm, by age- and Body Mass Index-stratified blocks. Women in the control group receive general advice on healthy dietary and PA patterns. The DI intervention includes individual/group sessions and cooking lessons; the PA intervention includes a one hour/week exercise program carried out by specifically trained personnel, individual/group sessions and collective walks. Participants randomized into the DI+PA arm are asked to combine both intervention protocols. All participants will be invited for a visit after 24 months from the first appointment.

Results. At present 155 eligible women have been randomized. The planned activities proceed with a good compliance (70%) while recruitment is ongoing.

Conclusions. This trial will contribute to the evidence on the influence of PA and diet on MBD and indirectly on their role in breast cancer prevention.

- ◆ -

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DEPRESSIVE SYMPTOMS AND ALCOHOL USE AMONG ADOLESCENTS

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Introduction. Alcohol is the most consumed substance by young people, sometimes it's associated with depressive symptoms.

Objectives. To assess the factors associated with alcohol use among 13-year-old teenagers, like depressive symptoms.

Methods. Data of a population-based cohort of urban teenagers included cross-sectional information of 919 boys and 1,016 girls collected by self-reported questionnaire. Depressive symptoms were evaluated using Beck Depressive Inventory II (BDI). The Mann-Whitney test was used to compare medians. Odds ratio(OR) and multiple linear regression(β) were performed to estimate the magnitude of associations with 95% confidence intervals(95%CI). The final model was adjusted for parents' education, sports, smoking, have friends who drink and parents' history of depression.

Results. Overall 515(50.0%) girls and 425(44.9%) boys have experimented alcoholic beverages and 48(4.7%) girls and 62(6.6%) boys have drunk(one drink at least once time per month) at 13-year-old. For both genders, after adjustment, being experimenter was significantly associated with parents' education, tobacco use and friends who drink. In girls, characteristics that was significantly associated to be drinker were tobacco use OR=6.9 (3.1-15.2) and friends who drink OR=6.4 (2.7-15.2). In boys, to be drinker was associated with tobacco use OR=5.9 (2.7-13.0), friends who drink OR=7.3 (3.5-15.4) and cohabiting with people who drink OR=5.1 (1.4-17.6). Adolescents who have drunk presented a high score in BDI [median(25p-75p)] in girls [6.01(2.00-10.00) vs 6.38(3.00-11.99), p=0.002] and in boys [3.00(1.01-6.01) vs 3.99(1.01-6.99), p=0.039]. After adjustment, the association was not significant in girls (β =0.583; 95%CI: -0.483;1.648) in boys (β =0.623; 95%CI: -0.170;1.417).

Conclusions. Among 13-year-old adolescents parents' education, smoking and friends who drink were associated with drinking behaviour. After adjustment, depressive symptoms did not show a significant association with alcohol use.

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- P30 -

MEDIA USE BY SCHOOLCHILDREN AND ASSOCIATED FACTORS

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Introduction. During the last few years several studies have report-

ed a high use of media devices (including television (TV), videogames and computers) among adolescents, that can be related to obesity and other risk factors.

Objectives. The main objective was to describe the use of media among schoolchildren of Barcelona, and to identify the associated factors.

Methods. Cross-sectional study based on a periodic survey focusing on health-related behaviors and attitudes, carried out among a representative sample of schoolchildren of Barcelona, 14 to 18 year-olds. In 2008 we specifically asked about number of hours spent watching TV, playing with videogames, or using the PC. We present the frequency of use, and estimate the associations with sociodemographic and behavioral variables.

Results. 3,089 schoolchildren of secondary education responded the questionnaire, 52% girls and 48% boys, from 13 to 19 years of age. Around 50% declared to watch tv 2 or more hours per day, during weekly days. Boys declared to play videogames 2 hours per day much more often than girls (14,7% vs 1,5%). Regarding use of PC, 68,2% of boys and 61,7% of girls reported using it 2 or more hours every day. Watching more tv was associated with reading less books (boys: OR=0,6; CI95%: 0,4-0,7; girls: OR=0,7; CI95%: 0,6-0,9) in multivariate analysis, after adjusting by relevant sociodemographic variables. In addition, watching tv was associated among boys with eating unhealthy food, and going to bars and discos during leisure time. Among girls, watching tv was associated with doing less physical exercise. These factors were also associated to using PC and playing videogames among boys.

Conclusions. There is a high prevalence of schoolchildren reporting an excessive use of media daily. This behavior is associated to other unhealthy behaviors, like eating worse or doing less physical exercise. Also, it is associated to reading less books. It is important to promote healthy alternatives for leisure time.

- ◆ -

- P31 -

CANCER SURVIVORSHIP AND HEALTH-RELATED BEHAVIORS: A COHORT STUDY IN PORTO, PORTUGAL

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Introduction. Cancer survivors are at an increased risk of a second primary cancer, due to iatrogenic causes, genetic characteristics and unhealthy behaviors, but the characterization of the latter exposures in these specific populations has been seldom accomplished.

Objectives. We aimed to evaluate the differences of unhealthy behaviors between cancer survivors and healthy individuals.

Methods. In a cohort of adults (recruitment: 1999-2003; follow-up: up to 2009, through linkage with the population based cancer registry) we compared the baseline anthropometrics and exposure to smoking, alcohol, dietary intake and physical activity between: cancer survivors (CS) – cancer diagnosis before baseline assessment (n=53); no-cancer participants (NC) – without cancer diagnosis at baseline or during follow-up (n=2,272); latent cancer participants (LC) – without cancer diagnosis at the baseline but being diagnosed

during follow-up (n=128). Age-, gender- and education-adjusted prevalences and mean values were computed for group and continuous variables, respectively.

Results. The prevalence of current-smoking was nearly 20% among CS and NC (≈ 4 cigarettes/day) and 30% in LC (7.1 cigarettes/day). No meaningful differences were observed in the frequency of alcohol consumption, but LC had the highest average intake (24.5 g/day) and NC the lowest (17.1 g/day). The proportion of CS reporting sports practice was 50%, higher than for NC or LC ($\approx 33\%$). CS and NC reported higher consumptions than LC for fruit and vegetables (≈ 450 vs. 400.8 g/day), fibre (24.9 and 23.4 vs. 22.0 g/day) and vitamin C (≈ 132 vs. 120 $\mu\text{g/day}$). Overweight and obesity were substantially less frequent (44.8% vs. $\approx 64.0\%$) and mean BMI lower (25.4 vs. ≈ 27.0) in CS than in the remaining groups.

Conclusions. In conclusion, the pattern of exposure to behavioral risk factors and among cancer survivors is similar to the observed among the participants at lower risk of cancer, despite the scope for improvement, namely regarding tobacco consumption.



- P32 -

HOW DISTANCES TO URBAN GREEN SPACES CAN INFLUENCE PHYSICAL ACTIVITY IN TEENAGERS OF PORTO COMMUNITY. THE EPITEEN (EPIDEMIOLOGICAL HEALTH INVESTIGATION OF TEENAGERS IN PORTO) COHORT

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Introduction. Increasing physical activity in adolescence will help to create in our society a future generation who will become active and healthy adults. There is a growing recognition that urban green spaces (UGS) can increase levels of physical activity (PA), but the enormous potential of these spaces is still not fully recognized.

Objectives. We aimed to examine the association between distances from homes to UGS and the practice of PA and Sports in 17-year-old adolescents of Porto.

Methods. This study has been developed as part of the EPITeen cohort. We analyzed 1340 (51.4% girls) adolescents living in Porto city. Sports and PA were assessed using a self-reported questionnaire. Participants were georeferenced by home addresses and buffers of 250m and 500m were created around their residences and intersected with digital map of UGS. Logistic regression analysis was used to investigate the association between distance to UGS and PA (adjusted to parents' education), and with practice of sports (additionally adjusted to BMI).

Results. Practice of sports was reported by 38.2% of the girls and by 73.5% of the boys ($p_{250m} < p_{500m}$ and $OR=0.67$ (0.45;1.00) for $>500m$. For boys the results were $OR=1.01$ (0.61;1.66) and $OR=1.43$ (0.92;2.23), respectively between 250m and 500m and $>500m$. The OR (95%CI) to had high PA was, in girls, 1.34 (0.84;2.12) for those living at $>250m - \leq 500m$, and 1.05 (0.71;1.54) for those with a distance higher than 500m. In boys the results were $OR=1.30$ (0.81;2.09) and $OR=1.13$ (0.71;1.54), respectively for a distance $>250m - \leq 500m$ and higher than 500m.

Conclusions. After adjust to socio-economic indicator, the distance to UGS did not show a significant effect on the practice of Sports and intensity of physical activity.



- P33 -

FISH CONSUMPTION IN RELATION TO EARLY SIGNS OF ATHEROSCLEROSIS

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Introduction. High fish consumption and high omega-3 PUFA intake protect against fatal coronary heart disease, sudden cardiac death, and ischaemic stroke. Potential mechanisms for positive effects include decreased platelet aggregation, decreased arterial inflammatory response, increased plaque stabilisation, and improved vascular relaxation.

Objectives. Our aim was to study the associations between habitual fish consumption and early signs of atherosclerosis.

Methods. The study population consisted of 84 men and 92 women of the Fishermen study and 474 men and 601 women of the Health 2000 health examination survey. The health examination included a validated food frequency questionnaire, fasting blood samples, and carotid artery ultrasound measurements. Model-adjusted means for intima-media thickness (IMT) and carotid artery compliance were calculated by fish consumption (g/day) and serum omega-3 PUFA (% from fatty acids) tertiles, and tested for linear trend. The models were adjusted for age, serum LDL cholesterol, serum triglycerides, insulin resistance, systolic blood pressure, total energy and alcohol intake, waist girth, smoking, physical activity, and education.

Results. Neither IMT variables (carotid bulb IMT, common carotid artery IMT, and their average) nor compliance variables (overall carotid artery compliance, Young's elastic modulus, and beta stiffness index) had a statistically significant linear trend across fish consumption or serum omega-3 fatty acid tertiles among the Fishermen study and the Health 2000 health examination survey participants.

Conclusions. In this study, fish consumption appeared not to have a linear association with early signs of atherosclerosis. This does not rule out the possibility of non-linear associations.



- P34 -

NUTRITION SURVEILLANCE SYSTEM IN BULGARIA. TRENDS IN DIETARY INTAKE AND NUTRITIONAL STATUS OF BULGARIAN POPULATION

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Introduction. Nutrition surveillance can have a major impact on nutrition policy.

Objectives. To establish national Nutrition Surveillance System to monitor trends in dietary intake, nutritional status and physical ac-

tivity of different population groups, risk factors and diet related health problems and diseases.

Methods. National Nutrition Surveillance System includes Ministry of Health, National Center of Public Health Protection and 28 Regional Inspectorates for Control and Protection of Public Health. Representative samples of subjects were studied, dietary intakes were investigated by 24-h recalls for 1-2 days and Food Frequency Questionnaires, anthropometric measurements and biochemical analyses were carried out to study nutritional status, questionnaires were applied for diet related morbidity, physical activity and socio-economic indicators.

Results. Since 1997 three national nutrition surveys have been conducted on population aged over 1 year, as well as three national surveys on specific risk groups (schoolchildren, infants and children under 5 years old, women in childbearing age). Bulgaria was included in the WHO European Childhood Obesity Surveillance Initiative. A national survey on 7-8 years-old schoolchildren was carried out in 2008, the next one will be in the fall of 2010. Variety of unfavorable characteristics and trends in nutrition of Bulgarian population were identified: increase of total dietary fat intakes, including both saturated and unsaturated fats; low fish, fresh fruit and vegetable consumption; high salt intake; decreased intake of wholegrain cereals, pulses, milk and yogurt. Trend for increasing prevalence of overweight and obesity was revealed. The unhealthy dietary pattern and low physical activity significantly contributed to increase of incidence of chronic diseases.

Conclusions. Data obtained by the national Nutrition Surveillance System are important basis for Bulgarian nutrition and health policy development and up-dating.



- P35 -

UNDERWEIGHT AND OVERWEIGHT IN CHILDREN AGED UNDER FIVE YEARS IN BULGARIA

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Introduction. Nutritional status of children in early age has an impact on their health and development and it is important to identify the problems and associated risk factors for adequate interventions.

Objectives. To evaluate prevalence of underweight, growth retardation, overweight and obesity and their risk factors in children under 5 years of age.

Methods. Cross-sectional study on dietary intake and nutritional status of a representative sample of 2,127 children aged 0-59 months was conducted in 2007. The data were obtained by parents and from child's medical records. Height and weight of children were measured, those of parents were self-reported. International anthropometric indices and standards were used for assessment. The relationship between anthropometric status of children and those of their parents, as well as breastfeeding of children, urban/rural residence, ethnicity and basic socio-economic factors were investigated.

Results. The underweight prevalence in children (Weight-for-age < 2Z) was low (2.5%) but there were differences according ethnicity (Bulgarian -1.7%, Turkish -2.9%, Roma -9.5%). Stunting (Height-

for-age < 2Z) was determined in 7.8% of infants and in 5.8% of children aged 1-4 years. Rate of stunting was higher in children with rural residence and in Roma ethnic groups. Overweight among infants was 3%, in children aged 1-4 years it was 8% and obesity 2.8%. The highest frequency was identified among girls aged 1-2 years (10.5% overweight, 1.9% obesity). Higher prevalence of overweight in children with overweight mothers, mothers with lower education, lower average income per household member and single mothers ($p < 0.001$) was revealed. Breastfeeding of infants was related to lower rate of underweight and stunting, as well as to less overweight/obesity.

Conclusions. The study revealed double burden of under- and overweight among young children in Bulgaria. Social-economic factors and ethnicity influence both kinds of problems in child growth.



- P36 -

THE IMPORTANCE OF COMMUNICATION IN BEHAVIOURAL RISK FACTORS SURVEILLANCE SYSTEMS: THE ITALIAN EXPERIENCE PASSI 2006-2010

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Introduction. Communication plays a crucial role in establishing a surveillance systems, scientifically but also politically and socially. Strong emphasis has been given to the communication plan in the Italian behavioural risk factor surveillance system (PASSI). The communication strategy has been thought integrated within planning, implementation and monitoring activities. • Elaborating a communication strategy at national, regional, local levels • identification of stakeholders, promotion of dialogue and integration among involved institutional and social figures • goal sharing and establishment of consensus, facilitating collaboration • definition of roles, functions, duties • exchange of information about ongoing initiatives • sharing, updates and changes of results • creation of a professional network • designing communication of results and production of materials.

Methods. It is used a communication type that harks back to a "participatory approach", that is based on "clarity and full-transparency principles". It implies interactive exchange, listening, dialogue and integration among all social and institutional partners, in a trust and credibility process-building. Participation and listening are the fundamental elements also for phone communication which is used in PASSI.

Results. • Communication plan • training and promotional materials • periodic meetings • public website (www.epicentro.iss.it/passi) for promoting results • portal with interactive databases providing tables and maps at local and regional level, a password-protected forum for open exchange and debate among participants (over 1.000) • bulletin, "PASSI-one" • scientific reports; synthetic booklets for policy makers and stakeholders.

Conclusions. Communication activities helped the promotion of PASSI with political and public health authorities at different levels during the early stages of its establishment. New communication tools have been elaborating and integrating with the first ones, within the lifecycle of the project.

Health care

- P37 -

IDENTIFYING CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN THE PRIMARY HEALTH CARE WITH PIKO-6 DEVICE

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Introduction. Chronic obstructive pulmonary disease (COPD) has a high prevalence and disease burden in general population. Spirometry is a "gold standard" for diagnostics of COPD, but it is not always available in primary health care in Russia.

Objectives. To estimate the utility of an electronic pocket spirometer (PiKo-6) in screening for COPD in primary health care.

Methods. In total, 521 patients were recruited from one general practice in Arkhangelsk (Northwest Russia). Index test (FEV1/FEV6 ratio) was measured by general practitioner using PiKo-6. Patients with FEV1/FEV6 < 0.8 (PiKo positive), smokers and ex-smokers, and patients with symptoms were invited to a standardized pulmonary function test with bronchodilator to determine the presence of bronchial obstruction. Reference test (FEV1/FVC) was measured by trained operator using spirometry.

Results. Data from 521 patients were analyzed. The mean age was 55.0 years. 52.8% of all patients were males. Approximately half were current (27.0%) or former (19.1%) smokers. The mean smoking history was 17.5 (7.0-33.8) pack years. 141 patients (27.1% of total) were investigated by using both PiKo-6 device and standard spirometry. 61 patients (11.7% of total) were PiKo positive. COPD was detected in 20 patients (3.8% of total). The cut point FEV1/FEV6 < 0.8, FEV1/FEV6 < 0.75, and FEV1/FEV6 < 0.7 using PiKo-6 had, respectively, sensitivity 95.0% (95%CI: 73.5-99.1), 90.0% (95%CI: 66.9-98.2), and 90.0% (95%CI: 66.9-98.2); specificity 65.3% (95%CI: 56.0-73.6), 81.8% (95%CI: 73.5-88.0), and 95.9% (95%CI: 90.1-98.5); positive predictive value 31.2% (95%CI: 20.2-44.4), 45.0% (95%CI: 29.6-61.3), and 78.3% (95%CI: 55.8-91.7); and negative predictive value 98.8% (95%CI: 92.3-99.9), 98.0% (95%CI: 92.3-99.7) and 98.3% (95%CI: 93.4-99.7).

Conclusions. The PiKo-6 device could be recommended for use in screening for COPD in primary health care where spirometry is not available.

- P38 -

INPATIENT MANAGEMENT OF PATIENTS WITH THYROID CANCER IN GERMANY: AN ANALYSIS OF THE NATIONWIDE DIAGNOSIS RELATED GROUPS-STATISTIC 2005-2006

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Introduction. In 2004, the Diagnosis Related Groups-based hospital reimbursement system (DRG-System) became mandatory in Germany. Although the incidence of thyroid cancer has been well described, no population-based study has examined its effect on surgical therapy in Germany.

Objectives. The aim of this study was to provide nationwide quantitative information about the in-hospital management of thyroid cancer (International Classification of Diseases, 10th Revision, German Modification, ICD-10-GM: C73) by analysing the DRG statistic of the years 2005 and 2006.

Methods. The unit of analysis was the hospital admission with a diagnosis of thyroid cancer. We analysed the influence of age, sex and regionality on the relative frequency of thyroid cancer-related hospitalizations. Furthermore, we were interested in the relative frequency of total thyroidectomies in relation to all hospitalizations during which a surgical treatment of the thyroid occurred. Finally, we measured the association between hospitalization rates and incidence rates of thyroid cancer among the Federal States of Germany.

Results. Over the period 2005-2006, about 68% of hospitalizations with surgery of the thyroid included a total thyroidectomy. The rates of thyroid cancer-related hospitalizations showed geographic variation across the Federal States (hospitalizations with C73, men: 10.7-20.4, women: 21.9-42.7 per 100,000 person years; hospitalizations with surgery of the thyroid, men: 2.3-4.9, women: 6.1-11.9 per 100,000 person years).

Conclusions. Our analyses of the DRG statistic give insights into the hospital burden of thyroid cancer in Germany. The regional variations of the hospitalization rates for thyroid cancer may be partly explained by variations of the incidence of thyroid cancer.

- P39 -

COSTS OF TREATMENT OF OSTEOARTHRITIS BY ORTHOVOLTAGE X-RAY THERAPY IN COMPARISON WITH STANDARD METHODS

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Introduction. Standard treatments for osteoarthritis (OA) of large joints include non-steroidal anti-inflammatory drugs (NSAIDs), structure/disease modifying osteoarthritis drugs (S/DMOAD), physiotherapy (PT), but they are limited in efficacy and expensive. In our

recent study orthovoltage X-ray therapy (XRT) was found more effective and safer than standard methods, but the costs of this treatment in comparison with other treatment remains unknown.

Objectives. To estimate costs of standard vs. XRT treatment of OA in a Russian setting.

Methods. The expenses for the equipment, drugs, local salaries and treatment of complications were taken into account. Calculations were made per one patient. We compared four regimens: 150 mg equivalent diclofenac sodium daily during a week; Chondroitine and Glucosamine Sulfates 1,000 mg/day for 2 months; 7-10 sessions for 1-1,5 weeks of magneto- and laser therapy; and a total of 4.8 Gray in 10 fractions 3 times a week referred to as NSAIDs, S/DMOAD, PT and XRT treatments, respectively.

Results. The expenses for the equipment during one shift the corresponding expenses were 1.1€ (PT) and 13.9€ (XRT); for the drugs' course were 14.0€ (NSAIDs) and 98.8€ (S/DMOAD). Respective rates of complications requiring hospital stay were 21.1%; 11.3%; 14.0% and 0.05% with corresponding mean costs of treatment for complications of 214.1€; 730.1€; 74.2€ and 69.8€ for NSAIDs; S/DMOAD, PT and XRT respectively. The composite costs of out-patient the treatment were 11.9€ (NSAID), 65.5€ (S/DMOAD), 23.6€ (PT) and 10.2€ (XRT). The total costs of one course were 1618.8€ (NSAIDs), 1244.5€ (S/DMOAD), 108.5€ (PT) and 76.1€ (XRT).

Conclusions. The XRT is cheaper than standard treatments. Being as safe and least as effective as standard treatments, it may be recommended as an alternative treatment of OA.



- P40 -

UNCOMPLETED VISITS TO THE EMERGENCY DEPARTMENT AND SUBSEQUENT RETURN VISITS, HOSPITALIZATION AND MORTALITY: A PROSPECTIVE STUDY

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Introduction. Patients with uncompleted visits to the emergency department (ED) have unknown prognoses.

Objectives. The aim was to determine whether the pattern of return visits, hospitalization and mortality were different among patients who leave against medical advice (AMA) and leave without being seen (LWBS) by physicians compared to those who completed their ED visit.

Methods. The source of data was records on patients 18 years or older who leave AMA, LWBS or who completed their visits and were discharged from the ED during 2002-2008, comprising 260,000 visits. The ED visits are filed with the identification number of patients, as well as the admittance to the hospital in the hospital registry, or deaths in the National Cause-of-Death Registry. Record linkage based on the identification numbers enabled recognition of the index visit at the ED, and the follow up to determine whether or not the patients experienced the outcome the return visits, hospitalization or death. The rates of return visits, hospitalization, and death in the AMA, and LWBS groups versus other patients were compared using a chi-square test.

Results. Altogether 106,772 patients were included in the study, 77 left AMA, and 4,471 LWBS. The relative risk (RR) for returning to the ED within 30 days from the index visit was 5.85, (95% confidence interval (CI) 3.55-9.66) for patients who left AMA and the RR was 4.43, (95%CI: 4.16-4.72) for patients who LWBS. The RR for hospitalization with 30 days was 7.56, (95%CI: 4.47-12.81) for patients who left AMA and 0.88, (95%CI: 0.75-1.03) for patients who LWBS. The RR for death with in 30 days was 11.53, (95%CI: 2.85-46.70) for patients who left AMA and 0.50, (95%CI: 0.21-1.19) for patient who LWBS.

Conclusions. The AMA patients had increased rate of return visits, hospitalization, and mortality, and the LWBS cases had also increased rate of return visits, but not hospitalization or mortality as compared with patients who completed their visits to the ED.



- P41 -

ASSESSING HEALTH SERVICES: OUTCOMES OF INTRAOPERATIVE RADIOTHERAPY FOR BREAST CANCER. A SYSTEMATIC REVIEW

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Introduction. Breast cancer is the leading malignant neoplasm in women. One out of ten women will develop it. In Europe, the probability of developing breast cancer before 75 years of age is 8%. Survival rates have gradually improved, rising to figures of 85% thanks to improvements in screening and treatment. Intraoperative radiotherapy (IORT) seeks to improve local control by visual and direct administration of a high radiation dose at the time of surgery, enabling dosages to be increased and healthy tissue preserved.

Objectives. To assess the effectiveness and safety of IORT in patients with breast cancer.

Methods. A systematic review of the scientific literature published until October 2009 was conducted in CRD databases, Cochrane Plus Library, Medline, Embase and ISI Web of Knowledge. Databases of clinical trials were also searched. Two independent, blinded reviewers examined and selected the papers separately in accordance with pre-established inclusion and exclusion criteria. Study quality was assessed using a specific scale.

Results. 14 studies fulfilled the inclusion criteria. No study displayed a comparative design. While most of the studies included patients in the initial stages of breast cancer (T0-T2), some also evaluated T3. IORT dosages ranged from 10Gy to 24Gy. Two studies administered only IORT. Overall local control of the disease surpassed 98% at 4 years, and overall survival was 99% at 5 years and 90.9% at 7 years. Insofar as acute complications were concerned, most were mild-to-moderate (grades 0-2) and cutaneous in nature, though there were also cases of necrosis, telangiectasia or moderate pain (grades 2-3). Incidence of severe chronic complications was low.

Conclusions. Although the studies available have low quality, patients treated with IORT appear to display a slightly better survival rate than patients on standard treatment. IORT is a relatively safe technique with adverse effects comparable to those of external radiotherapy.

- P42 -

INTRAOPERATIVE RADIOTHERAPY FOR COLORECTAL CANCER: A SYSTEMATIC REVIEWCantero Muñoz P,¹ Pérez-Ríos M,² Ruano-Ravina A²¹Galician Agency of Health Technology Assessment, Santiago de Compostela, Spain;²Department of Preventive Medicine and Public Health, University of Santiago de Compostela, Spain

Introduction. Colorectal cancer ranks fourth among men and third among women, and fourth in both sexes in terms of mortality. In the initial stages, survival at 5 years is close on 90%. In cases where the disease has spread or shows metastasis, survival falls sharply to 69% and 11% respectively. One of the principal drawbacks of colorectal cancer is local relapse. Intraoperative radiotherapy (IORT) allows higher doses of radiation to be administered and theoretically improves local control of the disease without increasing associated toxicity.

Objectives. To assess the effectiveness and safety of IORT in colorectal cancer.

Methods. Systematic review of the scientific literature until October 2009 in CRD databases, Cochrane Library, Medline, Embase, ISI Web of Knowledge and databases of clinical trials. Two independent, blinded reviewers examined and selected the papers separately in accordance with pre-established inclusion and exclusion criteria. Study quality was assessed using a specific scale.

Results. 14 studies met the selection criteria. A systematic review and 3 comparative studies were located, and the remaining were case-series studies. The local control of locally advanced stages (T3-4) with IORT was 80% at 5-6 years and overall survival lower than 65% at 5 years. In recurrences there was an overall survival of slightly over 30% at 5 years. The main short-term complications were gastrointestinal. Peripheral neuropathy and stenosis of the ureters were the most relevant and frequent long-term complications, registering an overall morbidity in excess of 40%-50%.

Conclusions. The evidence is of low quality. Overall survival is similar to conventional treatments though local control of the disease appears to be slightly better in locally advanced cancers. For recurrent tumours, little evidence is available. Insofar as safety is concerned, IORT displays short- and medium-term adverse effects comparable to those observed for external radiotherapy.



- P43 -

THE BURDEN OF CORONARY HEART DISEASE HOSPITAL ADMISSIONS IN PORTUGAL BETWEEN 1997 AND 2008

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Introduction. In the present aging scenario, the increased weight of hospitalizations over the health systems must be monitored and future trends anticipated.

Objectives. The burden of hospitalizations for Coronary Heart Disease (CHD) in Portugal from 1997 and 2008 was analyzed.

Methods. All admissions coded 410-414x and 429.2x from ICD9-CM as primary or secondary diagnosis were selected. The burden was measured as ratios between number of CHD admissions and number of admissions for cardiovascular diseases (CVD) and total num-

ber of hospitalizations. Mean length of stay (MLOS), mean costs and age and lethality were calculated. Temporal trends were estimated using linear regression.

Results. Between 1997 and 2008, 356,119 hospitalizations occurred, representing 3.3% of all hospital admissions (10,872,947) in Continental Portugal and 23.8% of the hospitalizations for CVD (1,496,480). Diagnostics coded 414.x (other forms of chronic CHD) were responsible for 46.8% of admissions, followed by acute myocardial infarction (37.0%). Most admissions occurred in men (66.7%): mean age, 64.9 (SD 12.0) years; MLOS, 7.5 days; mean cost, 3,906 euros and lethality, 4.8%. In women, mean age was 71.1 (SD 11.5) years; MLOS, 8.2 days; mean cost, 3,499 euros and lethality, 8.8%. In 12 years, the number of admissions for CHD increased (men: +25.0%; women: +28.0%), although the relative burden of the disease remained stable. Mean age increased 2.8 years in men and 2.0 years in women. MLOS strongly declined from 8.6 to 5.9 days in men and from 9.1 to 6.4 days in women, as well as lethality: 5.2% to 3.7% in men and 9.8% to 6.6% in women. Meanwhile, costs experienced an increase (men: +13.2%; women: +17.0%), although non-significant ($p > 0.05$).

Conclusions. The number of CHD admissions increased since 1990s, accompanying the trends showed by the majority of diseases, so its relative burden didn't change. Age of admission also increased, but MLOS and lethality experienced a decline.



- P44 -

APPROPRIATENESS OF POSITRON EMISSION TOMOGRAPHY USE IN ONCOLOGY: A REGIONAL AUDITMonagheddu C,¹ Galassi C,¹ Biggi A,² Bisi G,³ Inglese E,⁴ Mancini M,⁵ Contu V,¹ Giunta F,¹ Marra A,¹ Ballini L,⁶ Liberati A,⁶ Bertetto O,⁷ Ciccone G¹

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Introduction. The 18Ffluorodeoxyglucose Positron Emission Tomography/Computed Tomography (PET) is a relatively new and expensive technique with specific indications for diagnosis, staging, re-staging and treatment planning in oncology.

Objectives. To describe the current pattern and appropriateness of use of PET, using as reference the Emilia-Romagna Region criteria (ERC, 2006).

Methods. A prospective audit was conducted on a random sample of at least 100 patients for each of the 4 regional centres in the Piedmont region (Northern Italy), from December 2006 to October 2007. Data were collected from request forms and physician's interviews. Only exams requested for oncological indications were included.

Results. We included 432 patients (57.2% males; median age 61 years, range 20-96 years). The main diseases of interest were: lung cancer (23.8%), Hodgkin and non Hodgkin (HD-NHD) lymphomas (19.7%), breast cancer (9%) and colon-rectal cancer (9%). Re-staging during/after treatment was the most common clinical indication for which the exam was requested (57%). When com-

pared to the ERC, 61.7% of exams were performed for indications for which the use of PET was considered appropriate or potentially useful (range: 58.2%-71.6%), although for 5.6% the assessment was based on a limited evidence from the literature (less than two independent good quality studies). Higher percentages of appropriateness were found for specific neoplasms, such as HD-NHD lymphomas, lung and colon-rectal cancer. About 24% of exams regarded other clinical scenarios of the cancer sites included in the ERC while 13% of exams were performed to investigate other cancer sites, not considered in the ERC. Only 1.4% of exams were performed for indications considered as inappropriate.

Conclusions. These results on the appropriateness of usage of PET exams may contribute to a better planning of services at regional level, for updating clinical criteria and to identify new topics for further research.

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- P45 -

SHORT-TERM COMPLICATIONS AFTER LAPAROSCOPIC OR OPEN CHOLECYSTECTOMY. AN OBSERVATIONAL STUDY USING LARGE HEALTH INFORMATION SYSTEM DATABASES

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Introduction. Population-based administrative health data are widely used to support large-scale evaluation of health care. Little is available on real-life effectiveness of laparoscopic approach in cholecystectomy.

Objectives. 1. To compare the risk of 30-day complications after laparoscopic cholecystectomy (LC) versus open cholecystectomy (OC) in patients with cholelithiasis. 2. To test the effect modification by demographic and clinical characteristics.

Methods. All patients admitted to hospitals of the Lazio Region, Italy (2007-2008) with a diagnosis of cholelithiasis (ICD9-CM = 547) and a procedure code of cholecystectomy (ICD9-CM 51.22 open surgery, 51.23 laparoscopic) were considered. The outcome was "30-day complications" (including bile duct injury, postoperative bleeding, infections and major cardiovascular events) measured both in the index episode of care and in the following hospital admissions, through record-linkage procedures. Logistic regression analysis was performed to take into account potential confounders and to evaluate effect modification.

Results. 13,651 patients were included; 13.9% underwent OC and 86.1% LC. 19% of the patients were older than 70 years, and moderate to high severity of the cholelithiasis was diagnosed for 8.1% of the cases. The overall proportion of 30-day complications was 3.0%. The severity-adjusted risk of 30-day complications after LC was almost half that for OC (RR=0.54; 95%CI: 0.43-0.68; $p < 0.0001$). The same relationship was found for younger and elderly subjects (p -value of heterogeneity across age strata=0.955), men and women ($p=0.686$), patients with different severity of disease presentation ($p=0.497$), and previous upper abdominal surgery ($p=0.482$).

Conclusions. This study contributes to the knowledge on effectiveness of LC versus open surgery and confirms that LC is more effective with respect to short-term complications. The advantage remains in old-age group and in sub-populations with higher preoperative risk.

- P46 -

EFFECT OF CHRONIC THERAPY WITH STATINS IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION

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Introduction. Efficacy of preventive chronic therapy with statins in reducing mortality and cardiovascular morbidity in patients with and without established cardiovascular disease has been showed by several clinical trials and meta-analyses. It was widely observed in clinical settings, but effectiveness results were not reported.

Objectives. To evaluate whether chronic therapy with statins reduces mortality within 30 days of an episode of acute myocardial infarction (AMI) and the role of potential confounders/effect modifiers (gender, age and comorbidities).

Methods. Hospital discharges of AMI patients (≥ 35 years) resident in Lazio region, between January 2007 and November 2008, were selected (index admission). Patients with prior AMI admissions or revascularization procedures (aortocoronary bypass, PTCA) within the previous 9 years were excluded. Use of statins (ATC: C10AA, C10B) during 1 year preceding the index admission was assessed through the Pharmaceutical Information System; patients having at least 80% of days covered by drug doses were defined adherent to statin therapy. Crude and adjusted 30 day mortality risks of statin users vs nonusers were estimated using logistic regression models. To test the role of gender and age as effect modifiers, interaction terms were included to the model.

Results. The study cohort was constituted of 6,790 patients, statin users showed reduced risk of death compared to nonusers (OR 0.75; 95%CI: 0.58-0.98 for partially adherent, OR 0.85; 95%CI: 0.66-1.09 for adherent). The protective effect was more evident in female patients, (OR 0.74; 95%CI: 0.52-1.05 for partially adherent, OR 0.67; 95%CI: 0.46-0.97 for adherent) and in older people (> 85 years) (OR 0.84; 95%CI: 0.50-1.40 for partially adherent, OR 0.51; 95%CI: 0.29-0.91 for adherent).

Conclusions. The chronic therapy with statins seems to have a protective effect for AMI patients, especially in females and elderly. However, more studies are needed before a firm conclusion can be drawn.

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- P47 -

ANTIBIOTIC PRESCRIPTION: A PUBLIC HEALTH PROBLEM?

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Introduction. Inappropriate use of antibiotic drugs leads to a major risk factor for the development of resistance.

Objectives. Identify the spatial patterns of antibiotics prescription (AP) in primary health care centres (PHC) in Northern Region of Portugal, and to analyse how these patterns vary with age and sex.

Methods. A retrospective population-based study was conducted to assess spatial patterns AP. Prescriptions of systemic antibiotics from

01.07.2006 to 30.06.2007, aggregated by PHC, at the third level of the Anatomical Therapeutic Chemical Classification system were collected. Spatial autocorrelation and spatial clusters in the AP rates were calculated by Moran I index and LISA Local Index of Spatial Correlation (LISA).

Results. There were 951,320 AP during the study period. The overall crude AP was 267.5 per 1,000 inhabitants. Higher AP were found for women excepted for 0-4 age group. The Moran's I for APR was 0.46. LISA revealed local clusters of significantly high AP rates in the northern of the area, near to Spanish border. Spatial patterns had no significant differences between sexes.

Conclusions. The high AP rate in some geographical areas of the North of Portugal justify the need to undertake actions to identify risk factors associated with the pattern encountered and contribute to a lower and better use of antibiotics. Future studies need to be done, including variables such as socioeconomic factors, epidemiology of infectious diseases, environmental and climate factors, should be included in future analyses.

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- P48 -

THE ACTIVITY SPACE AS A DETERMINANT OF THE PARTICIPATION IN PREVENTIVE HEALTH-CARE ACTIVITIES

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Introduction. Activity space, defined as the spatial extent of daily activities, may be closely associated with health-care utilization. Indeed, it can modify access to health-care facilities and diversify social interaction opportunities.

Objectives. The two hypotheses can be summarized as follows: the more respondents reported concentrating their daily activities within their perceived neighbourhood of residence, (1) the less they participated in preventive health-care activities and (2) the more they were influenced by the characteristics of their administrative neighbourhood.

Methods. We studied a representative sample of 1,768 women living in 50 neighbourhoods of the Paris metropolitan area (France). Multilevel logistic regression models were utilized to identify combined effects of activity space and neighbourhood of residence on delayed cervical screening.

Results. Women who reported concentrating their daily activities in their perceived neighbourhood of residence had a statistically greater likelihood of not having undergone cervical screening during the previous two years. Furthermore, the characteristics of the administrative neighbourhood of residence (such as the practitioner density or the proportion of residents with a recent preventive consultation) had a statistically greater impact in terms of delayed cervical screening on women who concentrated the vast majority of their daily activities within their perceived neighbourhood of residence than among those who did not.

Conclusions. The residential environment might promote or damage, to a greater extent, the health behaviour of people whose daily activities are concentrated within their perceived neighbourhood, since we can assume that their exposure to their neighbourhood char-

acteristics is stronger. It could thus be useful to take the activity space into consideration more often when studying the spatial determinants of participation in preventive health-care activities.



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INEQUALITIES IN MANAGEMENT OF DIABETES: FROM EPIDEMIOLOGY TO ORGANIZATIONAL MODELS IN ITALY

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Introduction. The prevalence of type 2 diabetes is strongly patterned by socioeconomic position (SEP). Moreover, lower SEP patients experience a larger burden of complications. Italian Institute of Health and Italian Center for Disease Control and Prevention are developing the IGEA program, which defines a comprehensive strategy for implementing a chronic disease management intervention to improve the quality of care for people with diabetes.

Objectives. The IGEA program aims to impact on pathways through which SEP and health are related in diabetics.

Methods. A multi-tasking group of epidemiologists has been working in order to: study inequalities in prevalence of diabetes and associated outcomes in Italy, using current health databases and health surveys; define a set of SEP indicators that will support the evaluation of the management system; carry out an educational plan for physicians, nurses and diabetologists; develop a set of recommendations for promoting equity in the management of diabetes, based on literature review.

Results. In Italy, persons of lower educational level are more likely to be affected by diabetes. Prevalence of diabetes is higher in southern regions. Educational level seems to have an inverse association with diabetic complications among females, while the unemployment condition seems to have great importance among males. The most deprived persons have higher rates of hospitalization for diabetes than less deprived. Finally, disadvantaged persons experience higher mortality rates for diabetes, because of both the greater prevalence and the worst management of the disease. The IGEA program is being extended to all regions, giving to the equity problem capillary diffusion on the whole national territory.

Conclusions. In Italy, any policy for diabetes prevention and management should take into account the social dimensions of disease. An integrated diabetes management program, like IGEA, can be effective to reduce health inequalities.



- P50 -

MAIN CAUSES OF PEDIATRIC HEARING LOSS IN SOUTH NICARAGUA

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Introduction. Pediatric hearing loss is an important factor of disability up till now in developing countries. The only previous research

about the prevalence and causes of this pathology in Nicaragua investigated only the northern regions.

Objectives. Aim of this study is to extend our knowledge about the etiology of hearing loss in the eastern and southern Nicaragua.

Methods. In a cross-sectional study, clinical data of 89 pediatric hearing loss patients arrived in different otolaryngology clinics in Nueva Guinea and Leon, Nicaragua, were collected.

Results. Clinic-based evaluations revealed a population with predominantly severe-profound hearing loss caused especially by ototoxic drugs taken by the mothers during pregnancy (29%). The second cause is the administration of the same drugs to children during the first 3 months of life (16%). Only 15% of the children reported congenital hearing loss.

Conclusions. It is necessary to enrich the knowledge of the general practitioners about the risks of the ototoxic drugs during the pregnancy and in the early childhood.

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NEW TOOLS FOR HEALTH RISK ASSESSMENT OF POLICIES IN A EUROPEAN FRAMEWORK

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Introduction. The project "Risk assessment from policy to impact dimension – RAPID" funded by Executive Agency for Health and Consumers (EAHC) of DG SANCO is aiming at frame a full chain assessment method to evaluate impacts of policies on population health. Two main phases have been planned: (1) an international survey of risk assessors and (2) risk assessment case-studies by country.

Objectives. Phase 1 has posed the challenge for IFC-CNR unit to arrange a search strategy to provide an overall description of risk assessment practice in Italy. Phase 2 has strengthened the clinical experience and research in our Institute on cancer risk from Ionizing Radiation in Medical Imaging, through the building of a risk assessment model to evaluate the medical practice under present legal requirements on radiation protection, in Tuscany Region.

Methods. During phase 1 a national survey of risk assessors, selected by Internet search of key words, collected data of interest using a validated questionnaire sent by email. In phase 2, local IFC-CNR data were used, as collected during a campaign for prevention of cancer through the reduction of inappropriate ionising radiation medical examinations. The development of methods and tools is based on the re-construction of a rationale, where the variables of the assessment process are related, tested and validated. The model is then useful to explain the observed health outcomes, according to the underlying causal structure.

Results. Recommendations for effective interventions on general practitioners and medical specialists practice should minimize cancers attributable to radiation exposures. The applied approach of a full chain risk assessment will be used for a training session addressed to the Italian risk experts who had joined the survey.

Conclusions. Developing informed policies, which take into ac-

count the complexities and uncertainties involved in risk estimate, can result in the reduction of long-term cancer risk.

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AMYOTROPHIC LATERAL SCLEROSIS: RESULTS FROM TUSCANY REGISTRY OF RARE DISEASES

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Introduction. Amyotrophic Lateral Sclerosis (ALS) is the most common motor neuron disease with an annual incidence in Europe of approximately 2 per 100,000. As the average disease duration from clinical onset is 3 years, prevalence is estimated at 6 per 100,000. In 90-95% of cases ALS occurs sporadically while 5-10% of cases are familiar. The etiology of sporadic ALS is unknown, but it has been hypothesized that interactions can occur between genetic, environmental, and age-dependent risk factors. The Tuscany Registry of Rare Diseases (TRRD) was set up in 2005; it involves all public health centers in Tuscany for data collection. The TRRD is part of the Italian Network for Rare Diseases led by the Italian Health Institute.

Objectives. To improve knowledge on prevalence, incidence, and survival of ALS persons in Tuscany Region.

Methods. Age-standardized prevalence and incidence were calculated. Survival analysis was carried out by Kaplan-Meier method. Analysis was performed by Stata v.10.

Results. In the period 2005-2009, 282 new cases with definite ALS was collected by the TRRD, 234 of whom resident in Tuscany (122 men, 112 women). The standardised average annual incidence in the study period was 1.20/100,000, ranging from 0.63/100,000 in 2009 to 2/100,000 in 2006; the incidence rate amongst patients aged 60-79 assumed the highest value (3.53/100,000). On 31st December 2009, the standardized prevalence was 5.36/100,000 (5.87/100,000 the highest value in 2007). Survival rates at 1, 2, 3, 4 and 5 years after the onset were 86%, 70%, 58%, 48% and 44%, respectively.

Conclusions. Incidence and prevalence of ALS in the Tuscany population were lower compared to other populations and the survival was longer than previously reported. Registration and surveillance of ALS and other rare diseases, other than for epidemiological purposes, allow to assess the performance in diagnosis and cure by the public health system.

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- P53 -

HOSPITAL CANCER INCIDENCE ESTIMATION IN A SMALL LOCAL HEALTH AREA, 2006-2008

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Introduction. Several electronic health archives are useful for epidemiological use. For a Cancer Registry one of the most important source of data is hospital discharge records.

Objectives. To assess the estimates of hospital cancer incidence by gender and age in the small Local Health Authority of Monza and

Brianza (ASL-MB) area and to compare the results with the best estimates by the Italian Network of Cancer Registries (AIRTUM).

Methods. We analyzed hospital discharge records of people who live within the boundaries of ASL-MB during the period 2006-2008 in order to identify incident cases of cancer. We analysed admissions since 2002 and we calculated gender and age-specific rates (0-44 years, 45-64, 65-74, 75-84 and 85+) for each year and we ranked the five most frequent cancers for males (M) and females (F) within some age groups. We did not consider non melanoma skin cancer because hospital discharge records are not an adequate source of information. The results were compared with the ranking of the incidence rate of the Pooled Northern area of AIRTUM for the period 2000-2003.

Results. Overall incidence rate for males is lower than the one of females (879.3 new cases every 100,000 men and vs 1094.8 every 100,000 women). The number of new cases among subjects aged 85+ shows an increasing trend in both genders (for M the overall rate is equal to 3168.6 cases per 100,000 residents in 2006 vs 3498.1 new cases per 100,000 residents in 2008; for F in 2006 the overall rate is 1858.6 vs 2446.4 in 2008). For women, breast cancer represents the main cause in all analysed age groups. For males malignant testis cancer are the most numerous in the 0-44 age group, colon cancer in the age group 45-64 and lung cancer in aged 65+ years. Results are similar in some cases to the ones from AIRTUM.

Conclusions. Overall cancer incidence, using hospital discharge records, is slightly decreasing for males. Among the elderly incident malignant cases are increasing.



- P54 -

PRELIMINARY RESULTS OF THE ITALIAN SENTINEL NETWORK MONITORING END-OF-LIFE CARE (SENTI-MELC) STUDY, YEAR 2009

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Introduction. In Italy, end-of-life care is an issue rapidly growing in relevance. General Practitioners (GPs) are often involved in the assistance of dying patients. Therefore they can have an important role in epidemiological surveillance, continuously gathering data on the type and quality of end-of-life care provision in the country.

Objectives. To evaluate the feasibility of a nationwide Sentinel Network of GPs in Italy.

Methods. A pilot study enrolled 168 sentinel GPs in 9 areas of the country covering 4.6% of the population: 206,069 persons assisted by the 150 GPs who participated for the whole year/4,498,778 total population. 3 areas are in NW Italy, 2 in each of the other 3 macro-regions. The sentinel GPs registered all deaths of patients (+18y) in their practice via www.sentimelc.it and filled in a 21-items form (forward-backward translation of the one used by a similar network in Belgium and The Netherlands - EURO SENTI-MELC Consortium).

Results. The age and sex distribution of the 150 GPs is similar to the one of the 4,402 GPs working in the 9 areas (χ^2 test: $p=0.290$). 1,782 deaths were reported in 2009. Sex distribution was comparable with the national one ($p=0.391$), whereas 80-89 years old were over-represented ($p=0.001$). 28.9% died of cardiovascular disease (excluding strokes), 34.5% of malignancies (Italy 2006: 28.5% and 30.2% respectively). 1.139 (65.7%) deaths were nonsudden. (European End-of-Life (EURELD) Consortium 2002 Italy: 71% nonsudden deaths). 47.4% of nonsudden deaths happened at home, ranging from 23.8% (North-East) to 71.0% (South) (Follow-back Italian Survey 2003 - ISDOC: 28.2 and 94.0% respectively). 59% of nonsudden deaths had at least one transition between care-settings in the last 3 months of life (Belgian SENTI-MELC: 62%). Specialist palliative care services were provided in 37% of nonsudden deaths (Belgian SENTI-MELC: 41%).

Conclusions. The preliminary results confirm the feasibility of a nationwide Sentinel Network Monitoring End-of-Life care.



- P55 -

THE ROLE OF AGE IN THE SEASONALITY OF CORONARY HEART DISEASE HOSPITAL ADMISSIONS IN PORTUGAL

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Introduction. Studies about coronary heart disease (CHD) mortality and incidence, along with other health conditions, often revealed that they don't distribute in a random fashion during the year, frequently displaying a winter peak and a summer trough.

Objectives. The aim of this study was to characterize the seasonality of CHD admissions in Continental Portugal, between 1997 and 2008.

Methods. All admissions coded ICD9-CM 410-414x and 429.2x as primary or secondary diagnosis were selected. Monthly and seasonal age-specific hospitalization rates (ASHR/100,000) were computed for the age groups: 0-59, 60-69, 70-79 and more than 80 years. Statistics were carried using one-way analysis of the variance (ANOVA) to detect significant differences between rates. Tukey post-hoc multi-comparison test was employed to assess the differences.

Results. Both genders considered, the highest ASHR occurred in January (9.1, 69.8, 96.4 and 103.3, respectively for 0-59, 60-69, 70-79 and 80+) and the lowest in August (7.7, 54.0, 72.8 and 73.0). Thus, winter presented the worst figures (26.4, 199.0, 282.0 and 308.9) against summer (25.4, 182.8, 242.1 and 236.9). Difference between the highest and the lowest months increase with age, being 18%, 30%, 36% and 47% in men, and 25%, 28%, 28% and 38% in women, respectively in the 0-59, 60-69, 70-79 and 80+ age-groups. The classic V-shaped distribution of CHD along the year - winter peak and summer trough - was that evident only for older persons; the other age strata presented, in addition, a May peak, following an April lowering, and a anomalous lower December value.

Conclusions. The study demonstrates the existence of marked seasonal variation in the incidence of CHD, with a maximum in winter and a minimum in summer (August), which intensifies with increasing age. Factors beyond this phenomenon might also have seasonal distribution, like climatic conditions, co-morbidities (acute respiratory syndromes) and availability of health resources.

- P56 -**CASE-CROSSOVER STUDIES ADDRESSING TRIGGERING FACTORS FOR HEART FAILURE HOSPITALIZATION: SYSTEMATIC REVIEW AND META-ANALYSIS**

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Introduction. The identification of precipitating factors that lead to acute cardiac decompensation and subsequent hospitalization may contribute to improve Heart Failure (HF) management.

Objectives. To review systematically the case-crossover studies assessing triggering factors for HF hospitalization.

Methods. Pubmed® was searched up to May 2010 and backward and forward citation tracking (Scopus® and Web of Science®) were conducted. Eligible studies were grouped according to the triggering factors evaluated, results summarized by random effects meta-analysis, and heterogeneity quantified with the I² statistics.

Results. We identified 10 eligible reports, assessing air pollution factors as triggers for HF hospitalization. Most studies defined exposure as an interquartile range increase in the mean levels of each pollutant. The use of the hospitalization day as reference date for definition of the case-period and a time-stratified approach to define the control-period was common to all studies, and the corresponding results used for meta-analysis. Summary relative risk (RR) estimates, 95% confidence intervals (95%CI) and I² were 1.07 (1.04-1.10, 76%) for carbon monoxide (CO), 1.09 (1.05-1.13, 84%) for nitrogen dioxide (NO₂), 1.04 (0.95-1.14, 93%) for ozone (O₃), 1.05 (1.03-1.07, 89%) for particulate matter with an aerodynamic diameter <10µm (PM₁₀), 1.03 (1.01-1.04, 57%) for PM_{2.5} and 1.02 (1.01-1.03, 0%) for sulphur dioxide (SO₂). Two studies provided results for temperatures >20°C, yielding stronger and homogeneous (I²=0%) RR estimates: 1.23 (1.17-1.29) for CO, 1.19 (1.16-1.23) for NO₂, 1.22 (1.18-1.26) for O₃, 1.18 (1.15-1.22) for PM₁₀, and 1.01 (0.97-1.04) for SO₂.

Conclusions. The number of case-crossover studies identified was small and only air pollution was evaluated as triggering factor. A 20% increased risk of HF hospitalization was observed for all items except SO₂ only when temperatures were >20°C.

**- P57 -****MACHINE LEARNING APPROACHES IN A CASE CONTROL STUDY: PARKINSON DISEASE AND MANGANESE**Parrinello G,¹ Guazzetti S,² Lucchini R,³ Calza S¹¹Section of Medical Statistics, University of Brescia, Italy; ²ASL Reggio Emilia, Italy; ³Institute of Occupational Health, University of Brescia, Italy

Introduction. Valcamonica is an Italian valley where ferroalloy industries have been active for a century, possibly inducing an increased prevalence of parkinsonism in their vicinities. Based on the results of a previous study (Lucchini et al.2007) that showed an association between the prevalence of Parkinsonian disturbances and the environmental exposure to manganese in this area, a cross sectional study compared Parkinsonian patients residents in Valcamonica with patients resident in Brescia, Italy. Age- and sex matched healthy individuals were recruited as controls. The protocol included informa-

tion on clinical, occupational, residential history and life habits, neuro-psychological testing, and assessment of genetic polymorphism. A total number of 93 cases (65 from Valcamonica, 28 from the reference area of Brescia city) and 76 controls (52 from Valcamonica, 24 from Brescia) were screened for serum Cu, Zn, Fe, Mn in blood (MnB) and urine (MnU), transferrin, peroxides, alanine (ALT) and aspartate (AST) transaminases and direct bilirubin. All the PD patients underwent Unified Parkinson's Disease Rating Scale (UDPRS) and mental deterioration battery, a neuropsychological assessment using for epidemiological and clinical purposes in Italy. Genetic analysis on polymorphisms possibly causing predisposition for Parkinson's Disease was also performed.

Objectives. The aim of this study is to assess whether approaches that are commonly used in genetic statistics can be useful also in other epidemiologic studies to overcome some frequent difficulties such as missing data, number of variables much greater than the sample size, application of unbiased approaches of variable selection. Moreover certain important information may remain missing, even with a satisfactory participation rate. Respondents may give uninformative answers to the most carefully submitted questions; in addition, routinary registries may be also incomplete. To our view the random Forest approach can overcome many of the possible limitations of an epidemiologic study.

Methods. (full description of methods available at the AIE website: www.epidemiologia.it).

Results. Using the Random Forest approach (RF), Imputation of missing values in predictor data using proximity from RF, so we created a full dataset to avoid the possibility that our results were driven by the distribution of the missing data. In addition, we used the RF approach as classification tool to detect in an unbiased way which parameters, either genetic or related to the longlife residential history based on a 4 age windows classification (0-3 years old, 4-14, 14-55, >55 years old) were more predictive of PD. We have also compared the RF approach with a GLM model, with which we have faced many problems of collinearity, linear or non linear relationship between predictors and the Classification parameter (Case or Control). The low value of EPV(event per variable). The RF variables selection method has detected the variable "serum creatinine" and "age", as the only two parameters which distinguish cases from controls (the first from our point of view could be related to treatment related to PD, that are known to cause renal effects, while the second shows a possible error in the recruitment process).

Conclusions. We think that RF gives reliable results, overcoming many limitation of the classical approaches based on the generalized models in study case-control about effects of an exposure.

Mental health**- P58 -****TIME TRENDS IN SUICIDE IN BRAZIL BETWEEN 1980 AND 2005**

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Introduction. Every year, almost one million people die from suicide worldwide. In some countries and age groups, suicide is among the three leading causes of death.

Objectives. The aim of this study was to describe suicide rate time trends in Brazil as a whole and in its 26 States and Federal District from 1980 to 2005 according to gender and age groups.

Methods. Data from suicide was gathered from the official Brazilian Mortality Information System whilst the number of population for each year was obtained through the Brazilian Institute of Geography and Statistics. Suicide rates were calculated for the entire period under study for the country as a whole, for each State and the Federal District. The Prais-Winsten generalized linear regression procedure was used to calculate the annual increase or decrease in mortality rates thus allowing for the correction of first degree autocorrelation in the time series analysis.

Results. The higher the suicide rate, the higher the age in both genders. The highest rates were observed in males aged 60 years and over (38.40/100,000 males). In this age group, suicide in men was four times higher than those observed in women. Among younger people up to 19 years of age, a lower men/women ratio was observed. In general, for all age groups and for both genders, the highest rates were found in the more developed States. Among adult men, a reduction in suicide rates was not observed in any States while, among adult women, increased rates in 5 States, reduction in four and stability in the rest was observed. In the studied period increased suicide rates in men in all ages was noticed. In young and adult women suicide rates were stable whereas among elderly women these rates decreased.

Conclusions. There is a remarkable inequality in suicide rates in Brazil. Suicide increased in men regardless of age group. The highest rates were found in more developed areas of the country.



- P59 -

CHRONIC PAIN AND QUALITY OF LIFE IN SCHIZOPHRENIC PATIENTS

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Introduction. There are very few studies about the prevalence of chronic pain in schizophrenic patients. Although this prevalence could be similar to general population, psychiatric patients seem to be misunderstood or mistrusted.

Objectives. To identify the prevalence and characteristics of chronic pain in schizophrenic patients, and to compare the quality of life in patients with and without chronic pain.

Methods. Crossover design with a probabilistic sample of 205 adult schizophrenic outpatients (80% paranoid schizophrenia). Sociodemographic, psychiatric disorder, pain and quality of life (WHOQOL brief) data were collected between June and September 2008. Mean age=37y, 65% men, mean scholarship=9y, 87% single, 65% lived with parents, 25% had a job.

Results. Prevalence of chronic pain was 36.6% (n=75). Pain in abdomen (30.7%) and head/face/mouth (24%) regions were the most frequent. Pain everyday with 1-6h of duration was referred by 24%,

and pain 1-3 times/week or each fortnight, by 73.3%. Mean pain duration = 41 months. Among patients with chronic pain, 70% did not receive pain treatment. Regarding quality of life, patients with pain had more physical disabilities comparing to those without pain ($p < 0.001$); no differences in other domain. Comparison between patients with and without pain did not show differences about how much they feel disabled by mental disease.

Conclusions. Chronic pain was frequent in schizophrenic patients (similar or higher to general population with similar age) and decreased the quality of life. It is necessary to pay better attention in this co-morbidity.



- P60 -

SENTINEL SURVEILLANCE OF SEVERE MENTAL DISORDERS IN ITALY: THE S.E.ME SYSTEM

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Introduction. An innovative national sentinel surveillance system of new cases of severe mental disorders managed on outpatient basis called S.E.ME. (Sorveglianza Epidemiologica in salute Mentale i.e., MEntal health Epidemiological Surveillance) has been operating in Italy since March 2009.

Objectives. (i) to develop an infrastructure for mental health surveillance; (ii) to set a sentinel network database of morbidity within the community as presented to Community Mental Health Centers (CMHCs).

Methods. A sample of outpatient mental health care providers of the Italian National Health Service (i.e., CMHCs) which met specific criteria for participation in a surveillance system was recruited. Two psychiatrists for each CMHC received a dedicated training at the Italian National Institute of Health (INIH). They were provided with clear and strict guidelines for data collecting and reporting. A web based software system was created for cases reporting from the CMHCs to the central database at INIH. Residents in the catchment areas of the sentinel CMHCs are the population under surveillance. A case is defined as a patient aged more than 18, first ever referring to the CMHC, suffering from schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, bipolar disorder type I, severe major depressive disorder (actual major depressive episode with psychotic symptoms or suicide attempt) or anorexia nervosa. Psychiatric diagnosis are based on the Structured Clinical Interview for DSM-IV Disorders-Axis I. Brief Psychiatric Rating Scale, Global Assessment of Functioning Scale and a schedule to record sociodemographic, psychiatric and medical data complete the case assessment.

Results. Twenty-one CMHCs distributed across 15 Italian Regions participated to the first year of sentinel surveillance, warranting the surveillance of about 2.000.000 inhabitants. The S.E.ME. System provided detailed information on 316 incident cases from March 2009 to February 2010. Psychiatric diagnosis were distributed as follows: 95 bipolar disorder type I, 67 schizophrenia, 62 severe major depressive disorder, 30 anorexia nervosa, 29 delusional disorder, 18 schizoaffective disorder, 15 schizophreniform disorder. Analysis of descriptive epidemiological data is ongoing.

Conclusions. An infrastructure for mental health surveillance has been developed in Italy and is still working. The second year of activity of the S.E.M.E. system will allow monitoring of trends in the incidence of severe psychiatric disorders and fulfillment of a follow-up study.



- P61 -

DIFFERENT PATTERNS OF CO-OCCURRENCE OF TOBACCO AND CANNABIS USE WITH COMMON MENTAL DISORDERS

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Introduction. A lot of research has dealt with the comorbidity of substance disorders and common mental disorders. However, few analyses have pursued systematically a comparative approach. Comparative research might be particularly helpful in order to ease the dilemma of causation between substance use and common mental disorders.

Objectives. In this study we examined the associations between common mental disorders and cannabis vs. tobacco use in the longitudinal Zurich Study.

Methods. The Zurich Study is based on a stratified community sample of 591 persons born in 1958 (women) and 1959 (men). The data were collected at six time points: 1979, 1981, 1986, 1988, 1993 and 1999. Information on age at onset and frequency of tobacco and cannabis use and information on psychiatric symptoms according to DSM-III, DSM-III-R and, finally, DSM-IV criteria was assessed by a half-structured questionnaire (SPIKE). The data were analysed with discrete-time hazard models.

Results. The analyses yielded a heterogeneous pattern of associations. The anxiety disorders showed neither relevant associations with tobacco use nor with cannabis use (exception: agoraphobia and cannabis use). Dysthymia and neurasthenia were associated with tobacco use, but not with cannabis use. In unipolar depression, this constellation was just reversed. Bipolar disorders showed associations with both substances.

Conclusions. At first glance, the results yielded a confusing variability. Despite the generally narrow associations among mental disorders their associations with cannabis and tobacco use were heterogeneous. Thus, it does not appear very promising to postulate a universal causal path such as, for example, self-medication.



- P62 -

EPIDEMIOLOGY OF DEPRESSION IN GREECE: FREQUENCY, RISK FACTORS, CLINICAL PROFILE AND TREATMENT

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Introduction. Depression is the most common mental disorder and constitutes a major public health challenge in industrialized countries. It affects persons in all demographic groups, although some groups are more likely to experience depression than others.

Objectives. The aim of this study was to describe the demographic and clinical features of patients with depression in Greece and to investigate potential risk factors.

Methods. An epidemiological study was carried out in 2009, including psychiatrists in different regions of Greece who filled in a structured questionnaire which included demographic, socio-economic, clinical and other relevant data of their patients.

Results. A total of 326 patients were recorded. Mean age was 50 years, females were 64%. We observed higher percentages in the age groups 30-40 in males, while in females depression was more frequent in the age-groups 50-60 years. 60% of females were married, whereas more than 50% of males were unmarried or divorced. 50% had attended secondary school and 55% were living in urban areas. Being occupied with housekeeping (24%) was the largest percentage found among occupations, almost exclusively in females. 28% had a history of mental illness, 28% of cardiovascular diseases while 63% mentioned having a medical history of more than two diseases. Anxiety disorders in adolescence (86%) were strongly associated with depression while the majority of patients mentioned signs during childhood; night tremors (52%) and other fears (67%). 52% mentioned lacking a satisfying sexual life and 53% were substance users (tobacco, alcohol, drugs). 62% of attendant physicians did not use any scale for assessment of depression.

Conclusions. Depressive disorders are more frequent in urban areas, among unemployed individuals and among those with anxiety and substance use disorders. While depression is considered more frequent among unmarried individuals our findings suggest the distinctiveness of Greek society's structure.



- P63 -

SCHIZOPHRENIA IN GREECE: EPIDEMIOLOGY, CLINICAL EVALUATION AND ASSESSMENT OF PERFORMANCE

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Introduction. Schizophrenia is a chronic mental disorder associated with significant dysfunction and diminished quality of life even when psychotic symptoms are in remission. It often displays a considerable heterogeneity in clinical expression.

Objectives. The aim of this study was to describe the demographic and clinical features of a representative sample of patients with schizophrenia in a Greek sample.

Methods. Epidemiological study was carried out in 2009, including 160 psychiatrists in different regions of Greece who filled in a questionnaire which included demographic and other relevant data of their patients. Clinical outcomes were based on the Positive and Negative Syndrome Scale (PANSS) and the Personal and Social Performance scale (PSP).

Results. Among the 2010 patients recorded 60% were diagnosed with paranoid schizophrenia, 14% with undifferentiated type, 14% residual, 11% disorganized and 2,6% catatonic, respectively. Males

suffered more often from paranoid and residual types, while females from catatonic and undifferentiated. 37% were 30-40 years old and 22% were younger than 30 years. 64% completed secondary education and 25% higher education. Regarding the marital status, 66% were single. The majority of patients (85%) lived with their family. 51% reported being unemployed and 27% full time employed. The mean duration of disease and treatment was 12 years. 78% are treated with atypical antipsychotics. The total mean score on the PANSS scale was 90.2 and on the PSP scale 46.8; with one out of three having moderately severe to very severe problems in all subscales of PANSS and one out of two showing increased difficulties in one or more areas according to the PSP scale (<50 points).

Conclusions. Patients with schizophrenia showed low employment rates and family dependence. The majority of the patients exhibited increased or severe difficulties in one or more areas of personal and social performance.



- P64 -

THE RETROSPECTIVE MEASUREMENT OF CHILDHOOD MALTREATMENT IN THE GENERAL ADULT POPULATION

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Introduction. Over the past two decades, an expanding body of research suggests that traumatic experiences during childhood are a key factor in predicting negative health outcomes and adult psychopathology. Not only recall bias but changing norms and historical events may complicate the valid assessment of self-reported events regarding childhood maltreatment in the general population. This issue was addressed based on a general population sample.

Methods. In total 2,125 individuals of the Study of Health in Pomerania (SHIP, aged 29-89 years) completed a German short version of the Childhood Trauma Questionnaire (CTQ). The CTQ consists of 25 items and assesses five types of negative childhood experiences: emotional neglect, emotional abuse, physical neglect, physical abuse, and sexual abuse. The psychometric quality was assessed by means of confirmatory factor analysis and item response models. Multiple group analyses across sociodemographic (age, sex) strata were conducted.

Results. Almost half of the participants reported at least one type of event indicative of childhood maltreatment that occurred frequently. The CTQ subscales and items show characteristic prevalence differences across sociodemographic strata. Sexual abuse was reported more often by women, while older males recalled physical abuse most often. Items related to physical neglect were commonly affirmed by subjects having their childhood or adolescence in the post World War II years. Despite substantial prevalence differences across sociodemographic strata, factorial structures were stable for most subscales.

Conclusions. Psychometric analyses indicate the population-based applicability of most CTQ subscales. Despite this, there is clear evidence of changing societal norms and historical events influencing prevalence rates of many events across age groups. The interpretation of self-reported childhood maltreatment needs to keep this in mind to achieve valid conclusions.

- P65 -

ASSOCIATION BETWEEN GRIP STRENGTH AND COGNITIVE FUNCTION IN OLDER EUROPEANS. LONGITUDINAL RESULTS FROM THE SURVEY OF HEALTH, AGEING AND RETIREMENT IN EUROPE (SHARE)

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Introduction. Hand grip strength is an indicator of physical function and a strong predictor of disability, morbidity and mortality in older adults. Its prognostic value for predicting future cognitive function is unclear.

Objectives. To examine the association between hand grip strength and change in cognitive function over time in older Europeans.

Methods. We analysed data from n=17,525 participants (mean age 64.2 years; 54.7% women) in the Survey of Health, Ageing and Retirement in Europe, a longitudinal study of non-institutionalized people aged ≥50 years in 11 countries. Cognitive function was measured at baseline and after a mean of 2.3 years of follow up by delayed word recall and verbal fluency tests. Maximum hand grip strength (in kg) at baseline was measured using a handheld dynamometer. The association between grip strength and change of cognitive function during follow-up was examined using multilevel regression models accounting for between-country variation and adjusting for sociodemographics, depressive symptoms, and indicators of physical health and functioning at baseline.

Results. Higher grip strength at baseline was associated with higher performance in both verbal fluency ($\beta=0.012$, standard error (s.e.)=0.002) and delayed recall ($\beta=0.08$, s.e.=0.006) at follow-up, after adjusting for all covariates. Female sex, higher education and higher income were also independently associated with better performance in both tests at follow-up, while older age, depressive symptoms, functional limitations, cardiovascular disease and physical inactivity at baseline were associated with reduced performance.

Conclusions. Higher grip strength was associated with better cognitive function over time, independent of other relevant factors. The prognostic value of grip strength for predicting dementia and mild cognitive impairment deserves further study.

Mortality and survival

- P66 -

TREND MORTALITY FROM CARDIOVASCULAR DISEASES IN BELGRADE DURING THE PERIOD 1991-2007

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Introduction. Cardiovascular diseases cause about 40% of all deaths in most of the European countries. The most common cardiovascular diseases are ischaemic heart diseases and stroke. Murray and Lopez predicted that these diseases would be the leading causes of death at least until 2020.

Objectives. The aim of this descriptive epidemiologic study was to analyze trend mortality from some cardiovascular diseases during the period 1991-2007.

Methods. In the data analysis crude, age-specific and standardised mortality rates were used. Standardised mortality rates were calculated using European standard population by method of direct standardisation.

Results. In Belgrade, during the period 1991-2007, among all cardiovascular diseases, in both sexes, the highest average standardised mortality rates (per 100,000 habitants) were for cerebrovascular diseases (202.8 men and 183.6 women) and ischaemic heart diseases (145.5 men and 84.7 women). In fact, the highest average standardised mortality rates were for other heart diseases (317.8 men and 284.9 women) but it is very large group of diseases. Mortality rates from most of cardiovascular diseases were higher in men, except chronic rheumatic heart diseases, diseases caused by hypertension and atherosclerosis, where mortality rates were higher in women. Also, mortality rates were higher in older people for both sexes. During the seventies in Belgrade, in both sexes, significant increase in mortality from all ischaemic heart diseases and cerebrovascular diseases, particularly haemorrhagic strokes, was observed.

Conclusions. In order to reduce mortality from cardiovascular disease it is necessary to perform adequate primary and secondary prevention measures, first of all education of population about risk factors.



- P67 -

CORONARY HEART DISEASE MORTALITY IN PORTUGAL. AFTER A QUARTER OF CENTURY, GEOGRAPHICAL DISPARITIES REMAIN

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Introduction. In Portugal, Coronary Heart Disease (CHD) mortality is among the lowest in Europe, but little is known about regional variations within the country.

Objectives. The aim of this study was to identify geographic and sex disparities in the time trends of CHD mortality in Portugal, from 1981 to 2005.

Methods. Age-Standardized Mortality Rates (ASMR) from CHD (/100,000; 95%CI), were calculated by year, sex and district for the age group between 35 and 74 years. Time variations (%) during the study period were obtained by linear regression.

Results. Nationwide, from 1981 to 2005, there was a 47.4% decline in the ASMR from CHD (46% in men and 52% in women), although the regional differences increased, from fourfold, to above fivefold. In 1981, the highest ASMR was in the Azores Islands (222.7: 193.9-251.5), about twice the national ASMR (103.0: 100.0-106.0), and the lowest in the district of Vila Real (North) (54.7: 41.5-67.9). In 2005, nationwide the ASMR was 49.8 (47.9-51.6), being the lowest in the central district of Leiria (25.4: 19.4-

31.5) and the highest in the Azores (135.8: 113.3-158.3). North and Central coastal districts presented the steepest decline, nearly two thirds for men and above 70% in women. The sex-ratio increased from 2.65 in 1981 to 3 in 2005.

Conclusions. A decline in the ASMR from CHD in Portugal was observed between 1981 and 2005, likewise in the Western European and North America trends. The regional spatial pattern remained, and the geographic and sex inequalities increased.



- P68 -

TWO-YEARS MORTALITY AFTER EVIDENCE BASED DRUG THERAPY OF ACUTE MYOCARDIAL INFARCTION: PRELIMINARY RESULTS FROM A POPULATION-BASED COHORT STUDY IN ROME, ITALY

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Introduction. Clinical guidelines recommend that patients with acute myocardial infarction (AMI) should be treated with evidence-based (EB) drug therapy composed of antiplatelets, betablockers, agents acting on the renin-angiotensin system, and statins. Results on medium/long term outcomes from observational population studies are scarce.

Objectives. Analysing the association between exposure to EB drug therapy and 2-years mortality in patients discharged after AMI.

Methods. A cohort of 2,204 AMI patients (35+ yrs), discharged in 2006, resident in Rome was selected from the Hospital Information System, excluding patients dying during the first month after discharge. Exposure information was collected from the drug claims information system considering EB drug prescriptions at discharge and during the first month; exposure was measured comparing patients without EB drug prescription versus those with prescriptions for 1 EB drug or combinations of 2, 3 or 4 EB drug groups. All-cause mortality was measured during a 24-months follow-up. The association between exposure to EB drug therapy and mortality was analysed through logistic regression, adjusting for gender, age and co-morbidities.

Results. Most patients were treated with combinations of EB drug groups ('0': 9.5%, '1': 4.6%, '2': 14.7%, '3': 30.1%, '4': 41.1%), and 7.4% of the patients died during 2-year follow-up. Mortality risk decreased with increasing number of prescribed EB drug groups, combinations of 3 or 4 EB drug groups were associated with a significant protective effect versus no EB drug ('4' vs '0' EB drugs: ORadj=0.46; 95%CI: 0.27-0.78; '3' vs '0': ORadj=0.50; 95%CI: 0.29-0.86; '2' vs '0': ORadj=0.69; 95%CI: 0.39-1.23; '1' vs '0': ORadj=0.49; 95%CI: 0.21-1.13); p-value for trend<0.05.

Conclusions. This preliminary analysis shows recommended poly-drug therapy is associated with a significant reduction in 2-years mortality. More-in-depth analysis is needed to overcome limitations in exposure assessment.



- P69 -

EPIDEMIOLOGY OF CHILDHOOD CANCER IN THE ARKHANGELSK REGION OF RUSSIA IN 2000-2009

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Introduction. Cancer is the second leading cause of death among children over 5 years of age in many European countries. High quality registration of cancer is needed for the better understanding of the problem. However, this information is very scarce in the Northern part of Russia. Although the Regional Cancer Registry was established in 1993, there is no registry for childhood cancers hiding the burden of disease in the area.

Objectives. To assess cancer incidence and mortality among children in the Arkhangelsk region (Northwest Russia) in 2000-2009.

Methods. All children under 18 years with newly diagnosed cancers in the Arkhangelsk region in 2000-2009 were traced through hospital records. Information about children's population was obtained from the Regional Bureau of Statistics. Incidence and mortality statistics per 100 000 children were calculated separately for urban and rural areas.

Results. Altogether, 349 new cases of childhood cancer occurred in the region during the study period. Male to female ratio was 1.36. While in urban areas, the incidence increased from 9.2 in 2000 to 14.1 in 2009, a decrease from 33.0 to 19.5 occurred in rural areas between the corresponding years. Altogether, 127 patients died. Childhood cancer mortality decreased in urban areas from 2.8 in 2000 to 1.7 in 2009. The corresponding numbers for the rural areas were 7.9 and 10.4. The most common type of cancer was leukemia (24.9% of all cases) followed by tumors of the central nervous system (18.3%) and lymphomas (14.3%).

Conclusions. The incidence of childhood cancers in rural areas of the Arkhangelsk region is considerably higher than in neighboring Nordic countries, but decreased during the last decade. In urban areas, the incidence has increased for the corresponding years. The opposite trends have been observed for childhood cancer mortality. Potential explanations of this pattern will be discussed.

- P70 -

TRENDS IN SUICIDE MORTALITY IN THE ARKHANGELSK REGION, NORTHWEST RUSSIA

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Introduction. Suicide mortality is one of the indicators of well-being of the society. Approximately one million people die from

suicide each year worldwide. Russia is among the top 10 countries with the highest suicide rates in the world. However, suicidal behavior in Russia differs from other countries: mortality is the highest in the oldest age group. In the Arkhangelsk region (Northwest Russia), the suicide death exceeds the overall Russian level by 20%, but remains unknown to the international audience.

Objectives. To describe suicide mortality in the Arkhangelsk Region in 1998-2007.

Methods. Mortality data were obtained from Regional Federal State Statistics Service (FSSS) from 1998 to 2007 and presented by age, gender, territory. All rates were calculated per 100,000.

Results. The overall suicide mortality in the Arkhangelsk region decreased from 57.2 in 1998 to 50.5 in 2007. Among men it decreased from 102.4 in 1998 to 89.3 in 2007, but among women it slightly increased from 15.9 to 16.6. The male to female rate ratio for the period was 6.2 to 1. The overall suicide mortality was considerably higher in the rural than in urban areas (82.0 vs. 47.2). The highest suicide mortality rate (in total, 71.9 per 100 000) was observed among people of working age. The male to female rate ratio in this age group was 7.8 to 1, but the rate decreased by 25% during the study period. In 2004, a few cases were registered among children under 9 years of age. Total suicide mortality among children increased by 23%. The highest suicide rate among children (26.1) was registered in the 15-19 age-group.

Conclusions. Suicide mortality in the Arkhangelsk region is more than twice as high as the critical level suggested by the WHO. Different trends among different age-groups were observed warranting urgent age-specific preventive measures.



- P71 -

APC ANALYSIS OF MULTIPLE SCLEROSIS MORTALITY: AN INTERNATIONAL COMPARISON

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Introduction. The epidemiology of multiple sclerosis points at a disease with several subtypes and a heterogeneous etiopathogenesis. Previous age-period-cohort analyses have shown that multiple sclerosis may include also birth cohort effects. Birth cohort effects are typically indicative of exogenous risk factors occurring early in life, in childhood or in youth. However, solving the enigma of birth cohort effects is again and again a tremendous hurdle. Comparative analyses might pave the way to a better understanding of these effects.

Objectives. To assess and compare birth cohort effects in multiple sclerosis using international mortality data.

Methods. Data encoded according to the International Classification of Diseases (revisions 7-10) were derived from the WHO mortality database. They cover varying periods between 1951-2005 and were aggregated by 5-year age-intervals and 5-year period-intervals. The statistical analyses were based on log-linear models.

Results. In MS data from most countries birth cohort effects seem to play an important role. However, their shapes show slightly diverging patterns: a curvilinear pattern with a peak around 1920-30 in countries from Western Europe or a peak after 1930 in Scandinavian countries, a double peak (England, US), a plateau or an increase until the late 1940s (Mediterranean countries) or an indifferent shape (Japan).

Conclusions. Birth cohort effects in MS indicate that exogenous risk factors were at work in the first half of the 20th century we do not know much about. They encompassed most Western countries, however they also showed a different timing. The latter finding might provide a clue to a better understanding of this phenomenon.

- ◆ -

- P72 -

MATERNAL MORTALITY IN ITALY: A RECORD-LINKAGE STUDY

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Introduction. Maternal mortality is considered a major marker of the performance of health systems. Recently, *the Lancet* published new estimates reporting a promising reduction in maternal mortality worldwide. In this report Italy ranked first with the lowest ratio (MMR) of 3.9 per 100,000 live births. This supremacy calls into question the validity of official national figures based on death certification alone.

Objectives. To detect all maternal deaths, analyze associated causes and compute crude and specific MMR in 5 Regions of northern, central and southern Italy.

Methods. The Italian National Institute of Health (Istituto superiore di sanità) implemented a study to identify maternal deaths using record-linkage between the death registry and hospital discharges. Crude maternal mortality ratios and stratified ratios by woman's age and mode of delivery, according to Peristat indicators, were calculated.

Results. This study finds a 67% under-reporting of maternal mortality based on current death certification alone. MMR for the participating regions is 11.9 per 100,000 live births with considerably variation across regions. Highest values (21.8) were observed in Sicily. A predominance of direct obstetric deaths particularly in Lazio and Sicily suggests that improvements of obstetric care are needed. Specific MMRs were significantly higher for women older than 35 years of age (RR=1.9; 95%CI: 1.3-2.7) compared with those <35 years, and for women who underwent Caesarean section (RR=3.1; 95%CI: 2.0-5.0) compared with those who delivered vaginally.

Conclusions. The findings of important under-reporting of maternal mortality indicates that improvement in its identification and classification is needed. This study provides the background for a prospective study on registration and evaluation of maternal mortality to identify risk factors, including those specific to the patient and those relating to the health system.

- ◆ -

- P73 -

MORTALITY IN THE ELDERLY, DUE TO PROXIMAL FEMUR FRACTURE: ONE YEAR FOLLOW-UP STUDY

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Introduction. Mortality associated with hip fracture is higher in elderly patients.

Objectives. To determine the association between American Society of Anesthesiologists (ASA) score and mortality after a hip fracture.

Methods. All patients admitted into the orthopedics service of the São João Hospital (Porto, Portugal) during the period of 1st of May 2008 to 30th of April 2009, with a low-energy hip fracture, were invited to participate in the study. During the admission, a questionnaire was applied by a trained interviewer, with questions about demographic factors, mobility before the fracture and clinical history. A follow-up study was conducted at 3, 6, 9 and 12 months after discharge, with interviews made by phone calls by the same interviewer. Fatality, mobility and autonomy in performing basic daily life activities after the fracture were registered. From the hospital medical records, information about type of fracture, surgical treatment, day of surgery and ASA score, were collected.

Results. From all patients admitted during the study period, 4 refused to participate, 3 died before the interview, 5 patients stayed less than 3 days in the hospital, 10 did not have mental autonomy to answer the questions and we failed to find 6 patients. From 252 patients included in the study, 79% were women, with a mean age of 80.3±9.5 years, statistically different ($p < 0.05$) from the mean age of men (76.3±11.3 years). During the follow-up 22 patients were lost. From those, 11 were identified in the Hospital registers and therefore included in the fatality calculation. The fatality for women was 8%, 14%, 20%, 23% and for men was 22%, 25%, 30%, 37% respectively after 3, 6, 9 and 12 months. The patients who died were older (82.5±8.6) than those who remained alive (78.2±9.9) ($p < 0.05$). Fatality was higher among the patients with ASA score III (61%), compared to patients with ASA score II (29%) (RR: 2.23; 95%CI: 1.32-3.78).

Conclusions. Higher fatality was observed among older patients, with ASA score III and with surgery delay of 4 or more days.

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- P74 -

IMPACT OF WAITING TIME BEFORE RADIATION TREATMENT AFTER BREAST CANCER SURGERY: RETROSPECTIVE COHORT ANALYSIS WITH FRACTIONAL POLYNOMIALS

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Introduction. Several studies analysed the effect of the interval between conservative breast surgery and the start of radiation treatment on the risk of breast cancer local recurrence (LR) or disease-

free survival (DFS) with inconsistent results across studies. Moreover, many of these studies dichotomised time to radiotherapy in their analysis but used different thresholds.

Objectives. To analyse the effect of waiting time before radiotherapy on risk of LR or DFS using multivariable fractional polynomials which avoids cutpoints.

Methods. We retrospectively analyzed 1,403 women with early-stage breast cancer who underwent conservative surgery without any systemic adjuvant therapy followed by whole breast radiotherapy from 1997 to 2005. Time to radiotherapy was measured from either the date of surgery or the start of the most recent previous treatment (e.g. chemotherapy). End points were time to LR and time to DFS. DFS was defined as time from surgery to the first occurrence of either local or distant recurrence, or death. Multivariable Cox proportional hazards model was used to estimate hazard ratios (HR) and 95% confidence intervals (CI), including a priori in the model potential predictors. The fractional polynomials approach was applied to model potentially non-linear relationships of the continuous prognostic factors.

Results. Median waiting time to start of radiotherapy was 20 weeks (IQR: 15-26). During a median follow-up of 4.3 year, 55 patients (4%) developed a LR and 170 (12%) a DFS event. After adjustment for clinical, treatment and sociodemographic factors, a non significant linear association with waiting time to radiotherapy was detected for both LR (HR 1.00; 95%CI: 0.97-1.04) and DFS (HR 1.01; 95%CI: 0.99-1.03).

Conclusions. Fractional polynomial did not show a non-linear relationship between waiting time to radiotherapy and the considered endpoints. The waiting time before radiotherapy does not increase the risk of LR or DFS in our study.



- P75 -

EPIDEMIOLOGY OF MILD ANEMIA IN NON-DIALYSIS CKD: A PROSPECTIVE COHORT STUDY IN OUTPATIENT RENAL CLINICS

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Introduction. Guidelines for management of adult non dialysis chronic kidney disease (CKD) patients set the threshold of anemia to an hemoglobin (Hb) level <13.5 g/dL in males and <12.0 g/dL in females.

Objectives. To determine the association between American Society of Anesthesiologists (ASA) score and mortality after a hip fracture. We investigated the prevalence and the prognostic implication of mild anemia (MA) in CKD in a prospective cohort of stage 3-5 CKD patients.

Methods. We enrolled 668 consecutive patients in 26 Italian renal clinics during 2003. Patients with kidney transplant, accelerated renal function loss or frank anemia (Hb<11 or treated for anemia) were excluded from the study. MA, defined as Hb levels in the range

11-13.5 in males and 11-12 in females, was evaluated in the first two visits (median between visits interval: 17 mths). Four categories were identified: normal Hb at both visits, MA at visit 1 recovering to normal at visit 2, MA at both visits, and progression from normal Hb or MA at visit 1 to mild or frank anemia at visit 2. The unadjusted association of anemic status with outcomes, all-cause death or dialysis (ESRD), is analyzed using competing risk approach. Multivariable Cox proportional-hazards model is used to estimate cause specific hazard ratio (HR). In the Cox model of time to all-cause death, ESRD is included as time-dependent variable.

Results. MA was present in 41.3% of patients at visit 1 and 34.1% at visit 2. At both study visits, 22% of patients had persisting MA, while MA resolved in 10% of patients. Progressing anemia was found in 26% of patients. The risk of persisting MA was 4.56-fold higher in males than in females. During a median of 40 mths, 123 patients developed ESRD and 94 died; persisting MA predicted ESRD (HR 1.82; 95%CI: 1.01-3.29), but not death, while progressing anemia predicted both outcomes (ESRD: HR 1.81; 95%CI: 1.02-3.23; death: HR 1.87; 95%CI: 1.04-3.37).

Conclusions. In stage 3-5 CKD, MA is prevalent and is a marker of a risk excess for worse outcome in terms of patient survival and, in particular, progression to ESRD.

Obesity and metabolic syndrome

- P76 -

OBESITY RISK AND RELATED FACTORS IN HOUSEWIVES VERSUS EMPLOYED WOMEN IN IRAN

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Introduction. Obesity is a major public health problem and becomes an important epidemic in both developed and developing countries because of changing in lifestyles. Women suffer more from obesity than men in Iran.

Objectives. In this study, we compared obesity risk and its contributors regarding the job categories as housewives (HWs) or employees to deeply explore the risk of obesity in a big portion of women who are working as housewives in Iran.

Methods. Based on WHO stepwise approach, in a cross-sectional survey in 2005, 33,472 women aged from 15 to 65 years old were examined for the major risk factors for non-communicable diseases from all over the country. We modeled obesity by logistic regression and entered all the known/potential predictors, including job categories. Weighted prevalence of obesity was calculated by survey analysis series of STATA.

Results. The participation rate was more than 99%. The weighted prevalence of overweight and obesity in HWs was 34.5% and 24.4% respectively. Employed women were about 4% and 10% less over-

weight and obese than the HWs, respectively ($P < 0.01$). HWs vs. employed women had the adjusted OR 1.38 (95%CI: 1.17-1.62) for obesity. Older women, with higher educational level and socioeconomic status, lower physical activities and those living in urban areas were at risk of obesity. In comparison to HWs, working as a Clerk decreased the risk of obesity significantly (OR=0.65; 95%CI: 0.53-0.81), while the other jobs didn't.

Conclusions. Working as HW is an independent significant factor for obesity in women. Preventive health care programs for reducing the risk of obesity in women should be applied, considering their occupation for achieving more effectiveness.

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- P77 -

BLOOD LIPIDS AMONG 7-17 YEAR-OLD SCHOOLBOYS IN NORTHWEST RUSSIA: A CROSS-SECTIONAL STUDYMalyavskaya S,¹ Lebedev A,¹ Grjibovski A^{2,3,4}

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Introduction. Russia has the highest cardiovascular mortality among men in the world. Although cardiovascular disease is a disease of middle and old age, there is epidemiological evidence that it may have its origins earlier in life. Several risk factors are known to track from childhood to adulthood.

Objectives. To study total cholesterol (TC), triglycerides (TG), high-density lipoprotein cholesterol (HDL) at different stages of sexual maturation and to estimate the prevalence of hyperlipidaemia in 7-17 year-old boys in Northwest Russia.

Methods. A cross-sectional study. The sample consisted of 569 aged 7-17 years schoolboys from the city of Arkhangelsk. All children were divided into 3 groups by Tanner's sexual maturation: 1) Stage 1, n=261; 2) Stages 2 and 3 combined, n=186; and 3) Stages 4 and 5 combined, n=122. Fasting blood samples were taken. TC, TG and HDL levels were assessed in a regularly calibrated biochemical laboratory. Low-density lipoproteins (LDL) were calculated using the Friedewald formula: $LDL = TC - (TC/2.2 + HDL)$. Data are presented as means \pm standard errors.

Results. In group 1, the mean levels of TC, LDL and HDL and TG were 5.39 ± 0.10 , 1.19 ± 0.04 , 0.92 ± 0.03 and 3.99 ± 0.10 mmol/L. Corresponding values for group 2 were 5.07 ± 0.14 , 1.36 ± 0.06 , 0.86 ± 0.04 and 3.60 ± 0.12 mmol/L. In group 3 the respective average levels were 2.93 ± 0.11 , 1.00 ± 0.03 , 1.22 ± 0.05 and 4.49 ± 0.12 mmol/L. Mean overall levels of TC, HDL and TG were 5.12 ± 0.08 , 1.25 ± 0.03 and 0.99 ± 0.02 mmol/L, respectively. High level of TC (> 6.20 mmol/L) was detected among 21.3% of boys. TG concentration above 1.69 mmol/L was observed in 6.2% of the sample.

Conclusions. Average levels of blood TC and LDL and the prevalence of hypercholesterinaemia among boys in Northwest Russia are high and warranting further research with further going aim of public health interventions.

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- P78 -

SLEEP DURATION AND CHANGE IN BODY MASS INDEX IN ADOLESCENCE

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Introduction. The association between sleep and obesity has been described in different age groups. However, there are no sufficient longitudinal data in adolescence to clarify the cross-sectional data.

Objectives. To study the association between sleep duration at the age of 13 and body mass index (BMI) at 17.

Methods. We analysed 1,442 adolescents evaluated at both moments as part of a Portuguese urban population-based cohort (EPI-Teen), with a median time of follow-up of 3.1 (2.9; 3.5) years. BMI was classified according to CDC growth charts and BMI z-score was calculated based on their data. Sleep duration was estimated by self-reported bedtimes and wake-up times. Regression coefficients (β) and 95% confidence interval (95%CI) were used to estimate the association between sleep at baseline and BMI z-score at follow-up. Results were stratified by gender and adjusted for parental education, parental BMI, total sedentary activities and the difference of sleeping hours between follow-up and baseline, for both genders; and, additionally, for age at menarche for girls.

Results. The median sleep duration at baseline was 9.0 (8.5; 9.5) hours and this value decreased to follow-up -0.8 (-1.5; 0.0) hours. A cross-sectional analysis at baseline showed that sleep duration was negatively associated with BMI, significant only among boys (β -0.118; 95%CI: -0.220; -0.017). Regarding longitudinal analysis, among girls, BMI z-score at follow-up was not significantly associated with sleep duration at baseline (β 0.043; 95%CI: -0.032; 0.118). Among boys, higher sleep duration was associated with lower BMI z-score at follow-up (β -0.115; 95%CI: -0.223; -0.007). However, additional adjustment for BMI at baseline removed this effect (β -0.002; 95%CI: -0.059; 0.054).

Conclusions. No significant association was found between sleep duration at the age of 13 and BMI at 17. However, based on the cross-sectional analysis at baseline, the effect of sleep duration on BMI may be prior to the age of 13.

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- P79 -

SLEEP DURATION AND OVERWEIGHT/OBESITY IN PEDIATRIC AGES: SYSTEMATIC REVIEW AND META-ANALYSISAraújo J,¹ Pereira A,² Lunet N¹

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Introduction. Recent meta-analyses addressed the association between sleep duration in pediatric ages and the risk of overweight/obesity, but only a small proportion of the available evidence has been included.

Objectives. Recent meta-analyses addressed the association between sleep duration in pediatric ages and the risk of over-

weight/obesity, but only a small proportion of the available evidence has been included.

Methods. We searched PubMed, EMBASE, Scopus, ISI Web of Knowledge, EBSCO and Science Direct, up to March 2010 to identify observational studies that quantified the relation under study. We used random effects meta-analyses to compute summary odds ratio (OR) estimates with 95% confidence intervals (95%CI), the I² statistics to assess heterogeneity and meta-regression to explain it, and funnel plots and the Begg and Mazumdar adjusted rank correlation test to assess publication bias.

Results. The meta-analyses included 44 studies (31 cross-sectional, 7 case-control and 6 cohort). The pooled OR (95%CI, I²) for overweight/obesity was 1.31 (1.09-1.57, 85%) per hour reduction in sleep duration, for articles considering sleep as a continuous variable. Considering a sleep duration reference higher than the exposure category, the pooled ORs were 1.60 (1.32-1.92, 60%) for studies comparing only two sleep categories, and 1.48 (1.31-1.68, 87%) for articles with multiple sleep categories (considering only the estimate corresponding to the narrower CI). Our meta-regression could not identify significant sources of heterogeneity. An important publication bias was observed through visual inspection of the funnel plot and hypothesis tests for its symmetry.

Conclusions. The published evidence suggests that short sleep duration in pediatric ages is associated with an increased risk of overweight/obesity. However, the large unexplained heterogeneity and the observed publication bias imply a cautious interpretation of the results, and no bold statements on this issue are possible with the available data.

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- P80 -

METABOLIC SYNDROME AND CARDIOVASCULAR RISK: THE CUORE PROJECT RESULTS

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Introduction. Multiple aspects of the metabolic syndrome (MetS) remain problematic.

Objectives. Here we assess the association between epidemic obesity and the other MetS traits, and MetS utility for cardiovascular disease (CVD) risk assessment.

Methods. Italian population-based Progetto CUORE data were used: 17,252 women and men ages 35-69 years, baseline 1984-1993, mean follow-up 10 years, for nonfatal plus fatal CVD events. NCEP ATP-III criteria defined MetS.

Results. Epidemic obesity was strongly related to epidemic rates of the four other MetS traits. Only four of 16 possible MetS trait combinations were common; their CVD hazard ratios ranged from 1.21 to 1.70. In multivariate analyses MetS was no better than the sum of its parts in predicting CVD, important information was lost due to omission of total cholesterol and smoking, and from con-

sidering MetS traits as yes/no variables. CVD risk prediction by MetS was less strong for men and no stronger for women than by classical risk factors (blood pressure, diabetes, serum cholesterol, smoking, overweight/obesity).

Conclusions. These findings are concordant with the inference that epidemic obesity importantly influences epidemic occurrence of the other MetS traits; they also indicate that use of MetS for CVD risk assessment has limitations and needs critical reconsideration.

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- P81 -

DETERMINANTS OF OBESITY HOSPITALISATION COSTS: AN ITALIAN COHORT STUDY

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Introduzione. Obese adults are at an increased risk of several diseases. The cost implications, both economic and social, are estimated to be considerable, particularly for inpatient care. A previous study in a Northern Italy cohort showed that all causes hospitalisation rates were much higher among obese people than in the general population.

Obiettivi. The aim of this study was to describe the use of hospital care by adult obese subjects (BMI ≥ 30 kg/m²) in a cohort of hospitalized patients.

Metodi. A cohort including patients admitted in a Metabolic Unit at a specialized hospital in Northern Italy was linked with the Hospital Discharge Records database. Hospitalisation costs have been estimated from DRGs tariffs. Average follow-up and annual costs have been estimated from the follow up cumulative per patient's costs. Annual costs determinants were estimated via a multivariable Gamma GEE model with log link and an autoregressive correlation matrix AR (1). Estimates have been weighted by time of exposure as an offset of the logarithm of the time in years, inserted in the linear predictor term of the model.

Risultati. Median annual costs were 2,436€ (IQR: 1,405-4,242) for men and 2,293€ (IQR: 1,413-3,922) for women. An increase in annual costs was evidenced for higher age at recruitment, BMI ≥ 40 , waist circumference (WC) above median values, and for the presence of several comorbidities (cancer, cardiovascular diseases, musculoskeletal system diseases, respiratory diseases, mental disorders). BMI was not relevant in affecting hospital costs accumulation, while the WC was positively associated with a small increase – 10% every 10 cm – in annual costs among women.

Conclusioni. The economic impact due to the high hospitalization rates among obese persons is extremely relevant. The role of obesity related comorbidities on costs accumulation suggests the importance of secondary prevention programmes addressed to reduce the impact of comorbidities amongst obese people beside primary prevention programmes aimed to prevent obesity in the general population.

- P82 -**PREVALENCE AND RISK FACTORS FOR OVERWEIGHT AND OBESITY IN PRIMARY SCHOOLCHILDREN IN AN URBAN AREA IN WESTERN GREECE**Jelastopulu E,¹ Kallianezos P,¹ Merikoulias G,¹ Tsiros G,² Alexopoulos E¹¹Department of Public Health, School of Medicine, University of Patras, Greece; ²Rural Medical Dispensary of Chavari, Health Center of Gastouni, Greece

Introduction. Childhood obesity is a rising problem of public health worldwide in the last decades. The aim of this study was to estimate the prevalence of childhood overweight and obesity and to identify risk factors in 10-13 year-old children.

Methods. A cross-sectional study was conducted during the academic year 2008-2009, including 200 children of the two last grades in seven randomly selected primary schools in the area of Patras, the major city of Western Greece. Body mass index (BMI) was calculated and self-reported information on nutritional habits, physical and other leisure activities collected. The effect of various risk factors on the prevalence of overweight and obesity was analysed using regression analysis. All statistical analyses were performed using SPSS for Windows v.17.

Results. The overall prevalence rate of overweight and obese children was 32% (39.1% in boys and 25.9% in girls, $p=0.046$) and 10.5% (13% in boys and 8.3% in girls) respectively. The risk of being overweight or obese increased in children with lower parental educational level ($p4$ hours per day ($p=0.035$)) were significantly associated with obesity and increased waist circumference in 10-13 year-old children when potential confounding factors were taking into account.

Conclusions. The study demonstrates substantial prevalence of overweight and obesity in primary school children in the area of Patras, especially for boys. The somatometric characteristics are influenced by nutritional habits and leisure activities, as well as by parental characteristics. These findings could contribute to the elaboration of strategies and implementation of preventive campaigns in primary schools in order to reduce the burden of overweight and obesity in children.

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- P83 -**HOMOCYSTEINEMIA AND THE METABOLIC SYNDROME**Vigna L,¹ Airaghi L,² Consonni D,³ Tirelli AS,⁴ Aquilina T,⁵ Riboldi L⁶¹UO Medicina del Lavoro 1, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Italy; ²UO Medicina Interna b, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Italy; ³Unit of Epidemiology, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Italy; ⁴U.O. Laboratorio Analisi Chimico Cliniche e Microbiologia, Fondazione IRCCS Ca' Granda Ospedale Maggi, Italy; ⁵Scuola di Specializzazione in Medicina del Lavoro, Università degli Studi di Milano, Italy; ⁶UO Medicina del Lavoro 1, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano

Introduction. Moderate hyperhomocysteinemia is a risk factor for atherosclerotic vascular disease and for recurrent venous thromboembolism. Studies investigating the association between total homocysteine (tHcy) levels and insulin resistance have shown conflicting results.

Objectives. We analyzed the association of tHcy levels with metabolic syndrome and its components in a group of obese or overweight subjects.

Methods. In the period 2006-2009 plasma tHcy levels were measured in 695 subjects (210 males, mean age: 43.7, SD: 10.9; 485 females, mean age: 45.5; SD: 11.6 yrs). Diagnosis of metabolic syndrome (MS) was made when the subject satisfied any three of five traits (ATP III criteria 2005). We compared mean values of tHcy between subjects with and without MS using Mann-Whitney test. Comparison among subgroups categorized by the numbers of the metabolic components was analyzed by Kruskal-Wallis test. Correlations between tHcy and other clinical variables were performed with Spearman rank order correlation analysis.

Results. The overall mean value for serum tHcy concentrations was 11.4 (SD: 4.7) $\mu\text{mol/L}$. It was significantly correlated with fasting glucose and urate levels. Subjects with MS (No. 342) showed serum tHcy slightly higher than the non-MS individuals (11.8, SD: 5.5 vs 11.1, SD: 4.1; $p=0.04$). Subjects with higher fasting glucose, lower HDL-C, and higher blood pressure showed significantly higher tHcy levels ($p<0.05$). There was no difference in MS frequency dividing the cohort into two groups by a tHcy cut off of 10 $\mu\text{mol/L}$. Moreover, no significant difference in the serum tHcy levels was detected according to the number of satisfied criteria to diagnose MS.

Conclusions. Our preliminary analyses confirm the relationship between metabolic syndrome and tHcy levels. We found no link between tHcy levels and the prevalence of MS or the MS diagnostic criteria. Future analyses will use multiple regression models to take into account several factors simultaneously.

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- P84 -**PREVALENCE OF THE METABOLIC SYNDROME AMONG PATIENTS WITH ACUTE MYOCARDIAL INFARCTION (AMI) AND ITS ASSOCIATIONS WITH COMPLICATIONS OF AMI IN NORTHWEST RUSSIA**Kholmatova K,^{1,2} Dvoryashina I,¹ Grjibovski A,^{2,3,4}¹Northern State Medical University, Arkhangelsk, Russia; ²International School of Public Health, Arkhangelsk, Russia; ³Norwegian Institute of Public Health, Oslo, Norway; ⁴Institute of Community Medicine, University of Tromsø, Norway

Introduction. The metabolic syndrome (MetS) is a risk factor of diabetes mellitus (DM) and is highly prevalent among patients with AMI. However, the evidence on the prevalence of MetS and its role in the early complications in patients with AMI in Northwest Russia is scarce.

Objectives. To study the prevalence of MetS in patients with AMI and to assess the impact of MetS on hospital outcomes of AMI.

Methods. Altogether 321 patients with AMI (67.3% of men, mean age 60.5 years) were studied. According to the IDF criteria 65.7% of patients had MetS. Group differences in patients' clinical characteristics, blood glucose and insulin during oral glucose tolerance test, leptin, lipids, C-reactive protein, and echocardiography data were analyzed by t-tests, Mann-Whitney and χ^2 tests where appropriate. Associations of MetS with occurrence of adverse events during AMI were studied by logistic regression.

Results. Patients with MetS were more likely than those without MetS to be females (87.6% vs. 55.1%, $p<0.001$) and to have diabetes mellitus (69.0% vs. 31.0%, $p=0.001$) and hypertension (93.3%

vs. 73.4%, $p < 0.001$). They also had higher levels of total cholesterol (5.9, 5.0-6.5 vs. 5.5, 4.8-6.3; $p = 0.07$), basal insulin (12.9, 10.4-18.1 vs. 8.8, 6.4-10.9 $\mu\text{IU/ml}$; $p = 0.00$), HOMA-IR (3.0, 2.4-4.8 vs. 1.9, 1.5-2.9; $p = 0.003$), and leptin (142.9, 101.3-169.0 vs. 73.1, 39.4-98.8 ng/ml; $p < 0.001$). No statistically significant associations between MetS and any of hospital complications of AMI in all patients, including cardiogenic shock ($p = 0.247$), congestive heart failure ($p = 0.165$), early postinfarction stenocardia ($p = 0.995$) and left ventricular ejection fraction $< 40\%$ ($p = 0.894$) were observed.

Conclusions. Although MetS is highly prevalent among patients with AMI and associated with insulin resistance, it does not seem to affect prognosis after AMI in Northwest Russia.



- P85 -

TREND OF THE PREVALENCE OF DIABETES ACCORDING TO BODY MASS INDEX IN SPANISH ADULTS 1987-2006

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Introduction. There has been a marked increase in overweight and diabetes in Spain. However the trends for the prevalence of diabetes according to body mass index (BMI) in the last 25 years are not very well known.

Objectives. To assess the trend for the prevalence of diabetes within BMI strata.

Methods. The Spanish National Health Surveys (NHS) of 1987 ($n = 29,647$), 1993 ($n = 21,061$), 1995 ($n = 6,396$), 1997 ($n = 6,396$), 2001 ($n = 21,067$), 2003 ($n = 21,650$), 2006 ($n = 29,478$), which are representative samples of the adult Spanish general population were used. Participants were classified as diabetics if they answered affirmatively to the following question: "Has your doctor told you that you suffer currently from diabetes? Self-reported data of weight and height were obtained from the following questions: "Could you tell me approximately your weight without shoes and clothes? Could you tell me approximately your height without shoes?, respectively.

Results. A significant increasing temporal trend for the prevalence of diabetes in the different strata of BMI (< 25 , 25-30 and $> 30 \text{ kg/m}^2$) was found (linear trend test $p < 0.001$). After adjusting for age and sex a significant increasing temporal trend was also observed within the three strata. The adjusted odds ratio (OR) of diabetes for every year of calendar was 1.017 (Confidence Interval (CI) 95%: 1.012-1.021) after adjusting for age, sex and BMI (continuous). The OR of diabetes for every additional year of age were 1.058 (95%CI: 1.056-1.060), 1.098 (95%CI: 1.091-1.105) for every kg/m^2 of BMI and 1.079 (95%CI: 1.020-1.142) for males (reference women).

Conclusions. The prevalence of diabetes mellitus has increased within BMI strata in Spain between 1987 and 2006. Although self-reported data under-estimate the actual prevalence of diabetes and BMI; and despite a proportion of undiagnosed diabetes surely exists we do not think that this invalidates the results about the trend of the prevalence of diabetes in BMI strata.

- P86 -

HAEMOGLOBIN A1C AND GLUCOSE-BASED TESTS IN OVERWEIGHT AND OBESITY

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Introduction. For decades, the diagnosis of diabetes mellitus (DM) has been based on fasting plasma glucose (FPG) and/or 2-h post-glucose-load plasma glucose (PG). More recently, haemoglobin A1c (A1C) has been suggested as a useful tool for type 2 DM screening and diagnosis. The limits of the latest diagnostic criterion are the imperfect concordance between A1C and other glucose-based tests and the lack of investigation of A1C diagnostic performance in specific groups.

Objectives. We examined agreement between diagnosis DM of prediabetes (PD) using the new A1C criteria and the diagnosis based on FPG and 2-h PG from an oral glucose tolerance test (OGTT) in a group of overweight and obese subjects.

Methods. In the period 2006-2009 glucose metabolism was evaluated in 179 subjects (mean age: 46.7, SD: 13.2 yrs; 126 females and 53 males). The following cut-points were used: DM was defined as: A1C $\geq 6.5\%$ or FPG $\geq 126 \text{ mg/dL}$ (Impaired Fasting Glycemia, IFG) or 2-h PG $\geq 200 \text{ mg/dL}$ during an OGTT (Impaired Glucose Tolerance, IGT). We analyzed agreement between the different diagnostic criteria with weighted Cohen's kappa statistics $\geq 126 \text{ mg/dL}$ or 2-hPG $\geq 6.5\%$, or FPG.

Results. The number of subjects with A1C and FPG/OGTT measurements was 164. There was poor agreement between diagnoses based on A1C and those based on FPG/OGTT (kappa: 0.29). Use of FPG/OGTT yielded more PD diagnoses (N. 88, 53.7%) in comparison with A1C (N. 77, 47.0%); the frequency of DM diagnoses was similar using FPG/OGTT (N. 14, 8.5%) or A1C (N. 15, 9.1%).

Conclusions. These results obtained in a selected group of patients confirm that the use of A1C for diagnosing prediabetes and diabetes may present drawbacks and suggest that the diagnostic cut-off points for A1C miss a certain number of patients with impaired glucose metabolism.

Prevention of chronic diseases

- P87 -

ASSOCIATION BETWEEN *HELICOBACTER PYLORI* INFECTION AND ENVIRONMENTAL RISK FACTORS FOR GASTRIC CANCER AND THE OCCURRENCE OF CDX2 EXPRESSION IN MOZAMBIQUE

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Introduction. The relation between gastric cancer risk factors and early steps of the carcinogenesis pathway may contribute to understand which factors modulate the progression to cancer among the *Helicobacter pylori* (HP)-infected. CDX2 expression precedes the occurrence of pre-neoplastic lesions and can be considered an early step of intestinal differentiation in the cancer pathway.

Objectives. To quantify the association between HP infection and other environmental risk factors and the expression of CDX2.

Methods. Dyspeptic patients undergoing upper digestive endoscopy, consecutively selected at the Maputo Central Hospital, were classified as having normal stomach/chronic non-atrophic gastritis (N/CNAG), chronic atrophic gastritis (CAG) or intestinal metaplasia (IM). The present analysis includes all subjects with cancer precursor lesions and gender- and age-matched (1:2) N/CNAG patients. HP infection and virulence were assessed by PCR.

Results. CDX2 expression was observed in 54 N/CNAG (47.4%), 35 CAG (77.8%) and all IM patients (n=12). There was a trend towards an increased risk of CDX2 expression among ever-smokers (N/CNAG: OR=2.05, 95%CI: 0.54-7.83; CAG: OR=1.79, 95%CI: 0.40-8.02; IM: OR=5.44, 95%CI: 0.70-42.15), but no meaningful association for fruit/vegetables intake. HP infection increased the risk of CDX2 expression in all subgroups (N/CNAG: OR=5.36, 95%CI: 1.96-14.60; CAG: OR=6.82, 95%CI: 2.11-22.03; IM: 1.61, 95%CI: 0.41-6.32), but infection with high-virulent strains (cagA+, vacA s1 or vacA m1) was associated with a higher risk only in subjects with more advanced lesions (up to six-fold for IM among the infected with vacA m1 strains).

Conclusions. In this African population, with high prevalence of infection and low gastric cancer risk, smoking and HP infection increase the risk of early alterations (such as CDX2 expression) in the gastric carcinogenesis pathway, while HP virulence is associated with progression to more advanced lesions.

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- P88 -

LOW TOTAL TESTOSTERONE IS ASSOCIATED WITH INCREASED RISK OF INCIDENT TYPE 2 DIABETES MELLITUS IN MEN: RESULTS FROM THE STUDY OF HEALTH IN POMERANIA (SHIP)

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Introduction. There is increasing evidence suggesting that low total testosterone is associated with incident type 2 diabetes mellitus (T2DM) in men. However, the data so far are inconsistent regarding the direction of association.

Objectives. The aim of our study was to investigate the longitudinal association between low total testosterone and the risk of incident T2DM in men covering a wide age range with data from SHIP.

Methods. Of 2,117 men aged 20-79 at baseline, 1,589 were followed up 5 years later. Low total testosterone at baseline determined by <10th percentile (10-year age-strata) were used as a risk factor for incident T2DM at follow up. The theory of directed acyclic graphs was applied to select confounders for adjustment. According to our graph, age, waist circumference, and smoking belonged to the minimally sufficient adjustment set. For additional analyses, established clinically thresholds for low total testosterone (<8 nmol/l, <10 nmol/l, <12 nmol/l) were used. To evaluate for potential non-response-bias, drop out weights were used in sensitivity analysis.

Results. From 1,339 eligible men, 68 (5.1%) developed T2DM. Men with low total testosterone had an increased risk of developing T2DM (odds ratio [OR] 3.4; 95%CI: 1.9- 6.1), even after adjustment OR 3.0; (95%CI: 1.6-5.7). Low baseline total testosterone, regardless of the definition used, was associated with a considerably increased odds of incident T2DM. Recalculated weighted models revealed almost identical estimates indicating no relevant non-response bias. The comparison of crude and adjusted incidence odds ratios revealed that the confounders produced some overestimation of the strength of association.

Conclusions. Our prospective findings suggest that low total testosterone is associated with incident T2DM in men and might represent a biomarker that might causally be involved in the risk of T2DM. This underlines the importance of measuring total testosterone as the predominant male sex hormone.

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- P89 -

PREVALENCE OF *H. PYLORI* INFECTION WITH CagA+ STRAINS IN A PORTUGUESE URBAN SAMPLE

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Introduction. Infection with *H. pylori* strains that possess the cytotoxin-associated gene (cagA) is associated with a higher risk of gastric cancer than infection with CagA-negative strains. The estimation of the frequency of infection with the more virulent *H. pylori* strains in different age groups, and according to socio-demographic characteristics, contributes to a better understanding of the gastric cancer burden and dynamics.

Objectives. To quantify the prevalence of infection with *H. pylori* CagA-positive (CagA+) strains in a Portuguese urban population.

Methods. Western Blot testing was conducted in representative sample of non-institutionalized adult inhabitants of Porto (n=381). Infection with CagA-positive *H. pylori* strains was defined according to the manufacturer's instructions as the presence of the CagA band at 116kD with one or more of the following bands/groups:

89kD (VacA); 37kD; 35kD; 30kD (UreA) and 19.5kD together. Age- and education- adjusted prevalence ratios (PR) and corresponding 95% confidence intervals (95%CI) were computed using a robust Poisson regression.

Results. The prevalence of infection with CagA+ strains was 53.4% (95%CI: 47.8%-58.9%). Infection with CagA+ strains was more likely in middle age than in younger individuals (41-60 vs. 18-40 years: PR=1.39; 95%CI: 1.06-1.82), and less likely in the more educated (≥ 10 vs. < 10 education years: PR=0.75; 95%CI: 0.60-0.95). The latter effect was more pronounced in subjects older than 60 years (≥ 10 vs. < 10 education years: 31.1% vs. 64.6%, $P=0.003$) than in those aged 18 to 40 years (≥ 10 vs. < 10 education years: 39.6% vs. 52.9%, $P=0.298$), with similar results also when the proportion of CagA+ strains among the infected was analysed.

Conclusions. The prevalence of infection with *H. pylori* CagA+ strains was high, particularly among less educated and lower social class individuals. This suggests that in the near future stomach cancer mortality is likely to remain one of the highest in Europe.



- P90 -

DECLINE IN RATES OF HOSPITAL ADMISSIONS FOR ACUTE CORONARY EVENTS FOLLOWING THE INTRODUCTION OF THE ITALIAN SMOKING REGULATION: A COUNTRY-WIDE STUDY

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Introduction. Several studies reported a reduction of acute coronary events (ACE) in the general population after the enforcement of comprehensive smoking bans, although there is still uncertainty on the magnitude of the reduction.

Objectives. We conducted the first country-wide evaluation of the health effects of the introduction of a smoking ban in public places, using national data on hospital admissions during the first 23 months after the implementation of the Italian ban in January 2005.

Methods. Rates of admission for ACE (ICD-9: 410-411) in the 20 Italian regions from January 2002 to November 2006 were analyzed using mixed-effect Poisson regression models allowing for long term trends and seasonality. Standard methods for interrupted time-series were adopted to assess the role of immediate and gradual effects of the smoking ban. We also investigated the effect modification by age in the assumption that exposure to passive smoking in public places was stronger among younger people.

Results. In total, 936,519 hospital admissions for ACE occurred in the Italian population in the study period. A 4% reduction of hospital admissions for ACE among persons aged less than 70 was evident after the introduction of the ban (Rate Ratio [RR], 0.96; 95% Confidence Interval [CI]: 0.95-0.98). No effect was found among persons aged at least 70 (RR 1.00; 95%CI: 0.99-1.02). A monotonic effect modification by age on the effect of the ban was further suggested by analyses based on narrower age categories. The underlying trend did not change after January 2005, suggesting that

most of the reduction came into effect immediately after the introduction of the ban.

Conclusions. Smoke-free policies may result in a reduction in hospital admissions for ACE. They represent a simple, effective and cheap intervention for the prevention of cardiovascular diseases and should be taken into account in prevention programmes.



- P91 -

LOW EFFECTIVENESS OF ANTI-HYPERTENSIVE TREATMENT IN RURAL NORTHEASTERN BULGARIA

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Introduction. Cardiovascular, and especially stroke, risk of the rural Bulgarian population is among the highest in Europe. Anti-hypertensive treatment is an important, compulsory element of the complex strategy for reducing high individual absolute cardiovascular (CV) risk.

Objectives. To relate anti-hypertensive therapy to the individual absolute CV risk among the rural population of Varna region in two aspects: a) What proportion of the hypertensive population with low and respectively high absolute CV risk is treated with anti-hypertensive drugs. b) What proportion of the treated hypertensive population with low/high absolute CV risk achieve target BP values ($< 140/90$ mmHg).

Methods. A cross sectional study among the population of 12 out of 16 in total villages of Varna region (North-Eastern Bulgaria) was carried out in 2007. 1,183 subject in the age groups 45-75 were randomly recruited (approximately 200 from each sex and ten year group 45-54, 55-64, 65-74). Information on medical history, life style and measurements of blood pressure, total and HDL cholesterol and glucose was collected. Ten year absolute CV risks were calculated based on the SCORE system for countries with high risk.

Results. 44% of 685 women, and 56% of 498 men were with high CV risk. 40% of the men and 13% of the women with high risk were not receiving anti-hypertensive treatment. At the same time 73% of the women and 27% of men with low absolute risk were treated. Only 15% of men and only 17% of women treated with AH drugs and with high absolute CV risk achieve levels of blood pressure $< 140/90$ mmHg. Among the subjects with diabetes or established CVD (also with high absolute risk) only 10,4% achieved target BP levels $< 140/90$ mmHg.

Conclusions. Our results prove that recent guidelines for the management of individual cardiovascular risk are not implemented among the rural population in Bulgaria revealing a serious potential for increasing the effectiveness of anti-hypertensive treatment.



- P92 -

EFFECT OF CHILDHOOD RHINITIS ON YOUNG ADULT ONSET ASTHMA: A LONGITUDINAL STUDY

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Introduction. Rhinitis is considered an important risk factor for subsequent development of asthma in the sense of progression of atopic disease. However, longitudinal analyses of adult-onset asthma showed that also nonatopic rhinitis is a strong risk factor. Corresponding data on asthma onset in young adults is scarce.

Objectives. To investigate the role of rhinitis for onset of asthma in young adults taking into account allergic sensitization.

Methods. Random samples of 9-11 year old children were studied in Dresden and Munich, Germany, in 1995/96 with a parental questionnaire and followed up during the Study of Occupational Allergy Risks (SOLAR) in 2002/03 and 2007/09 with self-completed questionnaires with standardized questions on asthma and rhinitis symptoms. At baseline and 2nd follow-up participants were skin prick tested and atopy is defined as a positive reaction to at least one of six tested common aeroallergens. We used a modified poisson regression approach to calculate relative risks (RR) adjusted for sex, smoking and parental asthma.

Results. 15% of the 1,820 persons with no asthma symptoms at baseline reported symptoms at 2nd follow-up. 6% had developed nonatopic wheeze and 9% atopic wheeze. Rhinitis at 1st follow-up was a moderately stronger predictor for wheeze at 2nd follow-up (crude RR=2.6; 95% confidence interval (CI): 2.1;3.2) than rhinitis at baseline (crude RR=1.8; 95%CI: 1.4;2.2). Adjusted RR for wheeze in relation to rhinitis at baseline was 1.8 (95%CI: 1.2;2.5) for atopic individuals without rhinitis, 2.8 (95%CI: 2.1;3.7) for atopics with rhinitis and 1.2 (95%CI: 0.8;1.8) for nonatopics with rhinitis. However, the RR for individuals with rhinitis at 1st follow-up that were nonatopic throughout was 2.69 (95%CI: 1.6;4.5).

Conclusions. Atopic rhinitis symptoms at age 9-11 were a statistically significant risk factor for wheeze at age 22-24 in contrast to nonatopic rhinitis that only had a statistically significant effect when present at age 16-18.

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- P93 -

OCCULT HEPATITIS B VIRUS AND THE RISK FOR LIVER DISEASE: A META-ANALYSIS

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Introduction. The role of occult hepatitis B virus infection as a cause of liver disease is still debated although many studies have found a higher prevalence of this condition in subjects with liver disease compared to those without. We carried out a meta-analysis of observational studies in order to summarize the existing evidence and assessed quantitatively the association between occult hepatitis B virus and chronic liver disease and hepatocellular carcinoma.

Methods. We searched the available literature on this issue published up to June 2009 using PubMed and EMBASE. We also reviewed references from all retrieved articles. All articles that provided enough information to estimate the liver disease risk associated with occult hepatitis B virus infection were selected. Twenty-five studies were retrieved: 14 cross-sectional studies, 9 cohort studies and 2 case-control studies. The information required to perform the meta-analysis was extracted independently by two investigators. Differences were resolved by consensus.

Results. A total of 2,558 cases and 3,584 subjects without liver disease were included. The summary odds ratio (OR) for liver disease from all studies was 5.6 (95% confidence interval [CI]: 3.5-8.9). The OR was 6.4 (95%CI: 2.9-14.2) for chronic liver disease and 5.6 (95%CI: 3.4-9.3) for hepatocellular carcinoma compared to people without liver disease. The association between occult hepatitis B virus infection and liver disease was still present when subgroup meta-analyses were performed according to hepatitis C virus infection, study design, type of subjects included as controls, sample type (serum or liver) and HBV DNA detection method.

Conclusions. These results indicate a significant association between occult hepatitis B virus infection and liver disease, confirming the hypothesis that HBV may play a pathogenic role even in the occult status.

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- P94 -

OBESEITY AND HYPERTENSION 4 YEARS AFTER DELIVERY IN MOTHERS OF A PORTUGUESE BIRTH COHORT

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Introduction. Pregnancy involves physiological adaptations that may have a long lasting impact on women's health and it constitutes an opportunity for prevention.

Objectives. To describe body mass index (BMI) and blood pressure 4 years after delivery, and to quantify the effect of BMI, weight gain during pregnancy and weight recovery on hypertension.

Methods. In 2005-06, 8,127 pregnant women were recruited in all public hospitals of Porto for a population-based birth cohort study. Within the ongoing cohort's re-evaluation at 4 years, 650 mothers were randomly selected. Usual weight before pregnancy and weight gain were self-reported at birth. At the follow-up, weight, height and blood pressure were measured by trained interviewers. Overweight and obesity were considered as BMI 25.0-29.9 kg/m² and ≥30 kg/m², respectively. Hypertension was defined as blood pressure ≥140/90 mmHg and/or being under antihypertensive therapy. Prevalence ratios (PR) and 95% confidence intervals (95%CI) were computed using robust Poisson regression.

Results. In comparison with pre-pregnancy, women's weight increased on average 7.1%, more in younger ages and with excessive weight gain during pregnancy. The prevalence of overweight and obesity at 4 years was 32.7% (95%CI: 29.1-36.5) and 20.8% (95%CI: 17.7-24.1), respectively. Hypertension affected 8.2% (95%CI: 6.2-10.5) of women, with a mean (SD) systolic and diastolic blood pressure of 106.0(12.9) and 72.4(10.3) mmHg, respectively.

spectively. Hypertension was associated with age (adjusted PR=2.12; 95%CI 1.04-4.33 for ≥ 35 in comparison with 25-29 years), overweight (PR=4.56; 95%CI: 2.27-9.17) and obesity (PR=7.55; 95%CI: 3.70-15.37), and weight increase within 4 years after delivery (PR=2.03; 95%CI: 1.03-3.99 for 5-10% increase).

Conclusions. The prevalence of overweight-obesity was very high. There was substantial weight gain in the 4 years after delivery, already significantly associated with hypertension in young women, independently of BMI, age and gravidity.



- P95 -

POTENTIAL FOR AN ENDOCRINE EFFECT OF ADIPOSITY ON FOREARM BONE MINERAL DENSITY DURING ADOLESCENCE

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Introduction. The controversial endocrine effect of adiposity on bone quality may be strongly confounded by its contribution to mechanical load. Disentangling these components is essential to clarify any specific effect of fat.

Objectives. To compare the magnitude of overall and specific effects of adiposity on forearm bone mineral density (BMD) in 13-year-old girls.

Methods. We evaluated 889 girls born in 1990 and attending schools in Porto, Portugal. Weight was measured using digital scales, and height with a portable stadiometer. Overweight was defined as body mass index at or above the 85th percentile. Bioelectrical impedance was used to assess body composition. BMD (g/cm^2) was measured at the forearm by dual-energy X-ray absorptiometry. Using linear regression, we quantified the associations of BMD with total body weight, fat mass and fat-free mass. To assess the effects of fat and fat-free mass independently of weight (the latter assumed to be minimal), fat mass residuals relative to weight and fat-free mass residuals relative to weight were regressed on BMD. Effect estimates were compared using standardized coefficients.

Results. Mean (standard-deviation, SD) BMD was 0.360 (0.058) g/cm^2 and the prevalence of overweight was 24.4% (95%CI: 21.7;27.3). Weight was positively associated with BMD (30.1 mg/cm^2 per SD, 95%CI: 26.8;33.4), as were each of its two components (fat mass: 29.3 mg/cm^2 , 95%CI: 26.0;32.5; and fat-free mass: 25.2 mg/cm^2 , 95%CI: 21.8;28.6). After weight-adjustment, regression coefficients were -1.91 mg/cm^2 per SD (95%CI: -5.13 ;1.32) for fat-free mass residuals, and 0.95 mg/cm^2 (95%CI: -0.59 ;2.50) for fat mass residuals. The ratio between the standardized effect sizes of weight and fat mass residuals was over 30.

Conclusions. The association between adiposity and BMD was strongly confounded by weight. Our findings argue for a small endocrine effect of adiposity on bone and suggest that most of the observed effect originates from nonspecific mechanical load.



- P96 -

ADHERENCE TO A MEDITERRANEAN DIETARY PATTERN AND RISK OF GESTATIONAL DIABETES IN SPANISH WOMEN

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Introduction. Gestational Diabetes (GD) is the most frequent metabolic disease during pregnancy, and it has important implications for the mother and newborn. The role of a Mediterranean diet as a cause of GD in Spanish women has not been adequately studied.

Objectives. To assess the relation between adherence to a Mediterranean diet and the risk of GD, as well as to evaluate the contribution each of the components of the Mediterranean diet in the risk of GD associated.

Methods. We conducted a population-based case-control study in Granada (Spain). 291 women with incident GD and 1175 healthy pregnant women were selected. The selection criteria were Spanish nationality, age ≥ 18 , and the absence of a chronic disease that involves changes in the usual diet and/or physical activity. The information was obtained from the medical history, the maternity book, and a personal interview. We used Martin-Moreno questionnaire to assess usual dietary intake of the women for the year preceding the current pregnancy. The Trichopoulou index (TI) was used to assess the degree of adherence to the traditional Mediterranean diet. TI ranged from 0 (minimal adherence) to 9 (maximal adherence). Logistic regression was used to estimate odds ratio (OR) and 95% CIs.

Results. Adherence to a Mediterranean diet was inversely associated with GD risk; the OR adjusted was 0.67 (95%CI: 0.44, 1.01) in women with moderate scores (3-4), 0.61 (95%CI: 0.40, 0.95) for 5-6 TI scores, and 0.34 (95%CI: 0.16, 0.72) in women with the highest scores (≥ 7) compared with those with the lowest scores. For individual components, it was observed a protector effect for legumes and fish. The high consumption of meat and poultry increased the risk of GD.

Conclusions. Adherence to a Mediterranean diet decreases the risk of GD. It is necessary to develop preventive strategies to promote Mediterranean diet between young women in childbearing age, so as to reduce the risk of present and future pathologies associated.



- P97 -

TRENDS IN THE PREVALENCE OF DIABETES AMONG HOSPITAL INPATIENTS IN SPAIN 1987-2006

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Introduction. Approximately one quarter of patients admitted to a hospital have diabetes. However the trends in the prevalence of diabetes among inpatients in the last 25 years are not well known.

Objectives. The objective of this study was to assess the trend of

the prevalence of diabetes among Spanish in-patients using a representative sample.

Methods. We used the Spanish National Health Surveys (NHS) of 1987 (n=29,647), 1993 (n=21,061), 1995 (n=6,396), 1997 (n=6,396), 2001 (n=21,067), 2003 (n=21,650), and 2006 (n=29,478), which are representative samples of the adult Spanish general population. Participants were classified as diabetics and/or in-patients if they answered affirmatively to the following questions: "Has your doctor told you that you suffer currently from diabetes?" "Were you hospitalized at least one night in the last 12 months?", respectively.

Results. A significant increasing temporal trend for the prevalence of diabetes among in-patients was found (linear trend test $p < 0.001$). After adjusting for age and sex a significant increasing temporal trend was also observed ($p=0.001$ in a logistic regression model). The age- and sex-adjusted odds ratio (OR) for diabetes for every calendar year was 1.017 (95% Confidence interval: 1.007-1.027). No significant association was found between sex of the patient and prevalence of diabetes ($p=0.66$). However an association between age (years) and prevalence of diabetes among in-patients was found OR 1.047 (1.043-1.051).

Conclusions. The prevalence of diabetes mellitus has increased among in-patients in Spain between 1987 and 2006. Although self-reported data under-estimate the actual prevalence, this does not necessarily invalidate this study about the relative trend of diabetes prevalence among inpatients, because there is no reason to think that accuracy of self-reported data may have changed across surveys.



- P98 -

EARLY DETECTION OF CHRONIC KIDNEY DISEASE AMONG RELATIVES OF END STAGE RENAL DISEASE PATIENTS: AN EPIDEMIOLOGICAL STUDY

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Introduction. Chronic kidney disease (CKD) burden is increasing worldwide. The global challenge over the next decade is to shift the emphasis away from treatment of end stage renal disease (ESRD) to the prevention of CKD. Several studies have reported that relatives of ESRD patients are at high risk for CKD, but little is known about the prevalence of CKD and associated epidemiological characteristics among this group.

Objectives. To early detect CKD among the adult relatives of ESRD patients for estimation of its prevalence, and to study the epidemiological characteristics of the CKD cases found among those relatives.

Methods. A cross sectional study was conducted by voluntary screening of 400 first and second degree adult (18 years or older) relatives of ESRD patients. They were randomly selected from the first and second degree adult relatives of ESRD patients who were first identified from the renal replacement therapy units of the Main University Hospital (pool for all cases firstly diagnosed as ESRD in Alexandria). Age, gender, smoking, sociodemographic, personal and

family histories of diabetes mellitus, hypertension, and CKD data were collected by interviewing the relatives. Blood pressure, weight, height, and serum creatinine were measured. Proteinuria was detected in spot urine samples by dipstick. Glomerular filtration rate was estimated by MDRD equation.

Results. CKD was prevalent among 57% of the studied relatives. Proteinuria (+1 or more) was found among 21%. By univariate analysis; relatives with older age, females, smokers, hypertensive, diabetics, with heavier weights, and those with previous history of kidney problems are more risky to develop CKD. After logistic regression analysis; old age, hypertension, and previous history of kidney problems were the risk factors for CKD among the studied relatives.

Conclusions. CKD is quite prevalent among the relatives of ESRD patients. Screening these individuals might help to prevent the progression to ESRD.

Environmental hazards and health effects

- P99 -

EPIAIR: AN ITALIAN SURVEILLANCE PROGRAM ON AIR POLLUTION EFFECTS FOR THE PERIOD 2001-2010

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Objective. To illustrate the background and the main results of the Italian Air pollution and Health: Epidemiological Surveillance and Primary Prevention - EpiAir project.

Methods. The surveillance system was set up in order to evaluate the short-term health effects of air pollution (period 2001-2005) and it has been subsequently extended for the period 2006-2010 (EpiAir-2). Standard indicators were identified for the health outcomes (daily mortality and hospital admissions) and for the air pollution data (inhalable particulate matter, PM₁₀, nitrogen dioxide, NO₂, and ozone, O₃) in ten Italian cities (Turin, Milan, Mestre, Bologna, Florence, Pisa, Rome, Taranto, Palermo, Cagliari). For each deceased individual, all the hospital admissions during the previous 2 years were retrieved in order to identify possible causes of susceptibility. The statistical analysis adjusted for relevant temporal and meteorological factors using a case-crossover approach. Data on composition of the vehicular fleets in each city were collected together with information on the mobility policies implemented by local administrations in recent years. The EpiAir-2 project will follow the same methodology to evaluate time trends in the effect estimates (analysing also PM_{2.5} data), involving the same cities (Ancona, Bari, Genoa, Naples and Trieste will be included).

Results. Air pollution levels are critical in many urban areas in Italy. We found statistically significant short-term effects of all pollutants for natural, cardiac and respiratory mortality, similar to other European studies. We found relevant effect of PM₁₀ and NO₂ on hospital admissions for cardio-respiratory diseases.

Conclusions. Air pollution, in particular originating from vehicu-

lar traffic, turned out to be a relevant public health problem in Italy. In order to set up a long-term surveillance program (2001-2010), a network of public institutions in the field of environmental control and public health has been set up.



- P100 -

PARTICULATE MATTER FROM A PARTICLE NUMBER COUNTER AND HEALTH EFFECTS IN TURIN, ITALY: PRELIMINARY RESULTS

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Introduction. Epidemiological research has found correlation between exposure to particulate matter (PM) and health effects. Supposing that the total surface of the particles closer correlate with tissue damage, we evaluated the daily PM concentration, usually expressed as a mass, through a measurement of the number of particles.

Objectives. To evaluate the associations between PM levels and acute health effects using innovative monitoring instruments that will allow the fine fraction analysis.

Methods. 7,144 subjects resident in Turin, aged over 35 years and died for natural, cardiac, cerebrovascular and respiratory causes were considered, as well as acute hospital admissions for the same diseases. An optical particle counter was placed over a period of one year in an urban background station in the city of Turin. In this first step, particle masses were calculated from the particle counter data, and expressed as $\mu\text{g}/\text{m}^3$. A case-crossover analysis was applied using a time-stratified approach, controlling for influenza, holidays, population decrease, temperature. Analyses were stratified for gender, age class and season of death/hospitalization. Results are expressed as percent increase in mortality/hospitalization for 10 $\mu\text{g}/\text{m}^3$ PM increase (lag 0-1).

Results. For the mortality, except that for cardiac causes, we observed percent increases always above 0 but never statistically significant, with higher risks for respiratory causes. Among subjects aged 75-84 years, men and in cold season we observed significant effects of PM on cerebrovascular and respiratory mortality. Subjects aged 75-84 years were at risk for hospital admission for cerebrovascular and respiratory diseases.

Conclusions. We analyzed short terms effects for a short period (about 1 year) of available data. The preliminary findings suggest that: a particle counter might be suitable for assessing particulate matter variability; further investigation are necessary for particulate fine fraction.



- P101 -

A CASE-CROSSOVER ANALYSES ON THE EFFECTS OF AIR POLLUTANTS ON HOSPITALIZATION FOR RESPIRATORY AND CARDIOVASCULAR DISEASE, IN MASSA AND CARRARA, TUSCANY, ITALY (2005-2009)

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Introduction. Several studies have reported significant associations between outdoor air pollution and health outcome, such as deaths and hospital admissions for respiratory and cardiovascular diseases.

Objectives. To analyse the short-term effects of air pollutants levels on hospital admissions for respiratory and cardiovascular diseases occurred in Massa-Carrara (Italy) during 2005-2009.

Methods. Hospital admissions for respiratory and cardiovascular diseases, ambient air pollution data (PM10, NO₂, O₃ and CO) and meteorological parameters were collected from July 2005 to December 2009 in the area of Massa-Carrara, northern Tuscany (Italy). A time-stratified case-crossover design was implemented and conditional regression models were fitted, adjusting for meteorological data and a set of time-dependent variables. The associations between exposure and hospitalised events were analysed taking into account different lag patterns in order to evaluate immediate or delayed effects of pollutants. Stratified analyses were conducted to identify more susceptible subgroups.

Results. 7,931 admissions in local hospitals for respiratory diseases and 18,521 for cardiovascular diseases were identified for residents in Massa-Carrara. Respiratory hospital admissions were associated to 0,1 mg/m^3 increase in CO (OR=1.035; 95%CI: 1.017-1.053, lag0), to 10 $\mu\text{g}/\text{m}^3$ PM10 increase during warm season (OR=1.05; 95%CI: 1.01-1.10, lag 4); children (0-14 years) respiratory admissions were associated to NO₂ (OR=1.14; 95%CI: 0.979-1.343, lag1) and to O₃ (OR=1.09; 95%CI: 1.01-1.17, lag3). Cardiovascular admissions were associated to NO₂ (OR=1.029; 95%CI: 1.004-1.056, lag0), to PM10 (OR=1.029; 95%CI: 1.001-1.058, lag1) and to CO (OR=1.035; 95%CI: 1.005-1.067, lag4) during warm season.

Conclusions. This study confirmed the adverse effects of outdoor air pollution on cardiovascular and respiratory health. Elder people and children had higher risks of disease, mainly during warm season.



- P102 -

A NATIONAL SURVEILLANCE SYSTEM FOR THE MONITORING OF THE IMPACT OF ENVIRONMENTAL EXPOSURES ON MORTALITY

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Introduction. Since 2004, a national mortality surveillance system was implemented within the national program for the prevention heat-health effects to monitoring summer mortality in Italian cities.

Objectives. To show the possible applications of real time mortality data to monitoring timely health threats such as heat waves and influenza pandemic.

Methods. Every day, anonymous individual mortality records for the resident population are sent by local Registry Offices. In most cities, mortality counts are complete on average 72 hours providing a high quality database which is readily usable. A city-specific mortality baseline is defined on the basis of long time series of deaths, accounting for month and day of the week. Observed mortality is com-

pared to baseline mortality to calculate excess mortality associated to hazard exposures.

Results. The system is currently ongoing in 34 large Italian cities corresponding to 11,699,255 resident population (20% of Italian population). The impact of high temperature and of heat wave episodes is routinely monitored every summer in 34 cities through the timely identification of mortality peaks associated to temperature increases and mortality excesses are calculated. During winter season 2009 was experimented the use of the surveillance system to monitor the pandemic AH1N1 influenza.

Conclusions. The availability of validated real time mortality data at a national level provide a useful database for the surveillance of emerging health threats and other environmental exposures such as air pollution peaks with an impact on public health. Although other European countries have implemented health surveillance systems, often using a syndromic surveillance system already in place for other purposes, the Italian system is unique in terms of rapidity of sending and population coverage.

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- P103 -

EXPOSURES TO PLANTS AND CLASSIC KAPOSI SARCOMA: A STUDY IN SICILY

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Introduction. Ecologic and in vitro studies suggest that exposures to plants or soil may influence risk of Kaposi sarcoma (KS).

Objectives. We examined whether classic KS risk was related to contact with specific plants on the basis of their postulated biological effects.

Methods. In a population-based study, we analyzed data on lifetime contacts with 20 plants reported by 125 classic KS cases and 936 sex- and age-matched controls. Associations with KS were estimated by logistic regression. Cumulative exposure summed across all plants. Factoring and clustering created agnostic groups. Individual plants in levels (zero, <100, ≥100 exposures) were retained (Ptrend ≤0.15) in stepwise regression.

Results. Adjusted for known risk factors, KS was not related to cumulative exposures to 20 plants, nor was it related to any agnostic factors or clusters. Five plants were retained in the stepwise model. KS was inversely related to silver spurge (per level ORadj 0.45; 95%CI: 0.21-0.94), and weakly to chamomile (per level ORadj 0.62; 95%CI: 0.38-1.02) and gladiolus (per level ORadj 0.70; 95%CI: 0.45-1.09). Conversely, risk was directly related to dandelion (per level ORadj 1.92; 95%CI: 1.10-3.35) and weakly to agave (per level ORadj 1.53; 95%CI: 0.88-2.64). Risk was elevated 5-fold (ORadj 5.15; 95%CI: 1.54-17.27) with ≥100 exposures to agave.

Conclusions. In our analysis the contact of these plants was unrelated to KS. Study of plant extract effects on angiogenesis, herpesvirus replication, and immunity may be warranted.

- P104 -

THE ROLE NEW OF VETERINARY PUBLIC HEALTH SERVICES IN AN EVOLVING EUROPE

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Introduction. Considering that man attitude towards natural environment has been characterized over the past centuries in fear, mistrust, oppression and respect, the Public Veterinary service becomes more and more involved in representing a scientific and reassuring link between man and not-man: animals and linked products, disease etc. The environment is interpreted as a quite spoiled system, which must be somehow preserved from man and animals damage (nitrite and nitrate pollution, water consumption, earth overheating etc.). It is nowadays common knowledge that the true causes of mortality, considered in percentage, in a Western Europe country can be as follows: 10% due to health system, 20% due to genetic origins, 30% due to environmental policies, 40% due to different styles of life. If we pay attention to the different pathologies and the risk factors able to cause them, it will be clear how the epidemiotossicologic environmental activities, aimed at studying the factors able to cause pathologies, can find their reasons of existence. The underlined utility lies then, thanks to "sentinel animals" or "bio-indicators" widely distributed on the territory, in programs of systematic detection of health environment indicators. It is so clear how such activity can be rightly ranked in the competences of the Health Veterinary Services.

Objectives. To detect, with the help of animals as sentinel, environmental pollution and health risk for people.

Methods. Radon and micronucleus in horses: preliminary study on biological effects due to radon exposition in Cervo Valley (Biella Piemonte). Cd, Pb, Cr and wild ungulates. Bees and xenobiotic residuals. Bees and neonicotinoydes. Domestic animals and cancer. Xenobiotic and animal behavior. Since many years we are studying and working at these projects in collaboration with: Università La Sapienza di Roma; Istituto Zooprofilattico Piemonte, Liguria e Valle d'Aosta; Università degli Studi di Torino-Facoltà di Medicina Veterinaria.

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- P105 -

OBJECTIVELY OBSERVED INDOOR MOISTURE DAMAGE AND WHEEZING IN A BIRTH COHORT STUDY ADDED ON THE SIBLINGS, AGED 0-18 YEARS

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Objectives. Moisture damage and visible mold in the home have been associated with respiratory symptoms mostly in cross-sectional studies based on self-reported exposure. We examined this association in a birth cohort of 398 children, and their 488 siblings by using objective moisture damage inspection.

Methods. Building inspection was performed by trained building engineers in the homes of 398 index children at the age of 5 months on average. The index children were followed up with questionnaires from birth to the age of 3 years. When the index children were 3 years old, questionnaires were administered also to their siblings aged 18 years and below. In the analyses, data on index children and their siblings aged less than 6 years were pooled and analyzed separately from data for siblings aged 6 and over.

Results. Among children aged less than 6 years (N=619), doctor-diagnosed wheezing was associated with visible mold in the main living area (adjusted OR (aOR) 2.52, 95% confidence interval (95%CI) 1.07-5.95). Moisture damage in the kitchen increased the risk of parent-reported wheezing ever (aOR 1.96; 95%CI: 1.27-3.03 for minor damage and aOR 1.95; 95%CI: 0.91-4.15 for major damage). In general, stronger associations were observed for doctor-diagnosed and parent-reported wheezing ever, whereas associations with wheezing during last 12 months were weaker. Among older siblings (N=267), the associations between symptoms and the moisture damage in the main living area or in the kitchen were weaker and tended to be protective.

Conclusions. In the present study, exposure to moisture damage and visible mold was associated with adverse respiratory health effects only among children aged less than 6 years, whereas among children aged 6 and above, no or even protective associations were observed. Future follow is needed to confirm the observed associations.

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- P106 -

STUDY ON INDOOR AIR QUALITY IN TUSCAN SCHOOLS

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Introduction. The World Health Organization (WHO) has straightened that indoor air pollution may be an important risk factor for children's health. A study to characterize air quality in Tuscan schools were undertaken in 2006-2010.

Methods. In the first phase of the study a sample of 61 schools was selected. In 3 schoolrooms of each school, measurements of particulate matter (PM 2.5), BTEX (benzene, toluene, ethyl benzene, xylene) and aldehydes (ALD) (formaldehyde and acetaldehyde) were performed in winter and spring (for 24 h). For BTEX and ALD, measurements were performed outdoor (O) and indoor (I), in presence and without children. In the second phase of the study BTEX and ALD were monitored in the personal breathing zone of a sample of children (P) and in their homes (H). PM2.5 were measured

in schools and in H. Qualitative analyses of PM2.5 in the schools were also undertaken. In each of the two phases noise measurements were also performed.

Results. First phase: 360 measurements were available; the mean concentration of PM2.5 is 55,3 µg/m³, standard deviation 42 (median 44 µg/m³), ALD concentration was significantly higher in indoor environment and in presence of children (pP > schools across the measured microenvironments).

Conclusions. The indoor concentration of most BTEX and ALD was higher than in the outdoor concentration. The median concentration of PM2.5 found in school environments deserves more attention.

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- P107 -

A PORTABLE DEVICE WITH A NASAL MASK CAPABLE OF DELIVERING FILTERED AIR TO THE AIRWAYS WITH A SUBMICROMETRIC PARTICLE REMOVAL EFFICIENCY OF ABOUT 90%

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Introduction. Protecting children and respiratory patients from exposure to airborne pollutants is mandatory.

Objectives. To check the efficiency of a portable device designed to deliver filtered air to the airways.

Methods. The device delivers 60 l/min of filtered ambient air to a plastic mask partially covering nose and mouth. In experimental tests filtered air was delivered at 3 cm from the nose of a head model. Particle analyzer sampling point was fixed inside the model nostrils. Number of particles/l was measured with a particle profiler (Model 212, Metone) with a sampling time of 10 seconds. Particle classes sized 0.3-0.5, 0.5-0.7, 0.7-1.0, 1.0-2.0, 2.0-3.0, 3.0-5.0, and 5.0-10 µm were studied.

Results. In four repeated experimental tests mean number (SD) of particles 0.3-0.5 µm was 58,856/l (2546) and 7,321 (613), for background and filtered air, respectively. Overall efficiency rate in the different tests ranged 87.6 to 94.1%.

Conclusions. The efficiency of the device in delivering filtered air to the nose in our experimental setting is promising for testing in the real world, and in a clinical setting.

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- P108 -

A PORTABLE DEVICE CAPABLE OF ENSURING A GOOD AIR QUALITY INSIDE A RAIN COVERED BABY CARRIAGE WITH A PARTICLE REMOVAL EFFICIENCY OF ABOUT 90%

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Introduction. Protecting children from exposure to airborne pollutants along busy roads is mandatory.

Objectives. To check the efficiency of a portable device to deliver filtered air inside a rain covered baby carriage.

Methods. The device is equipped with an air filter capable of delivering filtered air. The device is designed in such a way to be fitted externally to the rear of a baby carriage (internal volume 0.2 m³). It delivers 60 l/min of filtered ambient air via a short pipe inside the carriage. In repeated tests number of particles/l was measured with a particle profiler (Model 212, Metone) with a sampling time of 10 seconds. Particle classes sized 0.3-0.5, 0.5-0.7, 0.7-1.0, 1.0-2.0, 2.0-3.0, 3.0-5.0, and 5.0-10 µm were studied.

Results. In four repeated tests mean number (SD) of particles 0.3-0.5 µm decreased from 63,329/l (5875) to 6,826/l (532), for background and filtered air, respectively, in about 12 minutes, with a half-life of 2 minutes. Overall efficiency rate ranged 89.2% to 98.1% in the different tests.

Conclusions. The efficiency of the device in delivering clean air into a baby carriage in our experimental setting is promising for testing both in the real world, and in a clinical setting.

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- P109 -

HEALTH COMPLAINTS OF THE RESIDENTS NEAR WASTE TREATMENT CENTRES

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Introduction. Waste treatment processes produce biological and odour emissions to the environment but their health effects are controversial.

Objectives. The aim was to assess odour-associated health complaints among residents living near waste treatment centres.

Methods. The study was conducted in 2006 in the surroundings of five large-scale Finnish waste treatment centres with composting plants. Households within 1.5 km, 3.0 km and 5.0 km of these centres were randomly sampled and 1,142 residents were interviewed by telephone. A questionnaire with 102 items contained questions on respondent's background and health complaints (such as respiratory tract symptoms or irritation) during the preceding 12 months. Health complaints were analysed by the distance of the waste treatment centre and by the perception and annoyance of waste treatment odour.

Results. More residents classified as "annoyed of the odour" than others reported the following symptoms: unusual shortness of breath (OR 1.6; 95%CI: 1.1-2.4), eye irritation (OR 1.5; 95%CI: 1.1-2.1), hoarseness/dry throat (OR 1.5; 95%CI: 1.1-2.0), unusual tiredness (OR 1.5; 95%CI: 1.1-2.1), fever/shivering (OR 1.7; 95%CI: 1.1-2.5), joint pain (OR 1.5; 95%CI: 1.1-2.1) and muscular pain (OR 1.5; 95%CI: 1.1-2.0). Moreover, the ORs for almost all other health complaints were elevated among the annoyed.

Conclusions. Annoying odours from the waste treatment centres were associated with health complaints among residents living in the neighbouring areas.

- P110 -

PRELIMINARY ASSESSMENT OF CANCER MORTALITY FOR PEOPLE WHO LIVE IN MUNICIPALITIES CLOSE TO AN INCINERATION PLANT USING DATA FROM THE LOCAL REGISTRY OF CAUSES OF DEATH

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Introduction. One of the main goals of epidemiology in local health units is to evaluate if a risk can be assessed when a reasonable question about specific illnesses arises from the population whose health has to be taken care of under the point of view of prevention. After knowing that a project of expansion and enhancement of the incineration plant in Desio was under study, people that live nearby asked to the Epidemiology Unit of the Local Health Authority (ASL) to define if an increase of death rates for specific neoplasms could be observed, possibly due to an exposition to pollutants since 1976.

Objectives. To evaluate if observed death rates in municipalities close to the incineration plant are higher than predicted for all causes, malignant neoplasms (ICD-9 140-239), soft tissue sarcomas (ICD-9 179) and non Hodgkin lymphomas (ICD-9 200,202).

Methods. We used data since 2002 to 2007 from the local Registry of Causes of Deaths (ReNCaM) and we evaluated crude and standardized death rates; Standardized Mortality Rates (SMR) with 95% Confidence Intervals (95%CI) were calculated for people living in municipalities near the incineration plant. Mortality in each municipality was compared with the one of ASL as a whole.

Results. SMRs for considered death causes were not significantly high. We had a isoconcentration map of the area for pollutants from the chimney at the beginning of the eighties: the maximum concentration area is within two municipalities that do not show significant excess of risk. The only significant excess of risk was found for non Hodgkin lymphomas among females in a municipality that is not in the high concentration area (SMR=2.22; 95%CI: 1.11-3.97).

Conclusions. In absence of a detailed spatial analysis with a better georeferentiation of persons that live around the incineration plant, preliminary examination of routinely available data doesn't apparently reveal an extremely alarming situation regarding evaluated causes of death.

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- P111 -

PRELIMINARY EVALUATION ON THE EXPOSITION TO ATMOSPHERIC POLLUTANTS OF A POPULATION RESIDENT IN THE NEIGHBOURHOOD OF AN INCINERATOR OF SPECIAL WASTE THROUGH BIOLOGICAL MONITORING

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Introduction. Several studies, using human biological monitoring as a tool to evaluate present and past exposures, have been carried out on populations living in the surrounding of incinerators. In Arezzo province a large plant, recovering precious heavy metals for several types of waste, is operating since mid-1970s.

Objectives. To identify the biological markers useful for monitor-

ing human exposure to harmful substances potentially emitted by the plant incinerator.

Methods. Male subjects, voluntarily participating in the study, aged 20-60 years, occupationally not exposed to the substances under study, and resident since at least 5 years in 2 areas (1 in the neighbourhood of the incinerator and 1 in a control area), provided urinary and blood samples to be analyzed in order to obtain blood concentrations of mercury (Hg) and cadmium (Cd), and urinary concentrations of antimony (Sb), silver (Ag), arsenic (As), Cd, cobalt (Co), chromium (Cr), Hg, nickel (Ni), platinum (Pt), 1-hydroxiprene, t-t-muconic acid and creatinine. The normal distribution of data was tested with K-S test. The differences between the two populations were tested with parametric and non parametric tests. The P95 Reference Values (RF) defined by the Italian Association of RF were also considered.

Results. 57 blood and urine samples have been collected (39 in the study area and 18 in the control area). None relevant data have been detected in blood samples. Regarding urinary samples, in the study area, Sb, Cd and Ni concentrations were significantly higher than in the control area (ratios between median concentrations are 2.33 for Sb, 3.23 for Cd and 1.57 for Ni respectively); and Ag was detected only in few urinary samples of subjects of the study area.

Conclusions. These results, despite the small number of urinary samples analyzed, suggest the necessity to carry out the monitoring study on larger samples to better evaluate the impact of the plant's emissions on population exposure.



- P112 -

EXPOSURE ASSESSMENT OF PEOPLE LIVING NEAR INCINERATORS: THE MONITER PROJECT EXPERIENCE

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Introduction. In the Emilia Romagna Region in Northern Italy, a multisite project (MONITER project) is focusing on the environmental and health impacts of 8 municipal solid waste (MSW) incinerators. A crucial point in the evaluation is exposure assessment to pollutants for the population living near the plants.

Objectives. To provide suitable exposure indicators for epidemiological investigation.

Methods. Study areas were defined as the 4 km zones around the 8 MSW plants. Two populations were considered: all newborns resident in the study areas for the period 2003-2006 and a cohort of the population resident in the areas from the 1990's to 31-12-2006. PM10 and NO₂ pollution maps from the incinerators were provided by ADMS dispersion model. We collected yearly maps for the newborn study and maps for different period for the retrospective residence cohort. Changes in the characteristics of the plants were considered. Simulations of pollutants dispersion were also performed for all other pollution sources in the areas (traffic, heating, industries, agriculture), on-

ly for the current. The concentrations maps provided exposure estimates at home location using a G.I.S. system.

Results. A total of 13,251 births were included in the eight areas while the cohorts of residents included about 560,000 inhabitants. We estimated a weighted exposure value for each first trimester and the 9-month pregnancy period. The cohort of residents had two different exposure indices: a mean value related to the residence at enrolment, a cumulative value that considered the whole residential history. For each indicator. An evaluation of the confidence on the assessment procedures and on the data quality were provided.

Conclusions. We defined a geographic information system to provide different exposure indicators for epidemiological analyses. Each proposed indicator present pros and cons. A clear explanation of the confidence about the exposure assessment could help in the epidemiological analyses.



- P113 -

INTEGRATED HEALTH IMPACT ASSESSMENT OF WASTE MANAGEMENT IN LAZIO (ITALY)

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Introduction. The potential health effects of waste management (municipal solid waste, MSW) are controversial, especially when the different aspects of the full chain process are not appreciated and integrated.

Objectives. To assess potential exposures and health impacts from MSW management under a 2008 baseline scenario (BS) and an alternative 2016 green scenario (GS).

Methods. The GS includes decrease in waste production, increase in recycling/composting, clean transportation, and no landfilling without pre-treatment. Pollutants from transport, emissions from incineration, and combustion of landfills biogas were evaluated. Concentrations of specific pollutants (PM10 and NO₂) were modelled using ad hoc GIS models and the ADMS-Urban model. Population-weighted exposure levels were calculated. Cases of specific diseases attributable to waste management and Years of Life Lost (YLL) were estimated for the period 2016-2050.

Results. Under the BS, the waste produced was 3.333 mTons: 0.59 recycled/composed, 1.902 landfilled without pre-treatment, and 0.835 incinerated as Refuse Derived Fuel. Under the GS, waste production decreases of 15% and recycling increases up to 70%. 36,191 people live nearby MSW facilities at the BS and the number decrease to 14,606 under the GS. Compared to BS, up to a 90% decrease is seen in exposure to PM10 and NO₂. The health impact of transport of waste on the population of Rome was estimated in 561 YLL under the BS and 29 YLL under the GS. Cumulative cancer incidence due to incinerators will be 7.5 (BS) and 2.5 (GS) cases, respectively, with 10 YLL under the BS and 9.6 under GS. Cases of low birth weight (cumulative incidence) from landfills will be

8.3 (BS) and 2.8 (GS), respectively. The cumulative incidence of congenital anomalies associated to landfills will be 0.3 (BS) and 0.1 (GS) cases and the total health impact that landfills will have on survival will be 17.9 YLL for BS and 12.4 YLL for GS.

Conclusions. The health impact of waste management is moderate when compared to other potential environmental factors. However, a substantial improvement can be obtained with a sustainable and green waste policy.



- P114 -

HEALTH IMPACT ASSESSMENT OF COLLECTION AND TRANSPORT OF MUNICIPAL SOLID WASTE IN ROME

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Introduction. Management of municipal solid waste (MSW) may entail health effects due to exposure to various pollutants, especially for people living close to the plants. However, little interest has been devoted to the impact of waste collection and transport.

Objectives. To evaluate the health impact of pollutants emitted during collection and transport of MSW in the city of Rome in 2008.

Methods. Waste production for the city of Rome in 2008 (1,666 mTons) was derived from regional statistics and the total volume of produced waste to be managed (1,370mTons) was estimated and divided by the number of Rome residents (2,417,597 inhabitants). The amount of waste to be managed for each census block (13,099 census blocks, CB) was estimated, and the number of trucks needed to collect the waste was calculated. We used data of location of plants operating in 2008 and the TeleAtlas road network. We transferred the information into a GIS system to define the shortest route from each CB to the waste management plants. Each road was cost weighted according to its type (motorways, major and local roads). We estimated the emissions of NO₂ (and PM10) generated by the trucks along the routes and the ADMS-urban model was used to estimate NO₂ (PM10) concentrations. Population-weighted exposure to NO₂ (and PM10) from waste trucks was then estimated and applied to the Rome resident population in a life table analysis to estimate the Years of Life Lost associated to this exposure.

Results. The estimated annual average additional concentration of NO₂ from waste transport in Rome is 0.0199 µg/m³ that corresponds to an estimate population weighted exposure of 0.020 µg/m³. However, an important fraction of the Rome population (about 29000 people) are exposed to additional levels NO₂ between 0.25 and 7.0 µg/m³. We estimate that air pollution from waste transport accounts for 561 Years of Life Lost.

Conclusions. Although the overall health impact of pollution from waste transport is small when compared to the impact of urban traffic, it is a relevant factor that can be reduced with waste reduction and employing a cleaner vehicles fleet.



- P115 -

RESPIRATORY DISEASES IN A TOWN WITH HEAVY PULP AND PAPER INDUSTRY

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Introduction. Pulp and paper mills in Russia are important sources of air pollutants with respiratory system being the main target.

Objectives. To assess health risk of chemical contaminants contained in emissions of the Arkhangelsk pulp and paper mill (APPM) for the population of the town of Novodvinsk (Northwest Russia) as well its association with prevalence of selected diseases.

Methods. Average annual concentrations of 17 chemicals were calculated by modeling with using the standard software for air pollution calculation. The town was divided into three districts by the isolines of calculated concentrations of chemicals. The prevalence of asthma and diseases of upper respiratory tract among population in these areas was obtained from medical files in 2001-2005. One-way ANOVA and chi-square tests were used for statistical analysis. Hazard index (HI) were used to assess the non-cancer health effects. Hazard quotients were calculated as the ratio of a single substance exposure level to a reference concentration for that substance. Hazard index was the sum of all hazard quotients for chemicals affecting on respiratory tract.

Results. The levels of the non-cancer health effects of chemicals of concern were: HI=3.54; 95%CI: 3.34-3.70, HI=2.75; 95%CI: 2.62-2.88 and HI=2.22; 95%CI: 2.13-2.32 for the closest to APPM, middle and remote districts (p <0.001). In the closest district the prevalence of asthma in 0-17 yrs old boys was 30.7%, while in the middle and remote districts it was 19.5% and 14.7%, respectively (p=0.012). The prevalence of asthma in women in the age group of 65+ in the first district was 47.0%, in the second and third districts -21.9% and 15.0%, respectively (p <0.001).

Conclusions. There is higher level of non-cancer effects of chemicals of concern among children and elderly who live near pulp and paper mill. Estimates of non-cancer risks are associated with the prevalence of asthma and upper respiratory tract diseases in Novodvinsk.



- P116 -

MORTALITY STUDY OF SITES CONTAMINATED BY PETRO-CHEMICAL PLANTS AND/OR REFINERIES IN ITALY

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Introduction. The European Environment Agency estimates Oil industry among the main economic activities causing soil contamination. Several thousand contaminated sites are present in Italy, 57 of them being of national concern because of the relevance of pollution documented in qualitative and/or quantitative terms and of potential health impact for resident population. Several of these sites were in-

cluded in SENTIERI project aimed at describing sources of environmental pollution and health status of resident populations using mortality data. In 11 of the analyzed sites petrochemical plants and/or refineries ("petrochemical sites") are listed among pollution sources.

Objectives. To report results of SENTIERI project for petrochemical sites.

Methods. Causes of a priori interest were selected considering the evidence about the adverse health effects for residents in the neighborhood of petrochemical sites. The main focus is on respiratory system, including lung cancer, because of consistent evidence. For leukemia an association is suggested; for non-Hodgkin lymphoma, multiple myeloma, bladder neoplasm, and perinatal conditions associations have been reported. A mortality analysis in the period 1995-2002 was applied calculating Standardised mortality ratios (SMRs), crude and adjusted for a deprivation index (DI) (including unemployment, education, house ownership and overcrowding) for each site having as reference the regional populations.

Results. As an example of results, SMR DI adjusted for the Augusta-Priolo site (Sicily) for lung cancer is 125 in men (90% Confidence Interval: 116-135) and 109 in women (88-133); SMRs for lymphohematopoietic cancers are 106 (91-122) in men and 87 (72-104) in women.

Conclusions. For residents in the neighborhood of petrochemical sites exposure circumstances are complex and varying over-time. These aspects will be adequately considered in future analyses combining different sites.



- P117 -

ASBESTOS FIBER BURDEN OF THE LUNGS IN PATIENTS WITH MESOTHELIOMAS WHO LIVED NEAR CEMENT-ASBESTOS FACTORIES

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Introduction. A large amount of asbestos-related diseases are occurring among ex-workers of two Italian asbestos-cement (AC) factories (Eternit in Casale Monferrato, Alessandria, Piedmont; Fibronit in Bari, Apulia), and, moreover, among the general population of the two areas. The mesothelioma risk has been shown to increase with the proximity of residence to the factory.

Objectives. To provide information on the intensity of exposure to asbestos that has occurred among the members of the general population living around these factories.

Methods. We obtained fresh lung tissue samples from 7 subjects diagnosed with a mesothelioma, who lived in Casale Monferrato or Bari. The lung fibres content was analysed by Scanning Electron Microscopy equipped with X-ray microanalysis (procedures in: Somigliana A, 2008). Life histories were collected during face to face interviews and a description of residences was obtained. An index of asbestos exposure was computed, based on distance of each residence from the AC plants and on duration of stay.

Results. For each subject occupational exposures could be ruled out and none worked at these factories. The mean age of these subjects is younger than the age of mesotheliomas occurring in Italy. The fibre burden ranged from 160,000 to 4,300,000 f/g dry tissue, higher than 1 million in 3 subjects. In 4 cases only amphibole fibres were detected. 1,700,000 f/g dry tissue were observed in a person whose only exposure was living 4 years, in the sixties, 200 metres from the Fibronit plant. Environmental exposures ceased at least dozen of years before the analyses. A positive significant correlation was observed between lung fibre burden and index of exposure intensity.

Conclusions. Estimates of asbestos fibres burden are available for only a few subjects with environmental exposure. More specifically, no data have been published for the population of Casale Monferrato and Bari, and no systematic measurements of fibre concentration in the urban environment have been carried out while the plants were active. Our results corroborate the epidemiological evidence of environmental risks for mesothelioma and suggest that environmental exposure in these areas has been substantial.



- P118 -

ASBESTOS-RELATED MORTALITY IN ITALIAN POLLUTED SITES

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Introduction. Italy has discontinued asbestos mining and processing about twenty years ago. While direct occupational exposure is nowadays confined to asbestos removal workers, in-place occupational exposure and residential exposure due to proximity to former industrial sites or to soil contamination from natural fibres still occur. A number of asbestos-polluted areas have been included among the sites of national interest for environmental remediation.

Objectives. To investigate cause-specific mortality in Italian asbestos polluted sites.

Methods. In the frame of SENTIERI Project, cause-specific mortality (1995-2002) was investigated in 44 sites of national interest for environmental remediation. Five sites were characterized by the presence of asbestos as the only environmental pollutant (Balangero and Emarese, chrysotyle mines, Casale Monferrato, Broni and Bari, three major asbestos-cement manufacturing plants), while one site (Biancavilla) was included because of the naturally occurrence of fluoroedenite, an asbestiform fibre. Six other sites were characterized by the presence of multiple pollutant agents, among which asbestos. Mortality for asbestos-related diseases (pleural, lung, laryngeal and ovarian malignant tumours) was studied in these 12 sites, adjusting for socioeconomic deprivation.

Results. As an example of results, among sites characterized by the presence of asbestiform fibres alone, overall significantly increased SMRs from pleural mesothelioma were observed in Casale Monferrato (SMR 864; 268 obs), Broni (SMR 1383; 35 obs), Bari (SMR 167; 66 obs) and Biancavilla (SMR 481; 10 obs).

Conclusions. Environmental remediation is a long-lasting, complex and costly issue. The availability of epidemiological data, with special emphasis on mesothelioma in non-occupationally exposed

subjects and in younger age groups, may contribute to ranking severity of health impacts in order to set priorities and select the most appropriate interventions.



- P119 -

THE CONTRIBUTION OF CANCER REGISTRIES TO EPIDEMIOLOGICAL INVESTIGATIONS IN POLLUTED SITES: A CASE-STUDY IN THE NAPLES AREA

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Introduction. According to the European Environmental Agency, 250,000 polluted sites have so far been detected in member states. The purpose of epidemiological investigation in polluted sites is to estimate their health impact and to select priorities for environmental remediation. Traditionally, mortality studies have been performed in these contexts. The recent development of spatial and temporal coverage of cancer registries especially in Southern Europe enables the use of cancer incidence data in polluted sites.

Objectives. To present a case-study of the use of data produced by a cancer registry in a site polluted by toxic waste and to draw general conclusions on this approach.

Methods. The spatial distribution of 28 cancer sites was investigated by clustering and regression analyses, the latter based on a Waste Exposure Index estimated at municipality level. The study area is constituted by 35 municipalities served by the Cancer Registry of Campania Region. The study base includes 17,303 cancer cases diagnosed from 1997 through 2005.

Results. Statistically significant clusters were detected in the overall population for cancer of liver (RR 1.64 and 1.70) and lung (RR 1.15), leukemia (RR 1.33) and soft-tissue sarcomas (topographic classification: RR 2.02). A significant trend with Waste Exposure Index was detected for testis cancer (RR 1.18).

Conclusions. The use of cancer incidence data in spatial analyses of polluted sites has three main advantages on the use of mortality data: better diagnostic quality (important e.g. for soft-tissue sarcomas), possibility to study neoplasms showing high survival rates (e.g. testis cancer) and lack of bias due to worse cancer survival rates in areas characterized by socioeconomic deprivation. Integration of cancer incidence data in the epidemiological frame of polluted sites is warranted.



- P120 -

CANCER INCIDENCE AND MORTALITY NEAR A NUCLEAR POWER PLANT IN LATINA, ITALY

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Introduction. Several concerns have been raised of possible health impacts due to a decommissioned Nuclear Power Plant (NPP) active in Borgo Sabotino (Latina, Italy) during the period 1961-1986. Leukaemia, brain, thyroid, breast and lung cancer have been associated with exposure to ionizing radiations and radionuclides but the health effects on the resident populations are controversial.

Objectives. To evaluate whether living close to a NPP is associated with an increased risk of cancer incidence and mortality.

Methods. We defined a cohort of residents within 7 km from the NPP during the period 1996-2007. Individual follow-up for vital status was done with the municipality of residence, a record linkage with the local Cancer Registry allowed to ascertain cancer incidence. Gender specific Standardized Incidence and Mortality Ratios, adjusted for age, were calculated (SIR and SMR). Each participant's address was assigned to a distance from the NPP on the basis of a GIS. A relative risk (RR, 95%CI) adjusted for age and socioeconomic status was calculated in 4 bands of increasing radius from the plant: 0-1, 1-2, 2-4, and 4-7 Km (reference group).

Results. The cohort consisted of 29,498 people, 25% of whom lived near (0-4 km) the NPP (1,137 lived in 0-1 km). Total cancer mortality among males (SMR=1.13) and thyroid (SIR=1.54) and lung cancer (SIR=1.64) incidence among females were higher than expected within 7 km from the NPP. However, when the analysis was conducted on the basis of the distance from the NPP, we found that male lung cancer mortality was in excess in the 1-2 Km circular zone (RR=1.70; 95%CI:1.04-2.78) and that breast cancer mortality among females was increased in the 0-1 km zone (RR=3.58; 95%CI: 1.12-11.5). Breast cancer incidence (0-1 km) was in excess but without statistical significance while no other distance-related gradient was observed for cancer incidence.

Conclusions. Living close to the NPP is associated with increase mortality for some cancer forms although no consistent gradient of the risk with distance was observed for cancer incidence.



- P121 -

HEALTH BENEFITS FROM TRAFFIC POLICIES (2001-2005) IN ROME

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Introduction. The health effects of traffic-related air pollution are well-known. Local councils usually attempt transport policy interventions including congestion charges, environmental zoning for limiting traffic of polluting vehicles, monetary subsidies to accelerate replacement of old cars, and measures to promote public transport and cycling. However, the studies that assess the effects of traffic policies are still limited.

Objectives. To evaluate the impact, in terms of air quality and

health effects, of environmental zoning policies implemented by the local council in Rome in the period 2001-2005 to reduce traffic-related air pollution (traffic limited zone, railways ring). To examine whether such impacts were different by socioeconomic position (SEP).

Methods. We evaluated the effects of the policy intervention on various stages in the full chain model, that is: pressures (number and age distribution of cars; number of km driven), emissions, PM₁₀ and NO₂ air-concentrations, population exposure to PM₁₀ and NO₂ by SEP of the residents, and years of life gained.

Results. As a result of the policy between 2001 and 2005, the total number of cars slightly decreased (-3.8%), NO₂ and PM₁₀ emissions and concentrations decreased in the zones of the policy, as well as population exposure (from 22.9 to 17.4 µg/m³ for NO₂ and from 7.8 to 6.2 µg/m³ for PM₁₀). The impact of the policy was high in the environmental zoning areas (-4.13 and -2.99 µg/m³ when considering NO₂, and -0.70 and -0.47 µg/m³ when considering PM₁₀). Residents living along busy roads in the zones gained a total of 2,437 years of life, and most of the gain was obtained from people of the highest SEP groups.

Conclusions. The traffic policy in Rome was effective in reducing traffic-related air pollution, but given the spatial distribution of SEP, most of the health gain was for well-off residents.



- P122 -

TRAFFIC AIR POLLUTION AND OXIDIZED LDL

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Objectives. Epidemiologic studies indirectly suggest that air pollution accelerates atherosclerosis. We hypothesized that individual exposure to particulate matter (PM) derived from fossil fuel would correlate with plasma concentrations of oxidized low-density lipoprotein (LDL), taken as a marker of atherosclerosis. We tested this hypothesis in a susceptible population of patients with diabetes.

Methods & Results. In a cross-sectional study of non-smoking adult outpatients with diabetes we assessed individual chronic exposure to PM by measuring the area occupied by carbon in airway macrophages, collected by sputum induction and by determining the distance from the patient's residence to a major road, through geocoding. These exposure indices were regressed against plasma concentrations of oxidized LDL, von Willebrand factor and plasminogen activator inhibitor 1 (PAI-1). We could assess the carbon load of airway macrophages in 79 subjects (58%). Each doubling in the distance of residence from major roads was associated with a 0.027 µm² decrease (95% confidence interval (CI): -0.048 ; -0.0051) in the carbon load of airway macrophages. Independently from other covariates, we found that each increase of 0.25 µm² [interquartile range (IQR)] in carbon load was associated with an increase of 7.1 U/L (95%CI: 1.5 ; 12.7) in plasma oxidized LDL.

Each doubling in distance of residence from major roads was associated with a decrease of -3.1 U/L (95%CI: -5.3 ; -0.93) in oxidized LDL.

Conclusions. The observed positive association, in a susceptible group of the general population, between plasma oxidized LDL levels and either the carbon load of airway macrophages or the proximity of the subject's residence to busy roads is compatible with a proatherogenic effect of traffic air pollution.



- P123 -

BLACK CARBON MEASUREMENT IS EFFECTIVE IN DETECTING THE BENEFITS OF TRAFFIC RESTRICTION POLICY ON OUTDOOR AIR QUALITY. THE FIELD STUDY OF ECOPASS AREA IN MILAN, ITALY

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Introduction. The impact on air pollution of the traffic restriction scheme in Milan "Ecopass" is questionable. Ecopass, allowing only low-emission cars enter the city center without paying a charge, was implemented in 2008 with expectations of a 30% decrease in particulate matter (PM₁₀) levels. However, a field study conducted in 2009 showed no PM reductions in the city center, in spite of an objective decrease in vehicular traffic. Aerosolized black carbon (BC) is a primary product of incomplete combustion and could be a better indicator of local air quality improvement than PM₁₀, which is more representative of background pollution.

Objectives. To study BC in assessing Ecopass impact on air quality compared to PM.

Methods. We measured BC and PM levels on the sidewalks of a radial metropolitan road characterized by three different traffic schemes: an outer segment without traffic restrictions, an intermediate one subject to Ecopass, and an inner pedestrian zone. BC was measured with a handheld analyzer (microAeth® Aethalometer AE51, Magee Scientific, USA), while PM was measured with a laser-operated particle analyzer (Aerocet 531, Metone, USA).

Results. PM levels were quite stable, with a mean (SD) of 20.6 (3.2), 19.6 (2.2), and 21.2 (2.4) µg/m³ for PM₁, of 26.5 (4.6), 24.2 (2.7) and 25.4 (2.7) µg/m³ for PM_{2.5}, and of 69.0 (18.8), 54.5 (6.9), and 52.0 (7.1) µg/m³ for PM₁₀, respectively for no-restriction, Ecopass, and pedestrian zone (significant only no-restriction/pedestrian zone for PM₁₀). On the contrary, BC levels showed a progressive reduction moving towards the least polluted area, with 12.2 (4.6), 6.9 (1.5), and 3.0 (0.6) µg/m³ for no-restriction, Ecopass and pedestrian zone, respectively (p < 0.0001 for each comparison). BC/PM_{2.5} ratios were also distinctive for each area, being 46.2 (5.2), 28.4 (2.1) and 11.7 (1.2) respectively (P < 0.001).

Conclusions. BC is more suitable than PM in detecting the impact of traffic restrictions on air quality.



- P124 -

HEAT-RELATED MORTALITY IN THE FLORENTINE AREA (ITALY) BEFORE, DURING AND AFTER THE EXCEPTIONAL 2003 HEAT WAVE IN EUROPE: AN IMPROVED PUBLIC HEALTH RESPONSE?Morabito M,¹ Profili F,² Crisci A,³ Francesconi P,² Gensini GF,⁴ Orlandini S¹¹Interdepartmental Centre of Bioclimatology, University of Florence, Italy;²Observatory of Epidemiology, Regional Health Agency of Tuscany, Italy;³Institute of Biometeorology, National Research Council, Italy; ⁴Clinica Medica and Cardiologia, University of Florence, Italy

Introduction. Previous studies have shown that timely preventive measures can reduce heat-related excess mortality. It is plausible that following the devastating 2003 heat wave, in Italy the heat-related mortality risk might be reduced as a consequence of preventive measures.

Objectives. The aim of the present study was to detect the eventual modification of the heat-related mortality risk of older adults (≥ 65 years) living in the Florentine area (Tuscany), comparing the four previous and subsequent years respect to the summer 2003 and therefore before and after the set-up of a Regional heat warning system.

Methods. Mortality data (non traumatic causes) of people ≥ 65 was provided by the Mortality Registry of Tuscany Region during the warmest period of the year (May-September) from 1999 to 2007 ($n=21,092$). Two sources of weather data, from reanalysis and meteorological stations, were used to assess daily average values of apparent temperatures. Generalized additive model, breakpoints detection (critical AT thresholds) and case-crossover design, were applied to investigate the heat-related mortality risk in the total sample, in subjects aged 65-74 and in elderly aged ≥ 75 .

Results. No heat-related relationships were observed in subjects aged 65-74. On the other hand this relationship was particularly evident in the elderly people aged ≥ 75 . There is a decrease of the effect of maximum temperature on mortality, but the differences between pre and post 2003 periods aren't statistically significant.

Conclusions. The set-up of the specific Regional heat plan implemented in the regional project named "Active Surveillance of the Elderly Frail" may have produced a downward trend in the association between maximum apparent temperature and mortality, though the observed differences are not statistically significant.



- P125 -

A MULTILEVEL MODEL APPROACH TO ESTIMATE THE EFFECT OF HIGH TEMPERATURE ON MORTALITY IN A GROUP OF ITALIAN CITIES, BEFORE AND AFTER THE IMPLEMENTATION OF THE NATIONAL HEAT HEALTH WARNING SYSTEMSchifano P, Leone M, D'Ippoliti D, Bargagli A, De Donato F, Michelozzi P
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Introduction. The 2003 heat wave started a period of major attention to the effect of high temperature on health in Europe. In many countries, including Italy, national prevention programs have been implemented.

Objectives. To evaluate variations in the impact of temperature increase on summer mortality among elders, before and after 2003 in the Italian cities that activated Heat Health Warning Systems (HHWWS).

Methods. We analyzed 12 cities (including 1,546,356 subjects 65+) with an active HHWWS at summer 2004 and for which temperature and mortality series were complete and available. Studied years are 1996 to 2002 for the period preceding the HHWWS implementation and 2004 to 2009 for the subsequent period. Exposure has been measured using maximum apparent temperature (tappmax), at lag 0-3, centered on a city specific temperature threshold. Outcome is the number of deaths per day, all causes, among subjects 65+ years old. We used a multilevel model with a Poisson link function, taking into account both intra-city correlation and intra-season correlation, adjusted by season, month and day of the week.

Results. The overall relative risk of dying associated to the increase of one degree of tappmax over the threshold is 1.027 (95%CI: 1.025-1.029) in the first period and 1.021 (95%CI: 1.018-1.025) in the second. The corresponding overall percentage of deaths attributable to the increase of temperature over the threshold in the 1996-2002 and 2004-2009 summer periods is 6.8% and 5.4% respectively. This would have corresponded respectively to 1143 and 908 attributable deaths in summer 2009 for the considered cities.

Conclusions. The impact of temperature on mortality decreases slightly over time, with an important reduction in the number of deaths attributable to heat in the summer period. The multilevel model allows to give an overall estimate of the effect of temperature on mortality, including information from all available cities and can be an alternative to meta-analysis.



- P126 -

A TIME-SERIES ANALYSIS OF AMBULANCE RESPONSE CALLS AND APPARENT TEMPERATURE IN EMILIA-ROMAGNA, ITALYAlessandrini E,¹ Scotto F,¹ Zauli Sajani S,¹ Marchesi S,¹ Miglio R,² Lauriola P¹¹Centro Tematico Regionale Ambiente e Salute, ARPA Emilia-Romagna, Italy;²Dipartimento di Statistica, Università di Bologna, Italy

Introduction. Increase in mortality associated with extreme summer bioclimatic conditions has been widely documented in several epidemiological studies. A key issue in order to properly understand the public health significance of heat-related health effects and to efficiently build up surveillance systems is to investigate the impact of bioclimatic discomfort conditions on non-fatal events.

Objectives. The objective of our study was to evaluate concentration-response curve of ambulance dispatch data in relation to bioclimatic conditions by using time series techniques similar to those used in previous studies on mortality. The study could benefit of a regional database of Emergency Ambulance Dispatch (EAD) in Emilia-Romagna (Italy).

Methods. Daily data of EAD during the summer periods from 2003 to 2005 were collected for the chief towns of Emilia-Romagna. At first, the city specific relationship between daily EAD and Apparent Temperature (AT), was explored using Generalized Additive

Models controlling for air pollution, seasonality, long-term trend, holidays and week-ends. The relationship between EAD and AT was approximated with linear splines. The effects of high temperature on health was evaluated for respiratory, cardiovascular, and all non-traumatic events. In the second stage, city-specific effects were combined in fixed and random effects meta-analysis.

Results. The percent changes in all-age EAD associated with a 1°C increase of mean AT between 25°C and 30°C were 1.59 (95%CI: 1.15-2.03) for natural and 1.92 (95%CI: 0.58-3.28) for respiratory diseases. The percent rise in risk was greater for people aged +75 on days in which the mean AT exceeds 30°C, with percent increases of about 10% for natural EAD.

Conclusions. Time series analysis techniques have been adopted for the first time to analyse EAD data to evaluate risks associated to bioclimatic discomfort. Our findings showed a strong relation between ambulance dispatches and bioclimatic conditions.



- P127 -

PREVENTION OF HEAT HEALTH EFFECTS: THE ACTIVE SURVEILLANCE OF HIGH RISK INDIVIDUALS BY GPS IN ROME

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Introduction. Since 2006, a programme for the prevention of the heat-health effects has been implemented in Rome. The programme is based on the identification of high risk individuals (susceptible), a real time mortality monitoring system and the active surveillance of susceptible patients by General Practitioners (GPs).

Objectives. To evaluate the impact of GPs active surveillance on summer mortality among elderly residing in Rome for the period 2007-2009.

Methods. Socio-demographic and health data drawn from current surveillance systems was used to define an indicator of susceptibility to heat. Residents aged ≥65 years were classified in four groups at increasing risk of dying during heat waves (risk level from 1 to 4). A Poisson regression model was applied to estimate the Relative Risk of dying during heat wave days among subjects included/not included in the active surveillance stratified by risk level.

Results. GP participation in the program was low throughout the time period considered (from 9% to 35% in different areas) as well as the rate of inclusion in the active surveillance of patients classified at high risk according to the susceptibility indicator (about 16%). Considering high risk subjects (level 3-4), in 2007 and 2008 an excess mortality during heat-waves was observed among those not included in the programme (+32% and +24% respectively), whereas no excess was observed among patients under surveillance. In summer 2009, the excess risk observed was +25% and +24% in the two groups indicating no reduction in mortality among patients under surveillance.

Conclusions. The active surveillance of susceptible patients by GPs represents an innovative intervention for the prevention of the heat-health effect. The effectiveness of the programme in reducing heat mortality among high risk subjects shows differences over time. The evaluation of the active surveillance in the three years will be dis-

cussed considering specific characteristics of both the programme and subjects included.



- P128 -

SHORT TERM EFFECT OF HIGH TEMPERATURES ON MORTALITY IN MEDITERRANEAN CITIES: RESULTS FROM THE CIRCE PROJECT

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Introduction. Climate change predictions estimate an increase in temperatures and extreme events especially in the Mediterranean area. The impact of high temperatures on mortality in European cities are well known, while the effect in urban areas of North Africa and the Middle East are to date limited. This study, carried out within the CIRCE EU Project, aims to assess the impact of extreme temperatures on mortality in 10 Mediterranean cities (Athens, Bari, Barcelona, Istanbul, Lisbon, Palermo, Rome, Tel Aviv, Tunis and Valencia).

Objectives. The analysis allows the comparison of the effect among the more temperate European and drier north African and Middle Eastern areas of the Mediterranean.

Methods. Maximum apparent temperature (Tappmax) was chosen as exposure variable to estimate the impact on total mortality (by age groups) during summer. The segmented regression approach was used to identify city-specific threshold values of Tappmax, corresponding to the minimum mortality rate. A time-series approach was used to estimate the percent increase in mortality for 1°C increase in Tappmax above the city-specific threshold.

Results. Great heterogeneity among cities was observed in the exposure and in the threshold values, ranging from 25°C in Lisbon to 36°C in Tunis. The Tappmax-mortality relationship showed a J-shaped curve in most cities, with a significant impact of high temperatures on mortality above the threshold, but in the hottest cities as Tel Aviv, Tunis and Valencia the relationship was weaker. In most cities the greatest impact of high temperatures on mortality was found in the 65+ age group, ranging from +1.71% in Tel Aviv to +6.15% in Rome; while in the 0-64 age group the impact was higher in Lisbon (+9.21%) and Tel Aviv (+3.60%).

Conclusions. The impact of high temperatures on mortality was heterogeneous among the Mediterranean cities, although the greatest impact on mortality wasn't in the hottest cities, suggesting local population adaptation to heat.



- P129 -

HUMAN HEALTH IMPACTS OF CLIMATE CHANGE IN PORTUGAL: TEMPERATURE HEALTH EFFECTS

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Introduction. The observation that major causes of ill health exhibit distinct seasonal patterns suggests a priori that weather and/or climate influence their distribution and incidence. However, the interlinkages between climate change and human health are complex and location specific. Preventing additional morbidity and mortality from climate variability requires an understanding of local vulnerability to climate change health impacts.

Objectives. In this study we investigated the potential impact of climate change in Lisbon and Oporto on heat-related health effects. The study used climate scenarios from two regional climate models for a range of future time period.

Methods. For each city, generalized estimating equations approach was applied to model the relationship between temperature and daily mortality for all-causes, cardiovascular and respiratory diseases by age group, in the warm season. The possible future trends in heat-stress were explored based on future climate scenarios.

Results. For 1°C increase in maximum temperature above the city-specific threshold, all-cause mortality increased by 5.6% (95%CI: 4.6-6.6) in Lisbon and 3.0% (95%CI: 2.0-3.9) in Oporto respectively. In both cities, stronger associations were found for respiratory diseases and the elderly group was the most vulnerable. All the future climate scenarios used indicate significant increases in days with maximum temperatures above the city-specific threshold, so the risk of dying from heatstress will increase in the future.

Conclusions. Heatstress exposure health effects will remain important determinants of health in Portugal under climate change. Research needs include estimating exposure to temperature extremes, evaluation of efficacy of adaptation measures and improving effectiveness of plans to reduce exposure of population to climate risks.

- ◆ -

- P130 -

DEFINITION OF THE URBAN HEAT ISLAND IN ROME AND POSSIBLE USE IN THE EVALUATION OF THE IMPACT OF HEAT WAVES ON MORTALITY WITHIN THE CITY

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Introduction. Ambient temperatures vary considerably within cities and this phenomenon is typically known as urban heat island (UHI). High temperatures have an impact on health but few studies have addressed the heterogeneity of the impact on mortality within urban areas.

Objectives. The objective of the present study was to define the UHI in Rome using satellite data and ambient temperatures during summer. The UHI indicator can be used to assess the spatial variation in the impact of heat on health within the urban area of Rome.

Methods. AATSR satellite data for the period 2003-2006 were used to define the UHI during summer. The urban area of Rome covers about 300 km² and within this area the spatial resolution of our UHI indicator was of 1 km by 1 km. Cloud-free days were derived combining satellite data and cloud cover observations. A regression model was developed to derive air temperatures from land surface temperatures (LST) for all the urban area and UHI inten-

sity was calculated as difference between rural and urban values of evening temperature.

Results. The urban heat island phenomenon identified in Rome was similar in all the 60 cloud-free days considered, thus suggesting the robustness of our UHI indicator. The warmest areas in the urban core extending to the east of the city, with LST values on average +2-3°C higher than the rural area. When considering vegetated areas within the city, the UHI indicator accurately discriminated these cooler areas. This indicator is used to analyze the differential impact of heat on mortality during heat waves in Rome the period 2003-2006. Mortality and socio-economic status data, by census tract of residence, are considered to identify "hotspot areas" which are more at risk during heat waves because of the UHI effect.

Conclusions. Results from this analysis can be used in public health to intensify prevention measures in areas most at risk from environmental exposures such as heat waves or air pollution episodes.

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- P131 -

QUALITY OF WATER SUPPLY AND EXTRINSIC DENTAL COLOR

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Introduction. Changes in tooth color is a common esthetic problem in patients exposed to certain extrinsic or intrinsic factors. Among the extrinsic factors the heavy metals deserve highlighting.

Objectives. Verify if there is association between the water consumed by residents of the county of Caapiranga-AM and the presence of tooth color change.

Methods. This is a cross-sectional descriptive study. The calculated sample size (n=350) was based on the prevalence of the phenomenon would be the maximum possible (50%) in a county not to exceed 100,000 people. Residents were examined by a Dental-Surgeon from the Family Health Program staff in regular home visits. The clinical examination was carried out with a wood spatula under natural light. The water samples were collected in resistant plastic bottles. There were 3 collections in each well, with minimum volume of water (500 ml) to perform the analysis and then assess all metals of the study. There were 30 collections, since 10 wells were analyzed. The analyzed metals were: Aluminum, Antimony, Arsenic, Cadmium, Lead, Copper, Cobalt, Chromium, Iron, Magnesium, Mercury, Nickel, Selenium and Zinc. Descriptive statistics were used and the measure of odds ratio (OR) for association checking.

Results. It was found that the only metal in excess was Iron (0.4 to 4.3 mg/L) in water samples and 16.9% of staining in the teeth of residents of this sample (n=332). There was an association between the staining and the presence of iron in the supply water (p=0.015) presenting OR=2.16 (1.10 < OR < 4.23).

Conclusions. The quality of the water supply in some points of the county of Caapiranga was in disagreement with the tolerable level for the presence of iron in water (0.33 mgFe/L). As for the

other metal the levels were within the limits of tolerance. It is suggested that teeth stains needs further studies because they can be an important indicator of the presence of iron and/or other metals in the water.



- P132 -

POOLED ANALYSIS ON BULKY DNA ADDUCTS IN HEALTHY SUBJECTS

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Introduction. Bulky DNA adducts are markers of exposure to genotoxic aromatic compounds, which reflect an individual ability to metabolically activate carcinogens and to repair DNA damage. Human studies have shown a dose-response relationship between occupational exposure to Polycyclic aromatic hydrocarbons and levels of DNA adducts in lymphocytes of workers. Smoking, diet, body mass index (BMI), genetic polymorphisms, the season of collection of biologic material, and air pollutants have been reported in literature to be related to DNA adduct levels, with conflicting results. It is still insufficiently clear which factors contribute to the large inter-individual variation in DNA adduct levels that is observed, even when people are apparently exposed to similar doses of genotoxins.

Objectives. The objective of this study is to validate or refute previous findings in a sufficiently powered dataset.

Methods. We pooled eleven studies, with a total of more than 3,600 subjects. Bulky DNA adducts were measured in all subjects in human white blood cells with similar 32P-postlabelling techniques. For each subject we had a similar set of variables, including individual data and a limited set of gene variants. We measured differences in DNA adducts using non-parametric Kruskal-Wallis and Wilcoxon tests and using multivariate linear regression models.

Results. Seasonality (with lower level in spring) and smoking (with higher levels in never smokers) were significantly associated with DNA adducts, $p=0.006$ and 0.0003 , respectively. The same pattern emerged in multivariate analysis. The R^2 , that measure the variance explained by the model, was very small for all models presented.

Conclusions. In this large pooled analysis, we have found only weak associations between bulky DNA adducts and exposure variables. Seasonality and air pollution may partly explain some of the differences, but most inter-area and inter-individual variation in adduct levels still remain unexplained.



- P133 -

COMPARISON OF THE RESPONSES TO QUESTIONNAIRES USED IN TWO HUMAN BIOMONITORING STUDIES IN ITALY

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Introduzione. Human Biomonitoring (HBM) has been recognized as a critical field of research due to several elements: the emotional implication of the donors, the high degree of uncertainty regarding the interpretation of HBM results, the consequences in term of ethics and communication. Two HBM studies carried out in Italy during the last two years used a questionnaire to collect the information useful for laboratory data interpretation, including a qualitative section exploring risk perception, information sources, and trust.

Obiettivi. The comparison of questionnaire responses in two high risk areas can be used to test the tool, to confirm its capacity to complement research through qualitative insights, to evaluate risk perception, awareness and knowledge about the environment.

Metodi. The results of the 310 questionnaires administered in Gela area, Sicily, and 860 questionnaires administered in 16 Municipalities in Campania Region were compared. A Risk Perception Index was applied. To compare the awareness of the environmental situation in the living area and of the risk of illness, proportions of responses were compared.

Risultati. As for risk perception, the alarm in Gela is higher than in Campania, it is diffused and linked not only to industries but also to natural risks. As for information, 65% in Gela versus 35% refer to be not sufficiently informed about the hazards in the residence area. About the state of the environment, the belief that the situation can be improved results lower in Gela (61% vs. 70%). As for the risk of illness, most of the people are aware of being sick for several pathologies in both areas.

Conclusioni. The differences between two areas can be explained considering the different pollution patterns and exposure, and the people knowledge. Those elements contribute to tailor communication, and to complement the interpretation and discussion of results among the experts preparing results delivery and recommendations to decision makers.

Inequalities, vulnerable groups

- P134 -

THE RELATIVE "POVERTY" OF THE EEC-27

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Introduction. Poverty levels are the most utilized index in evaluating inequalities in a country. The "Gini" index (index of social inequality in a society, scale 0-100) demonstrates that The Czech Republic and Portugal are at the countries with the least and most inequality (24.4 and 38.5 respectively).

Objectives. To evaluate the relative percent of poverty in the 27 countries constituting the EEC.

Methods. The Eurostat (EEC poverty report for 2010) defines poverty as earnings below 60% of the median earning of a country. Multidimensional poverty is a term applied to all individuals whose material, cultural and social resources are limited to the point of denying them the minimal standard of living in the community in which they reside (European Council, 1975). The current work, takes into account the data relating to the poverty level in the 27 member countries of the EEC. Total population size is 497 million. Average pro-capita earnings: \$29,227. Range (high-low): Luxembourg \$78,723-Romania \$11,755.

Results. Eighty-two million people (16.6%) in the EEC-27 are below the poverty level. In the EEC-15, 64 million people (16%) are considered "poor". In the 10 countries which joined the EEC in 2004, 11 million people (15%) live below the poverty level while in 2007 this number for Romania and Bulgaria is 7 million (23%). Countries with a poverty level between 16% and 24%: Romania 24.5%, Bulgaria 22%, Latvia 21%, Greece 20.5%, Spain 20%, Estonia 19.5%, Italy 19.5%, U.K. 19%, Lithuania 19%, Portugal 18%, Ireland 17.5%, Poland 17.5%. Countries with a poverty level between 9% and 16%: Cyprus 15.5%, Germany 15%, Belgium 15%, Malta 14.5%, Luxembourg 13.5%, France 13%, Austria 12%, Hungary 12%, Denmark 11.5%, Slovenia 11.5%, Finland 11%, Sweden 11%, Netherlands 10.5%, Slovakia 10.5%, Check Republic 9.5%.

Conclusions. The highest poverty level is in Romania, the lowest in the Check republic.



- P135 -

RELATIVE "POVERTY" OF THE MINORS IN THE EUROPEAN COMMUNITY (EEC-27)

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Introduction. Poverty should not be intended only as a limited income, but also as a state which socially discriminates and reduces personal liberties.

Objectives. To evaluate the relative poverty (%) of the minors in the 27 countries of the EEC.

Methods. The relative poverty level is defined by a level of income below 60% of the median earnings for a country (Eurostat). In the present study, data has been elaborated on minor (0-17) poverty levels in EEC-27. Minor population: EEC-27=97 million; EEC-15=76 million; 10 new countries=16 million; Romania and Bulgaria=5.6 million.

Results. In the EEC-27, 19 million minors (19.7%) are poor while in the EEC-15 this number is 14 million (19%); 3 million are resident in the 10 member countries which joined the EEC in 2004 (21% of the minor population of these 10 countries); 1.8 million (32%) reside in Romania and Bulgaria which joined in EEC in 2007. Countries with a poverty rate between 20% and 33%: Romania 33%, Bulgaria 30%, Italy 24%, Spain 23%, Greece, UK and Poland 23%, Lithuania 22%, Latvia and Portugal 21%, Luxembourg 20%. Countries with a poverty rate between 10% and 19%: Hungary, Malta and Ireland 19%,

Estonia 18%, Slovakia and Belgium 17%, France & Check republic 16%, Austria 15%, Germany and the Netherlands 14%, Cyprus 12%, Finland, Sweden and Slovenia 11%, Denmark 10%.

Conclusions. The rate (19.7%) of relative poverty of minors in the EEC-27 is greater than the overall population only in Finland (11.1%) and in Slovenia (11%) while it is lower in Germany (14%), Denmark (10%) Cyprus (12%) and Estonia (18%). It is higher with respect to the EEC-15 (19% vs. 16%) and to the 10 countries which joined the EEC in 2004 (21% vs 15%) and to Romania and Bulgaria (32% vs. 24%). The highest rate of poverty among minors is in Romania while the lowest is in Denmark.



- P136 -

INCIDENCE OF CORONARY HEART DISEASE: A MATTER OF GEOGRAPHIC COORDINATES? A SYSTEMATIC REVIEW OF STUDIES ON THE INTERNATIONAL AND INTRA-NATIONAL SPATIAL VARIATION OF CORONARY HEART DISEASE INCIDENCE

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Introduction. Coronary heart disease is the first cause of death worldwide. Besides the well-known temporal variation of CHD mortality and incidence, dozens of studies have been reporting geographical patterns, namely East-West or North-South gradients or spatial clustering. Investigators hypothesized that they emerged from an unequal distribution of classic risk factors but the results are not conclusive.

Objectives. The aim of the review is to compile and discuss the published findings about geographic patterns of CHD incidence.

Methods. Between October and December 2009, it was conducted a systematic review on three bibliographic and citation databases, Pubmed, ISI-Web Of Knowledge and LILACS using the following expression: (coronary heart disease OR ischemic heart disease OR ischaemic heart disease OR angina or myocardial infarction) AND (incidence OR admission* OR discharge* OR hospitalization* OR hospitalisation) AND (geography OR geographical OR geographic OR spatial). 423 studies were found, 33 were included in the review.

Results. In Europe, a North-South gradient is predominant, that is, CHD incidence rates seem to increase with increasing latitude, with exceptions of Spain and Belgium whose rates are higher in the southern regions. In North America, a West-East increasing trend is seen. The leading European North-South decreasing gradient is also documented in China. These geographic gradients were attributed to regional differences in blood lipids and fat intake, other classic risk factors distribution and in water hardness.

Conclusions. Several studies had reported strong geographic patterns in CHD incidence, but no unambiguous explanation for international and intra-national differences was yet found. For a better understanding, studies should embrace other continents and countries and it is also important to investigate in what extent the discrepancies in incidence rates could be due to differences in diagnostic patterns or death certification.

- P137 -**INEQUALITIES IN THE PREVALENCE OF ASTHMA IN CHILDREN: AN ANALYSIS OF THE BRAZILIAN HOUSEHOLD SURVEY**

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Introduction. The prevalence of asthma in children has increased in many countries over recent years. However, studies on the association between childhood asthma and social inequalities in developing countries are scarce and lead to the conclusion that there does not, in fact, appear to be a clear association. To plan effective interventions we need a better understanding of the risk factors for asthma in early life.

Objectives. The aim of this study was to estimate the prevalence of asthma diagnosis in Brazilian children and to analyze the social and demographic inequalities between South and Northeast regions.

Methods. Data from children under 10 years of age were analyzed from the Brazilian Household Survey carried out in 2003 (n=69,796). The outcome was measured by a single question "Has your child ever received an asthma diagnosis?". Socioeconomic factors (parents schooling, family per capita income, type of house, overcrowding, indoor pollution from cooking), sex, age, and guardian skin colour, were the independent variables investigated through the unconditional multiple logistic regression.

Results. The prevalence of asthma was 8.5% in Brazil as a whole (95%CI: 7.7; 8.5), 12.6% (95%CI: 11.6; 13.5) and 4.4% (95%CI: 4.0; 4.8) in the South and Northeast regions, respectively. After adjustment, children aged between 3 and 7 years, and those from poorest families were more likely to report asthma diagnosis in both regions. Black skin colour, overcrowding and poor building household materials were associated to the outcome in the South region. In the Northeast region, children whose guardians had low schooling were unlikely to present asthma diagnosis.

Conclusions. The inequalities were more prone to be observed in South region, suggesting remarkable social inequalities in asthma diagnosis determinants around Brazil.

**- P138 -****EARLY LIFE ORIGINS OF INEQUALITY IN RESPIRATORY FUNCTION IN MID-LIFE**Bartley M,¹ Sacker A,² Kelly Y³¹UCL, London, UK; ²Institute for Social and Economic Research, Essex University, Colchester, UK; ³Department of Epidemiology and Public Health, UCL, London, UK

Introduction. Lung function is a predictor of cardiovascular as well as respiratory disease in later life and shows a strong social gradient. However, there are relatively few studies that look at the life-course factors in social inequality in lung function.

Objectives. To examine aetiological pathways from birth to age 45 leading to social inequality in lung function.

Methods. Path analysis using data from the 1958 British Birth Cohort Study.

Results. Financial hardship between birth and age 11 was related

to lung function at age 45. Just under half of this relationship was accounted for by the relationship of early financial hardship to housing quality in childhood, and to social class and smoking in adult life. Over half of the relationship was not explained by these intermediate factors.

Conclusions. In order to reduce social inequalities in respiratory function in mid-life, it is important to break the link between early financial hardship and life chances and behaviours in mid-life. However, there is also a strong relationship between early hardship and later lung function that is not explained by these links to either socioeconomic or behavioural mediators.

**- P139 -****DIFFERENCES IN EVIDENCE-BASED IMPLEMENTATION OF HIV/AIDS CLINICAL RESEARCH IN THE DEVELOPED VS. THE DEVELOPING WORLD: A SYSTEMATIC REVIEW**Seminari E,¹ De Silvestri A,² Scudeller L,² Ravasi G,³ Tinelli C²¹Clinica di Malattie Infettive e Tropicali Ospedale di Circolo, Fondazione Macchi, Varese, Italy; ²Biometric Unit IRCCS Policlinico San Matteo, Pavia, Italy; ³Family and Community Health Unit, Pan American Health Organization, Brazil

Introduction. In registrative trials (RT), adequate representation of women and minorities is a FDA requirement. RT of most HIV drugs has been conducted in high-income Countries, and representation of populations from low- and middle- income Countries, women and non Caucasian ethnicity might not be optimal, therefore limiting generalizability of results.

Objectives. To evaluate setting, ethnicity and gender of patients enrolled in RT of protease inhibitors.

Methods. Company-sponsored, RT of protease inhibitors were selected for evaluation. A search was conducted using PubMed using keywords "[generic drug name] and clinical trial" in the full paper. Studies cited in drug labels and medical reviews on the US Food and Drug Administration Approved Drug Products list, for which no publication was available, were also retained.

Results. Forty-nine clinical trials were included; data relative to a total of 9,524 patients were analyzed. Trial location was North America (n=39, 79.6%), Centre-South America (n=25, 51.0%), Europe (n=21, 42.9%). Only 18 trials (36.7%) were also conducted in developing countries. Overall, females were 19.2%, less than the HIV-infected women (about 30%). Data on ethnicity were present in 46 (93.9%) reports. The most represented ethnic group was Caucasian/white (n=5,446, 57.2%). A test for trend over 1996 to 2008 did not show an increase in number of women included (p=0.31) nor of persons other-than-caucasian included over 1996 to 2008 (p=0.21).

Conclusions. Strategies to improve participation in clinical trials of underrepresented groups has been suggested in 2000. However, although the majority of people living with HIV belongs to other-than-caucasian ethnic groups, and although women with HIV infection are increasing, most RT still include a minority of subjects belonging to these groups; therefore, RT might lack the power to detect differences in efficacy and tolerability of antiretroviral regimens between ethnic groups and sexes.

- P140 -**ORAL HEALTH IN HOMELESS PEOPLE FROM PORTO, PORTUGAL**

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Introduction. Despite continued efforts to improve oral health indexes, these remain less satisfactory among the socially disadvantaged, but few investigations have been conducted in hard-to-reach populations such as the homeless.

Objectives. To assess oral health indicators in a sample of homeless from the city of Porto, Portugal.

Methods. All individuals that at the time of the investigation was performed were attending any of temporary homeless hostel or two institutions that provide meal programs were invited (n=220), and 69 (31.4%) refused to participate. Trained interviewers applied a structured questionnaire to all participants to obtain sociodemographic and behavioral information, and data on the participants' health status. An oral examination was conducted to evaluate the past and present history of caries (DMFT index) and the presence of oral lesions. Those classified as houseless under the definition of FEANTSA were considered for the present analysis.

Results. The mean age of the participants was 44.6 years (standard deviation, SD=10.9). Most were male (84.8%), reported having less than the 9th grade (78.8%) and were unemployed (82.1%). The mean duration of houselessness was 56 months, ranging from 1 to 480 months. The mean (SD) of the observed DMFT index was 13.0 (8.0). The mean (SD) number of decayed, lost and filled teeth was 4.3 (4.5), 8.1 (7.5) and 0.6 (1.9), respectively. Sociodemographic variables were no significantly associated with these indexes, except for the mean number of filled teeth which was higher in more educated individuals (≤ 4 vs. >10 years: age-, gender- and nationality-adjusted $\beta=1.8$, 95% confidence interval: 0.9-2.8). Approximately one quarter of the participants did not brush their teeth in the previous week. Dental pain in the previous year was reported by 45.5% of the subjects, but only 21.4% consulted a dentist in the same period.

Conclusions. The population studied had a poor oral health and high unmet treatment needs.

**- P141 -****HOSPITALIZATION OF AN ITALIAN MATERIALLY DEPRIVED POPULATION IN FLORENCE, ITALY**

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Introduction. Inequalities on health have been largely accumulated in the last decades and are an important challenge for public health in Europe. Several studies have demonstrated the effects of socioeconomic and material deprivation on mortality and morbidity rates. Subjects are considered deprived if their access to different resources is limited compared to the opportunities available for the vast majority of the population to which they belong.

Objectives. The aim of this work is to evaluate the morbidity of a materially deprived population, characterized by having applied for public tenement, comparing the results with those regarding the general population to which they belong.

Methods. A study on hospitalization of 4,773 persons resident in Florence who applied for public tenement to local public bodies in 1997-2001 was performed. Sex-specific age-standardized hospitalization ratios (SHR) were computed for all causes and cause-specific hospital admissions (only first hospital admissions were considered) during 2001-2005, using as reference the hospitalization rates of Tuscan population in the same years.

Results. 2,777 first hospital admissions were registered. Statistically significant excesses of hospitalizations are reported: in both genders for all causes (SHR=1.22 in females and SHR=1.14 in males), mental disorders (SHR=1.77 in females and SHR=2.19 in males) and respiratory diseases (SHR=1.33 in females and SHR=1.25 in males); in males for endocrine, metabolic and immunity disorders (SHR=1.38); and in females for injuries and poisoning (SHR=1.24).

Conclusions. The results of this study, despite the short observation period, are consistent with the available evidences that causes of illness in disadvantaged groups may be related to the built environment, confirming the importance of adequate housing in reducing health inequalities.

**- P142 -****A METHOD TO INTEGRATE INFORMATION FROM DIFFERENT DATA BASES TO MONITOR EQUITY IN BREAST CANCER CARE PATHWAY. THE EXPERIENCE OF EMILIA-ROMAGNA REGION**

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Introduction. Equity in health care is a relevant Public Health issue, but up to now current health database (DB) do not provide any information about individual socioeconomic status (SES). Breast cancer care is a well documented topic, for which important SES related inequalities have been reported.

Objectives. To describe methods to integrate information from different DB making possible the monitoring of equity in breast cancer care and survival.

Methods. Starting from a cohort of breast cancer women residing in Emilia-Romagna, a multistep procedure of deterministic record-linkage with different data sources was performed. An anonymous identifier code (IC) was attributed to the incident cases 1997-2005 registered by the regional breast cancer registry (BCR), according to the privacy protection rules. BCR data were linked with the Hospital Discharge register (HDR), Mortality register (MR), Specialist access register (SR) and Census of Population obtaining respectively: comorbidities in the past 2 years, 5-year survival status and cause of death, a set of quality of care indicators (e.g. radiant therapy one year post diagnosis) and individual SES information. Linkage between BCR, HDR, SR and MR was performed using the IC, while the Census DB

were merged using birth date and municipality, plus residence, as linkage key. The linkage percentage was analysed according to the socio-demographic and health condition to assess selection bias in the sub-cohort with SES information.

Results. Out of 30,398 incident cases, 62.8% were linked with the Census data. Young (<45 years) and residents in big municipalities are less likely to be linked with Census data. No difference between linked and not linked subjects was found on status at diagnosis and survival.

Conclusions. An integrated information system is a very useful tool allowing to investigate health outcomes such as care pathway and survival according to individual SES. This work can also be extended to other diseases of interest.



- P143 -

ADHERENCE TO GUIDELINES FOR CHRONIC DISEASE MANAGEMENT IN ELDERLY PATIENTS WITH DEMENTIA

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Introduction. Epidemiological and clinical studies suggest interaction between dementia and vascular risk factors. Dementia is a risk factor for stroke, which in turn is a well-known risk factor for dementia. On the other hand, ineffective management of chronic diseases such as diabetes, hypertension and heart failure hamper cognitive and functional profile. Management of chronic diseases is therefore crucial in patients with dementia.

Objectives. To compare indicators measuring adherence to diagnostic and therapeutic guidelines in elderly patients with and without dementia.

Methods. Some indicators were computed for 2008 on cohorts of elderly patients (≥65 years) with diabetes, chronic stroke, heart failure or hypertension, who were identified from regional administrative databases of Tuscany. Patients were stratified as follows: (D1) patients who were treated with acetylcholinesterase inhibitors (AChEI) in 2007; (D2) patients who had been treated before 2007; (D3) patients who had never been treated with AChEI but who had dementia as reported in either a hospital discharge diagnosis or a cause for exemption; (O) others. In Italy AChEI are prescribed by specialists working in dedicated Alzheimer Units (AUs).

Results. Values of indicators for elderly patients with diabetes were systematically lower in demented cohorts, except for creatinine monitoring. Differences of categories D2 and D3 with respect to O were always statistically significant ($p < 0.05$). Other results were controversial. In particular adherence to antithrombotic therapy was significantly higher for stroke survivors in D1 with respect to O.

Conclusions. Within AUs there seems to be a high attention to specific aspects of care, such as antithrombotic therapy. The observed lower adherence to other guidelines, in particular to guidelines for diabetes care, suggests that a better management of co-morbidities in elderly patients with dementia should be insured, possibly by means of innovative organizational models.

- P144 -

SOCIAL CAPITAL AND INEQUALITIES IN HEALTH BEHAVIOUR

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Introduction. The inequalities in health between population subgroups defined by education and living arrangements are well known. Part of them is explained by the differences in health behaviour. Previous studies have reported that social capital varies by education and living arrangements. On the other hand, it is associated with health behaviour. It is still unclear, whether social capital has a mediating role between socioeconomic factors and health behaviour.

Objectives. To examine whether social capital mediates the influence of education and living arrangements on health behaviour.

Methods. Cross-sectional data from the Health 2000 Health Examination Survey representing the Finnish adult population aged 30 and over ($N=8,028$). Logistic regression analyses were carried out to examine the possible mediating role of three dimensions of social capital in the association between health behaviour (non-smoking, non-excessive drinking, leisure-time physical activity, daily use of vegetables, adequate sleep) and education and living arrangements.

Results. In this study, as in earlier research, health behaviour varied according to educational and living arrangement groups. Social capital was associated with health behaviour. According to our findings, social capital (especially social participation and networks) seems to explain part of the inequalities between the subgroups of the population defined by education and living arrangements. Social capital explained over one fourth of the differences between educational groups and less of those between living arrangement groups.

Conclusions. When trying to reduce health inequalities, one strategy could be to promote social participation especially among people in danger of social exclusion.



- P145 -

SOCIAL INEQUALITIES IN MORTALITY IN A SAMPLE OF ITALIAN POPULATION

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Introduction. In Italy, social inequalities in mortality were mainly referred to residents in metropolitan areas of Centre-North. Recent data on national population highlight geographical variations of educational inequalities in self-perceived health and chronic morbidity, with disadvantage for residents in Southern regions.

Objectives. To measure magnitude and to evaluate geographical heterogeneity of mortality differences by social position, through a sample of Italian population.

Methods. Study population was selected within a cohort of

128,818 individuals, consisting of 92% of 1999-2000 National Health Interview Survey sample, followed-up for mortality through record linkage with national archive of death certificates for the period 1999-2006. People aged 25 years or older were selected ($n=94,893$). Each individual was classified by several indicators of social position: educational level, occupational status and class, and satisfaction for economic resources. Death relative risks by social position were estimated through Poisson models, taking into account design effect and adjusting for age, stratifying by gender and broad age groups (25-64 years, 65+). Heterogeneity of risks by area of residence was evaluated.

Results. Within the age group 25-64, higher risk of death was observed among people with lower secondary education or less, compared to graduated (with $RR=1.7$; 95%CI: 1.1-2.5 for men and $RR=2.1$; 95%CI: 1.1-3.9 for women); mortality risk among unemployed was nearly twofold, compared to occupied. Among elderly, higher death risk with lower education was observed among male residents in North ($RR=1.6$; 95%CI: 1.1-2.4 primary vs. diploma) and females in the South ($RR=2.7$; 95%CI: 1.2-6.2); residents in Southern regions showed slightly higher mortality with poor satisfaction for economic resources.

Conclusions. Social inequalities in mortality were observed in the Italian population. Future extension of follow up will allow to better focus on geographical heterogeneity.



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SOCIAL CLASS, UNEMPLOYMENT AND CHRONIC DISEASES

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Introduction. It is controversial whether the known inverse social gradient in unemployment is determined by health selection out of the labour market, due to higher morbidity in lower social classes.

Objectives. To examine the prevalence of unemployment by social class adjusting for the presence of chronic diseases in a representative sample of the Italian population in pre-retirement age.

Methods. The study population consisted of women 45-54 years and men 45-59 years, employed at some time in the past (18,261 people), who participated in a national cross-sectional survey in 2005. By means of a standardized questionnaire, information was collected on employment status, a list of 24 chronic diseases, occupational social class and socio-demographics. The outcome was being unemployed at the time of the survey for men and being unemployed or housewife for women. The association with occupational class (5 categories) was assessed through stepwise logistic regression, stratifying the analyses by gender and adjusting for significant chronic conditions and other potential confounders ($p < 0.05$), including age, education, area of residence and employment in the public administration.

Results. In the final multivariable model on men, a strong social gradient in unemployment was observed, which was only slightly reduced by adjustment for chronic conditions, whereas among women it was much smaller than among men and no chronic disease was as-

sociated with unemployment. A strong social gradient was instead found for housewife status but, as for men, it did not change substantially after controlling for chronic diseases.

Conclusions. An inverse gradient in unemployment by social class was found in both gender, although stronger among men, which was not explained by chronic conditions. Among women, the stronger social gradient in housewife status suggests that for women health-related selection out of the labour market occurs toward family work rather than unemployment.



- P147 -

PREVALENCE OF CARDIOVASCULAR RISK FACTORS IN HOMELESS ADULTS FROM PORTO, PORTUGAL: COMPARISON OF SAMPLES ASSEMBLED IN HOMELESS HOSTELS AND IN INSTITUTIONS THAT PROVIDE MEAL PROGRAMS

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Introduction. Cardiovascular disease is the leading cause of morbidity and mortality among the homeless, but these "hard-to-reach" populations pose important methodological challenges to risk factors surveillance.

Objectives. To compare 2 samples of homeless, one assembled in homeless hostels (HH) and the other in institutions that provide meal programs (MP), regarding homelessness-related characteristics and prevalence of cardiovascular risk factors.

Methods. We invited all "houseless" individuals (according to the FEANTSA definition) that were attending any of two HH or two MP at the time. The response proportions were 78.6% ($n=92$) in HH and 75.3% ($n=55$) in MP. Only 1 participant was present in both settings, but refused the first invitation and is being considered in only one sample. Age, gender and education adjusted odds ratios (OR) and 95% confidence intervals (95%CI) were computed to compare frequency of hypertension (systolic and/or diastolic blood pressures $\geq 140/90$ mmHg and/or antihypertensive treatment), overweight/obesity (body mass index ≥ 25 kg/m²), abdominal obesity (waist circumference $>88/102$ in women/men), smoking and alcohol drinking.

Results. The participants' age was similar in both samples (median; 45 years), as well as the proportion of men (86%), but in the HH there was a lower proportion of subjects with 5-9 school years (30.4% vs. 50.9%, $p=0.047$), homeless for more than one year (51.6% vs. 63.6%, $p=0.157$), and having consumed drugs in the preceding year (18.5% vs. 32.7%, $p=0.050$). All risk factors except alcohol consumption were less frequent among the participants selected in MP, with the more robust independent associations for hypertension (20.0% vs. 40.2%; $OR=0.28$; 95%CI: 0.11-0.71) and overweight/obesity (32.7% vs. 46.7%; $OR=0.58$; 95%CI: 0.28-1.21).

Conclusions. The houseless people recruited in HH and in MP were substantially different regarding factors associated with homelessness and important cardiovascular risk factors.

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WOMEN'S HEALTH AND INDIVIDUAL AND CONTEXTUAL INEQUALITIES: THE ABSENCE OF CERVICAL SCREENING IN LIFE, IN PARIS METROPOLITAN AREA. AN ANALYSIS OF SIRS COHORT IN 2005Grillo F,¹ Vallée J,¹ Cadot E,¹ Grimaud O,² Chauvin P^{3,4}¹UMR S 707, INSERM, Université Paris 6, France; ²Ecole Haute Etudes en santé Publique, Rennes, France; ³UMR S 707, INSERM, Université Paris 6; ⁴AP-HP, Hôpital Saint Antoine, Unité de santé publique, Paris, France

Introduction. Cervical smear is essential for the detection of cervical cancer. Its individual inequalities are described in France but the analysis of both individual and contextual factors associated remains rare.

Objectives. To describe individual and contextual factors associated with the absence of any CS performed over lifetime (CSLT) in Paris metropolitan area.

Methods. This study was based on 2005 data from the SIRS cohort study in Paris metropolitan area, conducted among a representative sample of 3,000 adults. Regression logistic models analysed individual factors associated with no CSLT, and multilevel logistic model analysed the association of residence neighborhood variables to the same outcome.

Results. 11% of women declared they have had no CSLT. After adjustment on age and parentality, factors associated with no CSLT were: not to be in couple (OR=3.60; 95%CI: 2.36-5.48), to be French born to foreign parents (OR=1.81; 95%CI: 1.10-2.96) or to be foreigner (OR=3.56; 95%CI: 2.24-7.68), having never worked (OR=3.22; 95%CI: 1.39-7.43), a primary (OR=2.41; 95%CI: 1.17-4.95) or secondary educational level (OR=1.82; 95%CI: 1.09-3.03), not to have a complementary health insurance (OR=2.02; 95%CI: 1.17-3.48). Conversely having experienced a serious disease (OR=0.63; 95%CI: 0.40-0.99), having somebody in the entourage that has a cancer (OR=0.55; 95%CI: 0.37-0.84) were associated with a lower risk. After adjustment on these individual characteristics, living in a more affluent neighborhood was associated with a lower risk of no CSLT (OR=0.45; 95%CI: 0.25-0.81).

Conclusions. This study describes individual and contextual inequalities in cervical cancer screening and provides arguments in favour of the influence of residential areas on women health prevention practices, once adjusted on individual factors. Women health promotion needs to be targeted to the underserved women, especially in lower SES neighbourhoods.



- P149 -

TYPE 2 DIABETES IN A IMMIGRANT POPULATION IN ROME: EPIDEMIOLOGICAL DATA FOR A PUBLIC HEALTH CHALLENGENosotti L,¹ Scardella P,¹ Piombo L,¹ Giusti A,² Maggini M,² Spada R,¹ Vignally P,¹ Morrone A¹¹National Institute for Health, Migration and Poverty (NIHMP), Rome, Italy; ²National Institute of Health, Rome, Italy

Introduction. Estimates and projections of WHO and of the International Diabetes Foundation state that the number of persons

suffering from diabetes in the world, who were 30 million in 1985, will exceed 300 million in 2025. The greatest contribution to this impressive increase in diabetes incidence will be given by developing countries. Diabetes also represents a major threat to the health of the world's millions of migrants, who appear to be at greater risk of developing diabetes than non-migrants.

Objectives. The aim of the study was to identify and describe epidemiological data about the prevalence of type 2 diabetes in migrants observed in our outpatient Department.

Methods. Between January 1st, 2009 and September 31st, 2009, 1,284 consecutive immigrants from four large geographical areas (Eastern Europe, Africa, Asia and South America) were examined in the Department of Preventive Medicine of Migration of National Institute for Health, Migration and Poverty in Rome.

Results. Among the patients examined in 2009, an overall prevalence of 4.12% of type 2 diabetes was observed divided according to geographical areas as follows: Africa 35.85%; Asia 30.19%; Eastern Europe 22.64%; South America 11.32%. Moreover, we found a 8.09% prevalence of obesity, a condition associated to insulin resistance and consequently predisposing to type 2 diabetes in genetically susceptible individuals.

Conclusions. Migration appears to be positively associated with the development of type 2 diabetes, and migrants seem far more likely to misunderstand the factors contributing to the disease and how to manage it. Given that migration is growing rapidly and that Europe is becoming increasingly heterogeneous, it is important that the social and cultural environment of migrants be better understood. Multidisciplinary preventive and therapeutic methods are necessary, including the collaboration of cultural mediators, in order to overcome the linguistic, social and cultural barriers often present.



- P150 -

LTBI PREVALENCE AMONG IMMIGRANTS, BETWEEN 1991 AND 2006, IN TURIN (ITALY)Baussano I,^{1,2} Mercadante S,² Pareek M,¹ Bugiani M³¹Imperial College, London, UK; ²UPO/CPO-Piemonte, Italy; ³CPA-ASL-T02, Italy

Introduction. In low tuberculosis (TB) burden countries, foreign-born individuals bear the major burden of TB case notifications. However, very little is known about the prevalence of LTBI among immigrants arriving in low TB burden nations.

Methods. Retrospective analysis of regional immigrant TB screening programme (for LTBI) in Turin (Italy) between 1991 and 2006.

Results. Overall 28,460 immigrants (57% men and 43% women) were tuberculin tested in a regional TB screening programme for new arrival refugees and migrants (legal and illegal). Median age was 27 years (IQR: 22-34); 3% arrived from countries with a very low estimated annual incidence of TB (<25 cases per 10,000 population), 13% from countries with low incidence (25-49), 6% from countries with intermediate incidence (50-99), 73% from countries with high incidence (100-299), and 5% from countries with super high incidence (>300). Immigrant populations from different geographic areas significantly differed by age distribution and men-to-women ratio. Approximately 58% and 84% immigrants

were cumulatively tested within one and five years since their entry, respectively. 38% of the immigrant population had LTBI (assuming TST induration cut-off ≥ 10 mm). LTBI prevalence rose with increasing age, ranging between 14% and 44%. LTBI prevalence was 17%, 32%, 26%, 41%, and 35% among immigrants from countries with a very low, low, intermediate, high, and very high TB incidence, respectively. A further 4,574 immigrants had a second TST after a mean of 1,8 years, although there was no significant difference in results suggesting that local transmission does not increase the risk of infection among immigrants.

Conclusions. The prevalence of LTBI in immigrants arriving in Italy is high and appears to vary by age and geographic origin. This data can parameterize TB transmission models and more fully inform the development of TB control programmes in low TB burden nations.

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- P151 -

MIGRANTS HEALTH AND CARE: A PROPOSAL OF A FRAMEWORK AND INSTRUMENTS FOR COMPARISONS IN EUROPEAN REGIONS

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Introduction. Migration radically changes demographic profiles of several countries in the world. An increasing number of multicultural communities is also seen in Europe. Health demand and access to health services of migrants is an important issue that should be further investigated, in particular in Regions that recently experienced increasing rates of immigration.

Objectives. To share existing information systems and develop a standardized approach that supports policy strategies to address migrant health issues.

Methods. In Italy a taskforce, consisting of several institutions and Regions, developed a standardized method to monitor health profile of immigrants. After defining the target population, a complete set of indicators has been developed by means of existing archives. Useful tools will be developed to carry out a comparison among European Regions: - to translate a selected indicator set and to submit it to an active European Network, whose main objective is to study social and policy context where immigrants should integrate, in particular with regard to their health conditions; - comparison with databases by international institutions describing immigrant population.

Results. Data sources existing in Italy allow to describe population about their demography, labour participation, health demand and access to health services through indicators for hospitalizations, mother-child health, occupational accidents, infectious diseases, mortality. As a result of the experience developed in Italian Regions, it is important to highlight that immigrants health conditions are very different from those of the Italian population. Moreover, an international approach for comparison is still need to be improved.

Conclusions. Health conditions of immigrants and the way they use health services need to be thoroughly investigated in the future. International databases should be developed; in addition we propose a standardized system aimed at monitoring immigrants' health conditions.

Methods in epidemiology and statistical analysis

- P152 -

SURVEILLANCE OF HIV AND BEHAVIOURAL RISK FACTORS FOR INFECTIONS AMONG MEN WHO HAVE SEX WITH MEN (MSM) IN THE REPUBLIC OF AZERBAIJAN

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Introduction. MSM one of the hard access and closed risk group. Interest to this group is very high and with support of the WHO and other UN agencies, the first Bio-behavioural survey among the MSM in the Republic of Azerbaijan was done.

Objectives. To determine the prevalence of HIV, HBV, HCV and syphilis among MSM in Baku city of the Republic of Azerbaijan. Determine the extent to which MSM was reached by prevention programmes.

Methods. Selection of target group was among MSM, males aged 16 and above who had anal sex with another man in the previous six months. The sample size was 100. MSM were recruited on the premises of NGOs, as well as the jazz club and the Fantasia nightclub (62%) and in mobile units in areas frequented by MSM. The remaining 38.0% were tested in mobile units.

Results. 71.0% of MSM was young men aged 20-29 years. Over one half of the respondents had completed, or begun the higher education. 42% of MSM was not employed. 11% had been in prison at least once, 12.0% of MSM used injecting drugs ever. Of those MSM who injected, none reported using clean needles or syringes during the previous month. Did not use a condom 42.6% during their last anal sexual contact and 37.1% - last oral sexual contact. 41% of them had sex with female partners in past 6 months. Most of the MSM were well informed about HIV and prevention methods. 38.2% were tested for HIV before and had obtained their results. Over one half of MSM had participated in specialized prevention programmes in the previous year. 91.0% went to the anonymous consultation clinic of the Republican AIDS Centre to obtain the results of the seroepidemiological research. The prevalence of infections was: anti HIV-1.0%; anti HCV-14.0%; HBsAg-4.0%; anti Lues-8.0%.

Conclusions. This high-risk sexual behaviour, injecting drug use and sexual violence mean that MSM and their sexual partners should be considered a highly vulnerable group for HIV infection.

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PROGNOSTIC VALUE OF A NOVEL CLASSIFICATION OF CLINICAL SYMPTOMS AND SIGNS OF HEART FAILURE ADJUSTED FOR MAJOR CONFOUNDERS

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Introduction. Female, age, education, coronary heart disease (CHD) and obesity are associated with symptoms and signs of heart failure (HF), leading to false positive diagnoses.

Objectives. To develop an epidemiologic classification scheme for clinical HF that takes these concomitant factors into account.

Methods. Cross-sectional evaluation of 1136 community participants aged ≥ 45 years in 2006-2008. Ten symptoms/signs (dyspnoea, fatigue, orthopnoea, nocturnal paroxysmal dyspnoea, self-perceived and clinically confirmed edema, pulmonary rales, hepatojugular reflux and heart murmur) were explored using Latent Class Analysis with 1 to 4 classes, with and without concomitant variables. We compared the prevalence of left ventricular systolic dysfunction (LVSD) and high BNP among classes. The classification's prognostic value was assessed by age and sex adjusted 6-year mortality in an independent sample of 753 subjects.

Results. Bayesian Information criteria suggest that the best solution was the 3-class model with concomitant variables. Class 3 had low endorsement probabilities for all 10 items; class 1 had high probabilities for all items, class 2 had high probability for volume overload and lower probability for subjective troubled breathing. Taking class 3 as reference, class 1 was associated with age (OR=1.10; 95%CI:1.05-1.16), obesity (9.16; 3.52-23.84) and CHD (15.64; 3.02-81.00), and negatively with male (0.12; 0.03-0.39) and education (0.82; 0.70-0.97); class 2 was associated with age (1.15; 1.09-1.22) and obesity (6.29; 2.61-15.14). The prevalence of LVSD was 9.6%, 5.5% and 1.1% and BNP ≥ 30 pg/mL 46.4%, 40.0% and 20.4% for class 1, 2 and 3, respectively. The 6-year absolute risk of death was 10.5%, 3.2% and 3.0%, respectively.

Conclusions. The present study shows the importance of including gender, age, education, CHD and obesity to identify cases of HF and to distinguish HF from ageing and obesity. This novel classification predicts risk of death.

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COLLIDER BIAS COMPLICATES EVALUATION OF DETERMINANTS OF RECURRENCE RISK

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Introduction. Knowledge of factors influencing recurrence risk is essential in the prevention of disease recurrence. Correct estimation of the strength of recurrence risk factors is, however, troublesome. The reason is that, as a consequence of restriction to persons who experienced the disease before, previously unrelated risk factors of the disease can become inversely related and confound each other's association with recurrence of the disease. This form of bias has previously been referred to as collider bias.

Objectives. To demonstrate, by use of a simulation model, how collider bias can affect assessment of recurrence risk factors.

Methods. We performed a simulation study of the recurrence risk of a fictional pregnancy-related disorder, Y. We assumed that there are four component causes of Y, namely X1, X2, X3, and X4, and

that disease arises if at least two of the first three component causes are present, as well as X4. X4 was meant to indicate pregnancy as a necessary condition for developing the disorder, X1 the determinant under study, and X2 and X3 unmeasured determinants of Y. We stipulated that each woman would become pregnant twice, and allowed X1-X3 to appear or disappear within the interpregnancy interval within a limited range.

Results. We simulated a situation in which the relative risk (RR) of disease during the first pregnancy for presence versus absence of X1 was 19. The attributable risk percentage among women exposed to X1 (AR%) was 95%. The RR of recurrent disease for X1 present versus X1 absent was 1.34, and the apparent AR% was 25%. However, it could be shown that actual AR% among exposed was 94%, and that population attributable risk percentage (PAR%) equaled that for the first pregnancy, namely 64%.

Conclusions. Our simulation shows that, due to collider bias, associations between causal factors and disease recurrence may appear smaller than those between the same factors and first occurrence of the disease, while in reality PAR% are similar. Our findings hold important implications for the appraisal of the potential of preventing recurrent disease by manipulating risk factors, as well as the design and interpretation of the results of studies of recurrence risk.

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MASS CALIBRATION AND RELATIVE HUMIDITY COMPENSATION REQUIREMENTS FOR OPTICAL PORTABLE PARTICULATE MATTER MONITORS: THE IMPASHS (IMPACT OF SMOKE-FREE POLICIES IN EU MEMBER STATES) WP2 PRELIMINARY RESULTS

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Introduction. Better knowledge of particulate matter (PM) concentrations needs portable, reliable, user friendly, low cost, real time mass analyzers of PM_{2.5} and PM₁₀. Optical Particle Counters (OPC) measuring mass have manufacturer calibration specific gravity "K" factor referred to polystyrene latex particles which are completely different than those of the real world, therefore they require specific calibrations. Measurements are also subject to Relative Humidity (RH) heavy interference. IMPASHS (Impact of smoke-free policies in EU Member States) WP2 is a EU-funded project aimed to monitor the compliance to smoking bans in several EU States where a smoking ban has been implemented. Good calibration, performance and technical use of PM analyzers is mandatory for getting sound results.

Objectives. To evaluate, within the IMPASHS WP2 Project, the performance of four different OPC's in Environmental Tobacco Smoke and background urban pollution and to find the new "K" factors using one Model BAM-1020 with certificate n. EPQM-0798-122 for comparison.

Methods. All instruments have been operating in parallel measuring PM2.5 generated by cigarettes (ETS) indoor and by urban pollution outdoor and the data were replicated three times.

Results. "K" factors were widely different between manufacturer's model, instrument serial numbers, ETS and urban pollution, ranging from 0.5 to 2.27. Correlation with BAM-1020 was ranging from 0.7500 to 0.9800 and Student t test from 0.3000 to 0.9500. Relative Humidity interference resulted mathematically compensable up to 75% RH, but above becomes uncontrollable and sample drying becomes compulsory.

Conclusions. OPC's are very reliable and accurate but need specific calibration and special care in handling and elaboration of the measurements, which are mandatory to allow comparison among different instruments and different environmental settings.



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DIFFERENCES IN TIME TO VIROLOGICAL FAILURE, TREATMENT CHANGES AND CESSATION BETWEEN PERSONS TREATED SOON AFTER HIV SEROCONVERSION AND IN CHRONIC INFECTION

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Introduction. Achieving undetectable plasma HIV RNA is the goal of combination antiretroviral therapy and is highly correlated with clinical progression and mortality.

Objectives. Since the evaluation of the extent of treatment failure experienced early in HIV infection is important as it may limit the number of therapeutic options in chronic disease, we compared the risk of treatment failure in patients starting treatment close to seroconversion (sc) vs those starting therapy during chronic infection.

Methods. We used data from CASCADE of HIV infected persons with well-estimated dates of sc. Follow-up data include CD4 and HIV RNA measurements, antiretroviral drugs, vital status and date of last clinical assessment. We examined the effect of beginning treatment within 12 months of sc (early) vs beginning later on three competing events: the risk of virological failure, of changing, or of interrupting therapy. The association between therapy initiation and each of these events was studied using the Fine and Gray approach, controlling for class of therapy, sex, age, HIV risk group, and CD4 cell count, HIV RNA and calendar period at the time treatment was initiated. CD4 and HIV RNA measurements were first jointly modelled to obtain predicted values at the relevant times.

Results. All analyses were based on 1,454 patients, respectively 392 treated early and 1,062 treated later. Of these 71 and 223 experienced treatment failure, 119 and 287 changed therapy, 132 and 167 interrupted treatment. The adjusted subdistribution hazard for treatment failure was similar for early and late treated patients (sub-hazard ratio (sub-HR)=1.11; 95%CI: 0.74-1.66) as was the adjusted subdistribution hazard for treatment change (sub-HR=1.11; 95%CI: 0.83-1.49). The adjusted subdistribution hazard of treatment interruption was higher for early compared to late treated patients (sub-HR=1.70; 95%CI: 1.19-2.44).

Conclusions. Rates of treatment failure do not appear to differ between HIV patients treated in primary and chronic infection.



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A COMPARISON OF METHODS FOR META-ANALYSIS OF TIME-TO-EVENT INDIVIDUAL DATA: APPLICATION TO NON HODGKING LYMPHOMA SURVIVAL STUDIES

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Introduction. In combining information from several studies, meta-analytical methods (fixed or random effect models) can be adopted. Between-study variability (heterogeneity) can be handled by the sole random effect models. This work aims to examine and compare meta-analytical techniques applied to survival analysis for individual data.

Methods. A fixed effect model (1) and three different random effect models (2, 3, 4) were defined on the basis of the Cox regression model. The random effect models differed for the components allowed to vary randomly, i.e. to capture heterogeneity: baseline hazard (model 2 or shared-frailty), covariate effect (model 3) or both (model 4). Data from four studies on Non Hodgkin lymphoma (1,524 cases) were gathered and the effect of tobacco smoking on overall survival was examined. Models were compared in their performance by a likelihood ratio test (LRT). The variance of the random components was measured.

Results. A better performance for the random effect models respect to the fixed effect one was observed (LR=79.7, 93.42, 84.40, 93.42 respectively for models 1-4). Only models with the random component in baseline hazard better performed than the corresponding fixed effect one (LRT-p: model 2=0.002; model 3=0.67; model 4=0.01). These findings were confirmed by the measure of the random components variance (t_2): negligible for the covariate ($t_2=1.52$ 10-14) and quite significant for baseline component ($t_2=7.37$ 10-2). The fixed-effect model allows estimating the pooled covariate effect taking into account centre-specific baseline hazards but it does not allow measuring the heterogeneity.

Conclusions. The random effect models were found to perform better than fixed effect models, and the baseline hazard was the component capturing the major amount of heterogeneity. The shared frailty models appear well suited for meta-analyses on individual patient data with a small number of studies since they were generally easy to use and they were founded to finely capture the residual heterogeneity.



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SPIE CHARTS: A USEFUL TOOL FOR THE IMPROVEMENT OF HEALTHCARE QUALITY IN THE LAZIO REGION, ITALY

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Introduction. Over the last decade, there has been increasing in-

terest in the development of performance indicators to promote accountability and quality improvement in health care services. Comparative evaluations of clinical outcomes involve the definition of several indicators for each study unit. Graphical displays are best suited for highlighting the main patterns in the data.

Objectives. The aim of this study was to compare different graphical techniques, including target plots, radar plots, and "spie" charts, for comparing the performances of different health care providers.

Methods. 13 indicators of clinical outcomes have been calculated and combined for all the health care facilities of the Lazio Region, Italy, for the period 2006-2008. A single score of performance, ranging from 0 (low) to 100 (high), has been computed for each facility and for each of 8 clinical areas of interest: cardio-vascular, cardio-surgical, cerebro-vascular, respiratory, surgical procedures of the digestive system, scheduled surgical procedures, obstetric, and orthopaedic. The scores have been displayed at facility level using three alternative graphical tools: target plots, radar plots and "spie" charts.

Results. Target plots have an immediate and intuitive interpretation but fail in highlighting small differences among units, especially when several indicators present values close to zero. Radar plots are strongly influenced by the order in which the indicators are displayed, and cannot distinguish between a zero value and a missing value for an indicator. Both target and radar plots assumed equal weights for the indicators, and did not allow predetermined judgments on the relative importance of the indicators. "Spie" charts overcame the primary limitations of the other two techniques.

Conclusions. "Spie" charts represented the best graphical tool for displaying multivariate health care data in comparative evaluations of clinical outcomes among health care providers.



- P159 -

STATISTICAL MODELS TO PREDICT HEALTH CARE COSTS: A COMPARISON

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Introduction. Distributions of individual data on health care costs usually include significant fractions of zero values, are highly right-skewed, and heteroskedastic. Consequently, selecting an adequate predictive model is not straightforward.

Objectives. To compare the performance of different statistical models in predicting long-term health care costs among patients who survived an acute myocardial infarction (AMI).

Methods. We enrolled 1999 patients, aged between 18 and 80, living in Rome, discharged alive after an AMI in 2001. Patients were followed-up for 5 years with respect to mortality, hospital, outpatient and drug consumption claims and relevant health care costs were attributed. We used the total cost over 5 years as the outcome measure and age, gender, number of previous hospitalizations, comorbidities, and revascularization during the index admission as explanatory variables. We fitted three types of models: 1) one-part: generalized linear models (GLM) over the whole cohort; 2) two-part: logistic modeling of the probability of any cost and GLM for

costs conditional on non-zero cost; 3) four-part: population split into nonusers, inpatient users, and others; total costs estimated in each group. We used Akaike Information Criterion for variable selection. Models' predictive ability was assessed graphically and through split-sample analysis using Root Mean Square Error (RMSE) and Means Absolute Prediction Error (MAPE) statistics.

Results. Split-sample analysis showed little difference between the models considered, with four-part models attaining the best values of RMSE and MAPE.

Conclusions. Predicting long-term health care costs is a difficult task. Models that takes into account different kinds of patients seem to perform best. However, in multi-part models both variable selection and coefficient interpretation are more difficult.



- P160 -

PANDEMIC (H1N1) 2009: AN EVALUATION OF KEY ISSUES IN PUBLIC HEALTH INTERVENTION IN THE COMMUNITY OF MADRID (SPAIN)

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Introduction. Pandemic (H1N1) 2009 challenged the capacity of health systems to tackle an international public health emergency. The Subdirectorate for Health Promotion and Prevention (SHPP), as Public Health Department, coordinated the interventions according to Regional Influenza Preparedness and Response Plan. It is the moment to know its adequacy.

Objectives. To evaluate SHPP strategies during the Pandemic in order to apply lessons learned into Public Health emergency plans.

Methods. Following the policy evaluation methodology, also recommended by the ECDC, we carried out a summative, ex post and internal evaluation, focused on main components: communication, surveillance, laboratories and key supplies. Methods included a survey (directed to board and staff from primary care, hospitals and public health), 42 personal interviews (SHPP and Emergency department) and analysis of documents.

Results. Preliminary results in communication reveal that most useful and quick sources of information are e-mails (84%), web pages (61%); meetings are the most currently used but, despite of its usefulness, are seen as time-consuming by 60% of polled. Qualitative data indicate that surveillance was considered by technicians as a genuine Public Health function, helpful and easy to carry out, although they would have liked to feel more involved in the decision-making process. Virological surveillance management was complex and could get better, but samples were taken in the whole region, in primary care as well as in hospitals, and results were sufficient for surveillance purpose. As about key supplies management, centralization and previous distributions were efficient measures and, fortunately, we did not suffer any shortage.

Conclusions. Although there is a general satisfaction about Public Health management during the pandemic, results show need for a more careful choice of communication techniques and the implementation of a specific laboratory information system.

- P161 -

MATHEMATICAL SPATIO-TEMPORAL MODEL OF PNEUMONIA AND INFLUENZA HOSPITALIZATION RATES IN NORTHERN REGION OF PORTUGAL: 2000-2008Dias JG,¹ Correia AM,¹ Queirós L,¹ Mendonça D²¹Public Health Department, ARSNorte, Porto; ²Instituto Ciências Biomédicas Abel Salazar and Instituto de Saúde Pública, UP, Porto, Portugal

Introduction. Pneumonia and influenza represent a significant public health problem that has a great impact on the allocation of resources. Spatial epidemiology is increasingly being used to assess health risks associated with the analysis of geographic patterns of disease with respect to environmental, demographic, socioeconomic, and other factors. Recent advances in disease mapping have focused on including the time dimension, thus giving rise to spatio-temporal analysis of the variation of disease risk.

Objectives. To propose a Bayesian model to study the variation in space and time of disease risk.

Methods. A retrospective ecological study of pneumonia and influenza hospitalizations between 2000 and 2008 in the Northern region of Portugal was conducted. This study was based on data of patients discharged from the National Health Service. Bayesian spatio-temporal models were employed to analyze the data. The Bayesian adjusted rate was generated by WinBUGS.

Results. From 2000 to 2008 the results revealed spatial patterns in patient data and highlighted areas of disparity in pneumonia and influenza hospitalization rates adjusted by age and sex among the population. Patterns of high rates were found in north-eastern districts. Regarding the temporal component a clear pattern could not observe. However the hospitalization rates remained higher in the north-eastern districts.

Conclusions. Bayesian analysis in combination with geographic information system technology revealed spatial patterns in patient data and highlighted areas of disparity in pneumonia and influenza hospitalization risk among the population of region. This study represents an important step to understand the dynamic nature of these illnesses, and an important methodological contribution for the application of spatial and temporal models to explain them.



- P162 -

USING SECONDARY DATA FOR EPIDEMIOLOGICAL STUDIES. THE EXAMPLE OF LINKING COHORT DATA FROM THE DIABETES TYPE 2 DISEASE MANAGEMENT PROGRAM WITH DATA FROM THE EPIDEMIOLOGICAL CANCER REGISTRY OF NORTH RHINE-WESTPHALIAKajüter H,¹ Batzler WU,¹ Simbrich A,^{2,3} Hense HW^{4,5}¹Epidemiological Cancer Registry North Rhine-Westphalia, Münster, Germany;²Epidemiological Cancer Registry North Rhine-Westphalia Münster, Germany;³University of Applied Sciences, Hamburg, Münster, Germany; ⁴Institute of Epidemiology and Social Medicine, Münster, Germany; ⁵Epidemiological Cancer Registry NRW, Münster, Germany

Introduction. Routinely collected data are a valuable source for epidemiological studies. In Germany secondary data sets are mainly applied in Health Services Research. For the first time,

this study linked pseudonymised data from the German Disease Management Program for diabetes mellitus type 2 (DMP-DM2) with data from the Cancer Registry of North Rhine-Westphalia (EKR), to evaluate the cancer risk of type 2 diabetics.

Methods. The cohort included residents of Münsterland County who enrolled in the DMP-DM2 between June 2003 and June 2008 and were aged 40 to 79 years at enrollment. All cohort patients were members of one statutory health insurance. Personal data (names, date of birth) of the DMP records were encrypted in a two-stage process before transmission to the EKR. The generated pseudonyms were subsequently merged with plain text data on gender, zip code and area of residence and submitted to stochastic record linkage at the EKR.

Results. Of the 128,677 persons in the original DMP data set 27,450 participants (47.5% men) fulfilled the selection criteria and were matched with the data of the EKR. We identified 2053 tumors that occurred after enrollment in the DMP, of which 409 were multiple primaries. Most common tumor sites in men are prostate 14.9%, lung 14.7% and colon 12.6% and in women breast 19.9%, colon 11.8% and lung 6.7%. A first exploratory analysis indicated raised age-standardized incidence rates for lung and colon cancer in diabetic men as compared to the general population. No differences were apparent for diabetic women.

Conclusions. Despite limitations in the quality of routine data, we show in principle that secondary data can be used for pseudonymised record linkage with cancer registry data. The results are presently preliminary but more detailed analyses will consider migration and competing mortality risk of diabetics with modeling approaches to calculate SIRs. The potentially modifying effects of diabetes treatment will also be considered.



- P163 -

EXPOSURE ASSESSMENT FOR COHORT STUDIES ON LONG-TERM EFFECTS OF AIR POLLUTIONRanzi A,¹ Galassi C,² Raffaele D,² Gilardetti M,² Lauriola P,¹ Cesaroni G,³ Forastiere F,³ Caputo L,⁴ Licitra G,⁴ Tava M,⁵ Tonidandel G⁵¹DT CTR Ambiente-Salute, ARPA Emilia-Romagna, Modena, Italy; ²AOU S. Giovanni Battista, CPO Piemonte, Torino, Italy; ³Department of Epidemiology, Regional Health Service, Lazio, Italy; ⁴ARPAT Toscana, Florence, Italy; ⁵APPA, Trento, Italy

Introduction. Recent studies have demonstrated the high spatial variability of air pollutants within urban areas that can be captured with objective measurements and modelling (Land Use Regression, LUR, models).

Objectives. To develop LUR models for exposure assessment to air pollution at sub-urban level, to characterize exposure levels of populations included in cohort studies (SIDRIA, EPIC, ECRHS) of long-term health effects of air pollution in the context of an ongoing Project of the Ministry of Health (Ambiente e Salute) and of an European Project (ESCAPE).

Methods. According to ESCAPE methodology, we are developing Land Use Regression models in several urban areas of Italy. This approach allow to estimate individual exposures from statistical models that combined the predictive power of several

GIS-based variables, that represent characteristics of traffic and of surrounding areas, in estimating measured concentrations of pollutants.

Results. We are at present implementing LUR model in 5 urban areas (Rome, Turin, Florence, Bologna, and Trento). The study area has been defined on the basis of the distribution of subjects included in the city specific cohorts. We defined 30 to 40 monitoring sites for each area, divided in high traffic road, urban and rural background, according to characteristics of the site in the surrounding. We have planned 3 monitoring campaigns (winter, intermediate, summer) for NO_x and PM10 (only for Rome and Turin). Geographic variables have been collected to build up the LUR models: streets and traffic flow, population by census tract, Corine Land Cover (CLC) maps on land use, residence of the cohort subjects, schools and monitoring stations location, pollution and weather data.

Conclusions. A LUR model approach has been implemented in several urban areas in Italy in order to provide a common method to estimate long-term exposure to air pollution for subjects enrolled in cohort studies.



- P164 -

YIELDING OF A SYSTEMATIC REVIEW PROCESS: INTER-RATER AGREEMENT, SENSITIVITY, SPECIFICITY AND WORKLOAD

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Introduction. Systematic reviews render objectivity to the process of summarizing evidence but the associated workload and validity depend on the number of reviewers and their expertise.

Objectives. To describe the performances of two inexperienced and two experienced reviewers.

Methods. As part of a MEDLINE systematic review on the distribution of cardiovascular risk factors in Portugal, the reviewers independently evaluated 300 randomly selected references in 3 consecutive steps. All reviewers had the same training and were instructed to be conservative regarding the exclusions. In step 1 only the titles and abstracts were evaluated; step 2 was conducted applying the same pre-defined criteria to the full texts of the articles selected in step 1. In step 3, the availability of specific data for extraction was assessed in all articles included in step 2. In each step, the disagreements were discussed between the two inexperienced and between the two experienced reviewers until consensus. The consensus of the four reviewers was the gold standard against which the decisions of each reviewer were compared.

Results. In steps 1 to 3, respectively, the agreement was 93% (kappa=.81; standard error, SE: .06), 89% (kappa=.76; SE: .13) and 94% (kappa=.82; SE: .17) between experienced reviewers, and 73% (kappa=.46; SE: 0.06), 81% (kappa=.61; SE: 0.10) and 82% (kappa=.65; SE: .15) between inexperienced reviewers. Both experienced (sensitivity of consensus: 100%) and inexperienced reviewers (sensitivity of consensus: 89%) included almost all eligible reports, but the inexperienced included more irrelevant re-

ports in step 1 (specificity: 55% and 66%) than the experienced (specificity: 82% and 85%). The inexperienced reviewers spent approximately 3 times more time than the experienced in the same tasks.

Conclusions. Inexperienced reviewers may achieve a satisfactory performance when adopting conservative selection procedures, despite consuming more time than the experienced.



- P165 -

QUALITATIVE INTERVIEWS TO SUPPORT EPIDEMIOLOGICAL STUDY: STATISTICAL INSTRUMENTS FOR THE INTERPRETATION

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Introduction. A qualitative research was developed to complement an extensive epidemiological study based on human biomonitoring (HBM) in 16 municipalities in Campania Region, Italy, an area experiencing a crisis for bad management of waste. 86 narrative interviews focused on environmental pollution perception, trust towards authorities, origins and solutions of the present crisis.

Objectives. To contribute qualitative insights for understanding risk perception, life style and strategies to face the environmental crisis.

Methods. The transcription of interviews was qualitatively analysed, to identify main themes and recurrent issues and build hypothesis for the interpretation. They were analysed using SPAD for content multivariate and TLAB for lexical multivariate analysis.

Results. When the people interviewed is speaking about pollution, they directly refer to air and food. As we can see analysing co-occurrences referred to the key word pollution we observe two main issues: the imagination about pollution is linked to the waste crisis, as well as to a chaotic urban development and a perversion in agri-culture; it is also linked to cancer: this word is recurrent and significantly associated with the words linked to pollution. Personal characteristics are not significantly associated with the health risk of waste, nor the different areas involved in the study. Main concerns are linked to waste burning and dioxins, directly linked to food. The imagination and practical behaviour about food are associated with sex, geographic areas and closely linked to "survival strategies" and trust in possible solutions. We also find that almost all the people is sure that pollution is causing several diseases.

Conclusions. The results of content and lexical multivariate analysis confirm the capability of qualitative analysis in framing the social context of epidemiological investigations. The main issues reported are useful to tailor the communication of HBM research results.



Occupational health

- P166 -

OCCUPATIONAL EXPOSURE TO WOOD DUST AND FORMALDEHYDE AND RISK OF NASAL, NASOPHARYNGEAL AND LUNG CANCER AMONG FINNISH MEN: A WHOLE-POPULATION-BASED RETROSPECTIVE COHORT STUDY

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Introduction. Wood dust and formaldehyde have been used extensively and proposed as potential carcinogens for occupationally exposed populations.

Objectives. The objective of the study was to assess the risk of nasal, nasopharyngeal and lung cancer in relation to occupational exposure to wood dust and formaldehyde among Finnish men.

Methods. The cohort of all Finnish men born in 1906-1945 and employed in 1970 was followed-up through the Finnish Cancer Registry for incident cases of cancers of the nose (n=292), nasopharynx (n=149), and lung (n=30,137) during 1971-1995. Their census occupations in 1970 were converted to exposure estimates to wood dust, formaldehyde, asbestos and silica dust with the Finnish job-exposure matrix. Cumulative exposure (CE) was calculated based on the prevalence, average level and estimated duration of exposure. The relative risk (RR) estimates for CE-categories of wood dust and formaldehyde were defined by Poisson regression, adjusting for exposure to asbestos and to silica dust, smoking, and socio-economic status.

Results. Men exposed to wood dust had a significant excess of nasal cancer overall (RR 1.59; 95%CI: 1.06-2.38) and specifically in nasal squamous cell carcinoma (RR 1.98; 95%CI: 1.19-3.31). Workers exposed to formaldehyde had a RR of 1.18 (95%CI: 1.12-1.25) for lung cancer. There was no indication that CE to wood dust or formaldehyde would increase the risk of the nasopharyngeal cancer.

Conclusions. Occupational exposure to wood dust in Finland, which is mainly soft wood, appeared to increase the risk of nasal cancer but not that of nasopharyngeal cancer or lung cancer. The slight excess risk of lung cancer seen for formaldehyde may be due residual confounding due to smoking.



- P167 -

FERTILITY DISORDERS AND PREGNANCY COMPLICATIONS IN HAIRDRESSERS. A SYSTEMATIC REVIEW

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Introduction. Hairdressers often come into contact with various chemical substances which can be found in hair care products for washing, dyeing, bleaching, styling, spraying and perming. Adverse effects on reproduction of hairdressers have long been discussed in the literature.

Objectives. A systematic review of peer reviewed publications on fertility and pregnancy outcomes of hairdressers was performed.

Methods. The literature databases of medline and embase were search for reviews and original studies concerning the subject. Search was restricted to publications from 1990 or younger. The results of studies were separately summarised in accordance with the type of study, and the examined outcome. The duration of exposure. The relative risk (RR) estimates for CE-categories of wood dust and formaldehyde were defined by Poisson regression, adjusting for exposure to asbestos and to silica dust, smoking, and socioeconomic status.

Results. Two reviews and 25 original studies on fertility disorders and pregnancy complications in hairdressers were found in the databases, as well as through hand search in the reference lists. 19 different outcomes concerning fertility and pregnancy are analysed in the 25 original studies. Most studies looked into malformation, especially cleft (n=7). Two of them found statistically significant increased risks compared to 5 that did not. Small for gestational age was the only outcome for which the papers that observed an increased risk for hairdressers or their off-spring outnumbered the papers that did not (3:2). Taken together the studies are inconsistent, so that no clear statements on an association between the exposure as hairdresser and the effect on reproduction are possible.

Conclusions. On the basis of identified epidemiological studies, fertility disorders and pregnancy complications in hairdressers cannot be excluded. Although the evidence for these risks is low, further studies on reproductive risks in hairdressers should be performed, as there is a high public health interest.



- P168 -

CHRONIC LOW BACK PAIN AND DISABILITY IN BRAZILIAN WORKERS

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Introduction. Chronic low back pain (CLBP) is a frequent problem between workers. To know the main factors associated with disability in workers suffering from CLBP can help to design effective interventions to prevent and treat disability in this population.

Objectives. To identify the disability prevalence and disability associated factors in CLBP workers.

Methods. Cross-sectional study with 95 workers recruited in Sao Paulo (Brazil). The participants filled out Socio Demographic and Clinic Profile, Numerical Pain Rating Scale, Oswestry Disability Index (ODI), Chronic Pain Self-Efficacy Scale, Tampa Scale for Kinesiophobia, Beck Depression Inventory and Piper Fatigue Scale. The outcome was disability, defined by ODI score and number of days out of work. In this study the Hazard Ratio and the confidence intervals were estimated to several variables and disability outcome in the univariate analysis. The variables that showed p value lower than 0.25 were selected to multiple analysis. The Cox regression model with robust variance was used in this stage.

Results. Participants median age was 39.2 years (SD=11.1), 58% was female, median schooling was 12 years (SD=3.5). The prevalence of disability in active workers was 16.8%. In univariate analysis gender (p=0.047), Body Mass Index (p=0.038), pain in-

tensity ($p=0.019$), fatigue ($p=0.001$), self-efficacy ($p>0.001$), fear-avoidance beliefs ($p=0.001$) and depression ($p=0.015$) were associated to disability in CLBP workers. The multiple regression model identified two independent associated factors to disability: low self-efficacy ($HR=4.67$; $1.25-13.26$) and fatigue ($HR=2.65$; $0.99-7.16$).

Conclusions. Low self-efficacy and fatigue were associated to disability in this group of workers. Interventions focused on improve self-efficacy and reduce fatigue may have an important impact in rehabilitation programs aiming to prevent and reduce disability in CLBP workers.



- P169 -

INCIDENCE RATES OF SURGICALLY TREATED RHEG-MATOGENOUS RETINAL DETACHMENT IN MANUAL WORK-ERS, NON-MANUAL WORKERS AND HOUSEWIVES OF TUS-CANY, ITALY

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Introduction. Candidate risk factors for idiopathic rhegmatogenous retinal detachment (RRD) include heavy manual handling (requiring Valsalva's maneuver) and high body mass index (BMI).

Objectives. We assessed incidence rates of surgically-treated idiopathic RRD in the general population and among manual workers, non-manual workers and housewives.

Methods. In Italy, both public and private hospitals are obliged to issue codified discharge records (even after day-treatment) for archival in patients' regions of residence; Tuscan hospitals additionally provide employment information, allowing classification of patients as manual workers, non-manual workers or full-time housewives. We retrieved all Italian discharge records bearing a principal diagnosis corresponding to idiopathic RRD (ICD-9 code 361.0-361.07, 361.9) coupled with retinal surgery (DRG code 36) for any resident of Tuscany or Emilia-Romagna (1997-2008) aged 25-59 years. We restricted the study population to subjects. We extracted population data from the 2001 census. We calculated age-standardized admission rates (per 100,000 person-years) based on the WHO Standard European Population.

Results. After eliminating repeat admissions, we identified 1,380 eligible cases (795 men). Among men, manual workers experienced a 1.9-fold higher age-standardized rate than non-manual workers (17.8 [95%CI: 16.3-19.4] vs. 9.2 [8.0-10.4]). Among women, age-standardized rates were ~2-fold higher among both manual workers (11.1 [9.6-12.6]) and housewives (10.8 [9.2-12.4]) than in non-manual workers (5.6 [4.5-6.6]).

Conclusions. This study suggests that manual workers are more often affected by idiopathic RRD than non-manual workers. The findings accord with the hypothesis that heavy manual handling and high BMI have a causal role.



- P170 -

PROFESSIONAL EXPOSURE TO BLOOD BORNE PATHOGENS IN AP VOJVODINA, SERBIA

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Introduction. Blood borne infections (HIV, hepatitis B and C) are important treat to health care workers. Despite the fact most of them are easily preventable, they are not rare in low and middle income countries.

Objectives. The aim of this study was to describe main characteristics of professional exposures to blood and other potential infectious fluids in AP Vojvodina, Serbia and appliance of preventive measures.

Methods. In AP Vojvodina surveillance for professional exposures consists of two components: reports of registered exposures from local coordinators from every health care worker and reports from counseling services that provide post-exposure counseling and prophylaxis. Data for first 6 months of surveillance were analyzed. Totally 208 exposures were registered.

Results. Professional exposures in health care institutions were most common among nurses (41%), cleaners (22%) and nursing trainees (8%) and rare among medical doctors and dentists. Most of exposures were percutaneous (94%). Mechanisms of exposures were different, but almost every forth of them was result of needle re-capping. Also common are different patterns of contact with inappropriate removed medical waste. The most common medical procedure that leads to exposure was parenteral treatment. In two thirds exposures serological status of patient remained unknown. More than 82% of exposed health care workers contacted counseling service after exposure and was evaluated for post exposure prophylaxis. Only 30% of them were completely vaccinated against hepatitis B.

Conclusions. Despite preventive measures for blood borne infections are well known and affordable, professional exposures are still very common in health care workers. Less qualified personnel is usually involved. Majority of all registered exposures were result of inappropriate appliance of preventive measures. Extended training of health care workers is needed, followed by implementation of local preventive programs.



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RISK OF OVERWEIGHT AND HEAVY SMOKING AMONG PRE-CARIOUS WORKERS IN A SAMPLE OF THE ITALIAN WORK-ING POPULATION

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Introduction. Poorer health among precarious workers, compared to permanently occupied, was reported; it is not known if this corresponds to higher frequency of unhealthy behaviours.

Objectives. To analyse risk of being overweight and heavy smoker among precarious workers, compared to permanently employed,

and of its variation by social position and geographical area.

Methods. The analysis was performed with data from the 2005 National Health Interview Survey; employed sample aged between 25 and 65 years (n=34,193) was selected. Each person was classified by job contract (permanent, precarious) and social position indicators: education (degree, diploma, lower secondary, primary or less), occupational class (manual, non-manual), satisfaction for economic resources (good, poor). Information on behavioural risk factors as smoking habits, number of cigarettes, height and weight status were also considered. Risks of being heavy smoker (more than 10 cigarettes vs. the others) and overweight (BMI ≥ 25 vs. $18.5 < \text{BMI}$).

Results. Among men, precarious workers showed higher odds of being heavy smokers (OR=1.22; 95%CI: 1.11;1.34) compared to permanent workers, while didn't report significantly higher frequency of being overweight. As for women, precarious work showed higher odds of being a heavy smoker within people with diploma (OR=1.28; 95%CI: 1.05;1.55); and higher odds of being overweight within lower secondary (OR=1.35; 95%CI: 1.13;1.60) and lower primary education (OR=1.42; 95%CI: 1.05;1.92).

Conclusions. Precarious jobs seem to be associated with behavioural risk factors, with variation by education among females.



- P172 -

ASBESTOS EXPOSURE AND RISK OF LUNG CANCER AND MESOTHELIOMA IN A COHORT OF ABOUT 13,000 MALE SUBJECTS IN TUSCANY

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Introduction. Asbestos has been used in Tuscany in a variety of productions processes. Both chrysotile and amphiboles were used in the different manufactures.

Objectives. To evaluate lung cancer and mesothelioma risks associated to different kind of fibers, to a summary index of intensity of exposure, to different latency and duration of exposure periods; to evaluate the ratio between lung cancer and pleural cancer risks.

Methods. We assembled a cohort of 13,063 male subjects who have worked in 13 factories in different industrial divisions during asbestos use era. Expert industrial hygienists (S. Silvestri, P. Legittimo) developed a factory based asbestos exposure matrix in order to define an index of exposure for each sub-cohort of the total cohort. The following parameters, defined for each five-year periods of asbestos use, from 1945 to 1995, were taken into account: type of fiber; direct/indirect asbestos use in the production processes; estimated prevalence of exposed workers and bystanders, estimated intensity and duration of asbestos exposure. All the subjects were followed-up from their entry into the cohort during the asbestos use periods to the end of follow-up (varying from 1995 to 2008). Pooling data of the cohort's members is performed to conduct a mortality analysis based on external (standard: Tuscan population) and internal (cumulative exposure sub-groups) comparisons.

Results. About 60% of the cohort was followed for 30 years or more from the beginning of exposure. A preliminary analysis based on standardized mortality ratios (SMR) calculated for each sub-cohort evidenced that the SMRs for pleural cancer varied from 3,700 (95%CI: 447-1300) to 133 (95%CI: 4-744), that for lung cancer from 133 (95%CI: 100-172) to 39 (95%CI: 11-99).

Conclusions. Further results concerning lung and mesothelioma risks associated to working in factories with different kinds of fibres and summary indexes of exposure, by latency, duration, and cumulative exposure will be presented.



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LUNG FIBER BURDEN AMONG ITALIAN SUBJECTS WITH MESOTHELIOMAS OCCUPATIONALLY OR OTHERWISE EXPOSED TO ASBESTOS

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Introduction. The analysis by Electronic Microscopy (EM) of fiber burden in the lungs of subjects has showed to provide information on previous asbestos exposure. Several factors may influence the results: sample preparation, type of EM, amplification, dimension of fibres observed, and the lag between the analysis and when exposure ceased (fibres reaching the lungs are cleared and bio-transformed).

Objectives. The study assess the lung fiber burden for subjects suffering from a certain mesothelioma (based on histology plus immuno-histochemistry) investigated in the frame of population-based mesothelioma registries. The use of asbestos has been banned in Italy since 1992.

Methods. Fresh lungs tissue samples were obtained, whenever possible, from new cases of mesotheliomas occurred among the residents in Northern Italy (Province of Brescia, Veneto Region). The analyses used a Scanning EM equipped with X ray microanalysis (procedures described in: A. Somigliana, 2008). Past asbestos exposure was derived from face to face or relatives interviews and graded by exposure circumstance and probability, following the procedure of the National Mesothelioma Registry.

Results. We comment on the results for 170 mesotheliomas (25 among women) classified as exposed to asbestos at work or with environmental and domestic exposures. Among the occupationally exposed, results are disentangle by job performed (construction, foundry, asbestos and non-asbestos textile, rag sorting, shipyard, railroad coaches construction or repair). A large range of values f/g dry tissue was observed (mean $1.2 \pm 3.2 \times 10^6$ among males; 3.2 ± 9.6 among females); values are higher among those exposed at work (mean: 1.5 ± 4.9) vs non occupationally exposed (mean: 0.1 ± 1.5). The highest values were observed among women employed in rag sorting. The large majority of occupationally exposed subjects had predominantly amphibole fibres over one million f/g dry tissue.

Conclusions. The study is the largest available in Italy and offers an appreciation on the intensity of exposures to asbestos that have

occurred in several industrial sectors and exposure circumstances. In comparison with previous studies, here the fiber burden is analysed after a long time since exposure ceased.



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CUMULATIVE MORTALITY AFTER ASBESTOS EXPOSURE: AN ANALYSIS OF ETERNIT ASBESTOS CEMENT WORKERS COHORT

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Introduction. The Eternit factory of Casale Monferrato (Italy) was an important Italian plant producing asbestos-cement. Previous studies showed an increase of mortality from lung cancer, pleural (PLM) and peritoneal (PeM) malignancies as well as from other asbestos related diseases.

Objectives. To analyze the cumulative mortality trend for PLM and PeM by latency and age at first exposure and duration of exposure, with consideration for competitive causes of death.

Methods. The Eternit cohort is composed by 3,434 subject active in 1950 or hired in 1950-86, ascertained from company records. The analyses of time to death were conducted as proportional hazard regression models using a competing risk approach; the competing events were defined as PLM, PeM and "other causes of death".

Results. Cumulative mortality (probability) is presented at 70 years of latency: it was 0.08 (8%) for PLM and 0.04 for PeM, corrected for competitive causes of death. For PLM it was 0.09 for early exposed (age <30) workers and 0.07 for the others (p=0.096); considering duration, it was 0.06 for duration of exposure <5 years, 0.07 for 5-15 years and 0.09 for duration >15 years (p=0.025). PeM cumulative mortality was 0.05 for early exposed worker and 0.02 for the others (p=0.0004); by duration of exposure it was 0.01 for duration <5 years, 0.02 for 5-15 years and 0.05 for duration >15 years (p=0.0003). Similar trends were observed when age was used as time scale (data not shown).

Conclusions. This study confirms, with an analytical approach that is seldom used in cohort studies, the increased risk of PLM e PeM with increasing duration and early exposure. Analyses are in progress to explore the joint effect of other exposure related variables.



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MALIGNANT MESOTHELIOMA AND ASBESTOS EXPOSURE IN THE LOMBARDY REGION, ITALY, 2000-2004

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Introduction. The Lombardy Mesothelioma Registry (RML), established in 2000 in the most populated and industrialized region of Italy, collects all incident cases of Malignant Mesothelioma

(MM). Diagnosis is made according to National Register Guidelines. A standardized questionnaire is administered to patients or their next-of-kin to identify sources of asbestos exposure.

Objectives. To evaluate sources of asbestos exposure across gender, age, time, and interview type.

Methods. From the regional MM database we abstracted the years with complete evaluation. We calculated gender-specific age-standardized rates (standard: Italy 2001). We analyzed variations in the annual number of cases with Poisson regression. We evaluated asbestos exposure profile (occupational, domestic/environmental, unlikely/unknown exposure) across gender, age, year, and interview type using multiple multinomial logistic regression.

Results. In the period 2000-2004 we recorded and evaluated for asbestos exposure 1,457 confirmed MM cases (943 men, 514 women). The age-standardized rates were 5.1 (men) and 2.0x100,000/year (women). The average annual number of cases was 291.4, with small variations across the years (p=0.56). Direct interview was obtained in 1,211 cases (87.6%). Occupational exposure (main sectors: construction, metal manufacture, textile, machine production and maintenance) was found for 656 (69.6%) men and 186 (39.2%) women (p <0.001). Non-occupational asbestos exposure was more frequent (p <0.001) among women (No. 66, 13.5%) than in men (No. 33, 3.5%). We found higher frequency of asbestos exposure in the ages 50-74. The exposure profile did not vary over years (p=0.32). Direct interviews were more likely to identify asbestos exposure (p <0.001). These results were confirmed in multiple regression models.

Conclusions. Incidence rates of MM in Lombardy are among the highest in Italy. Asbestos exposure was more frequent among men; we found no variation of the exposure profiles over time.

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PAIN MEDICATION AMONG CHILDREN AND ADOLESCENTS IN GERMANY. RESULTS OF THE GERMAN HEALTH INTERVIEW AND EXAMINATION SURVEY FOR CHILDREN AND ADOLESCENTS

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Introduction. Therapy of pain with analgesics is common among children and adolescents. Excluding self-medicated drug use, statistics of prescription data underestimate their real use. The German Health Interview and Examination Survey for Children and Adolescents (KiGGS) for the first time covered the whole spectrum of pain medication (self-medicated and prescribed) among children and adolescents in Germany.

Objectives. To describe the prevalence and users' profiles of analgesic consumption in association with socio-demographic and health-related factors.

Methods. Last-week medicine use was recorded among 14, 836 children aged 3-17 years who participated in KiGGS. All prepa-

rations with ATC-Codes N02, M01 and M02 were included as an analgesic medication in the analysis. The complex sample method was used to estimate the prevalence of, and factors associated with, analgesic use.

Results. 1,317 analgesics were used by 1,239 children. The population-weighted prevalence rate was 8.9% (8.3-9.5). Girls showed a significantly higher analgesic usage than boys (10.4% vs. 7.5%, $p < 0.001$). Paracetamol, aspirin and ibuprofen were the most frequently used analgesics with a users' prevalence rate of 3.4%, 1.6% and 1.4%, respectively. The most frequently self-reported indications were the management of pain (81.6%) and fevers (12.2%). 67.5% of the analgesics were self-medicated (bought as OTC-drugs or from other sources) while 32.5% were prescribed. Analgesic use was closely related to gender, age and health status, with significantly higher prevalence rates in the age groups of 11-13 years (OR 1.97; 95%CI: 1.58-2.45) and 14-17 years (3.22; 2.61-3.97) in girls (1.45; 1.26-1.67) and children with a poor health status (1.73; 1.31-2.27).

Conclusions. Analgesic use is particularly prevalent in adolescent girls and children with a poor health status. The high level of self-medicated analgesics use should be closely monitored for potential risks of drug dependence and abuse.



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MATERNAL ANEMIA AND LOW HAEMOGLOBIN LEVELS DURING PREGNANCY AND RISK OF ASTHMA IN OFFSPRING; A BIRTH-REGISTER STUDY OF 38,410 MOTHER-CHILD-PAIRS

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Introduction. The significance of maternal anemia and haemoglobin levels during pregnancy in connection with later health of offspring is poorly defined.

Objectives. To determine whether maternal haemoglobin levels or anemia in different trimesters of pregnancy are associated with the development of asthma among offspring.

Methods. Data were retrieved from the population-based birth register database of Kuopio University Hospital regarding women with live singleton births on or after the 22nd week of gestation in 1989-2008 ($n=38,410$). Haemoglobin levels had been measured during the three trimesters of pregnancy. The prevalence of asthma among offspring was determined from the register of reimbursement for medication for asthma at the Finnish Social Security Institution. Anemia during pregnancy was defined by WHO criteria.

Results. 8,211 (21.4%) women had had anemia (<110 g/l) at some stage of pregnancy, with frequencies of 2.7%, 14.0% and 12.9% in the first to third trimesters. Mild maternal anemia (Hb 90-109 g/l) during the first trimester was associated with an increased risk of asthma (aOR 1.52; 95%CI: 1.12-2.06) and an increased risk of early-onset persistent and late-onset asthma (aOR 1.64; 95%CI: 1.18-2.28) among male offspring compared with those with normal maternal haemoglobin levels (Hb 110-144 g/l). Further, significantly less asthma was found in male offspring of

mothers in the two highest quintiles of haemoglobin levels (>121 g/l) during the second trimester, compared with male children of women in the lowest quintile (<112 g/l), even after adjustments.

Conclusions. Male offspring with maternal anemia during the first trimester of pregnancy had significantly more asthma than those of women with normal haemoglobin levels during pregnancy. These findings were not strong but suggest possible sex-specific effects of maternal health on prenatal programming and future risk of asthma.



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MATERNAL HAEMOGLOBIN BETWEEN 9.0 AND 10.9 G/DL IS ASSOCIATED WITH THE MOST FAVOURABLE FOETAL OUTCOMES IN MONCHEGORSK, RUSSIA: A REGISTRY-BASED STUDY ON 25 THOUSAND BIRTHS

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Introduction. Many studies have suggested that anaemia in pregnant women is associated with unfavourable pregnancy outcomes, although the findings varied greatly between countries. Russia is among the countries with the highest prevalence of anaemia in pregnancy in Europe, but the evidence on the association between haemoglobin levels and pregnancy outcomes from Russia is limited.

Objectives. To study associations between blood haemoglobin in pregnant women and preterm births and foetal growth in a Russian setting.

Methods. A registry-based study. Data on 25,158 births in a town of Monchegorsk (Northwest Russia) in 1973-2001 were obtained from the Kola Birth Registry. Maternal haemoglobin was classified as <9.0 , 9.0-9.9, 10.0-10.9, 11.0-11.9 and 12.0+ g/dL. Logistic regression was used to estimate independent associations between haemoglobin levels and stillbirths and preterm births adjusted for potential confounders. Associations between haemoglobin and birth weight were analysed with multiple linear regression with additional adjustment for gestational age to separate its effect on foetal growth from the effect on preterm birth.

Results. Maternal haemoglobin levels of <9.0 , 9.0-9.9, 10.0-10.9 and 11.0-11.9 g/dL were associated with lower odds of preterm birth (OR=0.53; 95%CI: 0.33-0.87; OR=0.53; 95%CI: 0.39-0.72; OR=0.47; 95%CI: 0.38-0.58 and OR=0.76; 95%CI: 0.65-0.89, respectively) compared to the level of 12.0 g/dL or more after adjustment for maternal age, parity, education, smoking and alcohol consumption. Corresponding adjusted differences in average birth weight between the groups were 49 g (95%CI: 7-91), 73 g (95%CI: 49-97), 68 g (95%CI: 52-84) and 34 g (95%CI: 21-47).

Conclusions. Maternal haemoglobin between 9.0 and 10.9 g/dL, which could be classified as anaemia by both local and the WHO definitions is associated with the most favourable foetal outcomes in the study setting. Mechanisms behind this association will be discussed.

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BIRTH DEFECTS IN A 10 KM AREA SURROUNDING NUCLEAR POWER PLANTSWiesel A,¹ Spix C,² Wahrendorf J,³ Stolz G,¹ Queißer-Luft A¹¹Birth Registry Mainz Model, Dept. of Pediatrics, Medical Center of the University of Mainz, Germany; ²IMBEI, University Medical Center of the Johannes Gutenberg University Mainz, Germany; ³Department of Environmental Epidemiology, German Cancer Research Institute, Heidelberg, Germany

Introduction. In general nuclear power plants are suspected to cause adverse health effects. To this date, information supporting a teratogenic risk of ionising radiation is mainly based on data after military abuse (e.g. Hiroshima), disasters (e.g. Tschernobyl), or high dose animal experiments. However, the question remains, whether living close to nuclear power plants increases the teratogenic risk in "normal live".

Objectives. This population based cohort study ascertained 6,038 infants born between 11/2006 and 02/2008, focusing on possible teratogenic effects of living in the vicinity of nuclear power plants.

Methods. The offspring of mothers residing within a 10 km radius of two randomly selected reactors in Germany in the 1st trimester of pregnancy, were compared to infants from a region >20 km distance to a reactor. Methods were based on the Birth Registry "Mainz Model". All live-/stillbirths and terminations of pregnancy following prenatal diagnosis in the region were examined and anamnestic data acquired by specially trained study paediatricians. Birth defects were defined as outcome. A risk estimate (RR; one-sided lower 95%CL) was calculated comparing the two regions.

Results. The prevalence of birth defects in the study region was 4.5% (n=108/2,423) and 4.7% (n=135/2,850) in the comparison region, corresponding to a crude RR=0.94 (ICL=0.76, p=0.82). Adjusting for known risk factors yielded a RR=0.90. Using geo-coded residential addresses within the exposed region did not reveal an association with individual distance (crude p=0.38/adjusted p=0.33). Explorative analysed of the whole cohort showed an increased birth defect prevalence for mothers occupationally exposed to ionizing radiation (crude RR=3.3; 95%CI: 1.2-8.8).

Conclusions. Residential vicinity to a reactor had no effect on birth defects. The effect of occupational exposure needs further evaluation.



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EXPOSURE TO DISINFECTION BY-PRODUCTS IN DRINKING WATER DURING PREGNANCY AND CONGENITAL ANOMALIES. A CASE-CONTROL STUDY IN THE EMILIA-ROMAGNA REGION (NORTHERN ITALY)Righi E,¹ Bechtold P,¹ Mariosa D,¹ Mastroianni K,¹ Giacobazzi P,¹ Predieri G,¹ Calzolari E,² Astolfi G,³ Lauriola P,⁴ Tortorici D,⁵ Fantuzzi G,¹ Aggazzotti G¹¹University of Modena e Reggio Emilia, Italy; ²University of Ferrara, Italy; ³University of Ferrara, Italy; ⁴Regional Agency for Environmental Protection in Emilia-Romagna, Italy; ⁵Regional Agency for Health and Social Care, Emilia-Romagna, Italy

Introduction. Epidemiological and toxicological studies suggest that exposure during pregnancy to various Disinfection by-products (DBPs), mainly Trihalomethanes (THMs), can increase the

risk of congenital malformations (CA), however evidence is not conclusive. This study aimed at investigating the association between CA and different DBPs in an area, where various disinfectants are used.

Methods. A register based case-control study was carried out in Emilia-Romagna Region. Data on chromosomal anomalies and different CA (neural tube, cardiovascular, abdominal wall, cleft lip and palate, respiratory, genital and urinary tract defects) occurred in the period 2002-2005 were extracted from the Regional Malformation Registry. Controls (newborns without malformations) were randomly selected from the Regional Birth Register and frequency matched to cases according to pregnancy period. The network supplying drinking water during the first trimester of pregnancy was identified on the basis of mother's address: DBPs data, technical and structural information were linked to each subject.

Results. Overall, THMs levels were very low ($3.8 \pm 3.6 \mu\text{g/l}$) and no risk excess was observed. Chlorite and chlorate values were fairly high ($427 \pm 184 \mu\text{g/l}$ and $283 \pm 78 \mu\text{g/l}$, respectively). In comparison to those exposed to levels $700 \mu\text{g/l}$ were, after adjusting for personal, reproductive and socio-economical confounders, at higher risk of newborns with renal defects (OR: 3.3; 95%CI: 1.4-8.1), abdominal wall defects (OR: 6.9; 95%CI: 1.7-28), cleft palate (OR: 4.1; 95%CI: 0.98-16.8); while women with chlorate level $>200 \mu\text{g/l}$ were at higher risk of newborns with obstructive urinary defects (OR: 2.9; 95%CI: 1.1-7.6), spina bifida (OR: 4.94; 95%CI: 1.1-22).

Conclusions. This was the first study evaluating the relationship between CA and both THMs and chlorite/chlorate exposure: significant increased risks were observed, mainly for urinary tract defects, when chlorite and chlorate exposure occurred.



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RESPIRATORY HEALTH AT 5 YEARS IN A COHORT OF VERY PRETERM NEWBORNS AND AT TERM CONTROLSDa Frè M,¹ Franchi S,² Aversa L,¹ Calogero C,³ Allodi G,⁴ Lombardi E,³ Mele L,³ Voller F,¹ Rusconi F²¹Unit of Epidemiology, Regional Health Agency of Tuscany, Florence, Italy; ²Unit of Epidemiology, Anna Meyer Children's Hospital, Florence, Italy; ³Unit of Pulmonology, Anna Meyer Children's Hospital, Florence, Italy; ⁴Dept. of Hygiene, University of Florence, Italy

Introduction. Advances in perinatal care have modified respiratory health of very preterm infants [newborns with gestational age (GA) <32 weeks]. Recent studies of geographically defined populations are lacking.

Objectives. To explore respiratory morbidities at 5 years in a regional cohort of very preterm newborns recruited in the national ACTION project in comparison with a control group.

Methods. All infants born at 22-31 weeks of GA in the Region Tuscany (Italy) between July 2003 and June 2004 were prospectively followed up at 5 years and invited to be interviewed (postal questionnaire). The same interview was performed to a control group of children born at term, randomly selected from the Regional Health Registry, and matched by sex and place of residence.

Results. Out of 237 discharged infants, 184 (78%) took part in the study. Median GA was 29 weeks (range 23-31) and mean birth

weight 1,277 grams (range 490-2,200). 362 controls were interviewed, response rate: 73%. Mean age at follow-up was 61 months for cases and 60 for controls. 7.2% of cases were admitted to the hospital more than one time life-time for respiratory illnesses vs 0.3% of controls. Cases presented significantly higher proportions than controls in respiratory illnesses also considering only the last 12 months: wheezing (27.7% vs 13.4%), severe wheezing (11.4% vs 5.8%), bronchodilators use (38.8% vs 22.2%), topic steroids use (49.7% vs 41.1%) and frequent snoring (15.3% vs 7.9%), which is one of the signs of upper airways obstruction.

Conclusions. An area-based cohort of very preterm infants still presented at 5 years significantly higher frequency of respiratory illnesses and drugs use than controls. More frequent/severe snoring is a novel finding that requires further investigation.



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HUMAN RESOURCES DEDICATED TO THE BIRTH PROCESS WITHIN THE LOCAL HEALTH UNIT IN TREVISO: FEATURES, KNOWLEDGE OF ALCOHOL EFFECTS, AWARENESS AND PREVENTION OF FETAL ALCOHOL SYNDROME DISORDERS (FASD)

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Introduction. Alcohol exposure of the unborn child is considered the main cause of cognitive non-genetic disability in the western world. Alcohol consumption, also during pregnancy, is a well-rooted behavior among people living in the area of the Local Health Unit of Treviso (414,503 residents). A survey on the competencies of health professionals dedicated to the birth process has been performed, before planning a prevention campaign on the FASD issue.

Objectives. To produce a descriptive analysis of knowledge about FASD and to identify critical points and training needs.

Methods. In 2009 the Local Health Unit 9 Treviso mapped the health professionals working in different services and involved in the birth process. Health professionals were administered a questionnaire with 43 items which investigated the following areas: demographic, professional and training features; different kind of employment contacts; economic satisfaction; knowledge of all risk factors during pregnancy, including the consequences of alcohol use during pregnancy and breastfeeding; opinions on alcohol use in general, and on alcohol consumption in pregnancy and breastfeeding; attitudes on alcohol consumption in the clinical settings.

Results. 302 questionnaires have been completed. 89% of health professionals are women; 24% are medical doctors, 20% midwives, 35% nurses, 76% work in the hospitals. 65% of the sample declares they know about FASD, 71% know that alcohol consumption is a risky behavior independently from the dose. 53% knows the meaning of alcohol abuse. 28% refer they had experience of FASD related problems (4,36 cases on the average). Only 12% provide people with the information that alcohol must be avoided, whereas 40%

speak about alcohol use in the context of food information. 83% believe a local survey on the subject extremely helpful.

Conclusions. There is a clear correlation between knowledge of alcohol negative consequences and provision of correct information to women.



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HOSPITALIZATION BEFORE DELIVERY IN TUSCANY

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Introduction. Maternal morbidity is a group of physical or psychological conditions, resulting from or aggravated by pregnancy when it adversely affects a woman's health. Conditions resulting in hospitalization prior to admission for labor and delivery represent one indicator of maternal morbidity.

Objectives. The objective of this study is to examine hospitalization during pregnancy in Tuscany and the factors associated with it.

Methods. We used administrative data (delivery assistance database and hospital discharge database) to examine the prevalence of hospitalization during pregnancy, the factors associated with hospitalization during pregnancy, the distribution of the number of hospital visits, the reasons and length of stay. To this purpose we carried out a record-linkage between hospital discharge database and delivery assistance database to reconstruct the "hospital history" of the individual pregnant women.

Results. The proportion of women who had one or more hospitalizations during pregnancy decreased from 20.5% in 2002 to 14.6% in 2008. Women 25 years old and older had significantly lower hospitalizations than women under 25 years. Women with low educational status and primipare were more likely to be hospitalized during pregnancy. The majority of hospitalizations during pregnancy occurred in the third trimester (63.9%), with 20.4% in the second trimester and 15.6% in the first trimester. Bleeding remained the leading cause of hospitalizations during the first and the second trimester, whereas threatening preterm delivery during the third.

Conclusions. Hospitalizations during pregnancy decreased from 2002 to 2008 similarly to overall hospital admissions, which are decreasing in Italy. This decrease may represent a change in management of hospitalization primarily due to lower costs rather than improving women's health. The optimal proportion of women who should be hospitalized during pregnancy is unknown; it is important to monitor outcomes or risk reduction too hospitalizations at the expense of quality of care.



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HOW LONG DO PRECONCEPTION RISK PREDICTION MODELS HOLD? INFLUENCE OF SELECTIVE FERTILITY ON MODEL PERFORMANCE

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Introduction. Risk estimates derived from preconception prediction models can be used to counsel women with regard to any future pregnancies. Women with a high predicted risk of an adverse pregnancy outcome may decide more often not to try for another pregnancy again than women with a low predicted risk. This prediction guided selective fertility can cause a change in the composition of the pregnant population with respect to those parameters that are comprised in the prediction model.

Objectives. The question can be raised whether such a change in composition could influence performance parameters of the prediction model, such as sensitivity, specificity, positive- and negative predictive values and discriminative ability, when evaluating risks in the new population and whether it could compromise the longevity of the model.

Methods & Results. Using a hypothetical example, we show that the original sensitivity and specificity estimates of a preconception prediction model for an adverse pregnancy outcome do not hold anymore when the model is applied in a population affected by model-based selective fertility: sensitivity decreases, while specificity increases. However, individual patient risk estimates remain unbiased and discriminative ability, expressed as the area under the receiver operating characteristic (ROC) curve, remains unaffected.

Conclusions. Exposure of women to the result of a preconception risk prediction model could change performance parameters of the model. However, the prediction model still yields valid individual risk estimates, and can still be used to evaluate risks and counsel these women accordingly. In diagnostic research, several types of bias with a common underlying mechanism have been described.



- P185 -

"NEAR MISS": A NEW APPROACH TO MATERNAL MORTALITY PREVENTION IN ITALY

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Introduction. Pregnancy related "near miss" is defined as a pregnant woman with severe life-threatening conditions who, with good luck or good care, survives. In industrialized countries the study of severe maternal morbidity is a complement to the study of maternal death events. In fact, maternal mortality is becoming too rare to serve alone as a sensitive marker of the quality of services and clinical practice.

Objectives. To detect maternal near misses, analyze associated causes and compute absolute and specific severe maternal morbidity rates in 6 Regions of northern, central and southern Italy.

Methods. The Italian National Institute of Health (Istituto Superiore di Sanità) implemented a study, using hospital discharges for 2004-2005, to identify delivery hospitalizations with maternal diagnosis and procedures that indicated a potentially life-threatening diagnosis or use of life-saving procedures. As a part of a larger enquiry into severe maternal morbidity, this study assessed the incidence and possible risk factors of intensive care unit (ICU) admissions for severe pregnancy related morbidity.

Results. The ICU severe maternal morbidity rate in the participating regions was 2.3 per 1,000 deliveries. Severe morbidity was more common among women older than 34 years (RR=1.5; 95%CI: 1.3-1.7) among those who delivered by Caesarean section (RR=5.3; 95%CI: 4.6-6.1), among migrant women (RR=1.6; 95%CI: 1.4-1.9) and among those with lower educational level (RR=1.2; 95%CI: 1.0-1.5). Pregnancy associated hypertension (29%), obstetric haemorrhage (12%) and disseminated intravascular coagulation (12%) were the most common causes of admission to ICU.

Conclusions. Severe obstetric morbidity may be a more sensitive measure of pregnancy outcome than mortality alone. Understanding associated predictors provides an important contribution to assessing and improving the quality of obstetric care, reducing maternal deaths and improve maternal health.



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CARRYING OF HEAVY LOADS DURING PREGNANCY AND THE RISK OF FETAL DEATH

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Introduction. Occupational physical strain during pregnancy is subject to substantial concern about possible adverse effects on pregnancy- and birth outcomes. Results from existing literature are, however, inconclusive, and main weaknesses in previous studies have included imprecise measure on the character, intensity and timing of exposure. Pregnant women are advised not to carry too many or too heavy loads at work but also to engage in physical activity at a substantial level during leisure time. In order to disentangle these complex mechanisms, studies with specific measurement of the above parameters are needed.

Objectives. To examine the association between carrying of heavy loads at work during pregnancy and fetal death. Both cumulated loads and number of medium and heavy loads lifted per day will be analyzed.

Methods. Among 100,418 pregnancies enrolled to the Danish National Birth Cohort (DNBC) 1996-2002, the association between self-reported occupational lifting and fetal death will be analyzed using Cox regression analysis with adjustment for relevant confounders. The DNBC holds information on weight and frequency of heavy loads carried during pregnancy (at work and during leisure time), occupational status, and job title. By linking interview data to the Danish DREAM database, which includes information on all public transfer payments on a weekly basis, we will have a high degree of precision in both the character and the timing of exposure.

Results. Data are available and will be analyzed during the following months and ready for presentation at the conference in November.

Conclusions. Should results point towards negative birth outcomes following heavy lifting at work, this has great preventive potentials, e.g. by adjustment of guidelines from working environment authorities. Reassuring results would, on the other hand, down-scale unnecessary concerns among health authorities, health professionals and pregnant women.

- P187 -**ASSISTANCE DURING PREGNANCY IN TUSCANY: COMPARISON BETWEEN ITALIAN AND FOREIGN WOMEN**Puglia M,¹ Casotto V,¹ Dubini V,² Voller F,¹ Cipriani F¹¹Unit of Epidemiology, Regional Health Agency of Tuscany, Florence, Italy; ²Local Health Unit 10, Florence, Italy

Introduction. In Tuscany, 21% of deliveries come from foreign women whose socio-demographic characteristics are different from those of Italian women.

Objectives. To analyse assistance in pregnancy and differences in behaviour between Italian and foreign women.

Methods. The delivery assistance database of Tuscany for 2006-2008 has been used. Italians and foreigners from undeveloped countries have been selected for analysis. The main foreign citizenships from undeveloped countries have been considered.

Results. The majority of foreigners from undeveloped countries are followed during pregnancy by public structures, mostly by "consultorio" (65% vs 12% Italian), that is an outpatient ambulatory dedicated to women's health. For example Chinese women exclusively prefer the outpatient ambulatory (87%). 18% of foreigners from undeveloped countries make the first visit after the third month of pregnancy (Italians: 3%) and 19% make less of 3 echographies provided by the regional protocol (Italians: 2%). This percentage increases to 42% in the Chinese who are the ones with more problems in terms of access to visits and echographies. The frequency of foreigners from undeveloped countries using invasive prenatal diagnosis (chorionic villus sampling or amniocentesis) is lower than that of Italians (6% vs 34%): the Chinese, Moroccans and Albanians use those tests less frequently.

Conclusions. Italian women prefer to go to the private gynecologist, foreigners to the outpatient ambulatory. What emerges as a critical element of assistance to foreign women is the delay with which they arrive at the first access to health facilities. However the number of health services they perform is in line with regional and international recommendations, although there are differences according to citizenship.

**- P188 -****MEASURING IMPROVEMENT OF PRENATAL DIAGNOSIS EFFICIENCY IN TUSCANY**Pierini A,¹ Minichilli F,² Pieroni F,¹ Rial M,² Strigini F,³ Bianchi F¹¹Fondazione 'G. Monasterio' CNR, Regione Toscana, IFC-CNR, Pisa, Italy; ²Unit of Environmental Epidemiology, Institute Clinical Physiology, National Research Council, Pisa, Italy; ³Department of Gynaecology and Obstetrics, University of Pisa, Italy

Introduction. Congenital anomalies represent a major cause of infant mortality, childhood morbidity and long-term disability, with a prevalence at birth of 3-5%. The Tuscany Register of Congenital Defects (RTCD) was set up in 1992 to guarantee full registration of cases in the Region.

Objectives. To assess whether gestational age (GA) at diagnosis of selected congenital defects (CDs) has decreased over years in Tuscany.

Methods. Data of RTCD on births and terminated pregnancies

with prenatal diagnosis of isolated CDs among 458,278 total births surveilled over 1992-2008 was considered. Analysis was performed over three time periods: 1992-1996, 1997-2002, 2003-2008. Defects were selected among those more likely to be prenatally diagnosed: anencephaly, spina bifida, encephalocele, holoprosencephaly, omphalocele, gastroschisis, bilateral renal agenesis, transposition of great vessels (TGV), Fallot's tetralogy, hypoplastic left heart, common atrio-ventricular canal, single ventricle. Diagnostic efficiency was evaluated comparing mean gestational age differences (MGADs) at prenatal diagnosis among each period of time by univariate ANOVA, Bonferroni test and linear regression.

Results. Earlier GA at diagnosis resulted for almost all CDs. Spina bifida, omphalocele, TGV and hypoplastic left heart showed statistically significant MGADs for GA at diagnosis between the third and the first period (respectively MGAD=-6.81 p<0.001; MGAD=-6.78 p=0.073; MGAD=-13.73 p<0.01; MGAD=-6.36 p<0.05). A mean decrease of 3.10 weeks (p<0.001), 3.16 weeks (p=0.075), 3.38 weeks (p<0.05), 5.85 weeks (p<0.01), 2.33 weeks (p<0.05), for spina bifida, holoprosencephaly, omphalocele, TGV and hypoplastic left heart respectively was observed over the three periods.

Conclusions. Earlier detection time resulted for all defects considered although findings are not always statistically significant. Results show that measurement of the detection time of CDs could be used as a performance indicator.

**- P189 -****SOCIAL INEQUALITIES IN PERINATAL OUTCOMES: EMILIA-ROMAGNA REGION, 2005-2009**Caranci N,¹ Lupi C,² Baronciani D³¹Agenzia Sanitaria e Sociale Regionale, Emilia-Romagna, Bologna, Italy; ²Servizio sistema informativo sanità e politiche sociali, Regione Emilia-Romagna, Bologna, Italy; ³Centro per la valutazione dell'efficacia dell'assistenza sanitaria, Modena, Italy

Introduction. Disparities in pregnancy may have effects in adult life. Family' social gaps are associated with some neonatal conditions. It is difficult to identify such mechanisms, also only referring to perinatal outcomes, but birth certificate allows Italian Regions to study this relevant moment for health.

Objectives. To study inequalities in birth pathways among mothers having Italian citizenship by education level; between Italian mothers and foreign ones; and between main citizenships among immigrants mothers.

Methods. Birth certificates were selected to get a high statistical power, using the five-year period 2005-2009 and deliveries registered in the region. Only single newborns were considered in the analysis (N=195,862). Logistic regression was performed, controlling for mother's age, parity and marital status, in addition to education level and citizenship. Outcomes regard pregnancy (such as number and timing of visits and hospital accesses), delivery (caesarean) and newborn (low weight, preterm and death).

Results. Among Italian mothers, low education level is associated with minor assistance in pregnancy (e.g.: less than 4 visits; low Vs. high education: OR=1.45; 95%CI: 1.30-1.60), higher risk of having caesarean delivery and preterm newborn. Moreover, there is a

trend in relations observed in three categories of education (low, medium, high) considered. In comparison to Italian mothers, immigrant ones have higher risks regarding indicators of minor assistance and slightly higher risk of preterm birth. Lastly, among main citizenships of mothers there are differences.

Conclusions. The results highlight known differences between host and immigrant populations and differences by country of origins among mothers also clearly stand out. A statistically significant relation between Italian mothers' education and negative indicators analyzed has to be noted. To sum up, country of origin and social characteristics of mothers are both relevant to birth pathways.



- P190 -

PREGNANCY PLANNING IN A PORTUGUESE URBAN BIRTH COHORT

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Introduction. Pregnancy planning has positive consequences for peri-conceptional health care and well-being of women and children.

Objectives. To estimate the prevalence of self-reported planned pregnancy according to socio-demographic characteristics of women, and to characterize peri-conceptional health care in planned pregnancies.

Methods. Within a population-based birth cohort, 8,151 women were interviewed 24 to 72 hours after delivery at public maternities in Porto, Portugal. Interruption of hormonal contraception at least 3 months before conception was considered to reflect accurate planning. Attending a first obstetric evaluation before 12 weeks of gestation and taking folic acid supplements before or during the first trimester were considered adequate peri-conceptional care. The current analysis is based on 7,370 women.

Results. Overall, 67.4% of women reported to have planned their pregnancy, among whom 98.9% shared that decision with the child's father. Planned pregnancy increased with age and peaked at age 30-34 years (from 25.8% under 20 to 76.8%, $p < 0.001$). Married women reported to have planned their pregnancy significantly more often (75.6% versus 23.3% among single or divorced mothers, $p < 0.001$). The prevalence of planning increased steeply with education and income. Planning was associated with having the first obstetric evaluation before 12 weeks (71.5% vs 34.3%, $p < 0.001$) and taking folic acid supplements before the end of the first trimester (70.9% vs 61.2%, $p < 0.001$). Among women who used hormonal contraception and who reported to have planned their pregnancy, half stopped contraception at least 3 months before getting pregnant.

Conclusions. Priority-setting mechanisms need to be developed in order to increase the prevalence of planned pregnancy, focusing on younger, single and less educated women. An accurate estimation of the prevalence of planned pregnancy should include data on peri-conceptional health care.



- P191 -

DIFFERENCES ON RISK OF CESAREAN SECTION AFTER LABOUR INDUCTION ACCORDING DIFFERENT PORTUGUESE HOSPITALS

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Objectives. To assess if the risk of caesarean section (CS) after labour induction (LI) differs between hospitals and which extent this association may explain differences in CS rates.

Methods. Participants (6,688 Portuguese women) were consecutively recruited in five public hospitals (level III) during the assembling of a birth-cohort. Personal interviews were used to obtain data on socio-demographic characteristics, gynecological history and obstetric events. The risk (computed as odds ratio (OR) and 95% confidence Interval (95%CI)) of CS were considered according to hospital and adjusted for socio-demographic and obstetric characteristics. An interaction term (hospital and LI) was considered in the final model.

Results. The proportion of LI by hospital ranged from 8.9% to 25.8% ($p < 0.001$) and the proportion of CS varied between 11.4% and 26.5% ($p < 0.001$). Women with LI presented an higher adjusted rate of CS (OR=1.71; 95%CI: 1.48-1.99). There was a statistically significant interaction between hospital and LI on the risk of CS ($p=0.002$). After stratification by hospital and adjustment to characteristics of mother, the risk of CS for women with LI in comparison with those without LI was higher for three hospitals (OR=3.15; 95%CI: 1.98-5.04, OR=1.84; 95% CI: 1.38-2.46 and OR=2.04; 95%CI: 1.52-2.73) but no such effect was found in the remaining two.

Conclusions. Different associations between LI and CS across hospitals probably result from different management of LI. These differences may partially explain discrepancies in CS rates across hospitals.



- P192 -

ANTI-ASTHMATIC DRUGS AS A PROXY FOR PAEDIATRIC ASTHMA PREVALENCE: A POPULATION-BASED STUDY USING ELECTRONIC DRUG DATA AND SCREENING QUESTIONNAIRES IN NORTHERN ITALY

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Introduction. Paediatric asthma is commonly assessed by cross-sectional studies employing standardised questionnaires, often restricted to certain age groups and areas. Availability of electronic health data has increased over the last decades and would enable to overcome these restrictions.

Objectives. The study aimed at investigating the use of dispensed anti-asthmatic medication as a proxy of asthma prevalence (evalu-

ated with a standardised questionnaire) among a resident paediatric population (12536) in a North-Eastern Italian area (Rovigo and Ferrara).

Methods. A population-based cross-sectional survey was carried out in February 2004 to estimate asthma occurrence by a standardised questionnaire for children and adolescents aged 6-7 and 13. For the same age groups, dispensed anti-asthmatics were extracted from a electronic database for 2000-2003. Asthma prevalence was estimated by questionnaire and by the use of inhaled bronchodilators. Various criteria were applied to discriminate asthmatic from non-asthmatic subjects according to the number of prescriptions.

Results. 11,073 questionnaire were evaluated and 10,252 subjects were eligible (92% and 85% of the total population). 4,747 subjects has at least 1 prescription for anti-asthmatics (38% of the total population) during 2000-2003. Prevalence of current asthma by questionnaire was 3.1%, and 2.3% for subjects with >1 dispensed drug in 2003. Prevalence of lifetime asthma was 5.7%, and 3.7% for subjects with >1 dispensed drug during 2000-2003. These prevalences are higher in male and in children. Congruence between the two instruments varied according to the applied criteria.

Conclusions. In order to routinely use medication data, further research is required to obtain a drug-based classification system able to estimate asthma prevalence and enable an economic and quick tool for asthma assessment and potential population-based surveillance system, as inclusion of other drug categories to improve traceability of asthma.



- P193 -

TOPICAL CORTICOSTEROID FEAR AMONG PARENTS OF PRE-SCHOOL CHILDREN WITH ATOPIC DERMATITIS IN NORTH-WEST RUSSIA: A CROSS-SECTIONAL STUDY

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Introduction. Topical glucocorticoids (TGC) play an important role in treatment of atopic dermatitis (AD) in children. Numerous international studies showed high prevalence of topical glucocorticoids fear (TGCF) in parents of AD children. However, the evidence from Russia at present is non-existent.

Objectives. To assess the prevalence of TGCF and compliance to treatment in parents of children with AD attending kindergartens in Severodvinsk (Northwest Russia) as well as parental knowledge about AD causation and management.

Methods. A cross-sectional study. In January-March 2010, parents of all 417 children (age range: 1-7 years) with recorded AD in medical documentation in kindergartens were asked to fill out an anonymous questionnaire on beliefs and practices of TGC use, knowledge of AD causation and management, compliance to treatment and socio-demographic characteristics. Associations between variables were analysed using Pearson's chi-squared tests and Fisher's exact tests where appropriate.

Results. TGCF was observed in 92% (95%CI: 88-94) respondents. Among parents whose children were prescribed TGC (n=157), 57% (95%CI: 49-64) admitted non-compliance to treatment. Medical personnel (60%), medical literature (32%) and Internet (26%) were the most common sources of TGC knowledge among parents. Altogether, 24% of parents (95%CI: 19-29) showed an acceptable level of knowledge about AD causation and management. Parental and child socio-demographic characteristics were not associated with TGCF. Higher education (p=0.016) and male gender of a responding parent (p=0.024) were associated with non-compliance to TGC treatment.

Conclusions. The study results revealed very high prevalence of TGCF, high non-compliance to treatment, insufficient knowledge of AD causation and management among Russian parents of preschool children with AD. Better communication between doctors and parents is recommended to reduce TGCF and improve compliance to treatment.

Tobacco control

- P194 -

PHYSICAL ACTIVITY-BASED SMOKING CESSATION INTERVENTION FOR PREGNANT WOMEN

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Introduction. Smoking during pregnancy is harmful to the fetus, mother, and the child after the birth. In Piedmont 20% of women under 44 years of age smoke, and 38% of them do not stop during pregnancy. Moreover 75% of women who stop smoking during this period are not more abstinent 6 months after delivery. Studies suggest that moderate intensity physical activity (equivalent to a brisk walk) contributes to reduce craving symptoms in abstinent smokers.

Objectives. To evaluate the efficacy of an intervention that combine physical activity with behavioural counselling to promote smoking cessation in pregnant women followed by local Health Units.

Methods. The two-year controlled study has placed in 8 local Health Units in Turin. About 300 pregnant smokers who have access for the first visit receive a short counselling by midwives. The psychologist of the Smoking Cessation Unit calls every woman selected to propose the intervention: a pregnancy-specific behavioural support and eight weekly sessions of supervised exercise. To compare the intervention a control group receives only the counselling delivered by midwives. Follow up is carried out 6 months and one year after the conclusion of the intervention. The study will end in June 2012.

Results. In November we expect to present results of first 150 women recruited. First considerations about the acceptability of the intervention and the impact on smoking cessation rates will be discussed.

Conclusions. New strategies to make smoking cessation interventions more feasible and attractive are needed. The use of physical activity to control craving symptoms in pregnant smokers could represent an opportunity to improve cessation rates in this risk group.

- P195 -

EFFECTS OF A RESTRICTED SMOKING POLICY IN A WORK-PLACE

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Introduction. In 2006 a large Italian company (glass manufacture) introduced a more restricting smoking policy in one of its factory complying with the recent Italian smoking law. As a consequence pre existing indoor smoking rooms were no longer allowed and definitely closed. An health promotion program that include a smoking cessation intervention was carry out involving 500 employees for two years.

Objectives. Objective of the project was to evaluate changes of Environmental Tobacco Smoke (ETS) in the workplace and the level of smoking prevalence reduction.

Methods. A self reported questionnaire administered before and after intervention, investigated the smoking habit, the perception of the smoke problem in the company and the agreement level with the new smoking policy. The smokers was involved in a group cessation therapy offered by the company and performed during the work time.

Results. After the intervention we observed a diminution in average of cigarettes smoked in the workplace (-50 %, p=0.0013). There was a significant diminution (-31,7%, p=0.021) of the exposition to ETS in the bathrooms and also of the number of workers seen smoking, in the workplace (-38% p=0.043). We observed a reduction in the smoking prevalence (-7%, p=0.039).

Conclusions. The workplace can be an effective setting for interventions focusing on the working environment. The diminution of smoking prevalence in this setting is consistent with those found in similar conditions. To continue the monitoring of changes over time, would be useful to evaluate the real impact of the intervention.



- P196 -

TOBACCO AND ALCOHOL USE: ADOLESCENTS' POINT OF VIEW

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Introduction. Tobacco and alcohol use is increasing and widespread among adolescents. The recent prevention campaigns, focused on harmful effects and on prohibitions, do not seem to be effective in this target group.

Objectives. Information gathered by this study should foster the development of prevention campaigns targeting adolescents and focusing on their values and life-vision.

Methods. Our hypothesis is that tobacco and alcohol use are pieces of the whole adolescents' wellbeing, included in their life context, life satisfaction, locus of control, opinions on pregnancy, family context. A questionnaire has been developed and administered to a casual sample of 616 preadolescents attending the year of secondary school (age 13-14). Four main areas have been analysed: individual description, well-

being values, opinions on a healthy and safe pregnancy, alcohol consumption (AUDIT-C screening test).

Results. The answer rate is 92%. The questionnaire's internal consistency is satisfactory (Alpha: 0.806). 75% of our sample believes smoking is not at all useful for wellbeing, whereas 9% believes it useful. This opinion is related to the idea that it is useful to drink in weekends (rho: 0.399 p: 0.000) and to drink 4/5 glasses of wine every day (rho: 0.385 p: 0.000), as well as to the life edonistic values also during pregnancy. It is also related to spirits consumption with their families (rho: 0.396 p: 0.000), or by themselves (rho: 0.296 p: 0.000). It is inversely associated to their satisfaction in terms of school performances, relationship with their parents, health, interests, residency. Italian women's children have a better opinion on smoking during pregnancy (GOR: 1.675; 95%CI: 1.017-2.758). The same is true for those children who do not live with their mothers (GOR: 3.356; 95%CI: 1.373-8.2).

Conclusions. Adolescents consider tobacco and alcohol use in a very peculiar way. Prevention campaigns must be developed in the context of their values and their world vision.



- P197 -

DEFINING A TARGET PROFILE FOR PROMOTING SMOKING CESSATION IN ITALY

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Introduction. In Italy, smoking cessation programmes rarely consider the characteristics of people who make quit attempts during life as an useful starting point for effective intervention. Behavioural risk factor surveillance systems provide information about sociodemographic and health profile of smokers who express intention to quit smoking and represent a potential target of cessation treatment and health promotion intervention.

Objectives. To evaluate the percentage of people who reported smoking cessation or at least an attempt once in the last 12 months; to investigate the association between the attempt and sociodemographic, behavioural and clinical variables.

Methods. Data collected in 2008 from PASSI, the Italian behavioural risk factor surveillance system based on telephone interviews of residents aged 18-69 years, were analyzed to identify factors associated to quit smoking attempts.

Results. Sample analyzed included 18,281 current and ex-smokers. Around two out of three people (11,881) tried to quit smoking and among them 3,911 (34%) failed the attempt. A multivariate analysis showed that smoking cessation attempt was more likely among males, elder (50-69 years) and married people; among those living with children (<14 yrs), with a temporary job, without economic difficulties and with a high level of education; among those with cardiovascular risk factors (hypertension, hypercholesterolemia, obesity) and those affected by chronic diseases (almost one among cancer, diabetes and myocardial infarction). Sedentary people and those with good perceived health status are less intentioned to quit. Stratification by sex showed a different strength of association between the outcome variable and

other variables in males and females, but most important that education and perceived health status are not associated with the attempt to quit smoking among women.

Conclusions. Population-based surveillance system tracking the characteristics of ex and current smokers, who tried to quit, offer information, for planning, implementing and evaluating promotion and prevention interventions to support people who try to quit smoking.



- P198 -

TOWARD A SMOKE FREE MINISTRY OF HEALTH IN ITALY

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Introduction. In 2009, a health promotion initiative targeted the employees of the Italian Ministry of Health aimed to promote compliance with the smoking ban and provide support for any smoker employees who wanted to quit, by providing free of charge tobacco cessation programme, available during working hours. Activities included: an information seminar on the risks of smoking; a questionnaire-based survey on the smoking habits of employees in the Ministry of Health headquarter; The launch of "Groups to quit smoking" run by personnel from the Italian anti-cancer league (LILT).

Results. The programme is still ongoing but some results can be highlighted: The seminar held on February was attended by over 200 employees; all employees received an information booklet on the damage caused by smoking; the survey on the smoking habits of employees was completed. Out of the 1,244 questionnaires distributed, 1,030 were returned (participation rate 82.8%), analyses were carried out on 994 of them. Data showed that 25.1% of employees are smokers, smoking an average of 13.3 cigarettes a day; 43% of them are heavy smokers. Sixty-three percent of smoking employees claim they want to quit, but only 40% of them were advised to do so by their physician. Non-smokers account for 50.5% of employees, and former smokers 24.4%; second-hand smoke is a serious nuisance for 61% of them. Thirty-six percent of non-smokers is exposed to second-hand smoke in different places within the Ministry, including their own room and other rooms (in 2% and 6% of cases respectively) Four tobacco cessation courses were launched in May 2009. A total of 74 employees (29% of smoking employees), signed up. Of these, 57 participated, and after having completed the course, 32 (56%) quit smoking and 25 (44%) smoked fewer cigarettes a day. Follow-up activities six months after the completion of the course are currently ongoing, and the rate of abstention from smoking is above 37%, in line with data reported in the literature. A new course has been launched in January 2010, 22 employees participated and at the end of the course 32% quit smoking.

Conclusions. Law that bans smoking together with cessation program, free of charge and during working hours, are useful to protect non smokers from passive smoking and to help smokers to quit.



- P199 -

SCHOOL PROGRAMME TO PREVENT SMOKING

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Introduction. The Ministry of Health's Disease Prevention and Control Centre (CCM) has promoted the implementation of 14 projects to support activities to prevent smoking and to achieve the smoking targets set out in the "Gaining Health" programme. One of the most important is the "Support for smoking prevention initiatives: from regional planning to corporate planning" project. Pilot schemes will be developed under this project in the Healthcare Authorities in 5 specific areas: services for giving up smoking; prevention measures for young people; networking of health professional; community schemes; work place. The Veneto region has the responsibility of coordinating the activities for the second area.

Objectives. To foster smoking prevention and health promotion schemes targeted children in the primary school age, in order to build up a smoking-free society in the near future.

Results. A survey of all the preventive activities being implemented in schools all over the country has been conducted. Of the 221 projects enumerated, five examples of "best practices" that can easily be reproduced in schools at all levels have been selected: "A Pass for Sunshine city" for kindergartens; "Infancy in colour /the winners' Club" for primary schools; "Free to choose" and "Towards an unexplored planet" lower secondary schools; "Smoke-free Class Competition" for lower and upper secondary schools; "Smoking-free schools" for upper secondary schools. These projects have been distributed to the Health Authority schools identified in each Region. Meetings have been held to present them to the operators concerned and provide them with specific training. Continuing the work undertaken in the 2008/2009 school year, it is also planned to disseminate smoking prevention workshops for secondary school pupils along the lines of the benchmark model 'Smoking pathways' realized by the Italian League Against Cancer.



- P200 -

SPRINT STUDY : INTERVENTION TRIAL ON COUNSELLING FOR SMOKING CESSATION AND PHYSICAL HEALTH THE FEMALE SMOKERS ATTENDING CERVICAL CANCER SCREENING PROGRAMS

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Introduction. Smoking is the leading cause of death and of many diseases. Specific prevention strategies need to be devoted to helping young female smokers to quit. Young smoking women have a low spontaneous cessation rates, they are at higher risk if they use oral contraceptives, and they represent a risk to their foetus or child. The results of a previous pilot study suggested the importance to evaluate the efficacy of an intervention on smoking prevention on the occasion of cervical cancer screening programs that represents an opportunity to contact a

large amount of young female smokers.

Objectives. To develop and evaluate the efficacy of an intervention of smoking prevention to be targeted to female smokers attending cervical cancer screening programs.

Methods. Randomized trial on 1,293 female smokers attending cervical cancer screening programs in 3 Italian Regions (Tuscany, Piedmont and Lombardy). Those who voluntarily participate in the study are randomized in 3 groups: 1 control group and 2 intervention groups (the 1st on smoking cessation and the 2nd also on physical activity). All women have to complete a questionnaire necessary to harmonize the following counselling with each participant's motivation (the Prochaska and Di Clemente's model is used), and received an information booklet. The intervention will be evaluated considering the quitting rate, the changes in smoking intensity and in motivation to quit, at 6 and 12 months after enrolment.

Results. The study is on-going: up to now 1,089 female smokers have been enrolled in the study. The study design will be presented, as well the characteristics of women participating in the study and their motivation to achieve health benefits related to smoking cessation and regular physical activity.

Conclusions. The developed intervention represents a concerted procedure with different health professionals: psychologists, midwives, health assistants, gynaecologists and epidemiologists.



- P201 -

SMOKING IN CAR: MONITORING POLLUTION OF PARTICULATE MATTER AS MASS AND AS PARTICLE NUMBER, OF ORGANIC VOLATILE COMPOUNDS AND OF CARBON MONOXIDE. EVALUATING THE MOST SUITABLE ENVIRONMENTAL TOBACCO SMOKE MARKER, AND THE EFFECT OF OPENING THE DRIVER'S WINDOW

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Introduction. Smoking in car results in extremely high levels of pollutants from environmental tobacco smoke (ETS), which may represent an acute health hazard for children and sensitive groups. Smokers believe that collecting pollutants inside the car can be prevented by window opening.

Objectives. To identify the most sensitive marker for ETS inside a car, and to verify the efficacy of window opening.

Methods. We used real time analyzers to measure: a) particulate matter (PM) as mass ($\mu\text{g}/\text{m}^3$), b) as >0.3 e >0.4 μm particle number, c) number of particles 0.3 - 0.4 μm in diameter, d) total organic volatile compounds (TVOC), e) carbon monoxide (CO). The recordings were carried out inside a car at the speed of 50 km/h, with controlled conditions of temperature and relative humidity.

Results. After lighting a cigarette, with window closed, the levels of all the pollutants increased dramatically, up to 700 $\mu\text{g}/\text{m}^3$ for PM_{2.5} and PM₁₀, and of over 600,000 particles/l, while TVOC

reached values of 6000 $\mu\text{g}/\text{m}^3$ and CO up to 6 ppm. When a cigarette was lit with the window open, excess pollution was promptly recorded, although less intense. With the window completely open, ETS contributed scantily to all pollutants, except for particle number, which increased dramatically up to over 300,000/l.

Conclusions. Smoking just a cigarette in car represents an extremely high exposure to ETS. Partially opening the window is useless to prevent the accumulation of pollutants. Complete window opening is helpful to remove coarse PM and volatile pollutants, but is ineffective against submicrometric particles.

Violence

- P202 -

SOCIAL INEQUALITY AND THE RISK OF VIOLENCE

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Introduction. According to A. Sen, differences in health conditions determined by social factors are potentially modifiable and may be avoided. Violent behavior resulting from social conditions can also be modified. Health, education, economic growth, social cohesiveness. Health and education are basic prerequisites required for growth and development in any society. The different allocation of resources for health and education will determine a disparity of economic development and of social cohesiveness. Denial of liberty and of democratic rights will also slow economic development. It has been shown (A. Sen) that the concept of democracy plays a fundamental role in development, social cohesion and in the prevention of violence.

Objectives. To compare the mortality rate due to violence in high and low income areas of the WHO.

Methods. Data from the WHO World report on Violence and health, 2007.

Results. Despite being a complex issue, the roots of violence can be traced back to inequalities. Violence is considered a global public health issue perhaps partly avoidable. It traces its origin to familiar and social relations as well as to ethnic and cultural norms. Violence is the intentional use of force and power against the individual (interpersonal) or against a community (collective violence). The associated risk factors include poverty, economic inequality between the poor and the rich, social segregation, rapid sociopolitical changes, unchecked urban development, development of ethnic ghettos, lack of social cohesion, violent culture and facilitated access to weapons. Violence involves all social classes, but those individuals who live in poorer socio economic realities are at greater risk. The rate of violence related mortality (32/100,000) in those countries with a middle-low income is double with respect those with a high level income (14.4/100,000).

Conclusions. The rate of violence related deaths is higher in countries with middle-low income.



- P203 -

EPIDEMIOLOGY OF CHILD INJURIES IN THE ARKHANGELSK REGION, RUSSIA

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Introduction. Injuries are the leading cause of childhood mortality in the European Region. Russia has among the highest rate of injury mortality in children. In the Arkhangelsk region (Northwest Russia), the rates exceed the overall Russian level by 30%. The incidence of injuries in the region increased from 2002 to 2008 by 60%. However, there is little information about causes, circumstances and place of injuries in the region.

Methods. A cross-sectional study. A representative sample (n=500) of children <18 years injured in 2009 as registered in the centre of outpatient surgery was contacted. Children aged 15-18 years or their parents (for younger children) were asked about circumstances, causes, time and place of injuries, alcohol consumption and safety skills. A semi-structured questionnaire was developed as recommended by the WHO "Injury surveillance guidelines". Differences in patterns of injuries by age-groups were compared by chi-square tests.

Results. Most of the responders were males (56.6%, n=283). Children under 15 years comprised 63.6%. One fifth of injuries in this age group and almost every third in the oldest age-group occurred between 18 and 21 o'clock. Children aged 15-17 years were mainly injured outdoors while indoor injuries occurred more often among younger children (p < 0.05). Age-groups differed also by type of injury: hurts were more common among older children, fractures were more common among younger children (p < 0.001). Falls were similarly common in both groups (38.4% and 38.9%). Among older children, fights were more common than in the younger group (20.8% vs. 3.7%, p < 0.001). A few cases of domestic violence were registered (2.2%), 66.4% of them as a result of neglect. Alcohol use among 15-17 years old children was reported in 1.1%.

Conclusions. In the Arkhangelsk region, child injuries are an increasing public health problem. Circumstances around injuries vary by age-group warranting age-specific measures.



- P204 -

VIOLENCE AGAINST PERSONS AGED 60-84 IN THE EUROPEAN REGION

Lindert J,¹ Castillo JL,² Torrez-Gonzalez E,² Lamura G,³ Ioannidi E,⁴ Stankunas M,⁵ Barros H,⁶ Soares J⁷¹Protestant University of Ludwigsburg, Ludwigsburg, Germany; ²University of Granada, Spain; ³INCRA, Ancona, Italy; ⁴University of Athens, Greece; ⁵University of Kaunas, Lithuania; ⁶University of Porto, Portugal; ⁷Karolinska Institute, Stockholm, Sweden

Introduction. Abuse and neglect of persons aged 60 years and over has become an increasingly prominent public health issue. From January 2009-July 2009, we conducted the cross-sectional Euro-

pean study "Abuse of the elderly in the European region" (ABUEL) among community-dwelling elderly populations aged 60-84 years in Germany, Greece, Italy, Lithuania, Portugal, Spain and Sweden.

Objectives. 1) To describe the prevalence rate of violence against people aged 60-84 in Europe; 2) to analyze differences in prevalence rates between countries; and 3) to investigate whether there is a relation between country and scope and extent of violence against people.

Methods. Description of variables and regression analyses.

Results. 4,467 participants were interviewed in the seven participating countries. The response rates ranged from 18.9% in Germany to 87.4% in Portugal. Men were slightly underrepresented in all countries (population fraction ratio <1). At country level we found significant differences of overall violence. The lowest prevalence rates of overall violence against the elderly were found in Italy, Greece, and Spain; the highest were found in Germany, Lithuania and Sweden.

Conclusions. More European and international studies investigating factors associated with VAO are needed to gain further knowledge and design tailored intervention and prevention programmes.



- P205 -

A METHOD TO CLASSIFY DETERMINANTS OF DOMESTIC VIOLENCE AGAINST WOMEN

Giannandrea E,¹ Iezzi S²¹Industrial and Environmental Hygiene Unit, "La Sapienza" University of Rome, Italy; ²Unit of Social Statistics, "Tor Vergata" University, Rome, Italy

Introduction. Domestic violence against women is recognized as a major International public health issue in both developing and industrialized countries.

Objectives. This study is aimed to identify and classify different levels of risk for domestic violence.

Methods. We analyze the first Italian survey on violence against women conducted by the National Statistical Institute in 2006 (Istat, 2007). Data were collected by adopting Computer Assisted Telephone Interview (CATI) technique based on a questionnaire filled by a representative sample of 25.000 women aged 15-70 years old. We apply a Rasch Model to build a complex indicator of domestic violence and a multilevel model to separately assess differences among women living in the same district, and differences among regions.

Results. We build a Domestic Violence Index (DVI) classifying women into four risk groups: low, medium-low, medium-high and high risk levels. Major risk factors for violence against women included having elevated education levels, relatively young age (less than 25 years old), being raped as a child and divorced women being raped by their ex-spouses.

Conclusions. Domestic violence is usually committed in family circles. The majority of factors associated with intimate partner violence are related to the women, in particular their childhood experiences of violence in his own family. Violence prevention programs should target girls growing up in families experiencing domestic violence.

- P206 -**AMOUNT OF EXPOSURE, RISK-DRIVING PATTERNS AND FREQUENCY OF ROAD CRASHES AMONG STUDENTS OF THE UNIVERSITY OF GRANADA**

Jiménez-Mejías E,¹ Rodríguez-Guzmán S,¹ Nogueras-Ocaña M,¹ de Dios Luna-del-Castillo J,² Lardelli-Claret P,¹ Jiménez-Moleón JJ¹

¹Department of Preventive Medicine and Public Health, University of Granada, Spain; ²Department of Statistics, University of Granada, Spain

Objectives. To assess the association between the frequency of road crashes, the amount of driving exposure and the adoption of risk-driving patterns (RDP), in students of the University of Granada (Spain).

Methods. Design: cross-sectional study. Sample: all 1,114 students receiving undergraduate teaching at the Department of Preventive Medicine and Public Health, from 2007 to 2010, who declared to have driven a car in the last year and who agreed to fulfil a self-ad-

ministered questionnaire in the first week of each course. Sources of information and variables: questionnaire included information about age, sex, years in possession of the driving license (YPDL), the amount of exposure (Km driven per year), the involvement or not, in the previous month, in 26 driving styles (19 of which were considered RDP), and the occurrence of a road crash in the year before. Analysis: crude associations between road crash and both exposure and the number of RDP were first explored. Multivariate models were then constructed in order to assess the independent role of each factor on the risk of crash. Age, sex and YPDL were also included in the final model.

Conclusions. Although our cross-sectional design does not allow us to demonstrate causal associations, the results strongly suggest that the effect of the amount of exposure on the risk of road crash is partially mediated through the direct association between driving exposure and RPD.

***AIE*2010**

**XXXIV CONGRESSO
DELL'ASSOCIAZIONE
ITALIANA DI EPIDEMIOLOGIA**

P r o g r a m m a S c i e n t i f i c o

Martedì 9 Novembre 2010 • AUDITORIUM • 8.30-11.00**8.30 Saluti ai partecipanti**

Daniela Scaramuccia, *assessore alle Politiche per la Salute della Regione Toscana*
 Elena Lacquaniti, *direttore generale ISPO*
 Gianni Amunni, *direttore esecutivo dell'Istituto Toscano Tumori*
 Rappresentante dell'Amministrazione Provinciale di Firenze

Sessione Plenaria**MODELLI DI RISCHIO: INDIVIDUO E COLLETTIVITÀ**

Moderatori: L. Cori (Roma), P. Giorgi Rossi (Roma)

9.00 "Scienza" del rischio e tecnologie biomediche europee: diritti individuali e collettivi tra competitività e salute

M. Tallacchini (Piacenza)

9.30 Rischio individuale e rischio di popolazione

A. Russo (Milano)

9.55 Cambiamenti climatici: sapere scientifico e scelte sociali

P. Vineis (London - UK)

10.20 Discussione

Discussants: L. Carra (Milano), P. Michelozzi (Roma)

11.00-11.30 *Coffee break e Sessioni poster*

**AUDITORIUM • 11.30-13.00****Sessione parallela****METODI E USO DEI DATI CORRENTI**

Moderatori: A. Barchielli (Firenze), A. Decarli (Milano)

11.30 Definizione e validazione di un modello predittivo per l'identificazione di pazienti affetti da malattie croniche a partire dai sistemi informativi sanitari: l'esempio della broncopneumopatia cronica ostruttiva

V. Belleudi, U. Kirchmayer, M. Stafoggia, L. Bauleo, N. Agabiti, D. Fusco, M. Arcà, M. Davoli, C.A. Perucci (Roma)

11.45 I costi di ospedalizzazione e i loro determinanti in una coorte di pazienti obesi

E. Pagano, E. Migliore, D. Mirabelli, C. Zocchetti, D. Gregori, I. Baldi, M.L. Petroni, F. Merletti (Torino, Milano, Piancavallo)

12.00 Progetto CAREMORE (CAncer REgistry MOdel on REhabilitation): primi risultati

F. Di Salvo, A. Micheli, M.A. Orenco, L. Mangone, P. Contiero, R. Tumino, M. Budroni, F. de Lorenzo, G. Gatta, M. Sant, P. Baili (Milano, Genova, Reggio Emilia, Ragusa, Sassari)

12.15 La salute mentale in Toscana: un'indagine esplorativa della popolazione adulta utilizzando i dati del SIRSM

C. Silvestri, F. Innocenti, F. Voller, F. Cipriani (Firenze)

12.30 Epidemiologia degli incidenti stradali: analisi dei dati correnti della provincia di Milano

C. Orsi, A. Morandi, P. Marchetti, A. Marinoni (Pavia)

12.45 L'ospedalizzazione di residenti a Firenze socio-economicamente svantaggiati

E. Chellini, G. Carreras, O. Baroncini (Firenze)

13.00-14.00 *Lunch*

**SALA VERDE • 11.30-13.00****Sessione parallela****FARMACOEPIDEMOLOGIA**

Moderatori: C. Perucci (Roma), G. Traversa (Roma)

11.30 Il contributo della farmacoepidemiologia nella valutazione dei farmaci

G. Traversa (Roma)

11.50 La rete ENCePP (European Network of Centres for Pharmacoepidemiology and Pharmacovigilance)

C. Smeraldi (London - UK)

programma scientifico

12.10 I gruppi italiani che conducono studi post-marketing sui farmaci

M. Venegoni (Milano)

12.30 Quale coordinamento fra i centri ENCePP italiani?

N. Magrini (Modena)

12.50 Discussione

13.00-14.00 Lunch



SALA ADUA 2 • 11.30-13.00

Sessione parallela

MIGRANTI E POPOLAZIONI FRAGILI

Moderatori: P. Carletti (Ancona), N. Mignolli (Roma)

11.30 Le interruzioni volontarie di gravidanza nelle donne immigrate e italiane a Reggio Emilia: monitoraggio negli anni 2005-2008 attraverso diversi indicatori

L. Bonvicini, B. Pacelli, S. Candela (Reggio Emilia, Bologna)

11.45 Donne straniere provenienti da Paesi a forte pressione migratoria e percorso nascita in Umbria

M. Chiavarini, I. Bernardini, P. Casucci, L. Minelli (Perugia)

12.00 Un camper per i diritti: l'intervento dei medici per i diritti umani a Firenze

F. Innocenti, F. Voller, A. Bassetti, S. Caini, C. Francini, F. Cipriani (Firenze)

12.15 L'incidenza dei tumori nell'area del Registro tumori toscano in cittadini nati in Italia e in immigrati di prima generazione

G. Manneschi, E. Crocetti, C. Buzzoni, A. Caldarella, A. Corbinelli, F. Giusti, T. Intrieri, L. Nemcova, C. Sacchettini, M. Zappa (Firenze)

12.30 Associazione tra grado di urbanizzazione e rischio di dipendenza da sostanze tra gli utenti dei dipartimenti italiani affetti da doppia diagnosi

P. Sciarini, G. Carrà, G. Segagni Lusignani, P. Borrelli, I. Popa, C. Montomoli, M. Clerici (Pavia, Monza)

12.45 La violenza di genere in ambito domestico: determinanti e classi di rischio

F. Giannandrea, S. Iezzi (Roma)

13.00-14.00 Lunch



SALA ONICE • 11.30-13.00

Sessione parallela

HEALTH CARE

Moderatori: F. Cipriani (Firenze), C. Cislighi (Roma)

11.30 Ricorso alle prestazioni specialistiche e ambulatoriali di una coorte di diabetici residenti nella ASL Roma D (periodo 2008-09)

V. Fano, M. Miceli, P. Pezzotti, R. Gnani, E. Santelli (Roma, Torino)

11.45 La determinazione del rischio di fratture in una popolazione di pazienti afferenti agli ambulatori di medicina generale

M. Simonetti, R. Michioli, A. Pasqua, G. Mazzaglia (Firenze)

12.00 Valutazione degli effetti avversi della diagnosi prenatale invasiva tramite i soli flussi informativi correnti

L. Guarda, V. Pironi, P. Ricci (Mantova)

12.15 Impatto delle politiche regolatorie locali e nazionali sul consumo degli inibitori di pompa protonica in Italia, 2001-2007

A. Anselmi, G. Damiani, B. Federico, C.B. Neve, A. Bianchi, A. Ronconi, L. Iodice, P. Navarra, R. Da Cas, R. Raschetti, W. Ricciardi (Roma)

12.30 "TIN toscane on-line": un registro area-based dei neonati gravemente prematuri in Regione Toscana

S. Franchi, M. Puglia, A. Corsi, F. Voller, F. Rusconi (Firenze)

12.45 Un confronto tra le risposte ai questionari individuali usati in due studi di biomonitoraggio umano in Italia

L. Cori, F. Bianchi, C. Imiotti, S. Marrucci, F. Minichilli, M. Protti (Roma, Pisa)

13.00-14.00 Lunch

AUDITORIUM • 14.00-16.00

Sessione parallela

TUMORI

Moderatori: L. Bisceglia (Bari), C. Magnani (Novara)

14.00 Bilancio dei danni e dei benefici di un programma di screening mammografico: uno studio di coorte

D. Puliti, E. Paci, G. Manneschi, G. Miccinesi, M. Zappa (Firenze)

14.15 La prevalenza dei tumori in Italia nelle aree coperte da Registri tumori

S. Guzzinati, A. De Paoli, R. De Angelis, C. Buzzoni, E. Crocetti, L. Dal Maso, R. per AIRTUM Working Group (Padova, Aviano, Roma, Firenze)

14.30 I tumori stanno diventando la prima causa di morte per i maschi toscani?

A. Martini, L. Giovannetti, G. Gorini, E. Chellini, M.G. Fornai, A. Seniori Costantini, B. Sorso (Firenze)

14.45 Mortalità evitabile tumorale nel 03-08 e trend nel 87-08 in provincia di Siracusa

F. Tisano, A. Madeddu, M.L. Contrino, M. Russo, G.E. Sciacca, S. Calareso, A. Ziino Colanino, M. Mizzi, P. Aletta, S. Sciacca (Siracusa, Catania)

15.00 Modelli SERTS per la stima della sopravvivenza per cancro nelle regioni e province italiane

R. Lillini, A. Quaglia, R. Capocaccia, M. Vercelli (Genova, Milano, Roma)

15.15 Consumo di caffè e tè e rischio di tumore alla testa e collo: una pooled analysis di studi del consorzio INHANCE (the International Head and Neck Cancer Epidemiology)

C. Galeone, A. Tavani, C. Pelucchi, F. Turati, P. Boffetta, M. Hashibe, R. Talamini, L. Dal Maso, C. La Vecchia (Milano, Aviano)

15.30 Il contributo dei registri tumori agli studi di epidemiologia in aree inquinate: lo studio condotto nel territorio di riferimento dell'Azienda Sanitaria Napoli 4

M. Fusco, L. Fazzo, M. Benedetti, M. Santoro, P. Comba (Napoli, Roma)

15.45 Tassi standardizzati di incidenza di sarcoma in tre regioni europee (studio CONTICANET)

G. Mastrangelo, A. Buja, I. Ray-Coquard, F. Ducimetiere, J.M. Coindre, E. Fadda, U. Fedeli, L. Cegolon, C.R. Rossi (Padova, Lyon - F, Bordeaux - F, Castelfranco Veneto)

16.00-17.00 Coffee break e Sessioni poster



SALA VERDE • 14.00-16.00

Sessione parallela

AMBIENTE E SALUTE

Moderatori: P. Comba (Roma), D. Scala (Firenze)

14.00 Gli effetti delle ondate di calore sugli interventi del 118 e sulla mortalità

E. Alessandrini, S. Zauli Sajani, F. Scotto, R. Miglio, P. Lauriola (Bologna)

14.15 Esposizione a sottoprodotti della disinfezione delle acque potabili durante la gravidanza e anomalie congenite: risultati di uno studio caso-controllo condotto nella Regione Emilia-Romagna

E. Righi, P. Bechtold, D. Mariosa, K. Mastroianni, P. Giacobazzi, G. Predieri, E. Calzolari, G. Astolfi, P. Lauriola, D. Tortorici, G. Fantuzzi, G. Aggazzotti (Modena, Ferrara)

14.30 Mortalità associata al caldo nell'area fiorentina, prima, durante e dopo l'eccezionale ondata di calore del 2003 in Europa: una miglior risposta di sanità pubblica

M. Morabito, F. Profili, A. Crisci, P. Francesconi, G.F. Gensini, S. Orlandini (Firenze)

14.45 Benefici delle politiche di riduzione del traffico a Roma dal 2001 al 2005

G. Cesaroni, H. Boogaard, S. Jonkers, D. Porta, C. Badaloni, G. Cattani, F. Forastiere, G. Hoek (Roma, Utrecht - NL)

15.00 Il black carbon: un nuovo indicatore capace di identificare i benefici sulla qualità dell'aria nei microambienti urbani a minore intensità di traffico. La campagna di monitoraggio ECOPASS/BC 2010 a Milano

G. Invernizzi, A.A. Ruprecht, G. Mocnik, D. Westerdahl (Milano, Ljubljana - SLO, New York - USA)

15.15 Studio di mortalità dei siti italiani contaminati da impianti petrolchimici e/o raffinerie

R. Pasetto, P. Comba, M. De Santis, A. Zona, R. Pirastu (Roma)

15.30 La mortalità amianto-correlata nei siti inquinati di interesse nazionale

A. Zona, L. Fazzo, M. De Santis, M. Bellino, C. Bruno, P. Comba (Roma)

15.45 Integrazione ambiente e salute: criticità e prospettive

G. Assennato (Bari)

16.00-17.00 Coffee break e Sessioni poster



SALA ADUA 2 • 14.00-16.00

Sessione parallela

DISEGUAGLIANZE

Moderatori: E. Chellini (Firenze), S. Scondotto (Palermo)

14.00 Lo stato di salute della popolazione carceraria toscana

F. Voller, C. Orsini, C. Silvestri, L. Aversa, F. Cipriani (Firenze)

14.15 Differenze socioeconomiche e geografiche nei tempi di attesa per la chirurgia elettiva

A. Petrelli, G. De Luca, T. Landriscina, G. Costa (Cosenza, Torino)

14.30 Diseguaglianze sociali nell'incidenza e mortalità per cancro a Torino, Italia

N. Zengarini, T. Spadea, S. Rosso, R. Zanetti, G. Costa (Grugliasco, Torino)

14.45 Lo stato di salute dei detenuti tossicodipendenti in Toscana: i risultati di uno studio di coorte toscano

A. Berti, C. Orsini, C. Silvestri, L. Aversa, F. Voller, F. Cipriani (Firenze)

15.00 Classe sociale, disoccupazione e malattie croniche

T. Li Ranzì, A. d'Errico, G. Costa (Grugliasco, Torino)

15.15 Prevalenza dell'infezione tubercolare latente tra gli immigrati a Torino nel periodo 1991-2006

I. Baussano, S. Mercadante, M. Pareek, M. Bugiani (Novara, London - UK, Torino)

15.30 Diabete tipo 2 in una popolazione di immigrati a Roma: dati epidemiologici per una sfida di sanità pubblica

L. Nosotti, P. Scardella, L. Piombo, A. Giusti, M. Maggini, R. Spada, P. Vignally, A. Morrone (Roma)

15.45 Disuguaglianze sociali nella mortalità di un campione della popolazione italiana

G. Sebastiani, C. Marinacci, M. Demaria, M. Pappagallo, F. Grippo, N. Caranci, P. Vittori, M. Di Cesare, R. Boldrini, L. Lispi, G. Costa (Roma, Torino, Bologna, Aosta)

16.00-17.00 *Coffee break e Sessioni poster*



SALA ONICE • 14.00-16.00

Sessione parallela

LAVORO E SALUTE

Moderatori: A. Bena (Torino), E. Merler (Padova)

14.00 Sicurezza nelle microimprese: efficacia di un intervento di prevenzione

E. Farina, A. Bena, A. Dotti (Torino)

14.15 Lo stress lavoro-correlato nell'Azienda ospedaliera della provincia di Pavia: quale il grado di diffusione e la tipologia?

V.V. Ferretti, A. Beltramelli, G.C. Scarpini, G. De Paoli, S. Gozzi, Sanfilippo, S. Villani e Gruppo di lavoro multidisciplinare per lo studio delle problematiche di valutazione dei rischi collegati allo stress lavoro-correlato (Pavia)

14.30 Matrice azienda/esposizione all'amianto: un utile strumento per una approfondita analisi epidemiologica dei determinanti l'insorgenza di patologie asbesto-correlate

P. Legittimo, S. Silvestri (Firenze)

14.45 Rischio di tumore del polmone e mesotelioma per livelli di esposizione occupazionale ad amianto in Toscana

A.M. Pizzo, P. Legittimo, S. Silvestri, E. Chellini, G. Gorini, L. Miligi, A. Seniori Costantini (Firenze)

15.00 Distacco di retina: incidenza tra lavoratori manuali e non manuali, in Toscana

S. Mattioli, A. Baldasseroni, S. Curti, F. Zanardi, R.M.T. Cooke, A. Farioli, F.S. Violante, D. Coggon (Bologna, Firenze, Southampton - UK)

15.15 Mortalità cumulativa tra gli esposti ad amianto: analisi della corte dei lavoratori dello stabilimento della Eternit

S. Tunesi, D. Ferrante, D. Mirabelli, D. Gregori, C. Magnani (Torino, Padova)

15.30 Carico polmonare di fibre di amianto in soggetti, affetti da mesotelioma, che hanno vissuto vicino ad aziende che producevano cemento-amianto

E. Merler, P.L. Barbieri, D. Mirabelli, D. Cavone, A. Somigliana (Padova)

15.45 Esperienza lavorativa e dipendenza dalla durata nel rischio infortunistico

M. Giraud, A. Bena, R. Leombruni (Torino)

16.00-17.00 *Coffee break e Sessioni poster*



AUDITORIUM • 17.00-17.30
CHIUSURA DEL CONGRESSO
E CONSEGNA DEL PREMIO MACCACCARO

17.00 Valutazione epidemiologica dello screening dei tumori del colon-retto

L. Ventura (Firenze), vincitore del Premio Maccacaro 2009

17.15 Premio Maccacaro

A. Seniori Costantini (Firenze)

SESSIONI POSTER

AMBIENTE E SALUTE

P1 Valutazione ex-ante dell'impatto sanitario attribuibile all'inquinamento da inceneritore

M. Serinelli, I. Galise, L. Bisceglia (Bari)

P2 Il programma "Epidemiologia, Rifiuti, Ambiente e Salute" della regione Lazio (ERASLazio)

C. Ancona, F. Forastiere, F. Mataloni, C. Badaloni, G. Catenacci, A. Di Giosa, R. Sozzi, A. Bolignani, J. Fischetti, G.M. Marcelli, A. Michienzi, L. Carra, C.A. Perucci (Roma)

P3 Salute e inquinamento da inceneritori di rifiuti

V. Gennaro, P. Gentilini (Genova)

P4 Le malformazioni a Brindisi e nell'area a rischio di crisi ambientale

E.A.L. Gianicolo, A. Bruni, R. Guarino, S. Sabina, L. Fiorentino, G. Latini (Lecce, Brindisi)

P5 Disagio bioclimatico e strutture carcerarie: una analisi esplorativa nel penitenziario di Modena

S. Zauli Sajani, S. Marchesi, F. Scotto, V. De Donatis, G. Federzoni, P. Lauriola (Modena)

P6 Profilo di salute dell'alta Val di Cecina

A.M. Romanelli, E. Bustaffa, L. Cori, F. Minichilli, M.A. Protti, M.A. Vigotti, F. Bianchi (Pisa, Roma)

P7 Gli incidenti balneari in Toscana: i dati forniti dal sistema di monitoraggio del 118

F. Innocenti, F. Voller, A. Nicolini, G. Meniconi, M. Lelli, F. Cipriani (Viareggio, Firenze)

P8 Biossido di azoto e mortalità giornaliera: ruolo delle condizioni cliniche pre-esistenti. Lo studio collaborativo EpiAir

M. Chiusolo, E. Cadum, C. Galassi, M. Stafoggia, G. Berti, A. Faustini, L. Bisanti, M.A. Vigotti, M.P. Dessi, A. Cernigliaro, S. Mallone, B. Pacelli, S. Minerba, R. Tessari, F. Forastiere, Gruppo Collaborativo EpiAir (Torino, Roma, Milano, Pisa, Cagliari, Palermo, Firenze, Bologna, Taranto, Mestre)

P9 Esposizione personale degli studenti di Milano a PM2.5: il Progetto EuroLifeNet

A. Borgini, A. Tittarelli, M. Bertoldi, P. Crosignani, C. Ricci (Milano)

P10 Esiste una associazione tra rischi ambientali e la mortalità generale in Italia? I dati ambientali e sanitari in rete: elementi prognostici per la valutazione del rischio

V. Gennaro, M. Bolognini, M. Morigi, P. Gentilini (Genova)

DISEGUAGLIANZE

P11 La "povertà" relativa nell'unione Europea (UE 27)

M. Pacchin (Vicenza)

P12 La "povertà" relativa dei minori nell'unione Europea (UE 27)

M. Pacchin (Vicenza)

P13 Come individuare il target sociale dell'interruzione volontaria di gravidanza

V. Pironi, L. Guarda, P. Ricci (Mantova)

P14 Minori e carcere

C. Orsini, C. Silvestri, F. Voller, L. Aversa, F. Cipriani (Firenze)

P15 Il disturbo psichiatrico nelle strutture penitenziarie della toscana: i primi risultati di uno studio di coorte

C. Silvestri, C. Orsini, F. Voller, L. Aversa, F. Cipriani (Firenze)

P16 Livello socioeconomico e riparto del fondo sanitario

A. Petrelli, C. Marinacci, T. Landriscina, R. Onorati, C. Cislighi, L. Gargiulo, G. Costa (Torino)

P17 Sperimentazione e valutazione degli inserimenti lavorativi nella popolazione tossico/alcolodipendente della Regione Toscana

A. Berti, F. Voller, F. Innocenti, F. Cipriani (Firenze)

HEALTH CARE

P18 La farmacia cardiometabolica: un nuovo modello operativo di prevenzione cardiovascolare

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SESSIONE PLENARIA

Modelli di rischio: individuo e collettività

Moderatori:

Liliana Cori (Roma), Cristina Montomoli (Pavia)

“SCIENZA” DEL RISCHIO E TECNOLOGIE BIOMEDICHE EUROPEE: DIRITTI INDIVIDUALI E COLLETTIVI TRA COMPETITIVITÀ E SALUTEMariachiara Tallacchini
Università Cattolica, Piacenza

Le istituzioni europee hanno profuso molto tempo ed energie nella costruzione di un complesso inquadramento teorico per le diverse forme di incertezza scientifica e per le sue implicazioni normative. Da un lato, l'UE ha preso le mosse dal Red Book statunitense, che all'inizio degli anni Ottanta aveva gettato le basi per la valutazione del rischio, e vi è rimasta per molti aspetti legata; dall'altro, l'Europa comunitaria ha cercato di andare oltre, collegando le possibili qualificazioni dell'incertezza alla responsabilità politica di proteggere la popolazione (il principio di precauzione). Risk assessment e principio di precauzione si sono così trovati a convivere e a confrontarsi nello spazio europeo, dove analogamente convivono e si confrontano competitività commerciale e tutela dei cittadini. Le crescenti competenze normative in tema di salute e diritti ha fatto emergere queste contraddizioni, che si manifestano nell'allocatione di rischi e diritti individuali e collettivi. La presentazione esplora alcune di queste contraddizioni nell'ambito della regolazione dei materiali biologici (cellule e tessuti) e delle cosiddette Terapie avanzate (Advanced Therapy Medicinal Products, ATMP), in particolare laddove siano coinvolti materiali biologici xenobiotici.

Ciò che si intende mostrare è come, nelle cosiddette società del rischio – anche in quelle europee, pur formalmente impegnate a favore della salute dei cittadini – l'allocatione dei rischi rimanga una questione problematica. L'esistenza di conflitti in alcuni settori di punta delle tecnologie biomediche costituisce un esempio sia delle ambiguità di cui è tuttora permeata l'idea di precauzione, in particolare quando essa ostacoli la competitività, sia della mancanza di una sfera pubblica europea in cui questioni di salute individuale e collettiva possano essere discusse e armonizzate.

**RISCHIO INDIVIDUALE E RISCHIO DI POPOLAZIONE**Antonio Russo
Osservatorio Epidemiologico, Registro dei tumori e flussi, Azienda sanitaria locale della Provincia di Milano 1

Introduzione. «Se l'accentuarsi dell'incertezza è la fonte di angoscia per l'individuo e di discredito per la comunità scientifica, “ordinare e semplificare” il campo costituisce la naturale reazione. Razionalizzare le decisioni concernenti i rischi di malattia mediante l'impiego del “riduzionismo matematico” rappresenta una delle so-

fisticate strategie che sono state approntate a questo scopo» (tratto da: *Modelli di rischio*, Paolo Vineis).

Obiettivi. Saranno analizzate le metodologie che vengono attualmente utilizzate nell'ambito dei programmi di prevenzione oncologica del tumore mammario e del tumore colorettale nella definizione di gruppi a rischio analizzando i limiti della loro utilizzazione a livello individuale.

Metodi. Sono stati sviluppati numerosi modelli predittivi per i tumori della mammella e del colon – che utilizzano fattori di rischio a larga prevalenza ma con un rischio relativo basso – capaci di stimare il rischio assoluto di sviluppare una neoplasia invasiva. Il modello proposto da Gail nel 1989, sviluppato su di una coorte di donne americane sottoposte a screening annuale, rimane uno dei più utilizzati e studiati. Tutti i modelli attualmente esistenti sono da esso derivati.

Risultati. Il modello di Gail è caratterizzato da una elevata calibrazione, ma possiede una bassa accuratezza discriminatoria. Per calibrazione si intende la capacità di un modello di predire l'incidenza di malattia in un gruppo di donne caratterizzate da alcuni specifici fattori. Per accuratezza discriminatoria si intende la capacità di un modello di discriminare chi svilupperà la malattia da chi non la svilupperà. In altre parole, questo modello riesce a predire bene quanti tumori si verificheranno in un gruppo di donne con determinate caratteristiche ma non riesce a individuare chi effettivamente svilupperà il tumore.

Conclusioni. I programmi di prevenzione non dispongono attualmente di modelli con una capacità di predizione a livello individuale – in quanto i modelli attualmente esistenti predicono gli eventi su gruppi di soggetti caratterizzati da un definito pattern di covariate – tuttavia tali modelli possono essere utilizzati nell'ambito dei programmi di prevenzione oncologica per dimensionare gli eventi attesi, definire politiche di prevenzione (es. modulazione dell'intensità di screening) e/o modulazione del rischio (es. chemioprevenzione).

**CAMBIAMENTI CLIMATICI: SAPERE SCIENTIFICO E SCELTE SOCIALI**Paolo Vineis
Imperial College, London, UK

Il cambiamento climatico è ormai una realtà riconosciuta, e molte ricerche sulle sue cause e conseguenze sono in corso. Tuttavia, poca attenzione è stata posta sulle difficoltà pratiche e concettuali che tali ricerche pongono, in particolare nel riconoscimento degli effetti sulla salute.

Le difficoltà della attribuzione causale sono esemplificate dall'esempio dell'intrusione di acqua salata in una vasta area del Bangladesh. Per decenni, i livelli di salinità nell'acqua superficiale e profonda del Bangladesh hanno continuato a salire, e attualmente l'innalzamento del livello del mare legato al cambiamento climatico contribuisce a un ulteriore aumento. I rapporti pubblicati suggeriscono che l'acqua salata del golfo del Bengala ha raggiunto l'interno addirittura fino a 100 km dalla costa attraverso i canali tributari dei grandi fiumi, interessando 20 milioni di persone.

Questa situazione ha portato a serie preoccupazioni relative alla salute pubblica, e sono state segnalate malattie legate all'eccessivo consumo di sale. Tuttavia, altri fattori contribuiscono agli effetti sulla salute del cambiamento climatico e possono confondere la relazione causale. In particolare l'allevamento di gamberetti, che ri-

chiede acqua salata, è aumentato recentemente sostituendo i campi coltivati a riso (in acqua dolce), peggiorando ulteriormente la situazione ambientale. Oltre a questo, gli allevatori hanno iniziato a usare antibiotici vietati, come i nitrofurani, per ridurre la proliferazione batterica dovuta all'elevata temperatura. I gamberi malati vengono rifiutati dal mercato internazionale, e dunque vengono distribuiti localmente per il consumo interno. Questo si traduce in epidemie di colera, dissenteria e malattie della pelle da un lato, e resistenza agli antibiotici dall'altro.

A complicare ulteriormente la rete causale, l'India ha costruito una diga (Farraka) che devia verso Calcutta l'acqua fresca proveniente dall'Himalaya. Anche questo fenomeno interagisce con l'impatto del cambiamento climatico. Vengono discusse le implicazioni politiche e sociali di queste rapide trasformazioni.

SESSIONE PARALLELA

Metodi e uso dei dati correnti

Moderatori:

Alessandro Barchielli (Firenze), Andrea Decarli (Milano)

Valeria Belleudi et al. [097]

Definizione e validazione di un modello predittivo per l'identificazione di pazienti affetti da malattie croniche a partire dai sistemi informativi sanitari: l'esempio della broncopneumopatia cronica ostruttiva

Eva Pagano et al. [098]

Determinants of obesity hospitalisation costs: an Italian cohort study

Francesca Di Salvo et al. [099]

Progetto CAREMORE (CAncer REgistry MOdel on REhabilitation): primi risultati

Caterina Silvestri et al. [100]

La salute mentale in Toscana: un'indagine esplorativa della popolazione adulta utilizzando i dati del SIRSM

Chiara Orsi et al. [101]

Epidemiology of road accidents: a model of analysis of Milano current data

Elisabetta Chellini et al. [102]

Hospitalization of an Italian materially deprived population in Florence, Italy

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DEFINIZIONE E VALIDAZIONE DI UN MODELLO PREDITTIVO PER L'IDENTIFICAZIONE DI PAZIENTI AFFETTI DA MALATTIE CRONICHE A PARTIRE DAI SISTEMI INFORMATIVI SANITARI: L'ESEMPIO DELLA BRONCOPNEUMOPATIA CRONICA OSTRUTTIVA

Belleudi V, Kirchmayer U, Stafoggia M, Bauleo L, Agabiti N, Fusco D, Arcà M, Davoli M, Perucci CA

Department of Epidemiology of the Regional Health Service, Lazio, Roma

Introduzione. L'identificazione di pazienti affetti da malattie croniche è utile per garantire loro percorsi assistenziali adeguati e valutare gli esiti delle cure. I Sistemi Informativi Sanitari (SIS) sono uno strumento importante per l'identificazione dei pazienti prevalenti ma la validità dei modelli predittivi è un punto critico.

Obiettivi. Costruire un modello predittivo, basato sulle informazioni dei SIS (ricoveri, farmaceutica, assistenza specialistica), che identifichi nella popolazione i pazienti con Broncopneumopatia Cronica Ostruttiva (BPCO) partendo da pazienti con diagnosi certa; validare l'accuratezza del modello.

Metodi. Sono stati confrontati i consumi di farmaci e di ricoveri per patologie respiratorie tra 428 pazienti BPCO e 2.140 controlli sani. Attraverso una procedura Bootstrap-Stepwise (BS) sono stati selezionati i predittori della BPCO. Il modello predittivo è stato validato attraverso tecniche di validazione interna (cross-validation-bootstrap, Jack-knife) ed esterna (confronto con coorte di pazienti BPCO).

Risultati. I predittori della BPCO individuati tramite BS sono: con-

sumo di beta2-agonisti, anticolinergici, glicocorticoidi, ossigeno e ricoveri pregressi per BPCO e insufficienza respiratoria. Per ogni paziente è stata stimata una probabilità attesa di avere la BPCO. Al variare del cut-point di probabilità attesa si osserva una variazione da 0,15 a 0,87 per la sensibilità (Se) e da 0,79 a 0,99 per la specificità (Sp). Utilizzando, per l'identificazione dei pazienti BPCO, un cut-point pari a 0,30 (Se=64%; Sp=97%), la prevalenza stimata di BPCO e l'andamento per l'età risultano simili a quelli mostrati in altri studi. Il modello riesce ad individuare l'86% dei pazienti della coorte esterna.

Conclusioni. Il modello predittivo mostra una buona accuratezza nell'identificazione dei pazienti affetti da BPCO, anche se rimane l'impossibilità di identificare i pazienti che non richiedono cure specifiche o non usufruiscono dei servizi sanitari regionali.



- 098 -

DETERMINANTS OF OBESITY HOSPITALISATION COSTS: AN ITALIAN COHORT STUDY

Pagano E,¹ Migliore E,¹ Mirabelli D,¹ Zocchetti C,² Gregori D,³ Baldi I,⁴ Petroni ML,⁵ Merletti F⁴

¹Unit of Cancer Epidemiology and CPO Piemonte; ²Regional Health Authority, Lombardia Region; ³Department of Environmental Medicine and Public Health, University of Padova; ⁴Unit of Cancer Epidemiology and CPO Piedmont; ⁵Istituto Auxologico Italiano, Piancavallo

Introduction. Obese adults are at an increased risk of several dis-

eases. The cost implications, both economic and social, are estimated to be considerable, particularly for inpatient care. A previous study in a Northern Italy cohort showed that all causes hospitalisation rates were much higher among obese people than in the general population.

Objectives. The aim of this study was to describe the use of hospital care by adult obese subjects (BMI ≥ 30 kg/m²) in a cohort of hospitalized patients.

Methods. A cohort including patients admitted in a Metabolic Unit at a specialized hospital in Northern Italy was linked with the Hospital Discharge Records database. Hospitalisation costs have been estimated from DRGs tariffs. Average follow-up and annual costs have been estimated from the follow up cumulative per patient's costs. Annual costs determinants were estimated via a multivariable Gamma GEE model with log link and an autoregressive correlation matrix AR (1). Estimates have been weighted by time of exposure as an offset of the logarithm of the time in years, inserted in the linear predictor term of the model.

Results. Median annual costs were 2,436€ (IQR: 1,405-4,242) for men and 2,293€ (IQR: 1413 - 3922) for women. An increase in annual costs was evidenced for higher age at recruitment, BMI ≥ 40 , waist circumference (WC) above median values, and for the presence of several comorbidities (cancer, cardiovascular diseases, musculoskeletal system diseases, respiratory diseases, mental disorders). BMI was not relevant in affecting hospital costs accumulation, while the WC was positively associated with a small increase - 10% every 10 cm - in annual costs among women.

Conclusions. The economic impact due to the high hospitalization rates among obese persons is extremely relevant. The role of obesity related comorbidities on costs accumulation suggests the importance of secondary prevention programmes addressed to reduce the impact of comorbidities amongst obese people beside primary prevention programmes aimed to prevent obesity in the general population.

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PROGETTO CAREMORE (CANCER REGISTRY MODEL ON REHABILITATION): PRIMI RISULTATI

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Introduzione. Si stima che in Italia il numero di casi prevalenti, persone viventi con una diagnosi di tumore nel proprio passato, sia di circa 2 milioni nel 2010: un gruppo eterogeneo di pazienti con bisogni che variano a seconda della fase di malattia.

Obiettivi. CAREMORE è il primo progetto su base di popolazione che si pone l'obiettivo di quantificare i servizi offerti dal servizio sanitario nazionale (SSN) in ambito assistenziale e riabilitativo in relazione allo stato di salute dei pazienti oncologici. Il progetto terminerà alla fine del 2011. L'analisi preliminare qui presentata ha

lo scopo di descrivere lo stato di salute delle coorti di pazienti entrati nello studio.

Metodi. CAREMORE sta raccogliendo dati sulle prestazioni riabilitative di 1800 pazienti estratti dai database dei registri tumori (RT) di Varese, Genova, Reggio Emilia, Ragusa e Sassari. I dati raccolti riguardano una coorte di casi incidenti nel 2002 seguiti per 5 anni e un campione di casi prevalenti al 1.1.2007 (diagnosticati tra il 1997 al 2001) e seguiti per un anno. Le patologie considerate sono: tumore del colon-retto, della mammella e linfoma. I RT hanno contattato fonti informative a loro non convenzionali: centri di riabilitazione, comuni, ADI, uffici AUSL per invalidità civile, ecc.

Risultati. La coorte di casi incidenti per tumore del retto diagnosticati a Genova nel 2002 (114 casi) mostra che: il 27% muore entro l'anno; il 28% continua a presentare la malattia ed è destinato a morirne; il 9% ha ricadute (recidive, metastasi, secondi tumori) dopo i due/tre anni (ed è vivo a 5 anni dalla diagnosi) mentre il 36% non ha sviluppi entro i 5 anni dalla diagnosi. Al convegno saranno presentati i risultati per le altre patologie e i registri coinvolti.

Conclusioni. La quantificazione dei gruppi di pazienti oncologici in base al loro stato di salute fornisce un importante dato al SSN per programmare i servizi di riabilitazione in grado di soddisfare i crescenti bisogni dei pazienti.

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LA SALUTE MENTALE IN TOSCANA: UN'INDAGINE ESPLORATIVA DELLA POPOLAZIONE ADULTA UTILIZZANDO I DATI DEL SIRSM

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Introduzione. Con la messa a regime del Sistema Informativo Regionale sulla Salute Mentale (SIRSM), la regione Toscana si è posta come obiettivo principale quello di rilevare l'utenza e l'attività dei Dipartimenti di Salute Mentale (DSM) presenti sul territorio. Questo sistema dovrebbe permettere di documentare il processo di cura erogato ai pazienti attribuendo ciascuna prestazione al problema clinico individuato al momento della sua erogazione.

Obiettivi. Fornire una prima descrizione degli utenti adulti che afferiscono ai DSM utilizzando i dati preliminari del SIRSM.

Metodi. Sono stati selezionati dal SIRSM gli utenti adulti attivi nei DSM nel 2008. Il record linkage rispetto alla "chiave utente" delle principali tabelle, contenenti informazioni socio demografiche, cliniche e prestazionali, ha consentito di collegare le patologie diagnosticate ad ogni soggetto, con le prestazioni da esso effettuate. È opportuno segnalare che i risultati seguenti, devono essere letti in un'ottica prevalentemente esplorativa del flusso. Per alcune variabili infatti, le informazioni mancanti sono piuttosto elevate (per il titolo di studio, la condizione professionale, lo stato civile e le diagnosi stesse, sono state osservate percentuali di dati mancanti superiori al 40%), mentre per i campi, genere ed età, i dati sono completi.

Risultati. Al 2008, gli utenti adulti attivi in carico presso i DSM della Toscana risultano 70.608 (2,2 persone su 100 residenti). La

caratterizzazione socio-demografica degli utenti che afferiscono ai servizi, vede questa popolazione composta per il 58,5% dal genere femminile, di nazionalità italiana (3% stranieri). La frequenza più alta è quella compresa nella fascia di età 35-55 anni, celibi/nubili per il 55,7%, con titolo di studio non elevato ma inseriti nel mondo del lavoro. Il 77,4% ha precedenti psichiatrici. Il disturbo da spettro schizofrenico (27,3%), seguito dal disturbo affettivo psicotico (22,8%), risultano essere le principali patologie da cui sono affetti. Per il disturbo schizofrenico le prestazioni messe in atto riguardano principalmente la rete sociale (19%) e l'esecuzione di controlli periodici (17,4%) a cui si affiancano i colloqui svolti da altre figure professionali (12,8%) e la somministrazione di farmaci (10,9%). Nel caso del disturbo affettivo psicotico, la principale attività risulta essere invece il controllo clinico svolto periodicamente (28,6%), seguito da interventi sulla rete sociale (14%) e psicoterapeutici (12,2%).

Conclusioni. Il dato di prevalenza, rapportato alla popolazione adulta residente in Toscana, indica come un numero elevato di cittadini adulti faccia ricorso ai DSM (2,2% rispetto all'1,2% rilevato in Italia). Il SIRSM, pur contenendo a tutt'oggi molte incompletezze, rappresenta uno strumento potenzialmente in grado di rappresentare gli utenti che vi afferiscono ed i trattamenti ad essi erogati permettendo un maggior controllo dell'intero processo di cura.



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EPIDEMIOLOGY OF ROAD ACCIDENTS: A MODEL OF ANALYSIS OF MILANO CURRENT DATA

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Introduction. Road accidents are a great problem in our society. In the European Union, every year about 43,000 people die following an accident, and about 1.8 million are injured. In Italy, in 2008, 218,963 accidents were registered, in which 4,731 people died, and a further 310,739 were injured.

Objectives. The objective of this work is to identify the major risk factors associated with the risk of being injured or dying in a road accident.

Methods. Using data collected by the police authorities, all the drivers involved in an accident which occurred in the province of Milan in 2004 and 2005 were analysed. Using logistic regression models, the likelihood of being injured versus not injured, of being killed versus not injured and of being killed versus injured were calculated.

Results. The risk of being injured or of dying rather than of being unhurt was higher for riders of two-wheeled vehicles (bicycles, motorcycles, mopeds) than for car drivers (OR of being injured 35.42, 34.96 and 26.97 respectively; OR of dying 133.32, 72.79 and 26.18 respectively). Women have a higher risk of being injured (OR: 1.98) but a lower risk of dying (OR: 0.64). Compared with people younger than 30 years of age, people aged ≥65 have a high-

er risk of dying (OR: 2.84). Accidents occurred during the night and during the weekend are more serious. Accidents on extra-urban roads are more dangerous than those in the urban area (OR of injuries: 1.07; OR of death: 5.17). Accidents on motorways have a risk of death higher than those in urban areas (OR: 2.05), whilst the risk of being injured is smaller (OR: 0.44). The most dangerous accidents are the single-vehicle ones (OR of injuries with respect to head-on or side accidents: 1.88; OR of death: 1.85). Accidents on a wet or slippery surface are more associated with the risk of injuries (OR: 1.20).

Conclusions. It is suggested that simple interventions aiming to protect the weakest road users might reduce the severity of road accidents in this area.



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HOSPITALIZATION OF AN ITALIAN MATERIALLY DEPRIVED POPULATION IN FLORENCE, ITALY

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Introduction. Inequalities on health have been largely accumulated in the last decades and are an important challenge for public health in Europe. Several studies have demonstrated the effects of socioeconomic and material deprivation on mortality and morbidity rates. Subjects are considered deprived if their access to different resources is limited compared to the opportunities available for the vast majority of the population to which they belong.

Objectives. The aim of this work is to evaluate the morbidity of a materially deprived population, characterized by having applied for public tenement, comparing the results with those regarding the general population to which they belong.

Methods. A study on hospitalization of 4,773 persons resident in Florence who applied for public tenement to local public bodies in 1997-2001 was performed. Sex-specific age-standardized hospitalization ratios (SHR) were computed for all causes and cause-specific hospital admissions (only first hospital admissions were considered) during 2001-2005, using as reference the hospitalization rates of Tuscan population in the same years.

Results. 2,777 first hospital admissions were registered. Statistically significant excesses of hospitalizations are reported: in both genders for all causes (SHR=1.22 in females and SHR=1.14 in males), mental disorders (SHR=1.77 in females and SHR=2.19 in males) and respiratory diseases (SHR=1.33 in females and SHR=1.25 in males); in males for endocrine, metabolic and immunity disorders (SHR=1.38); and in females for injuries and poisoning (SHR=1.24).

Conclusions. The results of this study, despite the short observation period, are consistent with the available evidences that causes of illness in disadvantaged groups may be related to the built environment, confirming the importance of adequate housing in reducing health inequalities.

SESSIONE PARALLELA
Farmacoepidemiologia**Moderatori:**

Carlo Alberto Perucci (Roma), Giuseppe Traversa (Roma)

- relatori invitati -**FARMACOEPIDEMIOLOGIA E DECISIONI REGOLATORIE**Traversa G,¹ Magrini N,² Smeraldi C,³ Venegoni M⁴¹Centro Nazionale di Epidemiologia, Sorveglianza e Promozione della Salute, Istituto Superiore di Sanità, Roma; ²Centro per la Valutazione dell'Efficacia dell'Assistenza Sanitaria (CEVeAS), Modena; ³Pharmacovigilance & Risk Management, European Medicines Agency (EMA), Londra, UK; ⁴Centro Regionale di Farmacovigilanza, Regione Lombardia, Milano

Introduzione. E' ampiamente riconosciuto il bisogno di sottoporre i farmaci a un'attività di sorveglianza post marketing per chiarirne meglio il profilo beneficio-rischio dopo l'approvazione all'immissione in commercio, sulla base di pochi studi clinici controllati. I sistemi basati sulle segnalazioni spontanee, sebbene essenziali e presenti in tutti i Paesi, scontano limiti inevitabili. Gli studi osservazionali post marketing (innanzitutto, coorte e caso-controllo) diventano spesso indispensabili per colmare i gap di conoscenza rispetto a effetti indesiderati poco frequenti. Allo scopo di garantire l'affidabilità dei risultati che sono utilizzati nelle decisioni regolatorie è anche necessario che gli studi siano effettuati da centri con livelli adeguati di competenze e siano caratterizzati da una conduzione indipendente.

Obiettivi. Obiettivo generale della sessione "Farmacoepidemiologia" è quello di discutere il contributo degli studi post marketing nel chiarire il profilo beneficio-rischio dei farmaci, di presentare il ruolo della rete ENCePP (European Network of Centres for Pharmacoepidemiology and Pharmacovigilance) e di valutare come promuovere un maggiore coordinamento fra i gruppi italiani che già fanno parte della rete, o che comunque hanno sviluppato una competenza sugli studi osservazionali sui farmaci.

La rete ENCePP e i centri italiani. La rete ENCePP è stata costituita dall'Agenzia europea dei medicinali (EMA) con lo scopo di promuovere la qualità, l'indipendenza e la trasparenza della ricerca post marketing e facilitare la collaborazione fra centri a livello europeo.

Possono aderire all'ENCEPP tutti i centri di ricerca (gruppi di ricerca, registri, reti, gestori di database, CRO) che operano nel settore accademico, pubblico o privato e che abbiano un interesse specifico nel campo della farmacovigilanza e o della farmacoepidemiologia. Sono due gli strumenti adottati per perseguire l'intento di garantire studi di qualità e indipendenti. Il primo è una Checklist di standard metodologico per la definizione del protocollo di uno studio ENCePP. Il secondo è rappresentato da un Codice di condotta da adottare nelle relazioni con la committenza degli studi, con l'obiettivo di condividere standard di comportamento, garantire l'indipendenza e limitare i conflitti di interesse. Tale committenza, infatti, essendo innanzitutto tra industria e centri ENCePP, per quanto abbia anche una supervisione dell'EMA, è molto esposta ai conflitti di interessi.

Conclusioni. Tenuto conto del ruolo sempre maggiore che in futuro sarà assunto dagli studi osservazionali post marketing nelle decisioni regolatorie, è indispensabile che ci si ponga l'obiettivo di garantire la massima affidabilità metodologica e ridurre gli effetti distorsivi dei conflitti di interesse. E' inoltre importante assicurare, in un'iniziativa come quella dell'ENCEPP, che buone intenzioni sulla qualità del reporting degli studi (vedi linee guida di Good Clinical Practice) si traducano prevalentemente in un appesantimento burocratico dell'attività di ricerca.

SESSIONE PARALLELA
Migranti e popolazioni fragili

Moderatori:

Patrizia Carletti (Ancona), Nadia Mignolli (Roma)

Laura Bonvicini et al. [103]

Le interruzioni volontarie di gravidanza nelle donne immigrate e italiane a Reggio Emilia: monitoraggio negli anni 2005-2008 attraverso diversi indicatori

Manuela Chiavarini et al. [104]

Donne straniere provenienti da Paesi a forte pressione migratoria e percorso nascita in Umbria

Francesco Innocenti et al. [105]

Un camper per i diritti: l'intervento dei medici per i diritti umani a Firenze

Gianfranco Manneschi et al. [106]

L'incidenza dei tumori nell'area del Registro Tumori Toscano in cittadini nati in Italia e in immigrati di prima generazione

Paola Sciarini et al. [107]

Associazione tra grado di urbanizzazione e rischio di dipendenza da sostanze tra gli utenti dei dipartimenti italiani affetti da doppia diagnosi

Fabrizio Giannandrea, Stella Iezzi [108]

A method to classify determinants of domestic violence against women

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LE INTERRUZIONI VOLONTARIE DI GRAVIDANZA NELLE DONNE IMMIGRATE E ITALIANE A REGGIO EMILIA: MONITORAGGIO NEGLI ANNI 2005-2008 ATTRAVERSO DIVERSI INDICATORI

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Introduzione. La femminilizzazione dei flussi migratori è una caratteristica delle migrazioni contemporanee in Italia e presente anche a Reggio Emilia, dove nel 2008 le donne rappresentano ormai il 48,6% degli immigrati (Istat). Uno dei problemi di salute connessi all'immigrazione femminile è l'elevata frequenza di Interruzioni Volontarie di Gravidanza (IVG) spiegata da fattori socio-economici e culturali. Un monitoraggio delle IVG che fornisca informazioni precise, è uno strumento necessario di conoscenza per programmare politiche di prevenzione di questo fenomeno.

Obiettivi. Analizzare il ricorso all'IVG tra le donne italiane, immigrate regolari e Straniere Temporaneamente Presenti (STP). Valutare l'occorrenza dell'IVG per età e nazionalità, considerando la propensione alla fecondità che le caratterizza.

Metodi. Analisi dei ricoveri per IVG, anni 2005-2008, attraverso le Schede di Dimissione Ospedaliera (SDO) nei tre gruppi. Si valutano tassi (x1.000) e rapporti % IVG/parti (RI), grezzi e specifici per età e nazionalità.

Risultati. Si considerano 5.491 IVG e 22.114 parti. Il tasso di IVG

nelle immigrate (31,3) è 3 volte più alto di quello delle italiane (9,2). Valutando l'RI, le differenze si riducono (immigrate regolari=32,6; italiane=19,4) ma rimangono evidenti per le STP (112,8). La valutazione degli indicatori evidenzia pattern specifici per nazionalità. Per le ucraine e le moldave ad un tasso modesto (25,5) corrisponde un RI molto alto (69,0) mentre le marocchine presentano un tasso pari a 26,4 e un RI simile alle italiane (20,6). Andamenti diversi emergono nelle altre nazionalità. Per le età più giovani (15-19) l'RI risulta più alto nelle italiane (171,8) rispetto alle immigrate (54,7). Negli anni l'occorrenza di IVG è in calo.

Conclusioni. Per una buona programmazione di interventi di prevenzione occorre pensare ad iniziative mirate, specifiche per nazionalità ed età, combinando gli indicatori esaminati e monitorando il fenomeno nel tempo.

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DONNE STRANIERE PROVENIENTI DA PAESI A FORTE PRESSIONE MIGRATORIA E PERCORSO NASCITA IN UMBRIA

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Introduzione. Nel periodo 2004-2008 la Regione Umbria ha subito un importante cambiamento nella composizione della popolazione: aumento del 4,1% della popolazione residente, di cui 0,3%

a carico della popolazione italiana e 60,7% a carico della popolazione immigrata.

Obiettivi. Descrivere le differenze di accesso e di assistenza nel percorso nascita e negli esiti riproduttivi tra le donne italiane e quelle immigrate.

Metodi. I dati provengono dai Certificati di Assistenza al Parto di tutte le donne che hanno partorito in Umbria nel 2008. Viene valutata la differenza negli indicatori di assistenza e di esito tra donne straniere provenienti da Paesi a forte pressione migratoria (PFPM) e donne di cittadinanza italiana.

Risultati. Le donne straniere PFPM, che rappresentano il 25% del totale delle madri, sono più giovani delle italiane (età media al parto 27,8 vs 32,2) e possiedono un titolo di studio basso, inferiore o uguale al diploma di scuola media inferiore (45,6% vs 17,1%). Rispetto alle italiane, per le donne straniere PFPM nell'assistenza alla gravidanza si evidenziano i seguenti punti critici: controlli in gravidanza più tardivi, dopo la 12esima settimana (17,9% vs 4,7%; OR 2,57; IC95%: 2,21-3,00); basso numero di controlli (≤ 4) (14,6% vs 3,2%; OR 5,22; IC95%: 4,27-6,36); maggior ricorso a un taglio cesareo in travaglio rispetto a uno di elezione (13,3% vs 12,7%; OR 1,49; IC95%: 1,21-1,82); assenza di persone di fiducia al parto (21,1% vs 10,2%; OR 2,35; IC95%: 1,98-2,79). Non si registrano differenze significative tra straniere PFPM e italiane per la prematurità (7,2% vs 6,1%) e per neonati con peso < 2.500 grammi (5,7% vs 6,3%).

Conclusioni. Nonostante l'offerta capillare e di qualità, accessibile a tutte le donne immigrate, le donne straniere PFPM usufruiscono di una minor assistenza in gravidanza, che comunque non inficia gli esiti neonatali. E' tuttavia necessario riorientare i servizi tenendo conto delle caratteristiche socio-culturali della donna immigrata.

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UN CAMPER PER I DIRITTI: L'INTERVENTO DEI MEDICI PER I DIRITTI UMANI A FIRENZE

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Introduzione. Nel Comune di Firenze si stima che siano presenti circa 3.500 persone senza fissa dimora, italiane e straniere. Le stime prodotte dall'Osservatorio Sociale della Regione Toscana fanno registrare l'assoluta prevalenza di cittadini provenienti dalla Romania, con quasi 800 persone, di cui 250 minori e moltissimi nuclei familiari. Seguono per numero di presenze marocchini, somali, albanesi e italiani, per i quali manca a tutt'oggi una valutazione dello stato di salute e dei bisogni sanitari.

Obiettivi. A partire dal 2006 l'unità di strada di Medici per i Diritti Umani (MEDU), svolge a Firenze un servizio di assistenza sanitaria rivolto principalmente ai cittadini senza fissa dimora. Il progetto "Un camper per i diritti" ha come obiettivo principale favorire l'accesso alla salute e agevolare la fruibilità dei servizi pubblici.

Metodi. I volontari di MEDU raggiungono gli utenti direttamente presso le loro dimore, cercando di instaurare un collegamento con

i servizi pubblici. Per ogni paziente viene compilato un questionario sociosanitario contenente notizie riguardanti i dati anagrafici, il percorso migratorio e l'accesso alle cure. In occasione degli interventi sanitari viene redatta una scheda clinica e vengono fornite informazioni sui percorsi di regolarizzazione sociale e sulle modalità di accesso al Servizio Sanitario Regionale.

Risultati. Durante gli anni 2008 e 2009 l'unità mobile di MEDU ha realizzato 581 visite a 277 Rom provenienti dalla Romania. Il 52,5% dei pazienti è di sesso femminile, mentre la fascia d'età maggiormente rappresentata è quella compresa tra 31 e 50 anni. Alla prima visita solo il 10,9% dei pazienti aveva una tessera sanitaria mentre all'ultima visita il 35,9%. Tra i rispondenti sono stati rilevati alti consumi di tabacco (69%) e alcol (39%). L'età media alla prima gravidanza è risultata inferiore ai 18 anni, il numero medio di gravidanze pari a 3,8, quello degli aborti 1,9 mentre quello dei parti 2,5. Le diagnosi più frequenti, aggregate in base ai grandi gruppi ICD9-CM, sono risultate: malattie dell'apparato digerente (14,7%), malattie dell'apparato respiratorio (12,4%) e patologie osteomuscolari (8,7%).

Conclusioni. La maggioranza dei pazienti è affetta da patologie che richiedono un'assistenza sanitaria di base, per questo gli operatori MEDU hanno riferito ogni individuo alle strutture dell'anagrafe sanitaria per l'attribuzione del tesserino Stranieri Temporaneamente Presenti (STP) o l'iscrizione al Servizio Sanitario Nazionale, in modo da favorire un collegamento con i servizi socio-sanitari territoriali.

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L'INCIDENZA DEI TUMORI NELL'AREA DEL REGISTRO TUMORI TOSCANO IN CITTADINI NATI IN ITALIA E IN IMMIGRATI DI PRIMA GENERAZIONE

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Obiettivi. Scopo dello studio è valutare se esistono delle differenze di incidenza di tumore per Paese di nascita nei soggetti residenti nelle aree coperte dal Registro Tumori Toscano (RTT).

Metodi. Sono stati selezionati tutti i casi di tumore invasivo diagnosticati in soggetti residenti nelle province di Firenze e Prato nel periodo 1998-2005. I casi sono stati classificati secondo il Paese di nascita in nati: 1) in Italia, 2) in Paesi a Forte Pressione Migratoria PFPM, 3) in Paesi a Sviluppo Avanzato PSA. Come denominatore è stato utilizzato l'archivio degli Assistibili regionale. Sono stati calcolati i tassi di incidenza troncati (20-59 anni) standardizzati per età sulla struttura della popolazione europea e il rapporto tra tassi standardizzati (SRR).

Risultati. Nel periodo 1998-2005 sono stati diagnosticati 14.175 casi di tumore invasivo (escluso epitelomi della cute) in soggetti 20-59enni. Di questi, il 4,4% in soggetti nati all'estero (1,3% in PSA e 3,1% in PFPM). La proporzione di casi diagnosticati in soggetti immigrati è aumentata nell'area del RTT dal 2,4% nel 1998 al 4,6% nel 2005. Per i nati nei PSA non si rilevano differenze di incidenza rispetto ai nati in Italia ($p=0,3018$). Per i nati nei PFPM

l'incidenza è risultata statisticamente più bassa sia per gli uomini (151,2 per 100.000) sia per le donne (199,3) rispetto ai nati in Italia (243,6 uomini e 337,7 donne). Fanno eccezione, con tassi di incidenza significativamente più elevati nelle donne, le sedi del fegato (SRR=4,80; $p=0,04$) e della cervice uterina (SRR=1,86; $p=0,01$).

Conclusioni. La popolazione immigrata proveniente dai PFPM mostra livelli di incidenza complessivamente più bassi (effetto migrante sano). Si rileva un comportamento inverso per i tumori del fegato e della cervice uterina, entrambi tumori dove è stata riconosciuta la componente virale tra le cause. Il fenomeno della migrazione apre nuove prospettive ai Registri Tumori, ma anche alcune questioni metodologiche (definizione di immigrato e del denominatore di popolazione).

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ASSOCIAZIONE TRA GRADO DI URBANIZZAZIONE E RISCHIO DI DIPENDENZA DA SOSTANZE TRA GLI UTENTI DEI DIPARTIMENTI ITALIANI AFFETTI DA DOPPIA DIAGNOSI

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Introduzione. La preoccupazione derivante dall'elevata prevalenza della comorbidità tra disturbi da uso di sostanze e psichiatrici (Doppia Diagnosi, DD) è in aumento. Si rendono necessari approcci orientati sulla base dei risultati di studi epidemiologici per la valutazione dell'efficacia dei servizi sanitari e una migliore comprensione e individuazione delle popolazioni a rischio.

Obiettivi. Valutare il rischio di sviluppare una dipendenza da sostanze tra soggetti affetti da malattia mentale in carico ai Dipartimenti di Salute Mentale (DSM) in relazione al grado di urbanizzazione dell'area di residenza.

Metodi. Studio trasversale nei DSM italiani. Raccolta di dati socio demografici, clinici e grado di urbanizzazione dell'area di residenza degli utenti affetti da DD. Implementazione di un modello logistico per individuare i fattori di rischio associati allo sviluppo di una dipendenza utilizzando come covariate le variabili raccolte.

Risultati. Sono stati raccolti dati riguardanti 2.323 utenti affetti da DD. I soggetti residenti in aree a basso grado di urbanizzazione sono risultati più anziani, con un inferiore livello di istruzione, più frequentemente affetti da epatopatia e da dipendenza da alcol. Sono risultati associati a un aumentato rischio di sviluppare una dipendenza l'età (OR 1,02; IC95%: 1,01-1,03), il sesso maschile (OR

1,43; IC95%: 1,14-1,78), un disturbo di personalità (OR 1,49; IC95%: 1,19-1,88) o dell'umore (OR 1,56; IC95%: 1,19-2,05), risiedere in un'area a basso grado di urbanizzazione (OR 1,56; IC95%: 1,14-2,14), avere un'epatopatia (OR 2,06; IC95%: 1,68-2,54) e l'uso di oppiacei (OR 4,41; IC95%: 3,48-5,61), mentre l'uso di cannabinoidi è associato a una riduzione di tale rischio (OR 0,69; IC95%: 0,55-0,88).

Conclusioni. Il rischio di sviluppare una dipendenza è influenzato da fattori individuali e locali. La loro identificazione è importante per permettere l'individuazione dei soggetti a rischio e l'allocatione più mirata di risorse.

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A METHOD TO CLASSIFY DETERMINANTS OF DOMESTIC VIOLENCE AGAINST WOMEN

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Introduction. Domestic violence against women is recognized as a major International public health issue in both developing and industrialized countries.

Objectives. This study is aimed to identify and classify different levels of risk for domestic violence.

Methods. We analyze the first Italian survey on violence against women conducted by the National Statistical Institute in 2006 (Istat, 2007). Data were collected by adopting Computer Assisted Telephone Interview (CATI) technique based on a questionnaire filled by a representative sample of 25.000 women aged 15-70 years old. We apply a Rasch Model to build a complex indicator of domestic violence and a multilevel model to separately assess differences among women living in the same district, and differences among regions.

Results. We build a Domestic Violence Index (DVI) classifying women into four risk groups: low, medium-low, medium-high and high risk levels. Major risk factors for violence against women included having elevated education levels, relatively young age (less than 25 years old), being raped as a child and divorced women being raped by their ex-spouses.

Conclusions. Domestic violence is usually committed in family circles. The majority of factors associated with intimate partner violence are related to the women, in particular their childhood experiences of violence in his own family. Violence prevention programs should target girls growing up in families experiencing domestic violence.

SESSIONE PARALLELA Health care

Moderatori:

Francesco Cipriani (Firenze), Cesare Cislighi (Roma)

Valeria Fano et al. [109]

Ricorso alle prestazioni specialistiche e ambulatoriali di una coorte di diabetici residenti nella ASL Roma D (periodo 2008-2009)

Monica Simonetti et al. [110]

La determinazione del rischio di fratture in una popolazione di pazienti afferenti agli ambulatori di medicina generale

Linda Guarda et al. [111]

Valutazione degli effetti avversi della diagnosi prenatale invasiva tramite i soli flussi informativi correnti

Angela Anselmi et al. [112]

Impatto delle politiche regolatorie locali e nazionali sul consumo degli inibitori di pompa protonica in Italia, 2001-2007

Sara Franchi et al. [113]

"TIN toscane on-line": un registro area-based dei neonati gravemente prematuri in Regione Toscana

Liliana Cori et al. [114]

Comparison of the responses to questionnaires used in two Human Biomonitoring studies in Italy

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RICORSO ALLE PRESTAZIONI SPECIALISTICHE E AMBULATORIALI DI UNA COORTE DI DIABETICI RESIDENTI NELLA ASL ROMA D (PERIODO 2008-2009)

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Introduzione. Il diabete mellito (DM), in aumento nei Paesi industrializzati, è responsabile di una quota importante della spesa sanitaria a causa della elevata complessità clinica. Esiste una grande variabilità nei percorsi di assistenza e prevenzione di questi pazienti.

Obiettivi. Descrivere il ricorso alle prestazioni specialistiche di una coorte di diabetici (prevalenti al 31.12.2007) identificata attraverso i sistemi informativi correnti.

Metodi. Record linkage di pazienti con DM residenti nella ASL RMD e l'archivio delle prestazioni specialistiche e ambulatoriali (SIAS) per identificare il ricorso a: dosaggio di emoglobina glicata (HbA1c), colesterolo, trigliceridi, microalbuminuria, visite oculistiche, elettrocardiogramma (aa 2008-09). Per ogni tipo di prestazione è stata considerata la quota di prescrizioni erogate dal proprio medico curante, come indicatore della continuità e dell'intensità del rapporto tra i medici di medicina generale (MMG) e i propri assistiti. Con un modello di Poisson sono stati valutati i fattori legati al numero e al tipo di prestazioni effettuate.

Risultati. Sono stati identificati 30.127 pazienti con DM a fine 2007. I risultati preliminari indicano che almeno una volta l'anno il 35% dei pazienti effettua un test HbA1c, il 64% un dosag-

gio del colesterolo, il 29% un ECG e il 53% almeno una visita oculistica. Il 22% dei diabetici che non risulta aver effettuato né un test HbA1c, né una visita oculistica né un dosaggio del colesterolo, è per la maggior parte costituito da ultrasessantacinquenni e/o da persone che all'inizio del follow-up facevano uso di farmaci ipoglicemizzanti orali.

Conclusioni. Sebbene una parte degli esami potrebbe sfuggire alle fonti utilizzate e considerando che il controllo della glicemia rientra nel self-management, tuttavia alcuni indicatori di qualità del monitoraggio della malattia suggeriscono che una parte dei pazienti non segue le raccomandazioni per il controllo del DM.



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LA DETERMINAZIONE DEL RISCHIO DI FRATTURE IN UNA POPOLAZIONE DI PAZIENTI AFFERENTI AGLI AMBULATORI DI MEDICINA GENERALE

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Introduzione. L'osteoporosi è un difetto sistemico a carico dell'osso caratterizzato da una riduzione della densità minerale ossea (DMO) che si manifesta solitamente attraverso un aumentato rischio di fratture. Le fratture osteoporotiche rappresentano un importante problema di sanità pubblica poiché, con l'invecchiamento progressivo della popolazione, sono diventate la maggiore causa di disabilità ed un importante fattore associato all'aumento dei costi sanitari.

Obiettivi. Stimare la prevalenza e incidenza di fratture osteoporotiche e la potenziale associazione con più fattori di rischio.

Metodi. Le informazioni sono state ricavate dal Database di Health Search – CSD Patient (HSD) che raccoglie i dati di oltre 1,5 milioni di pazienti rappresentativi della popolazione assistita dai medici di medicina generale in Italia. Per rispondere agli obiettivi dello studio sono stati arruolati i soggetti che nel periodo 1.01.2002–31.12.2003 avevano un'età compresa tra 50 e 85 anni e almeno un anno di storia clinica registrata e di follow-up.

Risultati. Complessivamente sono stati arruolati 242.741 soggetti (55,2% donne); si rilevano differenze statisticamente significative per genere rispetto a più fattori di rischio indagati. L'analisi logistica multivariata individua come predittori significativamente associati al rischio di fratture nelle donne l'età, le fratture pregresse, uso di corticosteroidi, malattie epatiche, diagnosi di osteoporosi e BPCO. Negli uomini l'età, le fratture pregresse e valori di BMI ≤ 20 . Il tasso di incidenza per le femmine è pari a 7,9 (IC95%: 7,8–8,1) e 2,9 (IC95%: 2,8–3,1) per i maschi. Sebbene l'incidenza sia più elevata tra le femmine in tutte le fasce di età, il divario maggiore si osserva negli ultra 65enni.

Conclusioni. L'incidenza di fratture associata alla presenza di molteplici fattori rischio rende necessario un intervento atto alla prevenzione delle fratture primarie, piuttosto che attraverso la cura e la riabilitazione delle stesse.



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VALUTAZIONE DEGLI EFFETTI AVVERSI DELLA DIAGNOSI PRENATALE INVASIVA TRAMITE I SOLI FLUSSI INFORMATIVI CORRENTI

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Introduzione. Il rischio di aborto conseguente all'esecuzione di un esame di diagnosi prenatale invasiva si avvicina all'1%, ma – come sottolinea l'OMS – è modulato in gran parte dall'esperienza e dall'abilità dell'operatore.

Obiettivi. Condurre una valutazione dei servizi relativi alla diagnosi prenatale invasiva misurandone gli effetti avversi nelle donne residenti in provincia di Mantova, tramite l'utilizzo dei flussi informativi correnti.

Metodi. Partendo dai dati sui parti e gli aborti spontanei occorsi nel 2008 (flusso SDO), attraverso un record linkage sono state identificate le donne che avevano eseguito villocentesi o amniocentesi nel corso della gravidanza (flusso delle prestazioni ambulatoriali 2007–2008). Sono stati ricavati il tasso di abortività generale e quello relativo al periodo di esecuzione del test. Si sono calcolate le percentuali di abortività per ogni ambulatorio di diagnosi. Con modelli di regressione logistica si è valutata la tendenza degli ambulatori a effettuare le diverse procedure, nonché il rischio di aborto iatrogeno. Tutte le analisi sono corrette per età.

Risultati. I valori di OR di aborto iatrogeno – per le diverse articolazioni territoriali della principale azienda ospedaliera provinciale che copre il 72% degli accertamenti in esame – sono compresi

tra 2,4 e 3,5 rispetto ai diversi riferimenti extra-provinciali ed extra-regionali assunti. Inoltre è emersa una netta tendenza (OR=7) a effettuare la villocentesi rispetto alla amniocentesi.

Conclusioni. Il record-linkage dei diversi flussi informativi consente rappresentazioni descrittive dei fenomeni e la valutazione dei servizi a partire dagli effetti avversi prevenibili. L'economicità dell'indagine e la copertura di tutta la popolazione target costituiscono i punti di forza del metodo per esercitare il controllo sulla qualità e l'appropriatezza dei servizi sanitari erogati.



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IMPATTO DELLE POLITICHE REGOLATORIE LOCALI E NAZIONALI SUL CONSUMO DEGLI INIBITORI DI POMPA PROTONICA IN ITALIA, 2001-2007

Anselmi A,¹ Damiani G,¹ Federico B,² Bianchi CBNV,¹ Ronconi A,¹ Iodice L,¹ Navarra P,³ Da Cas R,⁴ Raschetti R,⁴ Ricciardi W¹

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Introduzione. L'uso degli inibitori di pompa protonica (IPP) per contrastare e prevenire patologie a carico degli organi gastrointestinali è ormai largamente consolidato in Italia come in Europa. Il loro consumo è andato rapidamente e progressivamente crescendo nell'ultima decade. La necessità dunque di sviluppare e attuare strategie efficaci nell'ambito dell'appropriatezza diagnostica e terapeutica di questi farmaci chiama in causa politiche regolatorie sia a livello nazionale che regionale.

Obiettivi. Valutare l'impatto dell'introduzione del copayment e della revisione delle Note AIFA 1 e 48 sul consumo di IPP in Italia nel periodo 2001–2007.

Metodi. Nel corso del periodo in esame (Maggio 2001–Dicembre 2007) è stato analizzato l'andamento del consumo mensile di IPP, espresso in termini di DDD per 1.000 ab die. È stata utilizzata l'analisi di regressione segmentata applicata alle serie storiche interrotte, precedentemente destagionalizzate, al fine di eliminare la componente stagionale e valutare il "vero effetto" dei due interventi sovraccitati.

Risultati. Il consumo medio di IPP ha subito una crescita nel corso del periodo in esame, passando da circa 13,13 DDD/1.000 ab die nel mese di Maggio 2001, a 34,99 DDD/1.000 ab die relative a Dicembre 2007. In generale la revisione delle Note AIFA del 2004 sembra aver rallentato la crescita di tale consumo, dato che l'indice medio di variazione mensile si riduce da un valore medio di 1,47% (pre 2004) a circa 0,93%. Tale risultato è confermato dalla stima del modello di regressione.

Conclusioni. In Italia, il consumo di IPP ha subito un aumento nel tempo. L'impatto della revisione delle Note AIFA e in particolar modo dell'introduzione del ticket in alcune regioni risulta marginale.



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"TIN TOSCANE ON-LINE": UN REGISTRO AREA-BASED DEI NEONATI GRAVEMENTE PREMATURI IN REGIONE TOSCANAFranchi S,¹ Puglia M,² Corsi A,³ Voller F,² Rusconi F^{1,4}¹Unità di Epidemiologia, Azienda Ospedaliero-Universitaria Meyer, Firenze; ²Osservatorio di Epidemiologia, Agenzia Regionale di Sanità della Toscana, Firenze; ³P.O. Tecnologie dell'informazione, Agenzia Regionale di Sanità della Toscana, Firenze; ⁴Osservatorio di Epidemiologia Agenzia Regionale di Sanità Toscana, Firenze

Introduzione. I neonati gravemente prematuri (età gestazionale <32 settimane o peso alla nascita <1.500 gr) sono solo l'1,2% dei nati, ma contribuiscono grandemente alla mortalità infantile e morbosità a lungo termine. La Toscana sta riorganizzando le cure per questi neonati su più livelli, seguendo le indicazioni dell'American Academy of Pediatrics.

Obiettivi. Creare un registro toscano area-based di neonati gravemente prematuri. Utilizzare, per la raccolta dati, variabili già in uso in altri registri nazionali e internazionali.

Metodi. Il registro è stato approntato da un team multidisciplinare (neonatologi, epidemiologi, informatici). Dopo connessione, un referente neonatologo o infermiere compila on-line per ogni neonato tre schede: 1. nascita/morte in sala parto (anagrafica, complicanze gravidanza, parto); 2. decorso clinico (tipo e durata interventi, esami diagnostici, complicanze/esiti); 3. trasferimenti tra centri e dimissione. I dati si possono interfacciare con quelli del "registro on-line dei trasporti neonatali protetti".

Risultati. "TIN Toscane on-line" è attivo dal 1° gennaio 2009, con 405 neonati registrati: il 68% è nato in centri di III livello, 30% di II livello e 2% di I livello; l'1% è deceduto in sala parto e l'11% durante il ricovero; il 28% è stato trasferito una o più volte: a un centro di livello superiore per cure più specialistiche e/o a un centro più vicino a domicilio per proseguo cure; il 19% è stato dimesso con monitoraggio dei parametri vitali, 10% con ossigenoterapia, 53% alimentati al seno.

Conclusioni. Il registro permetterà di disporre nel tempo di dati sulla mortalità e morbosità, sull'organizzazione dei servizi, sull'intensità e qualità delle cure: ciò sarà utile per un miglioramento dell'assistenza neonatale. Sarà anche possibile un confronto tra i diversi punti nascita e con altri registri attivi in Italia (Lazio ed Emilia-Romagna) e network internazionali (Vermont Oxford Neonatal Network).

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COMPARISON OF THE RESPONSES TO QUESTIONNAIRES USED IN TWO HUMAN BIOMONITORING STUDIES IN ITALYCori L,¹ Bianchi F,² Imiotti C,² Marrucci S,² Minichilli F,² Protti M²¹Unit of Epidemiology, Institute of Clinical Physiology, National Research Council, Rome; ²Unit of Epidemiology, Institute of Clinical Physiology, National Research Council, Pisa

Introduction. Human Biomonitoring (HBM) has been recognized as a critical field of research due to several elements: the emotional implication of the donors, the high degree of uncertainty regarding the interpretation of HBM results, the consequences in term of ethics and communication. Two HBM studies carried out in Italy during the last two years used a questionnaire to collect the information useful for laboratory data interpretation, including a qualitative section exploring risk perception, information sources, and trust.

Objectives. The comparison of questionnaire responses in two high risk areas can be used to test the tool, to confirm its capacity to complement research through qualitative insights, to evaluate risk perception, awareness and knowledge about the environment.

Methods. The results of the 310 questionnaires administered in Gela area, Sicily, and 860 questionnaires administered in 16 Municipalities in Campania Region were compared. A Risk Perception Index was applied. To compare the awareness of the environmental situation in the living area and of the risk of illness, proportions of responses were compared.

Results. As for risk perception, the alarm in Gela is higher than in Campania, it is diffused and linked not only to industries but also to natural risks. As for information, 65% in Gela versus 35% refer to be not sufficiently informed about the hazards in the residence area. About the state of the environment, the belief that the situation can be improved results lower in Gela (61% vs. 70%). As for the risk of illness, most of the people are aware of being sick for several pathologies in both areas.

Conclusions. The differences between two areas can be explained considering the different pollution patterns and exposure, and the people knowledge. Those elements contribute to tailor communication, and to complement the interpretation and discussion of results among the experts preparing results delivery and recommendations to decision makers.

SESSIONE PARALLELA

Tumori

Moderatori:

Lucia Bisceglia (Bari), Corrado Magnani (Torino)

Donella Puliti et al. [115]

Bilancio dei danni e dei benefici di un programma di screening mammografico: uno studio di coorte

Stefano Guzzinati et al. per AIRTUM Working Group [116]

La prevalenza dei tumori in Italia nelle aree coperte da Registri Tumori

Andrea Martini et al. [117]

I tumori stanno diventando la prima causa di morte per i maschi toscani?

Francesco Tisano et al. [118]

Mortalità evitabile tumorale nel 2003-2008 e trend nel 1987-2008 in provincia di Siracusa

Roberto Lillini et al. [119]

Modelli SERTS per la stima della sopravvivenza per cancro nelle Regioni e Province italiane

Carlotta Galeone et al. [120]

Consumo di caffè e tè e rischio di tumore alla testa e collo: una pooled analysis di studi del consorzio INHANCE (The International Head and Neck Cancer Epidemiology)

Mario Fusco et al. [121]

The contribution of cancer registries to epidemiological investigations in polluted sites: a case-study in the Naples area

Giuseppe Mastrangelo et al. [122]

Tassi standardizzati di incidenza di sarcoma in tre regioni europee (studio CONTICANET)

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BILANCIO DEI DANNI E DEI BENEFICI DI UN PROGRAMMA DI SCREENING MAMMOGRAFICO: UNO STUDIO DI COORTE

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Obiettivi. Obiettivo del presente studio è la stima della riduzione di mortalità (beneficio) e della sovradiagnosi (danno) per tumore mammario nelle donne che “abitualmente” rispondono all’invito allo screening mammografico rispetto alle donne che “abitualmente” non rispondono.

Metodi. E’ stata selezionata la coorte delle donne 50-69enni invitate al primo round di screening nel comune di Firenze (1991-1993). L’esposizione è stata definita a livello individuale sulla base della rispondenza ai primi due round del programma: 1. “frequent attenders”, se rispondenti ad entrambi i round; 2. “irregular”, se rispondenti ad un solo round; 3. “never attenders”, se mai rispondenti. Per tutti i soggetti della coorte è stato effettuato il follow-up per incidenza di cancro mammario al 31.12.2007 - attraverso il linkage con il Registro Tumori Toscano e gli archivi delle Anatomie Patologiche - e il follow-up per stato in vita e causa di morte al 31.12.2008. Il calcolo degli anni/persona a rischio

inizia alla data del primo invito e termina alla data dell’evento (incidenza o morte per tumori della mammella) o alla data di fine follow-up.

Risultati. Sono state selezionate 51.063 donne 50-69enni invitate al primo round di screening con un follow-up mediano per incidenza e mortalità rispettivamente pari a 15,5 e 16,5 anni. La riduzione di mortalità per tumore della mammella nelle donne screenate (che hanno risposto ad almeno un test nei primi due inviti) è risultata del 47% (HR=0,53; 0,43-0,65) aggiustando per tutti i principali confondenti (età, stato civile e indice di deprivazione). La stima di sovradiagnosi nelle donne screenate è risultata del 15% (2-30%) per tutti i tumori e del 10% (0-24%) per i soli tumori invasivi.

Conclusioni. Dai risultati del presente studio si stima che ogni 1.000 donne che effettuano screening si hanno circa 12 vite salvate e 10 casi di sovradiagnosi. Quindi, il bilancio dei danni e dei benefici supporta fortemente l’idea di continuare i programmi di screening mammografico.



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LA PREVALENZA DEI TUMORI IN ITALIA NELLE AREE COPERTE DA REGISTRI TUMORI

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Introduzione. Dati aggiornati sulla prevalenza dei tumori in Italia sono indispensabili a definire, su solide basi scientifiche, le priorità sanitarie per i pazienti viventi con tumore.

Obiettivi. Lo studio si propone di fornire stime al 2006 della prevalenza completa di tumori per le aree coperte da Registri Tumori (RT) e in Italia.

Metodi. Dalla banca dati AIRTUM (24 RT italiani accreditati) sono stati estratti 1.286.711 casi incidenti nel periodo 1978-2005. Sono stati inclusi: a) tutti i tumori maligni esclusi cutanei non melanomatosi; b) tutte le classi di età; c) i tumori multipli. I RT dovevano avere: 1) incidenza al 2003 o successiva; 2) durata di registrazione di almeno 5 anni; 3) follow-up completo. È stato calcolato il numero di casi prevalenti osservati ed è stato stimato, con modelli statistici, il numero di quelli diagnosticati precedentemente il periodo di osservazione dei RT. La prevalenza è stata calcolata per sede, sesso, classi d'età, anni dalla diagnosi e area geografica.

Risultati. Nelle aree coperte da RT, il 4,2% del totale della popolazione ha avuto una diagnosi precedente di tumore, il 15% dei soggetti anziani (≥ 75 anni). I lungosopravvissuti (diagnosi da più di 5 anni) rappresentano il 2,5% della popolazione italiana. Applicando alla popolazione generale i tassi di prevalenza completa specifici per età e per ripartizione geografica, si stimano in Italia circa 2,2 milioni di pazienti con diagnosi precedente di tumore maligno, pari al 3,7% della popolazione. I tumori della mammella sono i più frequenti nelle donne (44%), seguiti da colon-retto (11%), endometrio (8%) e tiroide (5%). Nei maschi il 22% dei casi prevalenti è dovuto a tumori della prostata, 18% alla vescica e 15% al colon-retto.

Conclusioni. I risultati definitivi verranno pubblicati sul rapporto 2010 (supplemento a *Epidemiologia & Prevenzione*), mentre le analisi per singolo RT, comprensive dei dati di incidenza e sopravvivenza, saranno consultabili sul sito dell'AIRTUM.



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I TUMORI STANNO DIVENTANDO LA PRIMA CAUSA DI MORTE PER I MASCHI TOSCANI?

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Introduzione. Nel 2006, per la prima volta, i tumori sono diventati per gli uomini italiani la prima grande causa di morte, superando le malattie cardiovascolari (MCV), nelle donne invece le MCV hanno mantenuto il primo posto.

Obiettivi. Obiettivo del presente contributo è studiare se un "sor-

passo" della mortalità per tumori sulle MCV si stia realizzando in Toscana e se esiste un gradiente temporale-geografico all'interno del territorio regionale.

Metodi. Sui dati del Registro di Mortalità Regionale della Toscana, anni 1987-2008, sono stati calcolati tassi annuali di mortalità standardizzati sulla popolazione europea per il livello regionale e per le 12 Aziende sanitarie locali (ASL). A questi sono stati applicati modelli di regressione utilizzando il software Joinpoint 3.4.2. Sono state analizzate le tre principali grandi cause di morte: MCV, tumori e malattie dell'apparato respiratorio.

Risultati. Nel 2008 in Toscana i residenti maschi deceduti sono stati 19.926, di cui 35,5% per MCV e 34,0% per tumori. I dati grezzi non evidenziano un sorpasso della mortalità tumorale su quella cardiovascolare né per gli uomini né per le donne. Invece, considerando i tassi annuali aggiustati per età, i tumori sono diventati la prima causa di morte per gli uomini fin dal 2004 nella Regione (tumori: 236,5 per 100.000; MCV: 227,8 per 100.000) e fin dagli anni precedenti in alcune ASL: 1998 per ASL 1-Massa Carrara, 1999 per ASL 10-Firenze e 2001 per ASL 4-Prato. La riduzione della mortalità maschile per tumori è iniziata in Toscana alla fine degli anni '80 ed è stata minore (-1,6% annuo) di quella per MCV (-2,4% annuo dal 1987 al 1998 e -3,5% annuo dal 1998 al 2008), quest'ultima invece era già in corso dai primi anni '70.

Conclusioni. In Toscana il "sorpasso" dei tumori sulle MCV come prima grande causa di morte maschile è stato osservato in tutte le ASL e le nostre osservazioni confermano l'ipotesi di una progressione del fenomeno in studio secondo un gradiente Nord-Sud.



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MORTALITÀ EVITABILE TUMORALE NEL 2003-2008 E TREND NEL 1987-2008 IN PROVINCIA DI SIRACUSA

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Introduzione. Lo studio della mortalità evitabile tumorale (MET) dà un valido contributo alla valutazione dei servizi oncologici e supporta il management nell'intervento su certe cause di morte.

Obiettivi. Descrivere la MET nel 2003-2008 in provincia di Siracusa e i suoi trend nel 1987-2008.

Metodi. Per ogni definita causa di MET, per sesso, per distretto sanitario, nella fascia 5-69 anni si sono calcolati i decessi totali, il loro numero medio annuale, i tassi grezzi di MET, i Tassi Standardizzati diretti sulla popolazione Europea (TSE), i Rapporti Standardizzati di Mortalità (RSM) e relativi intervalli di confidenza al 95% sul dato regionale, il $\Delta\%$ tra i TSE 87-90 e quelli 03-08. I dati di morte sono dell'Azienda sanitaria, sulla popolazione residente dell'Istat.

Risultati. Nel periodo 2003-2008 i decessi per tumore sono stati 3.186 nei maschi (M) e 2.261 nelle femmine (F), di cui evitabili rispettivamente 586 e 452. Nei M vi sono bassi TSE con RSM <100 e 95% di significatività statistica per le prime vie aerodigestive a No-

to, per i polmoni a Noto, a Siracusa e totale provincia. TSE 87-08 in calo, soprattutto per , a Lentini; forti aumenti per colon-retto, melanoma e cute a Siracusa. Nelle F vi sono bassi TSE con RSM <100, ma statisticamente significativi solo per colon-retto a Siracusa; TSE 87-08 in calo per malattia di Hodgkin in provincia e per collo utero a Noto, in aumento per polmoni a Lentini, vescica a Noto, melanoma e cute in provincia, leucemie ad Augusta.

Conclusioni. Nel 2003-2008 in provincia vi è un calo dei TSE del 10,8% nelle F e del 25% nei M rispetto al 1987-1990. Solo per la vescica nelle F a Noto vi sono aumenti statisticamente significativi. Vi sono numerosi decessi per tumori di polmone, colon-retto e mammella (causanti il 75% di tutta la MET): vanno attivati screening oncologici, misure di prevenzione primaria, servizi di diagnosi precoce del melanoma cutaneo e potenziati i servizi di educazione sanitaria.



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MODELLI SERTS PER LA STIMA DELLA SOPRAVVIVENZA PER CANCRO NELLE REGIONI E PROVINCE ITALIANE

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Introduzione. La sopravvivenza per cancro è correlata alle caratteristiche socio-economiche di un Paese. L'applicazione di modelli di stima comprendenti le caratteristiche socio-economiche e le dotazioni di risorse e tecnologie sanitarie (SERTS) dei diversi Paesi ha permesso di stimare la sopravvivenza nei Paesi europei totalmente o parzialmente coperti da Registri Tumori (RT).

Obiettivi. Applicare analoghe procedure a Regioni e Province italiane e trattare le variabili SERTS con più accurata procedura di standardizzazione per migliorare l'efficienza delle stime per le aree coperte e non coperte da RT.

Metodi. I tassi standardizzati di sopravvivenza relativa a 5 anni (AS-SR-5) per colon-retto, mammella, prostata e tutti i tumori (cute esclusa) derivano dal rapporto AIRTUM 2007 (pazienti 1995-99 di 22 RT in 14 Regioni italiane). I dati dei RT appartenenti alla stessa regione sono aggregati per calcolare la ASSR-5 pesata. Le variabili SERTS a livello regionale e provinciale sono ottenute per il periodo 1995-2005 dal Database ISTAT HEALTH FOR ALL. Questo include: PIL (euro per capita), spesa sanitaria totale e spesa pubblica sanitaria (% del PIL); % di forza lavoro impiegata in agricoltura, industria e servizi, tasso disoccupazione; caratteristiche dei SSR (impiego in sanità, n° medici e infermieri per 1.000, n° TC, RMN, ecografi e apparecchi per radioterapia per 100.000, n° letti per 10.000, degenze ospedaliere per 1.000). Una preliminare correlazione di Pearson è stata applicata per selezionare le variabili, quindi si è condotta un'analisi fattoriale delle componenti principali (eigenvalues ≥1, rotazione varimax) per standardizzare e ristrutturare le SERTS. Infine, sono stati applicati modelli di stima di regressione lineare considerando le ASSR-5 come variabile dipendente e le SERTS come variabili indipendenti. I modelli migliori sono stati selezionati con procedura forward stepwise.

Risultati. Le variabili nei modelli spiegano a livello regionale buo-

na % della varianza osservata nella sopravvivenza relativa (maschi: R quadro da 46% a 83%; femmine: R quadro da 51% a 73%). I valori stimati mostrano buona corrispondenza con quelli osservati, sia per le regioni coperte per più del 50% da RT (Trentino A.A., Veneto, Friuli V.G., Emilia-Romagna, Umbria, Liguria), sia per quelle meno coperte. Nel modello del colon-retto le variabili SERT che entrano per le donne sembrano sottolineare una forte relazione con le condizioni economiche e l'occupazione, mentre per i maschi le caratteristiche del sistema sanitario locale sembrano più importanti. Si sono studiate le stesse relazioni a livelli provinciali ottenendo risultati analoghi, anche se con intervalli di variazione leggermente più ampi.

Conclusioni. La corrispondenza tra sopravvivenza osservata e predetta è impressionante e giustifica l'affermazione che "il cancro è una malattia socio-economicamente determinata" non solo in termini di incidenza, ma soprattutto di presa in carico. La composizione SERTS dei fattori che entrano nei modelli sembrano inoltre permettere anche il ragionamento causale sul ruolo dei determinanti non sanitari nel definire la sopravvivenza per cancro.



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CONSUMO DI CAFFÈ E TÈ E RISCHIO DI TUMORE ALLA TESTA E COLLO: UNA POOLED ANALYSIS DI STUDI DEL CONSORZIO INHANCE (THE INTERNATIONAL HEAD AND NECK CANCER EPIDEMIOLOGY)

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Introduzione. Solo pochi studi hanno indagato la relazione tra consumo di caffè e tumori della testa e collo (TC) con risultati inconsistenti.

Obiettivi. Il presente studio ha esplorato la relazione tra consumo di caffè e tè e rischio di tumori di TC su un pool di studi partecipanti al consorzio INHANCE (International Head and Neck Cancer Epidemiology).

Metodi. Abbiamo aggregato i dati provenienti da nove studi caso-controllo per un totale di 5.139 casi e 9.028 controlli. Gli odds ratio (OR) e i relativi intervalli di confidenza (IC) al 95% sono stati calcolati utilizzando modelli di regressione logistica, aggiustati per diversi fattori confondenti.

Risultati. Il consumo di caffè era inversamente associato al rischio di tumore del cavo orale e faringe (COF): l'OR era pari a 0,96 (IC95%: 0,94-0,98) per un incremento di una tazza al giorno e 0,61 (IC95%: 0,47-0,80) nei bevitori di >4 tazze al giorno rispetto ai non bevitori. Questa associazione inversa era coerente per i diversi siti anatomici (OR 0,46; IC95%: 0,30-0,71 per cavo orale; 0,58; IC95%: 0,41-0,82 per orofaringe; 0,61; IC95%: 0,37-1,01 per COF non specificato, per >4 tazze al giorno rispetto ai non bevitori) e tra gli strati delle variabili selezionate. Non è stata osservata associazione fra consumo di caffè e rischio del tumore alla laringe (OR 0,96; IC95%: 0,64-1,45 nei bevitori di >4 tazze al

giorno rispetto ai non bevitori). I dati relativi al caffè decaffeinato erano troppo limitati per una analisi formale, mentre i dati sul consumo di tè non hanno indicato alcuna associazione con rischio di cancro a TC.

Conclusioni. Questa pooled-analisi di studi caso-controllo supporta l'ipotesi di una associazione inversa moderata fra consumo di caffè e rischio di tumore del COF. Dato il grande consumo a livello mondiale di caffè, l'incidenza relativamente alta e la scarsa sopravvivenza ai tumori di TC, l'associazione osservata potrebbe essere particolarmente rilevante a livello di salute pubblica.



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THE CONTRIBUTION OF CANCER REGISTRIES TO EPIDEMIOLOGICAL INVESTIGATIONS IN POLLUTED SITES: A CASE-STUDY IN THE NAPLES AREA

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Introduction. According to the European Environmental Agency, 250,000 polluted sites have so far been detected in member states. The purpose of epidemiological investigation in polluted sites is to estimate their health impact and to select priorities for environmental remediation. Traditionally, mortality studies have been performed in these contexts. The recent development of spatial and temporal coverage of cancer registries especially in Southern Europe enables the use of cancer incidence data in polluted sites.

Objectives. To present a case-study of the use of data produced by a cancer registry in a site polluted by toxic waste and to draw general conclusions on this approach.

Methods. The spatial distribution of 28 cancer sites was investigated by clustering and regression analyses, the latter based on a Waste Exposure Index estimated at municipality level. The study area is constituted by 35 municipalities served by the Cancer Registry of Campania Region. The study base includes 17,303 cancer cases diagnosed from 1997 through 2005.

Results. Statistically significant clusters were detected in the overall population for cancer of liver (RR 1.64 and 1.70) and lung (RR 1.15), leukemia (RR 1.33) and soft-tissue sarcomas (topographic classification: RR 2.02). A significant trend with Waste Exposure Index was detected for testis cancer (RR 1.18).

Conclusions. The use of cancer incidence data in spatial analyses of polluted sites has three main advantages on the use of mortality data: better diagnostic quality (important e.g. for soft-tissue-sar-

comas), possibility to study neoplasms showing high survival rates (e.g. testis cancer) and lack of bias due to worse cancer survival rates in areas characterized by socioeconomic deprivation. Integration of cancer incidence data in the epidemiological frame of polluted sites is warranted.



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TASSI STANDARDIZZATI DI INCIDENZA DI SARCOMA IN TRE REGIONI EUROPEE (STUDIO CONTICANET)

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Introduzione. I sarcomi sono tumori rari (1-2% di tutti i tumori) che comprendono 70 diversi tipi istologici. La loro incidenza è sottostimata, perché la Classificazione Internazionale delle Malattie (ICD) attribuisce i sarcomi viscerali all'organo di origine senza tener conto dell'istologia. La rarità e la varietà di tipi istologici comporta la necessità di una "second opinion" di un patologo esperto.

Obiettivi. Lo scopo dello studio è di stimare l'incidenza (anno 2007) dei sarcomi (escluso osteosarcomi) nella popolazione di tre regioni europee. Le diagnosi sono state validate da patologi esperti con metodi di biologia molecolare ed è stata usata la nuova classificazione OMS 2002.

Metodi. Negli anni 2007 sono stati raccolti tutti i casi incidenti di sarcoma notificati da tutti gli anatomo-patologi nelle regioni di Rhones-Alpes, Veneto e Aquitaine. Sono stati esaminati i dati delle SDO per escludere i casi prevalenti e per controllare l'eshaustività della raccolta. L'incidenza è stata calcolata nelle tre regioni per età (classi quinquennali), genere e principali categorie nosologiche (sarcoma dei tessuti molli, STS, sarcoma viscerale, SV, gastro-intestinal stromal tumors, GIST, e sarcomi di Kaposi). I tassi di incidenza sono stati standardizzati per età usando come standard la popolazione europea.

Risultati. Sono emersi 760 casi di sarcoma nelle 3 regioni. I tassi standardizzati per sarcoma nella popolazione femminile per 100.000: STS 2,58; SV 1,98; GIST 1,00, Kaposi 0.09; nella popolazione maschile: STS 3.97, SV 2,02, GIST 1,11; Kaposi 0,52.

Conclusioni. I Registri Tumori Italiani (1998-2002) hanno riportato un tasso standardizzato (standard=popolazione europea) di STS pari a 3,3 nei maschi e 2,7 nelle femmine. Queste cifre sono vicine alle nostre stime. Il nostro studio ha fornito, in aggiunta, le stime dei sarcomi viscerali e di vari tipi istologici di sarcoma.

SESSIONE PARALLELA **Ambiente e salute**

Moderatori:

Pietro Comba (Roma), Danila Scala (Firenze)

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Gli effetti delle ondate di calore sugli interventi del 118 e sulla mortalità

Elena Righi et al. [124]

Exposure to disinfection by-products in drinking water during pregnancy and congenital anomalies. A case-control study in the Emilia-Romagna Region (Northern Italy)

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GLI EFFETTI DELLE ONDATE DI CALORE SUGLI INTERVENTI DEL 118 E SULLA MORTALITÀ

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Introduzione. Il disagio bioclimatico è un riconosciuto fattore di rischio per la salute umana. Durante le ondate di calore la mortalità e la morbilità possono aumentare considerevolmente e gli effetti di questa associazione con le temperature elevate sono ben documentati, soprattutto tra gli anziani. Una delle difficoltà maggiori in sanità pubblica è quella di monitorare in tempo reale gli effetti sanitari del caldo, essendo i dati di mortalità disponibili con un ritardo di 2/3 giorni. A questo scopo in questo studio viene analizzato il possibile utilizzo dei dati degli interventi del 118.

Obiettivi. Lo studio intende analizzare gli incrementi di mortalità e di interventi del 118 nell'area urbana di Bologna durante i periodi di ondata di calore.

Metodi. Sono state selezionate nel periodo 2003-2005 le ondate di calore, definite come i periodi in cui la temperatura apparente media si è mantenuta sopra al 90° o al 95° percentile della distribuzione annua per tre o più giorni consecutivi. I dati relativi agli interventi del 118 e alla mortalità per cause naturali durante le ondate di calore sono stati quindi confrontati con le medie degli stessi nei giorni di non disagio. E' stata considerata tutta la popolazione e il sottogruppo degli ultra75enni.

Risultati. Gli incrementi durante le ondate di calore rispetto ai giorni di non disagio risultano maggiori per la mortalità rispetto agli interventi del 118 con incrementi rispettivamente del 38% e del 10% utilizzando come valore soglia il 95° percentile. Gli effetti sono accentuati per gli ultra75enni, con incrementi di mortalità e di interventi del 118 rispettivamente pari al 45% e al 17%.

Conclusioni. La mortalità e gli interventi del 118 sono fortemente correlati con il disagio bioclimatico. I risultati di questo studio mostrano l'utilità dei dati di interventi del 118 per sviluppare sistemi di sorveglianza in tempo reale degli effetti sanitari del caldo.

- 124 -**EXPOSURE TO DISINFECTION BY-PRODUCTS IN DRINKING WATER DURING PREGNANCY AND CONGENITAL ANOMALIES. A CASE-CONTROL STUDY IN THE EMILIA-ROMAGNA REGION (NORTHERN ITALY)**

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Introduction. Epidemiological and toxicological studies suggest that exposure during pregnancy to various Disinfection By-products (DBPs), mainly Trihalomethanes (THMs), can increase the risk of congenital malformations (CA), however evidence is not conclusive. This study aimed at investigating the association between CA and different DBPs in an area, where various disinfectants are used.

Methods. A register based case-control study was carried out in Emilia-Romagna Region. Data on chromosomal anomalies and different CA (neural tube, cardiovascular, abdominal wall, cleft lip and palate, respiratory, genital and urinary tract defects) occurred in the period 2002-2005 were extracted from the Regional Malformation Registry. Controls (newborns without malformations) were randomly selected from the Regional Birth Register and frequency matched to cases according to pregnancy period. The network supplying drinking water during the first trimester of pregnancy was identified on the basis of mother's address: DBPs data, technical and structural information were linked to each subject.

Results. Overall, THMs levels were very low (3.8 ± 3.6 µg/l) and no risk excess was observed. Chlorite and chlorate values were fairly high (427 ± 184 µg/l and 283 ± 78 µg/l, respectively). In comparison to those exposed to levels 700 µg/l were, after adjusting for personal, reproductive and socio-economical confounders, at higher risk of newborns with renal defects (OR: 3.3; 95%CI: 1.4-8.1), abdominal wall defects (OR: 6.9; 95%CI: 1.7-28), cleft palate (OR: 4.1; 95%CI: 0.98-16.8); while women with chlorate level >200 µg/l were at higher risk of newborns with obstructive urinary defects (OR: 2.9; 95%CI: 1.1-7.6), spina bifida (OR: 4.94; 95%CI: 1.1-22).

Conclusions. This was the first study evaluating the relationship between CA and both THMs and chlorite/chlorate exposure: significant increased risks were observed, mainly for urinary tract defects, when chlorite and chlorate exposure occurred.

**- 125 -****HEAT-RELATED MORTALITY IN THE FLORENTINE AREA (ITALY) BEFORE, DURING AND AFTER THE EXCEPTIONAL 2003 HEAT WAVE IN EUROPE: AN IMPROVED PUBLIC HEALTH RESPONSE?**

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Introduction. Previous studies have shown that timely preventive

measures can reduce heat-related excess mortality. It is plausible that following the devastating 2003 heat wave, in Italy the heat-related mortality risk might be reduced as a consequence of preventive measures.

Objectives. The aim of the present study was to detect the eventual modification of the heat-related mortality risk of older adults (≥ 65 years) living in the Florentine area (Tuscany), comparing the four previous and subsequent years respect to the summer 2003 and therefore before and after the set-up of a Regional heat warning system.

Methods. Mortality data (non traumatic causes) of people ≥ 65 was provided by the Mortality Registry of Tuscany Region during the warmest period of the year (May-September) from 1999 to 2007 (n=21,092). Two sources of weather data, from reanalysis and meteorological stations, were used to assess daily average values of apparent temperatures. Generalized additive model, breakpoints detection (critical AT thresholds) and case-crossover design, were applied to investigate the heat-related mortality risk in the total sample, in subjects aged 65-74 and in elderly aged ≥ 75 .

Results. No heat-related relationships were observed in subjects aged 65-74. On the other hand this relationship was particularly evident in the elderly people aged ≥ 75 . There is a decrease of the effect of maximum temperature on mortality, but the differences between pre and post 2003 periods aren't statistically significant.

Conclusions. The set-up of the specific Regional heat plan implemented in the regional project named "Active Surveillance of the Elderly Frail" may have produced a downward trend in the association between maximum apparent temperature and mortality, though the observed differences are not statistically significant.

**- 126 -****HEALTH BENEFITS FROM TRAFFIC POLICIES (2001-2005) IN ROME**

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Introduction. The health effects of traffic-related air pollution are well-known. Local councils usually attempt transport policy interventions including congestion charges, environmental zoning for limiting traffic of polluting vehicles, monetary subsidies to accelerate replacement of old cars, and measures to promote public transport and cycling. However, the studies that assess the effects of traffic policies are still limited.

Objectives. To evaluate the impact, in terms of air quality and health effects, of environmental zoning policies implemented by the local council in Rome in the period 2001-2005 to reduce traffic-related air pollution (traffic limited zone, railways ring). To examine whether

such impacts were different by socioeconomic position (SEP). **Methods.** We evaluated the effects of the policy intervention on various stages in the full chain model, that is: pressures (number and age distribution of cars; number of km driven), emissions, PM10 and NO₂ air-concentrations, population exposure to PM10 and NO₂ by SEP of the residents, and years of life gained.

Results. As a result of the policy between 2001 and 2005, the total number of cars slightly decreased (-3.8%), NO₂ and PM10 emissions and concentrations decreased in the zones of the policy, as well as population exposure (from 22.9 to 17.4 µg/m³ for NO₂ and from 7.8 to 6.2 µg/m³ for PM10). The impact of the policy was high in the environmental zoning areas (-4.13 and -2.99 µg/m³ when considering NO₂, and -0.70 and -0.47 µg/m³ when considering PM10). Residents living along busy roads in the zones gained a total of 2,437 years of life, and most of the gain was obtained from people of the highest SEP groups.

Conclusions. The traffic policy in Rome was effective in reducing traffic-related air pollution, but given the spatial distribution of SEP, most of the health gain was for well-off residents.

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BLACK CARBON MEASUREMENT IS EFFECTIVE IN DETECTING THE BENEFITS OF TRAFFIC RESTRICTION POLICY ON OUTDOOR AIR QUALITY. THE FIELD STUDY OF ECOPASS AREA IN MILAN, ITALY

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Introduction. The impact on air pollution of the traffic restriction scheme in Milan "Ecopass" is questionable. Ecopass, allowing only low-emission cars enter the city center without paying a charge, was implemented in 2008 with expectations of a 30% decrease in particulate matter (PM10) levels. However, a field study conducted in 2009 showed no PM reductions in the city center, in spite of an objective decrease in vehicular traffic. Aerosolized black carbon (BC) is a primary product of incomplete combustion and could be a better indicator of local air quality improvement than PM10, which is more representative of background pollution.

Objectives. To study BC in assessing Ecopass impact on air quality compared to PM.

Methods. We measured BC and PM levels on the sidewalks of a radial metropolitan road characterized by three different traffic schemes: an outer segment without traffic restrictions, an intermediate one subject to Ecopass, and an inner pedestrian zone. BC was measured with a handheld analyzer (microAeth® Aethalometer AE51, Magee Scientific, USA), while PM was measured with a laser-operated particle analyzer (Aerocet 531, Metone, USA).

Results. PM levels were quite stable, with a mean (SD) of 20.6 (3.2), 19.6 (2.2), and 21.2 (2.4) µg/m³ for PM1, of 26.5 (4.6), 24.2 (2.7) and 25.4 (2.7) µg/m³ for PM2.5, and of 69.0 (18.8), 54.5 (6.9), and 52.0 (7.1) µg/m³ for PM10, respectively for no-

restriction, Ecopass, and pedestrian zone (significant only no-restriction/pedestrian zone for PM10). On the contrary, BC levels showed a progressive reduction moving towards the least polluted area, with 12.2 (4.6), 6.9 (1.5), and 3.0 (0.6) µg/m³ for no-restriction, Ecopass and pedestrian zone, respectively (p < 0.0001 for each comparison). BC/PM2.5 ratios were also distinctive for each area, being 46.2 (5.2), 28.4 (2.1) and 11.7 (1.2) respectively (P < 0.001).

Conclusions. BC is more suitable than PM in detecting the impact of traffic restrictions on air quality.

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MORTALITY STUDY OF SITES CONTAMINATED BY PETROCHEMICAL PLANTS AND/OR REFINERIES IN ITALY

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Introduction. The European Environment Agency estimates Oil industry among the main economic activities causing soil contamination. Several thousand contaminated sites are present in Italy, 57 of them being of national concern because of the relevance of pollution documented in qualitative and/or quantitative terms and of potential health impact for resident population. Several of these sites were included in SENTIERI project aimed at describing sources of environmental pollution and health status of resident populations using mortality data. In 11 of the analyzed sites petrochemical plants and/or refineries ("petrochemical sites") are listed among pollution sources.

Objectives. To report results of SENTIERI project for petrochemical sites.

Methods. Causes of a priori interest were selected considering the evidence about the adverse health effects for residents in the neighborhood of petrochemical sites. The main focus is on respiratory system, including lung cancer, because of consistent evidence. For leukemia an association is suggested; for non-Hodgkin lymphoma, multiple myeloma, bladder neoplasm, and perinatal conditions associations have been reported. A mortality analysis in the period 1995-2002 was applied calculating Standardised mortality ratios (SMRs), crude and adjusted for a deprivation index (DI) (including unemployment, education, house ownership and overcrowding) for each site having as reference the regional populations.

Results. As an example of results, SMR DI adjusted for the Augusta-Priolo site (Sicily) for lung cancer is 125 in men (90% Confidence Interval: 116-135) and 109 in women (88-133); SMRs for lymphoematopoietic cancers are 106 (91-122) in men and 87 (72-104) in women.

Conclusions. For residents in the neighborhood of petrochemical sites exposure circumstances are complex and varying over-time. These aspects will be adequately considered in future analyses combining different sites.

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- 129 -**ASBESTOS-RELATED MORTALITY IN ITALIAN POLLUTED SITES**

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Introduction. Italy has discontinued asbestos mining and processing about twenty years ago. While direct occupational exposure is nowadays confined to asbestos removal workers, in-place occupational exposure and residential exposure due to proximity to former industrial sites or to soil contamination from natural fibres still occur. A number of asbestos-polluted areas have been included among the sites of national interest for environmental remediation.

Objectives. To investigate cause-specific mortality in Italian asbestos polluted sites.

Methods. In the frame of SENTIERI Project, cause-specific mortality (1995-2002) was investigated in 44 sites of national interest for environmental remediation. Five sites were characterized by the presence of asbestos as the only environmental pollutant (Balangero and Emaese, chrysotile mines, Casale Monferrato, Broni and Bari, three major asbestos-cement manufacturing plants), while one site (Biancavilla) was included because of the naturally occurrence of fluoro-edenite, an asbestiform fibre. Six other sites were characterized by the presence of multiple pollutant agents, among which asbestos. Mortality for asbestos-related diseases (pleural, lung, laryngeal and ovarian malignant tumours) was studied in these 12 sites, adjusting for socioeconomic deprivation.

Results. As an example of results, among sites characterized by the presence of asbestiform fibres alone, overall significantly increased SMRs from pleural mesothelioma were observed in Casale Monferrato (SMR 864; 268 obs), Broni (SMR 1.383; 35 obs), Bari (SMR 167; 66 obs) and Biancavilla (SMR 481; 10 obs).

Conclusions. Environmental remediation is a long-lasting, complex and costly issue. The availability of epidemiological data, with special emphasis on mesothelioma in non-occupationally exposed subjects and in younger age groups, may contribute to ranking severity of health impacts in order to set priorities and select the most appropriate interventions.

- 130 -**INTEGRAZIONE AMBIENTE E SALUTE: CRITICITÀ E PROSPETTIVE**

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Introduzione. L'attuale assenza di un modello di governance degli aspetti di integrazione tra ambiente e salute rende necessaria la promozione di un confronto tra il sistema delle agenzie di protezione ambientale e i diversi interlocutori impegnati, per favorire approcci più intersettoriali efficaci e l'attuazione delle linee programmatiche del sistema agenziale.

Obiettivi. Presentare le esperienze e le competenze presenti nelle Agenzie Ambientali e le ipotesi di sviluppo e integrazione in tema di ambiente e salute.

Metodi. Il processo di programmazione del sistema delle Agenzie Ambientali per il triennio 2010-2012 si è articolato attraverso quattro aree tematiche. Nell'area tematica "Attività Integrate di Sistema" è affidata alle competenze dei Direttori Generali è stato creato un Gruppo di lavoro dedicato alla definizione delle linee di sviluppo della tematica "Ambiente e Salute", nel sistema agenziale.

Risultati. Per quanto attiene al primo aspetto, il Programma Triennale prevede la realizzazione di un censimento delle strutture, delle competenze e delle esperienze nelle ARPA in tema di ambiente e salute e di epidemiologia ambientale. Successivamente, partendo dalla ripartizione esistente delle competenze tra le attività in capo ad ARPA e al SSN, saranno definite linee guida sulle competenze Ambiente e Sanità e produrre dei protocolli per tematiche specifiche anche per la espressione di pareri integrati. Un'attenzione specifica è dedicata alle attività in tema di Valutazione di impatto sanitario, alla auspicabile implementazione di norme di riferimento, nella prospettiva della definizione di una metodologia comune.

Conclusioni. Attraverso le direttrici identificate, ci si propone di assicurare una standardizzazione delle metodologie di analisi e di intervento, al fine di garantire livelli omogenei di tutela ambientale/sanitaria nel territorio nazionale.

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LO STATO DI SALUTE DELLA POPOLAZIONE CARCERARIA TOSCANA

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Introduzione. Con DPCM 1.4.2008, la tutela della salute dei detenuti e degli internati negli istituti penitenziari viene trasferita dal Ministero di Grazia e Giustizia al Servizio Sanitario Nazionale. Nasce così l'esigenza di disporre di una fotografia dello stato di salute della popolazione carceraria.

Obiettivi. Obiettivo di questo lavoro è fornire una descrizione dello stato di salute della popolazione carceraria e delle più importanti patologie da cui risultano affetti i detenuti in Toscana.

Metodi. Studio di coorte prospettico (arruolamento: 15.6.2009) con rilevazione dello stato di salute in tre momenti temporali successivi. La rilevazione è stata effettuata dal personale sanitario presente nei 19 istituti penitenziari toscani avvalendosi di una scheda informatizzata appositamente costruita, contenente informazioni socio-demografiche, sanitarie, stili di vita ed indicazione di precedenti atti autolesionistici e/o autosoppressivi.

Risultati. Il campione è costituito da 2.985 detenuti, di cui il

27% sani. I detenuti affetti da almeno una patologia sono 2.178 e tra questi 1.940 presentano almeno una diagnosi internistica e 990 sono affetti da almeno una diagnosi psichiatrica. All'interno delle strutture carcerarie si evidenzia una grande diffusione dei disturbi di natura psichica (33,2%) a cui fanno seguito le malattie dell'apparato digerente (25,4%), in cui pesano prevalentemente le patologie a carico del cavo orale e dei denti, e le malattie di tipo infettivo e parassitario (15,9%), tra cui ricoprono particolare rilevanza le epatiti e le infezioni da HIV. Dopo gli italiani, i gruppi etnici maggiormente presenti nel campione sono i nord-africani e gli est-europei, che risultano godere di uno stato di salute migliore rispetto ai cittadini italiani detenuti.

Conclusioni. I risultati di questo studio sono un importante primo passo che ci permette di avere un quadro dello stato di salute della popolazione carceraria Toscana, in attesa dell'informatizzazione di una cartella clinica che permetterà di avere maggiori informazioni relative alla storia clinica del detenuto.



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DIFFERENZE SOCIOECONOMICHE E GEOGRAFICHE NEI TEMPI DI ATTESA PER LA CHIRURGIA ELETTIVAPetrelli A,¹ De Luca G,² Landriscina T,¹ Costa G³¹Regione Piemonte, Servizio di Epidemiologia, Grugliasco (To); ²Università della Calabria, Dipartimento di Economia e Statistica, Cosenza; ³Università di Torino, Dipartimento di Scienze Cliniche e Biologiche, Torino

Introduzione. Le liste di attesa per la chirurgia elettiva sono considerate un meccanismo equo di razionamento, in grado di garantire l'accesso alle prestazioni indipendentemente dal livello socioeconomico e dall'area di residenza. Recenti studi internazionali evidenziano iniquità per diversi interventi.

Obiettivi. Valutare le differenze socioeconomiche e geografiche nei tempi di attesa per la chirurgia elettiva in Piemonte.

Metodi. Lo studio è stato svolto utilizzando le SDO (2006-2008) su una miscelanea di interventi chirurgici oggetto di monitoraggio da parte della Regione. Il livello socioeconomico è stato misurato attraverso il titolo di studio. Sono stati costruiti modelli di Cox sulla differenza fra data di intervento e data di ingresso in lista. I modelli sono stati aggiustati per genere, età, comorbidità, azienda erogatrice e periodo di registrazione. È stata testata l'interazione con il tempo per tenere conto della non proporzionalità dei rischi.

Risultati. Per tutti gli interventi considerati si osservano differenze socioeconomiche statisticamente significative. I soggetti con titolo di studio basso presentano rischi di intervento più bassi, e quindi tempi di attesa superiori, rispetto a quelli con valori elevati. Le differenze permangono dopo aver controllato per gravità della casistica e azienda erogatrice. Il maggior rischio di attesa per i soggetti svantaggiati è compreso fra il 30% e il 20% per la cataratta, fra il 20% e il 10% per protesi d'anca, tunnel carpale, tonsillectomia, ernia, emorroidi, ed è inferiore al 10% per artroscopia, colecistectomia, legatura e stripping di vene. Le interazioni mostrano che le differenze tra i gruppi tendono a ridursi con il tempo. Dopo aver controllato per tutte le covariate si osservano inoltre forti differenze geografiche.

Conclusioni. Risulta necessario individuare le cause delle differenze di accesso alla chirurgia elettiva ed attivare politiche di contrasto mirate a favorire l'equità nell'assistenza.



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DISEGUAGLIANZE SOCIALI NELL'INCIDENZA E MORTALITÀ PER CANCRO A TORINO, ITALIAZengarini N,¹ Spadea T,¹ Rosso S,² Zanetti R,² Costa G¹¹Servizio Sovrazonale di Epidemiologia, Grugliasco (To); ²Registro Tumori Piemonte, Torino

Introduzione. La maggior parte della letteratura internazionale sulla disuguaglianza sociale nei tumori utilizza la mortalità come outcome. Questo studio indaga anche la relazione con l'incidenza.

Obiettivi. Confrontare i differenziali sociali nell'incidenza e nella mortalità per cause tumorali nella popolazione torinese durante il periodo 1985-99, in soggetti di età compresa tra 30 e 84 anni alla diagnosi per l'incidenza, e al decesso per la mortalità.

Metodi. Lo studio si basa su dati ottenuti da record-linkage indivi-

duale tra gli archivi del Registro Tumori Piemonte e dello Studio Longitudinale Torinese. È stato selezionato il livello d'istruzione come proxy dello status socioeconomico. Sono stati stimati, attraverso modelli di Poisson, i rischi relativi (RR) di incidenza e mortalità per istruzione, stratificati per genere. Inoltre, sono stati calcolati indici di disuguaglianza relativa (RII).

Risultati. Negli uomini la mortalità per tutti i tumori mostra RR più elevati di quelli d'incidenza e un gradiente sociale più pronunciato (RII=1,24 incidenza; RII=1,75 mortalità). Nelle donne la mortalità per tutti i tumori è capovolta rispetto all'incidenza. La protezione osservata nei RR d'incidenza per le meno istruite e il gradiente di associazione diretta cambia sostanzialmente nella mortalità (RII=0,84 incidenza; RII=1,57 mortalità). Per il tumore della laringe fra gli uomini i RR aumentano e il gradiente già osservato nell'incidenza sale nella mortalità di circa tre volte. Un comportamento analogo a questo si osserva fra le donne per il tumore della cervice uterina, dove i RR per le meno istruite salgono da 3 a 5.

Conclusioni. I risultati sollevano domande sull'equità nell'assistenza, sulla tempestività di diagnosi e sull'accesso a terapie efficaci, soprattutto per i tumori a miglior prognosi. È ipotizzabile che i differenziali sociali nella mortalità non siano in grado di rappresentare adeguatamente quelli nell'incidenza.



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LO STATO DI SALUTE DEI DETENUTI TOSSICODIPENDENTI IN TOSCANA: I RISULTATI DI UNO STUDIO DI COORTE TOSCANO

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Introduzione. Come è ormai noto le persone tossicodipendenti, in particolare da eroina, rappresentano un'ampia percentuale dei detenuti negli istituti penitenziari di tutto il mondo. Tuttavia non sono altrettanto note le informazioni riguardanti il loro stato di salute psicofisico, soprattutto in relazione alle eventuali conseguenze sanitarie della dipendenza da droghe.

Obiettivi. Indagare e descrivere lo stato psicofisico dei detenuti tossicodipendenti (TD) con particolare interesse verso patologie dell'apparato digerente, malattie infettive e parassitarie, nonché eventi di autolesionismo, tentato suicidio e diagnosi concomitanti relativamente ai disturbi psichici (doppie diagnosi).

Metodi. Analisi descrittiva dei dati emersi da uno studio di coorte prospettico finalizzato alla rilevazione dello stato di salute dei detenuti presenti negli istituti penitenziari toscani in tre momenti temporali successivi a partire dal 15 giugno 2009. La rilevazione è stata effettuata su un campione di 2.985 soggetti dal personale sanitario degli istituti attraverso la compilazione di un'apposita scheda informatizzata, contenente informazioni socio-demografiche, sanitarie (diagnosi cliniche con classificazione internazionale delle malattie ICD-IXCM), stili di vita ed indicazione di precedenti atti autolesionistici e/o autosoppressivi.

Risultati. I detenuti tossicodipendenti (TD) sono il 12,7% (N=379) sul totale. Il 2,6% è rappresentato dal genere femminile e l'età me-

dia generale è di 36,7 anni. Le nazionalità più rappresentate sono, come per il resto dei detenuti, quella italiana, nord-africana ed est-europea (rispettivamente 59%, 28% e 8%). Relativamente ad alcune conseguenze sanitarie della dipendenza da droghe, abbiamo riscontrato le seguenti differenze tra detenuti TD e nonTD: patologie dei denti e del cavo orale, 19% vs 13,4%; epatite C, 23% vs 7,1% e HIV 4% vs 1,1%. Anche i tentati suicidi e le autolesioni risultano più frequenti nei soggetti TD: rispettivamente 8,2% vs 4,9% e 15,6% vs 9,9%. Infine, più della metà dei tossicodipendenti (52,8%) riporta anche altre diagnosi del gruppo dei "disturbi psichici".

Conclusioni. Le informazioni sullo stato di salute dei detenuti TD mostrano la maggiore vulnerabilità di questi soggetti rispetto ai detenuti non TD. Ciò è legato principalmente alle conseguenze sanitarie della dipendenza da droghe, nonché ad un più grave coinvolgimento psichico. Questi risultati evidenziano l'importanza di un costante e puntuale monitoraggio epidemiologico sullo stato di salute di questo specifico segmento di popolazione detenuta.



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SOCIAL CLASS, UNEMPLOYMENT AND CHRONIC DISEASES

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Introduction. It is controversial whether the known inverse social gradient in unemployment is determined by health selection out of the labour market, due to higher morbidity in lower social classes.

Objectives. To examine the prevalence of unemployment by social class adjusting for the presence of chronic diseases in a representative sample of the Italian population in pre-retirement age.

Methods. The study population consisted of women 45-54 years and men 45-59 years, employed at some time in the past (18,261 people), who participated in a national cross-sectional survey in 2005. By means of a standardized questionnaire, information was collected on employment status, a list of 24 chronic diseases, occupational social class and socio-demographics. The outcome was being unemployed at the time of the survey for men and being unemployed or housewife for women. The association with occupational class (5 categories) was assessed through stepwise logistic regression, stratifying the analyses by gender and adjusting for significant chronic conditions and other potential confounders ($p < 0.05$), including age, education, area of residence and employment in the public administration.

Results. In the final multivariable model on men, a strong social gradient in unemployment was observed, which was only slightly reduced by adjustment for chronic conditions, whereas among women it was much smaller than among men and no chronic disease was associated with unemployment. A strong social gradient was instead found for housewife status but, as for

men, it did not change substantially after controlling for chronic diseases.

Conclusions. An inverse gradient in unemployment by social class was found in both gender, although stronger among men, which was not explained by chronic conditions. Among women, the stronger social gradient in housewife status suggests that for women health-related selection out of the labour market occurs toward family work rather than unemployment.



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LTBI PREVALENCE AMONG IMMIGRANTS, BETWEEN 1991 AND 2006, IN TURIN (ITALY)

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Introduction. In low tuberculosis (TB) burden countries, foreign-born individuals bear the major burden of TB case notifications. However, very little is known about the prevalence of LTBI among immigrants arriving in low TB burden nations.

Methods. Retrospective analysis of regional immigrant TB screening programme (for LTBI) in Turin (Italy) between 1991 and 2006.

Results. Overall 28,460 immigrants (57% men and 43% women) were tuberculin tested in a regional TB screening programme for new arrival refugees and migrants (legal and illegal). Median age was 27 years (IQR: 22-34); 3% arrived from countries with a very low estimated annual incidence of TB (<25 cases per 10,000 population), 13% from countries with low incidence (25-49), 6% from countries with intermediate incidence (50-99), 73% from countries with high incidence (100-299), and 5% from countries with super high incidence (>300). Immigrant populations from different geographic areas significantly differed by age distribution and men-to-women ratio. Approximately 58% and 84% immigrants were cumulatively tested within one and five years since their entry, respectively. 38% of the immigrant population had LTBI (assuming TST induration cut-off ≥ 10 mm). LTBI prevalence rose with increasing age, ranging between 14% and 44%. LTBI prevalence was 17%, 32%, 26%, 41%, and 35% among immigrants from countries with a very low, low, intermediate, high, and very high TB incidence, respectively. A further 4,574 immigrants had a second TST after a mean of 1,8 years, although there was no significant difference in results suggesting that local transmission does not increase the risk of infection among immigrants.

Conclusions. The prevalence of LTBI in immigrants arriving in Italy is high and appears to vary by age and geographic origin. This data can parameterize TB transmission models and more fully inform the development of TB control programmes in low TB burden nations.



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TYPE 2 DIABETES IN A IMMIGRANT POPULATION IN ROME: EPIDEMIOLOGICAL DATA FOR A PUBLIC HEALTH CHALLENGENosotti L,¹ Scardella P,¹ Piombo L,¹ Giusti A,² Maggini M,² Spada R,¹ Vignally P,¹ Morrone A¹¹National Institute for Health, Migration and Poverty (NIHMP), Rome, Italy;²National Institute of Health, Rome, Italy

Introduction. Estimates and projections of WHO and of the International Diabetes Foundation state that the number of persons suffering from diabetes in the world, who were 30 million in 1985, will exceed 300 million in 2025. The greatest contribution to this impressive increase in diabetes incidence will be given by developing countries. Diabetes also represents a major threat to the health of the world's millions of migrants, who appear to be at greater risk of developing diabetes than non-migrants.

Objectives. The aim of the study was to identify and describe epidemiological data about the prevalence of type 2 diabetes in migrants observed in our outpatient Department.

Methods. Between January 1st, 2009 and September 31st, 2009, 1,284 consecutive immigrants from four large geographical areas (Eastern Europe, Africa, Asia and South America) were examined in the Department of Preventive Medicine of Migration of National Institute for Health, Migration and Poverty in Rome.

Results. Among the patients examined in 2009, an overall prevalence of 4.12 % of type 2 diabetes was observed divided according to geographical areas as follows: Africa 35.85%; Asia 30.19%; Eastern Europe 22.64%; South America 11.32%. Moreover, we found a 8.09% prevalence of obesity, a condition associated to insulin resistance and consequently predisposing to type 2 diabetes in genetically susceptible individuals.

Conclusions. Migration appears to be positively associated with the development of type 2 diabetes, and migrants seem far more likely to misunderstand the factors contributing to the disease and how to manage it. Given that migration is growing rapidly and that Europe is becoming increasingly heterogeneous, it is important that the social and cultural environment of migrants be better understood. Multidisciplinary preventive and therapeutic methods are necessary, including the collaboration of cultural mediators, in order to overcome the linguistic, social and cultural barriers often present.

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SOCIAL INEQUALITIES IN MORTALITY IN A SAMPLE OF ITALIAN POPULATIONSebastiani G,¹ Marinacci C,² Demaria M,³ Pappagallo M,¹ Grippo E,¹ Caranci N,⁴ Vittori P,⁵ Di Cesare M,⁶ Boldrini R,⁶ Lisi L,⁶ Costa G⁷¹Istituto Nazionale di Statistica, Rome, Italy; ²S.C. a D.U. Epidemiologia, Azienda Sanitaria Locale T03, Turin, Italy; ³Centro regionale per l'epidemiologia e la salute ambientale, Turin, Italy; ⁴Agenzia Sanitaria e Sociale Regionale, Emilia Romagna, Bologna, Italy; ⁵Assessorato sanità, salute e politiche sociali, Regione Autonoma Valle d'Aosta, Aosta, Italy; ⁶Ministero della Salute, Rome, Italy; ⁷Dipartimento di Scienze Cliniche e Biologiche, Università di Torino, Italy

Introduction. In Italy, social inequalities in mortality were mainly referred to residents in metropolitan areas of Centre-North. Recent data on national population highlight geographical variations of educational inequalities in self-perceived health and chronic morbidity, with disadvantage for residents in Southern regions.

Objectives. To measure magnitude and to evaluate geographical heterogeneity of mortality differences by social position, through a sample of Italian population.

Methods. Study population was selected within a cohort of 128,818 individuals, consisting of 92% of 1999-2000 National Health Interview Survey sample, followed-up for mortality through record linkage with national archive of death certificates for the period 1999-2006. People aged 25 years or older were selected (n=94,893). Each individual was classified by several indicators of social position: educational level, occupational status and class, and satisfaction for economic resources. Death relative risks by social position were estimated through Poisson models, taking into account design effect and adjusting for age, stratifying by gender and broad age groups (25-64 years, 65+). Heterogeneity of risks by area of residence was evaluated.

Results. Within the age group 25-64, higher risk of death was observed among people with lower secondary education or less, compared to graduated (with RR=1.7; 95%CI: 1.1-2.5 for men and RR=2.1; 95%CI: 1.1-3.9 for women); mortality risk among unemployed was nearly twofold, compared to occupied. Among elderly, higher death risk with lower education was observed among male residents in North (RR=1.6; 95%CI: 1.1-2.4 primary vs. diploma) and females in the South (RR=2.7; 95%CI: 1.2-6.2); residents in Southern regions showed slightly higher mortality with poor satisfaction for economic resources.

Conclusions. Social inequalities in mortality were observed in the Italian population. Future extension of follow up will allow to better focus on geographical heterogeneity.

SESSIONE PARALLELA
Lavoro e salute

Chairman:

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SICUREZZA NELLE MICROIMPRESE: EFFICACIA DI UN INTERVENTO DI PREVENZIONE

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Introduzione. Le microimprese costituiscono il 90% della struttura produttiva italiana. Esse hanno tassi infortunistici elevati e difficoltà nella gestione della sicurezza. I titolari spesso hanno una percezione distorta dei problemi delle loro aziende.

Obiettivi. Valutare l'efficacia di un intervento di prevenzione condotto nelle microimprese del comparto metalmeccanico dell'ASL Torino 4.

Metodi. L'intervento consiste in attività di assistenza alle imprese e incontri formativi, con l'obiettivo di migliorare la conoscenza delle problematiche di sicurezza e di promuovere l'adozione di misure efficaci di prevenzione. Sono stati coinvolti i rappresentanti datoriali di categoria, le organizzazioni sindacali, i rappresentanti dei lavoratori per la sicurezza, l'Inail. Prima dell'intervento, per ogni macchina in uso è stata compilata una scheda di valutazione di conformità alle norme di sicurezza. I servizi di prevenzione hanno

condotto una verifica ispettiva post-intervento su un campione casuale di ditte, tenendo conto del numero di macchine necessarie a valutare con il 95% di probabilità un aumento della proporzione di macchine a norma di almeno il 30%. Sarà applicato un modello di valutazione pre-post, misurando la variazione nella proporzione di macchine a norma. Le ditte non partecipanti saranno utilizzate come gruppo di controllo.

Risultati. Attualmente sono disponibili i risultati della fase pre-intervento. Sono state coinvolte 193 aziende: 125 hanno aderito all'intervento. Sono state controllate 1.906 macchine: 1.451 delle ditte partecipanti. Tra le tipologie più numerose, la percentuale di adeguatezza alla norma era del 42,3% e del 41,3% rispettivamente per le ditte partecipanti e non partecipanti.

Conclusioni. Si tratta di uno dei rari casi in Italia in cui è valutata l'efficacia di un intervento di prevenzione degli infortuni sul lavoro. Se risulterà efficace potrà essere riproposto in contesti simili, senza bisogno della fase di valutazione a priori.



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LO STRESS LAVORO-CORRELATO NELL'AZIENDA OSPEDALIERA DELLA PROVINCIA DI PAVIA: QUALE IL GRADO DI DIFFUSIONE E LA TIPOLOGIA?

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Introduzione. La sindrome di "burnout" (B) è una forma di stress caratterizzata da Esaurimento Emotivo (EE), Depersonalizzazione (DP) e perdita del senso di Realizzazione Personale (RP) dovuta al lavoro. Negli ultimi anni, a causa di cambiamenti organizzativi e tecnologici nel setting ospedaliero, si è assistito all'insorgenza di B anche tra gli operatori sanitari e all'incrementarsi dei possibili fattori causali.

Obiettivi. Stimare il livello di B nell'organico dell'Azienda ospedaliera (AO) della Provincia di Pavia al fine di valutarne le modificazioni rispetto al passato.

Metodi. E' stato condotto tra luglio e ottobre 2009 uno studio trasversale su un campione casuale stratificato proporzionale per sesso di 420 operatori fra i dipendenti dell'AO al 30.06.09. E' stato somministrato un questionario strutturato contenente la Maslach Burnout Inventory (o MBI) per misurare il livello di B e una checklist di fattori stressogeni. Si sono individuate le tre sfere di B sommando i punteggi ai singoli item della MBI e i soggetti con basso, medio ed elevato B utilizzando i cut-off: EE ≥ 24 , DP ≥ 9 , RP ≤ 29 .

Risultati. La rispondenza è stata del 77%, con un eccesso tra le donne (78% vs 72%). Le femmine sono risultate più interessate da un medio livello di EE che i maschi (31,5% vs 18,8%) e il 55,3% di questi ultimi ha un basso grado di EE ($\chi^2=5,61$, $p=0,06$). I maschi sono meno depersonalizzati delle femmine: la percentuale di quelli con DP bassa è maggiore (63,5% vs 53,2%), mentre simile è la quota dei soggetti con DP elevata ($\chi^2=2,95$, $p=0,24$). Gli uomini si sentono realizzati in misura maggiore delle donne: oltre il 50% ha un basso livello di B sulla scala della RP, e solo il 22% medio, contro rispettivamente il 40% e il 36% delle donne ($\chi^2=6,26$, $p=0,04$).

Conclusioni. L'esperienza dell'AO della Provincia di Pavia pone le basi per una valutazione obiettiva del livello di B dei propri operatori e costituisce un esempio di un sistema di sorveglianza dello stress lavoro-correlato.



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MATRICE AZIENDA/ESPOSIZIONE ALL'AMIANTO: UN UTILE STRUMENTO PER UNA APPROFONDATA ANALISI EPIDEMIOLOGICA DEI DETERMINANTI L'INSORGENZA DI PATOLOGIE ASBESTO-CORRELATE

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Introduzione. Nell'epidemiologia occupazionale le matrici occupazione/esposizione rappresentano un metodo per caratterizzare l'esposizione professionale e possono contribuire a evidenziare l'associazione tra un'occupazione e un'esposizione.

Obiettivi. L'obiettivo è la creazione di una matrice di esposizione quanti-qualitativa ad amianto utilizzabile in studi epidemiologici; in particolare, fornire uno strumento che permetta per la prima volta in Toscana un'indagine sulla mortalità per causa al fine di quantificare gli eventuali eccessi rispetto a uno standard di riferimento, stratificando per esposizione cumulativa e tipo di fibra.

Metodi. I dati sul pregresso impiego di amianto e sulle sue modalità d'uso in varie aziende toscane sono stati recuperati da documenti e informazioni disponibili nei Servizi di prevenzione delle ASL, codificati e riportati su tre assi cartesiani: attività, esposizione, tempo. E' stata stimata la prevalenza di esposti attivi e passivi assegnando diversi livelli d'intensità modulata sulla frequenza delle operazioni a rischio. Il periodo di uso dell'amianto è stato suddiviso in quinquenni (1945-1995) per i quali sono stati stimati livelli di esposizione su scala nominale corrispondenti però a intervalli di concentrazioni ambientali in fibre/litro. Per la valutazione dei livelli d'inquinamento generati dalle operazioni analizzate si è fatto riferimento a conoscenze personali e alla letteratura del settore.

Risultati. Tutte le informazioni sono state computate in un indice sintetico aziendale. Dall'analisi preliminare si osserva che l'andamento degli indici, sebbene collocati a diversi livelli, risulta pressoché stabile dal 1945 al 1970 per poi subire una decisa flessione causata dalla riduzione dell'uso di amfiboli e dal diffondersi di sistemi di controllo della polverosità ambientale.

Conclusioni. L'uso di parametri di valutazione aventi stesse scale di misura consente di aggregare per l'analisi coorti con diversificate esposizioni ad amianto.



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ASBESTOS EXPOSURE AND RISK OF LUNG CANCER AND MESOTHELIOMA IN A COHORT OF ABOUT 13,000 MALE SUBJECTS IN TUSCANY

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Introduction. Asbestos has been used in Tuscany in a variety of production processes. Both chrysotile and amphiboles were used in the different manufactures.

Objectives. To evaluate lung cancer and mesothelioma risks associated to different kind of fibers, to a summary index of intensity of exposure, to different latency and duration of exposure periods; to evaluate the ratio between lung cancer and pleural cancer risks.

Methods. We assembled a cohort of 13,063 male subjects who have worked in 13 factories in different industrial divisions during asbestos use era. Expert industrial hygienists (S. Silvestri, P. Legittimo) developed a factory based asbestos exposure matrix in order to define an index of exposure for each sub-cohort of the total cohort. The following parameters, defined for each five-year periods of asbestos use, from 1945 to 1995, were taken into account: type of fiber; direct/indirect asbestos use in the production processes; estimated prevalence of exposed workers and bystanders, estimated intensity and duration of asbestos exposure. All the subjects were followed-up from their entry into the cohort during the asbestos use periods to the end of follow-up (varying from 1995 to 2008). Pooling data of the co-

hort's members is performed to conduct a mortality analysis based on external (standard: Tuscan population) and internal (cumulative exposure sub-groups) comparisons.

Results. About 60% of the cohort was followed for 30 years or more from the beginning of exposure. A preliminary analysis based on standardized mortality ratios (SMR) calculated for each sub-cohort evidenced that the SMRs for pleural cancer varied from 3,700 (CI95%: 447-1300) to 133 (CI95%: 4-744), that for lung cancer from 133 (CI95%: 100-172) to 39 (CI95%: 11-99).

Conclusions. Further results concerning lung and mesothelioma risks associated to working in factories with different kinds of fibres and summary indexes of exposure, by latency, duration, and cumulative exposure will be presented.

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INCIDENCE RATES OF SURGICALLY TREATED RHEGMATOGENOUS RETINAL DETACHMENT IN MANUAL WORKERS, NON-MANUAL WORKERS AND HOUSEWIVES OF TUSCANY, ITALY

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Introduction. Candidate risk factors for idiopathic rhegmatogenous retinal detachment (RRD) include heavy manual handling (requiring Valsalva's maneuver) and high body mass index (BMI).

Objectives. We assessed incidence rates of surgically-treated idiopathic RRD in the general population and among manual workers, non-manual workers and housewives.

Methods. In Italy, both public and private hospitals are obliged to issue codified discharge records (even after day-treatment) for archival in patients' regions of residence; Tuscan hospitals additionally provide employment information, allowing classification of patients as manual workers, non-manual workers or full-time housewives. We retrieved all Italian discharge records bearing a principal diagnosis corresponding to idiopathic RRD (ICD-9 code 361.0-361.07, 361.9) coupled with retinal surgery (DRG code 36) for any resident of Tuscany or Emilia-Romagna (1997-2008) aged 25-59 years. We restricted the study population to subjects. We extracted population data from the 2001 census. We calculated age-standardized admission rates (per 100,000 person-years) based on the WHO Standard European Population.

Results. After eliminating repeat admissions, we identified 1,380 eligible cases (795 men). Among men, manual workers experienced a 1.9-fold higher age-standardized rate than non-manual workers (17.8 [95%CI: 16.3-19.4] vs. 9.2 [8.0-10.4]). Among women, age-standardized rates were ~2-fold higher among both manual workers (11.1 [9.6-12.6]) and housewives (10.8 [9.2-12.4]) than in non-manual workers (5.6 [4.5-6.6]).

Conclusions. This study suggests that manual workers are more often affected by idiopathic RRD than non-manual workers. The findings accord with the hypothesis that heavy manual handling and high BMI have a causal role.

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CUMULATIVE MORTALITY AFTER ASBESTOS EXPOSURE: AN ANALYSIS OF ETERNIT ASBESTOS CEMENT WORKERS COHORT

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Introduction. The Eternit factory of Casale Monferrato (Italy) was an important Italian plant producing asbestos-cement. Previous studies showed an increase of mortality from lung cancer, pleural (PIM) and peritoneal (PeM) malignancies as well as from other asbestos related diseases.

Objectives. To analyze the cumulative mortality trend for PIM and PeM by latency and age at first exposure and duration of exposure, with consideration for competitive causes of death.

Methods. The Eternit cohort is composed by 3,434 subject active in 1950 or hired in 1950-86, ascertained from company records. The analyses of time to death were conducted as proportional hazard regression models using a competing risk approach; the competing events were defined as PIM, PeM and "other causes of death".

Results. Cumulative mortality (probability) is presented at 70 years of latency: it was 0.08 (8%) for PIM and 0.04 for PeM, corrected for competitive causes of death. For PIM it was 0.09 for early exposed (age <30) workers and 0.07 for the others (p=0.096); considering duration, it was 0.06 for duration of exposure <5 years, 0.07 for 5-15 years and 0.09 for duration >15 years (p=0.025). PeM cumulative mortality was 0.05 for early exposed worker and 0.02 for the others (p=0.0004); by duration of exposure it was 0.01 for duration <5 years, 0.02 for 5-15 years and 0.05 for duration >15 years (p=0.0003). Similar trends were observed when age was used as time scale (data not shown).

Conclusions. This study confirms, with an analytical approach that is seldom used in cohort studies, the increased risk of PIM e PeM with increasing duration and early exposure. Analyses are in progress to explore the joint effect of other exposure related variables.

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ASBESTOS FIBER BURDEN OF THE LUNGS IN PATIENTS WITH MESOTHELIOMAS WHO LIVED NEAR CEMENT-ASBESTOS FACTORIES

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Introduction. A large amount of asbestos-related diseases are occurring among ex-workers of two Italian asbestos-cement (AC) factories (Eternit in Casale Monferrato, Alessandria, Piedmont; Fibronit in Bari, Apulia), and, moreover, among the general pop-

ulation of the two areas. The mesothelioma risk has been shown to increase with the proximity of residence to the factory.

Objectives. To provide information on the intensity of exposure to asbestos that has occurred among the members of the general population living around these factories.

Methods. We obtained fresh lung tissue samples from 7 subjects diagnosed with a mesothelioma, who lived in Casale Monferrato or Bari. The lung fibres content was analysed by Scanning Electron Microscopy equipped with X-ray microanalysis (procedures in: Somigliana A, 2008). Life histories were collected during face to face interviews and a description of residences was obtained. An index of asbestos exposure was computed, based on distance of each residence from the AC plants and on duration of stay.

Results. For each subject occupational exposures could be ruled out and none worked at these factories. The mean age of these subjects is younger than the age of mesotheliomas occurring in Italy. The fibre burden ranged from 160,000 to 4,300,000 f/g dry tissue, higher than 1 million in 3 subjects. In 4 cases only amphibole fibres were detected. 1,700,000 f/g dry tissue were observed in a person whose only exposure was living 4 years, in the sixties, 200 metres from the Fibronit plant. Environmental exposures ceased at least dozen of years before the analyses. A positive significant correlation was observed between lung fibre burden and index of exposure intensity.

Conclusions. Estimates of asbestos fibres burden are available for only a few subjects with environmental exposure. More specifically, no data have been published for the population of Casale Monferrato and Bari, and no systematic measurements of fibre concentration in the urban environment have been carried out while the plants were active. Our results corroborate the epidemiological evidence of environmental risks for mesothelioma and suggest that environmental exposure in these areas has been substantial.



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ESPERIENZA LAVORATIVA E DIPENDENZA DALLA DURATA NEL RISCHIO INFORTUNISTICO

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Introduzione. L'esperienza lavorativa, maturata sia in azienda sia nel complesso della carriera, è tra i fattori più significativi nel determinare il rischio infortunistico. Con la crescita negli ultimi decenni del fenomeno del precariato, che ha avuto come conseguenza la frammentazione delle carriere, è necessario porre maggior attenzione a tale aspetto, utilizzando fonti informative longitudinali a oggi poco disponibili in Italia.

Obiettivi. L'obiettivo del lavoro è descrivere la dipendenza del rischio infortunistico dalla durata del rapporto di lavoro, studiando l'impatto della minore esperienza accumulata dai lavoratori per via dell'aumentata mobilità tra mansioni e settori produttivi diversi.

Metodi. Dagli archivi INPS è stato estratto un campione dell'1% dei lavoratori nel settore privato; per ogni soggetto è stata ricostruita la carriera lavorativa dal 1985 al 2004. Ad essa sono stati agganciati gli infortuni estratti dagli archivi INAIL accaduti dopo il 1994. Il database ottenuto contiene 200.000 episodi lavorativi e 6.000 infortuni per ogni anno. È stato studiato, attraverso un modello di Cox, il profilo temporale del rischio infortunistico controllando per caratteristiche del lavoratore, dell'azienda e per l'esperienza accumulata dal lavoratore.

Risultati. Le analisi preliminari indicano che il rischio infortunistico presenta una dipendenza negativa dalla durata che tende ad appiattirsi dopo 2 anni dall'inizio del rapporto di lavoro. I soggetti alla prima esperienza nella mansione presentano un rischio infortunistico significativamente più alto rispetto ai lavoratori con un'esperienza specifica maggiore.

Conclusioni. L'esperienza di un lavoratore è un fattore importante nel determinare il rischio infortunistico. La crescita negli ultimi decenni del fenomeno del precariato ha avuto come conseguenza la frammentazione delle carriere, e con ciò la riduzione dell'esperienza dei lavoratori nell'azienda e una conseguente maggiore esposizione al rischio di infortuni.

Chiusura del congresso Consegna del Premio Maccacaro

VALUTAZIONE EPIDEMIOLOGICA DELLO SCREENING DEI TUMORI DEL COLON-RETTO

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Introduzione. La ricerca del sangue occulto fecale (FOBT) come test primario di screening ha una dimostrata efficacia nella riduzione della mortalità per tumore del colon-retto. Dal 2000, nel programma di screening della ASL di Firenze, viene utilizzata una metodica quantitativa immunochimica. Vi sono segnalazioni in letteratura che la stabilità di emoglobina può variare in base al tempo che intercorre tra il momento della raccolta del campione e la processazione del test, ma non esiste alcun lavoro che valuti la degradazione dell'emoglobina in rapporto alla temperatura atmosferica.

Obiettivi. L'obiettivo dello studio è quello di analizzare i livelli di emoglobina contenuti nei campioni di feci per verificare se vi siano delle differenze di concentrazione a seconda della diversa temperatura atmosferica a cui questi campioni sono stati conservati.

Metodi. Sono stati analizzati circa 200.000 esami FOBT effettuati tra il 2001 e il 2008 all'interno del programma di screening di Firenze. Sono stati effettuati test non parametrici per valutare il diverso livello di emoglobina nelle diverse stagioni. Inoltre per valu-

tare l'effetto in termini di probabilità di risultare positivo al test, è stato adattato un modello di regressione logistica aggiustato per sesso, età, stagione e numero di esami effettuati. Sono state effettuate le stesse analisi utilizzando, in sostituzione alle Stagioni, le temperature medie mensili registrate per anno dal 2000 a oggi, forniteci dal Laboratorio di Monitoraggio e Modellistica Ambientale (LaMMA) di Firenze.

Risultati. I valori medi di concentrazione di emoglobina (ng/ml) nelle diverse stagioni sono risultati: primavera 27,6 (95%CI: 26,2-29,1), estate 25,2 (95%CI: 23,1-27,3), autunno 29,2 (95%CI: 27,7-30,6), inverno 29,5 (95%CI: 27,9-31,1). Dall'analisi logistica è emersa una riduzione del 17% nella probabilità di risultare positivi al test in estate rispetto all'inverno. Inoltre, a fronte di un aumento della temperatura di 1°C la probabilità di risultare positivi al test si riduce dello 0,7%. Infine, in estate la probabilità di diagnosticare un cancro o un adenoma avanzato è inferiore del 17% rispetto all'inverno.

Conclusioni. I dati mostrano una riduzione della concentrazione di emoglobina alle elevate temperature. Questo mette in luce evidenti implicazioni di carattere organizzativo per lo screening coloretale, in particolare in Paesi con una elevata temperatura atmosferica.

S e s s i o n i P o s t e r

Ambiente e salute

- P1 -

VALUTAZIONE EX-ANTE DELL'IMPATTO SANITARIO ATTRIBIBILE ALL'INQUINAMENTO DA INCENERITORE

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Introduzione. Gli studi epidemiologici relativi a impianti di produzione di energia alimentati da combustione di rifiuti di vecchia generazione segnalano eccessi significativi di sintomi respiratori e patologie tumorali tra i residenti in prossimità degli impianti. Le poche osservazioni epidemiologiche relative a impianti di nuova generazione, basati sulle migliori tecnologie disponibili, non depongono per un incremento di rischio sanitario.

Obiettivi. Valutare ex-ante l'impatto sanitario attribuibile all'insediamento di un impianto di incenerimento di rifiuti in un'area in cui è previsto anche l'insediamento di una centrale a turbogas.

Metodi. L'impatto sanitario (in termini di mortalità: tutte le cause di morte, cardiovascolari e respiratorie; in termini di morbidità: cause cardiache e respiratorie) è stato stimato calcolando dapprima il numero di casi attribuibile all'eccesso di PM10 medio osservato rispetto al livello soglia di 40 µg/m³; in seguito è stato calcolato in funzione della dimensione della popolazione residente in prossimità dell'impianto e della ricaduta al suolo delle emissioni dell'inceneritore ottenuta da simulazioni modellistiche: il contributo medio aggiuntivo di PM totale dovuto al funzionamento del nuovo impianto è risultato pari a 0,03 µg/m³ nell'area di massima ricaduta, quello della centrale turbogas pari a 0,15 µg/m³. È stato considerato come worst case quello in cui si ipotizza un incremento massimo giornaliero di 1 µg/m³. È stata considerata esposta la popolazione residente entro un raggio di 2 km dalla centrale, pari a 15.000 soggetti.

Risultati. Una riduzione del valore medio osservato di PM10 (45,3 µg/m³ nel 2008) al livello soglia eviterebbe lo 0,12% di decessi per cause naturali. Proporzionalmente, un aumento di 1 µg/m³ dovuto alla messa in funzione delle due centrali è associato ad un incremento percentuale di decessi pari a 0,02%.

Conclusioni. Le stime di impatto, per quanto misurabili, non modificano il quadro epidemiologico locale.



- P2 -

IL PROGRAMMA "EPIDEMIOLOGIA, RIFIUTI, AMBIENTE E SALUTE" DELLA REGIONE LAZIO (ERASLAZIO)

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Introduzione. Le evidenze relative agli effetti sulla salute degli impianti di trattamento dei rifiuti non sono ancora esaustive così come le informazioni relative a qualità e quantità delle sostanze emes-

se; di contro la percezione del rischio dell'opinione pubblica sugli effetti del ciclo dei rifiuti è molto forte.

Obiettivi. Obiettivo del programma ErasLazio è quello di fornire informazioni aggiornate e tecnicamente corrette sulle implicazioni per la salute e l'ambiente conseguenti al ciclo dei rifiuti nel Lazio.

Metodi. Il programma ERASLazio si propone di sintetizzare le conoscenze scientifiche, censire i siti presenti, stimare le emissioni relative a ciascun impianto, caratterizzare la popolazione potenzialmente esposta, valutare gli effetti sulla salute della popolazione residente e dei lavoratori del settore, realizzare un sito web per la comunicazione e la pubblicizzazione dei risultati. Il sito www.eraslazio.it descrive il programma, la sua struttura, gli obiettivi, i risultati attesi, le fasi e i soggetti coinvolti.

Risultati. Nel 2008 sono stati prodotti nel Lazio 3,33 mTonn di RSU, dei quali 0,59 avviati al riciclaggio/compostaggio, 1.902 conferiti in discarica e 0,835 inceneriti. Sono presenti sul territorio regionale 9 discariche, 3 termovalorizzatori e 7 impianti per il trattamento meccanico biologico (TMB) degli RSU. Le persone che vivono a meno di 3 Km da un inceneritore sono circa 2.400, quelle a meno di 200 m da un impianto di TMB sono circa 2.300, mentre a meno di 2 Km da una discarica vivono circa 10.000 persone. Per ogni impianto si stanno elaborando le mappe di concentrazione degli inquinanti attraverso modelli di dispersione (modello a particelle Spray) relativi agli impianti e ad altri fattori di pressione ambientale. Sono stati recuperati gli archivi anagrafici dei 33 comuni interessati dagli impianti per definire coorti di popolazione (residenti al 1996) da seguire nel tempo per valutare mortalità, ricoveri ospedalieri, ed esiti riproduttivi. È in corso uno studio di coorte retrospettivo dei lavoratori impiegati nella raccolta e nel trasporto di rifiuti per la città di Roma.

Conclusioni. Il programma ErasLazio intende affrontare la complessa tematica della comunicazione del rischio ai diversi interlocutori interessati, dai decisori politici ai cittadini.



- P3 -

SALUTE E INQUINAMENTO DA INCENERITORI DI RIFIUTI

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Introduzione. Gli inceneritori riducono il volume dei rifiuti, ma producono ceneri, da conferire in discariche e, soprattutto, ingenti quantità di fumi inquinanti. Ciò causa contaminazione ambientale e possibili danni alla salute, che non è ancora regolarmente monitorata. Tra i vari inquinanti ricordiamo polveri, diossine, furani, acido cloridrico, idrocarburi, metalli pesanti, ossidi di zolfo, ossidi di azoto e altri gas serra. Questi elementi, anche in modo sinergico, possono agire come mutageni, cancerogeni, tossici e distruttori endocrini.

Obiettivi. Descrivere le principali evidenze scientifiche relative all'insorgenza di tumori e altre patologie nelle popolazioni esposte all'inquinamento da inceneritori.

Metodi. Nell'ampia letteratura scientifica disponibile dal 1987 sono stati selezionati i 2 studi epidemiologici più recenti e affidabili, riportando rischi relativi (RR) e limiti di confidenza al 95% (LC95%).

Risultati. I due studi hanno documentati eccessi per l'insieme delle patologie e l'insieme dei tumori. Nello studio condotto in Italia le donne residenti per almeno 5 anni nelle aree inquinate da metalli pesanti hanno mostrato un aumentato rischio di morte per tutte le cause (RR: 1,07-1,17) e tutti i tumori (RR: 1,17-1,54). In Francia sono stati individuati eccessi di rischio per l'insieme dei tumori sia nei maschi (RR: 1,03) sia nelle femmine (RR: 1,06) residenti nelle aree contaminate da diossine.

Conclusioni. Precedenti studi scientifici avevano già evidenziato eccessi di rischio per diabete mellito, problemi comportamentali, cardiorespiratori, allergie, alterazioni tiroidee, malformazioni congenite e, per quanto riguarda i tumori, neoplasie polmonari, linfomi non Hodgkin, tumori alla mammella, sarcomi dei tessuti molli e neoplasie infantili. I 2 studi qui analizzati rafforzano queste evidenze di danno alla salute. Per non reiterare questi errori, riteniamo che vadano applicati i principi di prevenzione e di precauzione, privilegiando la riduzione dei rifiuti e promuovendo il riciclo della materia che oggi è ampiamente possibile e che evita la diffusione di ingenti quantità di particolato ultrafine non trattenuto dai convenzionali sistemi di abbattimento dei fumi.

- ◆ -

- P4 -

LE MALFORMAZIONI A BRINDISI E NELL'AREA A RISCHIO DI CRISI AMBIENTALE

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Introduzione. Una ricca letteratura scientifica ha per oggetto l'associazione tra malformazioni congenite ed esposizione dei genitori a contaminanti fisici (radiazioni) e chimici presenti in aria, cibo e acqua.

Obiettivi. Fornire una stima della prevalenza delle malformazioni tra i nati di genitori residenti nell'area a rischio di crisi ambientale di Brindisi. La fonte dei dati è rappresentata dai ricoveri registrati dall'86 al 2009 presso l'Unità di terapia intensiva neonatale (UTIN) dell'Ospedale Perrino di Brindisi.

Metodi. I tassi di prevalenza di malformazioni e di alcune specifiche caratteristiche dei neonati ricoverati presso la UTIN di Brindisi sono confrontati nello spazio e nel tempo.

Risultati. Dal 1986 al 2009 sono stati ricoverati presso la UTIN di Brindisi 2.461 bambine e 3.069 bambini figli di genitori residenti nella provincia di Brindisi. La prevalenza di malformazione è di 4,9% tra i maschi e di 3,9% tra le femmine. Il comune di Brindisi registra il tasso più elevato (48,5 contro 18,9 per 10.000 nati nel resto della provincia). Il picco di eventi si è registrato nei primi anni 90. Il fenomeno, in calo dalla metà degli anni 90 sino alla metà del 2000 appare al momento in crescita. Vi è, inoltre, un trend in diminuzione del peso medio alla nascita sia tra i maschi sia tra le femmine.

Conclusioni. I dati della UTIN rappresentano un tassello importante per la stima del fenomeno nell'area brindisina. Tuttavia, ai fini di una ricostruzione esaustiva del fenomeno è necessario integrare con i dati delle schede di dimissione ospedaliera; del registro nominativo delle cause di morte e del servizio di anatomia patologica. La possibilità di disporre di una banca dati siffatta rappresen-

terebbe una valida base per la costruzione di un registro delle malformazioni in grado di fornire utili indicazioni ai fini della sorveglianza epidemiologica del fenomeno.

- ◆ -

- P5 -

DISAGIO BIOCLIMATICO E STRUTTURE CARCERARIE: UNA ANALISI ESPLORATIVA NEL PENITENZIARIO DI MODENA

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Introduzione. Le condizioni di vita all'interno delle carceri rappresentano una criticità nel nostro paese sia per la tipologia costruttiva degli edifici che per l'eccessivo affollamento. Durante il periodo estivo i detenuti manifestano particolare disagio a causa delle elevate temperature.

Obiettivi. Misurare i livelli di disagio bioclimatico all'interno di una struttura carceraria.

Metodi. La campagna di monitoraggio di temperatura e umidità ha avuto luogo nel mese di agosto 2009 nel carcere di Modena. Sono stati utilizzati 13 termo-igrometri. Gli strumenti sono stati collocati in diversi punti dell'edificio per cercare di cogliere la variabilità delle condizioni bioclimatiche sperimentate dai detenuti e dal personale.

Risultati. Le condizioni bioclimatiche all'interno delle celle sono risultate per l'intera durata del monitoraggio ben al di sopra delle soglie di disagio, anche nelle ore notturne. Il confronto tra gli andamenti tipici dei dati indoor e della centralina di monitoraggio meteorologico in ambito urbano ha mostrato una limitata escursione termica giornaliera dei dati indoor. Le differenze tra i vari siti di misura mostrano una chiara proporzionalità diretta tra temperatura e piano di monitoraggio. Sono emerse condizioni bioclimatiche peggiori, in senso relativo, nei settori collocati verso sud-est rispetto a quelli collocati a nord-ovest.

Conclusioni. I dati raccolti nella campagna di monitoraggio hanno evidenziato la presenza di condizioni di forte disagio bioclimatico all'interno della struttura carceraria. La disponibilità nelle strutture penitenziarie di dati sanitari e di utilizzo di farmaci rappresenta una importante risorsa per eventuali studi epidemiologici su un gruppo di soggetti a rischio sia per le condizioni abitative sia per l'elevata frequenza di alcune patologie.

- ◆ -

- P6 -

PROFILO DI SALUTE DELL'ALTA VAL DI CECINA

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Introduzione. La Società della salute "Alta Val di Cecina" (AVC) in seguito ai risultati di studi di mortalità e sulla percezione della salute ha promosso uno studio di approfondimento sullo stato di salute. L'a-

rea in studio ha un sottosuolo geologicamente attivo, industrie chimiche, di produzione di energia, estrattive, documentate contaminazioni di acqua e suolo da metalli pesanti.

Obiettivi. Valutazione dello stato di salute per identificare elementi critici su cui promuovere azioni di sanità pubblica.

Metodi. Mortalità 1980-2006 (Registro regionale di mortalità della Toscana) e schede di dimissione ospedaliera 1998-2006. Calcolo di tassi standardizzati (riferimento Europa), e rapporti standardizzati (riferimento Toscana) per 60 cause per ciascun genere.

Risultati. Nell'intera AVC sono stati osservati eccessi significativi di mortalità per tumore dell'ovaio e per tumore del colon tra le donne (SMR_ovaio=184,7; SMR_colon=140,8). La mortalità per malattie del sistema circolatorio ha mostrato eccessi significativi in entrambi i generi SMR_uomini=120,1; SMR_donne=126,6), in particolare per malattie cerebrovascolari. Ricoveri femminili significativamente più elevati sono stati osservati per i tumori del sistema linfomopoiotico (SHR=141), in particolare per mieloma anche tra gli uomini, e per leucemie totali e linfoidi. Sono emersi alcuni eccessi significativi di ricoveri per malattie dell'apparato digerente, per entrambi i generi. L'area presenta eccessi di ricoveri per malattie dell'apparato respiratorio in entrambi i generi SHR_uomini=114,5; SHR_donne=103), in particolare per malattie polmonari croniche e cronico-ostruttive. Sono segnalati eccessi di ricoveri maschili per malattie ischemiche (SHR=128,8), in particolare per l'infarto acuto del miocardio.

Conclusioni. L'analisi dei dati ha evidenziato eccessi di mortalità e di ospedalizzazione per alcune patologie per le quali in letteratura sono riportate associazioni con esposizioni ambientali e occupazionali, scorrette abitudini alimentari o carenze nelle azioni di screening.



- P7 -

GLI INCIDENTI BALNEARI IN TOSCANA: I DATI FORNITI DAL SISTEMA DI MONITORAGGIO DEL 118

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Introduzione. Gli incidenti balneari rappresentano la seconda causa di morte per eventi accidentali dopo gli infortuni stradali tuttavia, a causa dell'insufficienza dei dati disponibili, la ricerca epidemiologica ha difficoltà ad indagare in modo approfondito questo ambito.

Obiettivi. Dal 1999 il settore Formazione, comunicazione e supporto al governo clinico della Regione Toscana ha avviato un sistema di rilevazione degli incidenti connessi all'attività balneare sulle coste toscane nel periodo estivo, che coinvolge le centrali operative del 118 di Grosseto, Livorno, Massa, Pisa e Viareggio.

Metodi. E' stata predisposta una scheda di rilevazione che raccoglie le principali caratteristiche sociodemografiche dell'infortunato, la dinamica e le conseguenze sanitarie degli incidenti. Sono disponibili i dati registrati nel periodo estivo degli anni compresi tra il 2006 e il 2009.

Risultati. Nel 2009 si sono verificati in Toscana 858 incidenti. Il luogo

in cui è avvenuta la maggioranza degli infortuni è rappresentato dagli stabilimenti balneari (62%). Nelle spiagge libere sono occorsi l'11% degli incidenti, seguite dalle spiagge attrezzate con l'8%. Percentuali inferiori sono state registrate in luoghi quali il mare, i porti per il diportismo nautico e le piscine. I fiumi con soli 3 interventi rappresentano l'ambiente dove in assoluto si sono registrati meno infortuni. La fascia oraria in cui accadono più eventi è quella compresa tra le 11.00 e le 18.00, che da sola raccoglie circa il 70% mentre quella meno colpita è quella notturna che va dalle 23.00 alle 8.00 della mattina (solo 4%). Le principali cause di incidente balneare sono il trauma (38%), la lipotimia (16%), il dolore addominale (6%) e l'annegamento (3%). Non è stata individuata una classe di età per la quale è possibile riportare un'alta associazione con il rischio di incorrere in un incidente balneare. I luoghi in cui le conseguenze sono peggiori sono le piscine, i laghi e i fiumi mentre è l'annegamento la causa che presenta la maggiore criticità.

Conclusioni. Gli infortuni che occorrono nei mesi invernali, sebbene le aree balneabili siano prive di turisti, è noto abbiano una lesività ed una mortalità molto superiori rispetto a quelli che si verificano nel periodo estivo, per questo, sarebbe auspicabile poter disporre dei dati di un intero anno solare. L'acquisita conoscenza delle principali cause che provocano gli incidenti balneari (sovrastima della capacità natatoria, consumo di alcol/cibo prima di entrare in acqua, mancanza di strutture di sicurezza etc.), assieme alla consapevolezza della loro evitabilità, dovrebbero indurre le autorità locali a mettere in atto una serie di strategie per l'elaborazione e l'attuazione di programmi nazionali e locali di prevenzione.



- P8 -

BIOSSIDO DI AZOTO E MORTALITÀ GIORNALIERA: RUOLO DELLE CONDIZIONI CLINICHE PRE-ESISTENTI. LO STUDIO COLLABORATIVO EPIAIR

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Introduzione. L'associazione tra concentrazione giornaliera di biossido di azoto (NO₂) e mortalità è ben documentata in letteratura, mentre sono scarse le evidenze circa i gruppi di popolazione più sensibili agli effetti di questo inquinante.

Obiettivi. Esaminare il ruolo di alcune condizioni cliniche come potenziali modificatori dell'associazione tra l'esposizione a NO₂ e mortalità.

Metodi. Lo studio ha incluso 271.111 soggetti di 35 anni o più residenti in 9 città italiane (Bologna, Firenze, Mestre-Venezia, Milano, Palermo, Pisa, Roma, Taranto e Torino) e deceduti per cause natura-

li nel comune di residenza tra il 2001 e il 2005. Per ogni soggetto sono state acquisite informazioni sulla causa di morte e sui ricoveri in ospedale nei due anni precedenti il decesso. L'analisi statistica è stata effettuata con un approccio case-crossover stratificato per tempo. I risultati sono espressi come incrementi percentuali di rischio (e intervalli di confidenza al 95%) per variazioni di $10 \mu\text{g}/\text{m}^3$ di NO_2 .

Risultati. Si è osservata una associazione significativa tra l'esposizione a NO_2 e mortalità per cause naturali (2,03%; 0,87%-3,21%). L'aver avuto almeno un ricovero in ospedale nei due anni precedenti il decesso è risultato un significativo modificatore d'effetto dell'associazione tra NO_2 e mortalità (2,86%; 1,39%-4,35%). Una chiara modificazione d'effetto si è osservata anche per i soggetti con 3 o più malattie croniche (3,62%; 2,04%-5,22%) rispetto ai soggetti senza malattie croniche (1,54%; 0,275-2,82), con un tendenziale aumento del rischio in relazione al numero di malattie croniche. Rischi più elevati si sono osservati in presenza di specifiche patologie croniche quali le malattie del circolo polmonare, i disturbi della conduzione, il diabete, lo scompenso cardiaco e le malattie ischemiche del miocardio.

Conclusioni. La presenza di alcune preesistenti patologie croniche modifica l'associazione tra concentrazione giornaliera a NO_2 e mortalità.



- P9 -

ESPOSIZIONE PERSONALE DEGLI STUDENTI DI MILANO A $\text{PM}_{2,5}$: IL PROGETTO EUROLIFENET

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Introduzione. C'è un'evidenza epidemiologica che l'esposizione al particolato atmosferico (PM) abbia un importante effetto sulla salute umana. Tale esposizione viene generalmente monitorata da centraline fisse di riferimento, che danno precisi valori della concentrazione giornaliera, ma non rappresentano l'esposizione personale dei soggetti durante l'arco della giornata. Nell'ambito del progetto europeo EUROLIFENET è stata misurata l'esposizione personale a particolato fine ($\text{PM}_{2,5}$) di un gruppo di studenti milanesi utilizzando dei nefelometri.

Obiettivi. Valutare la relazione esistente tra l'esposizione personale a $\text{PM}_{2,5}$ misurata dai nefelometri e le misurazioni effettuate dalle centraline fisse di Milano.

Metodi. La campagna di monitoraggio ambientale si è svolta nella città di Milano nel periodo tra novembre e dicembre del 2006. Per tre settimane è stata misurata l'esposizione a $\text{PM}_{2,5}$ di 90 studenti di tre scuole milanesi (Feltrinelli, Cremona, Rinascita), utilizzando dei nefelometri portatili e degli specifici diari dove i ragazzi segnavano il mezzo di trasporto usato (bus, auto, tram ecc.) e la loro ubicazione nei diversi ambienti (indoor) in casa o a scuola o (outdoor) vicino a strade a grosso traffico o a fumatori.

Risultati. La correlazione tra le due differenti metodiche risulta essere molto buona: il coefficiente di correlazione di Pearson (R) tra le misurazioni effettuate con il nefelometro e i valori della centralina di riferimento varia tra 0,64 a 0,75. L'esposizione personale dei singoli studenti varia notevolmente in relazione ai differenti luoghi frequentati,

alle differenti sorgenti d'inquinamento atmosferico e alla differenza di esposizione tra ambiente aperto (outdoor) e chiuso (indoor).

Conclusioni. Abbiamo stimato che circa il 60% della variabilità nell'esposizione personale a $\text{PM}_{2,5}$ è spiegabile attraverso la stazione di riferimento, mentre il rimanente 40% è dovuto alla differenze di esposizione tra i singoli soggetti.



- P10 -

ESISTE UNA ASSOCIAZIONE TRA RISCHI AMBIENTALI E LA MORTALITÀ GENERALE IN ITALIA? I DATI AMBIENTALI E SANITARI IN RETE: ELEMENTI PROGNOSTICI PER LA VALUTAZIONE DEL RISCHIO

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Introduzione. Al fine di effettuare una ragionevole analisi delle aree e delle relative popolazioni a rischio è necessario affiancare i dati sanitari con quelli demografici, socioeconomici, geografici e di pressione antropica. Molte di queste informazioni sono già presenti in rete e fruibili.

Obiettivi. Analizzare l'esistenza di una associazione tra la mortalità generale e i principali determinanti antropici reperiti in rete che insistono nelle stesse regioni, province e comuni italiani. Verranno analizzate tutte le regioni e come esempio di approfondimento verranno studiate 4 popolazioni regionali (Emilia Romagna, Lazio, Liguria e Toscana).

Metodi. Attraverso un sistema GIS (Geographic Information System) verranno geolocalizzati i determinanti potenziali e i dati di mortalità totale. Saranno spazializzati i dati relativi a stabilimenti industriali a rischio, centrali a carbone, siti contaminati, incenerimento rifiuti, discariche, siti per la produzione CDR, qualità dell'aria. Saranno altresì costruiti tre livelli sintetici di pressione di rischio (forte, medio e basso) cui verranno associati i tassi specifici di mortalità (Istat).

Risultati. L'esplorazione ed elaborazione preliminare dei dati conferma l'associazione tra aree ad alto rischio e la mortalità generale nelle regioni esaminate. Analisi dettagliate verranno presentate direttamente al convegno.

Conclusioni. E' ragionevole supporre che quanto si è individuato a livello regionale sia estendibile, in un futuro prossimo, anche a livello sub regionali e comunali. La metodologia impiegata, anche se povera, offre a cittadini ed amministratori una veloce e attendibile stima prognostica dei rischi locali.

Diseguaglianze

- P11 -

LA "POVERTÀ" RELATIVA NELL'UNIONE EUROPEA (UE 27)

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Introduzione. La diffusione della povertà è un indicatore utilizzato per valutare il livello di disuguaglianza di un Paese. Lo sviluppo

umano è definito non solo dal reddito, ma dalle politiche di spesa per istruzione e salute: la crescita sociale non è sempre omogenea alla crescita del PIL. L'indice di Gini (indicatore di disuguaglianza sociale valore 0-100), indica nella Repubblica Ceca (24,4) e Portogallo (38,5) le regioni rispettivamente con la minore e maggiore disuguaglianza; Italia (36).

Obiettivi. Valutare il tasso (%) della povertà relativa nei Paesi UE 27.

Metodi. Per l'Eurostat (Poverty of the EU Report, 2010), la soglia di "povertà relativa" è definita da un reddito pari al 60% del reddito medio di un Paese. Sono definiti "poveri" (povertà multidimensionale) gli individui, le cui risorse materiali, culturali, sociali sono così limitate da escluderli dallo standard minimo di vita accettabile nella comunità in cui vivono. Nel presente studio sono elaborati i dati sulla "povertà" nei Paesi dell'UE 27. Popolazione: 497 milioni; reddito medio pro capite: \$ 29.227; range: Lussemburgo 78.723-Romania 11.755.

Risultati. Il 16,6% (82 milioni) della popolazione nell'UE 27 viene definita "povera". Sono "poveri" 64 milioni di abitanti nell'UE 15, il 16%; 11 milioni nei 10 Paesi entrati nella Comunità nel 2004, il 15%; 7 milioni in Romania e Bulgaria ammesse nel 2007, il 23%. Paesi con tasso di povertà tra 24% e 16%. Romania 24,5%; Bulgaria 22%; Lettonia 21%; Grecia 20,5%; Spagna 20%; Estonia 19,5%; Italia 19,5%; Inghilterra 19%; Lituania 19%; Portogallo 18%; Irlanda 17,5%; Polonia 17,5%. Paesi con tasso di povertà tra 16% e 9%. Cipro 15,5%; Germania 15%; Belgio 15%; Malta 14,5%; Lussemburgo 13,5%; Francia 13%; Austria 12%; Ungheria 12%; Danimarca 11,5%; Slovenia 11,5%; Finlandia 11%; Svezia 11%; Paesi Bassi 10,5%; Slovacchia 10,5%; Repubblica Ceca 9,5%.

Conclusioni. Il valore più alto è della Romania, il più basso della Repubblica Ceca.

- ◆ -

- P12 -

LA "POVERTÀ" RELATIVA DEI MINORI NELL'UNIONE EUROPEA (UE 27)

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Introduzione. La povertà non va considerata solo in riferimento al reddito, ma come causa di esclusione sociale e di riduzione della libertà degli individui.

Obiettivi. Valutare il tasso (%) di povertà relativa dei minori nei Paesi UE 27.

Metodi. La soglia di povertà relativa è definita da un reddito pari al 60% del reddito medio di un Paese (Eurostat). Nel presente studio sono elaborati i dati sulla povertà dei minori (0-17 anni) nei Paesi UE 27. Popolazione minorile UE 27: 97 milioni; UE 15: 76 milioni; 10 nuovi Paesi: 16 milioni; Romania e Bulgaria: 5,6 milioni.

Risultati. Sono poveri 19 milioni di minori residenti nell'UE 27, il 19,7% dei minori; 14 milioni nell'UE 15, il 19%; 3 milioni nei 10 Paesi entrati nella Comunità europea nel 2004, il 21% dei minori; 1,8 milioni risiedono in Romania e Bulgaria, ammesse nella Comunità nel 2007, il 32% dei minori. Paesi con tasso di povertà tra 33% e 20%: Romania 33%; Bulgaria 30%; Italia 24%; Spagna 23%; Grecia 23%; Polonia 23%; Inghilterra 23%; Lituania 22%; Lettonia

21%; Portogallo 21%; Lussemburgo 20%. Paesi con tasso di povertà tra 19% e 10%. Ungheria 19%; Malta 19%; Irlanda 19%; Estonia 18%; Slovacchia 17%; Belgio 17%; Francia 16%; Repubblica Ceca 16%; Austria 15%; Germania 14%; Paesi Bassi 14%; Cipro 12%; Finlandia 11%; Svezia 11%; Slovenia 11%; Danimarca 10%.

Conclusioni. Il tasso di povertà dei minori nei Paesi dell'UE 27 (19,7%) è superiore a quello della popolazione complessiva (16,6%); solo in Finlandia (11%) e Slovenia (11%) il dato è sovrapponibile, mentre è inferiore in Germania (14%), Danimarca (10%), Cipro (12%) ed Estonia (18%). E' più alto del complesso della popolazione nell'UE 15 (19% vs 16%), nei 10 Paesi entrati nella Comunità Europea nel 2004 (21% vs 15%), in Romania e Bulgaria (32% vs 24%). Il valore più alto è della Romania, il più basso è della Danimarca.

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- P13 -

COME INDIVIDUARE IL TARGET SOCIALE DELL'INTERRUZIONE VOLONTARIA DI GRAVIDANZA

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Introduzione. L'analisi nasce dall'esigenza di conoscere il fenomeno della interruzione volontaria di gravidanza (IVG) a livello locale e riferito a una specifica popolazione residente, a 30 anni dall'entrata in vigore di una legge che ne ha normato la pratica.

Obiettivi. Individuare criticità sociali e sanitarie di sistema in grado di orientare più efficacemente le politiche preventive e assistenziali alla specificità dei bisogni locali, a partire dai Consultori pubblici.

Metodi. Si sono analizzate più fonti informatiche con gli stessi criteri adottati per la relazione al Parlamento che annualmente il Ministero della salute licenzia, in ottemperanza al dettato della legge 194. Si è poi attuato sia un confronto interno (inter-provinciale) sia esterno, con dati regionali e nazionali. Il target è stato costruito valutando contemporaneamente la frequenza delle diverse variabili disponibili.

Risultati. L'entità del fenomeno IVG appare contenuta nei confronti regionale e nazionale e si discosta da questi unicamente per l'età media delle donne interessate, più alta a livello locale. Il trend è simile a quello nazionale, non tende a diminuire e nell'ultimo triennio si attesta al 9‰. E' stato individuato un target costituito da trentenni, coniugate con figli, spesso con esperienza di precedente IVG, di scolarità medio-bassa, non disoccupata.

Conclusioni. Appare interessante l'aver individuato un target che si allontana dallo stereotipo che solitamente si riferisce alla tematica trattata: infatti la popolazione identificata ha i caratteri della stabilità sociale ed economica. Vi è quindi la necessità di ri-orientare e di ripensare eventuali azioni preventive in modo da raggiungere il target individuato a partire da strumenti comunicativi non riducibili unicamente alla mera informazione.

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- P14 -

MINORI E CARCERE

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Introduzione. All'interno di una rilevazione sullo stato di salute della popolazione detenuta in Toscana, sono stati raccolti i dati riguardanti stato di salute e stili di vita dei ragazzi detenuti presso l'istituto penitenziario "Meucci" di Firenze.

Obiettivi. Fornire una descrizione, in ambito di salute e di comportamenti a rischio ad essa associati, dei ragazzi che giungono alla struttura penitenziaria.

Metodi. Nello studio vengono arruolati tutti i giovani che afferiscono alla struttura penitenziaria fiorentina nel periodo dal 15 giugno 2009 al 15 settembre 2010. La rilevazione viene effettuata dal personale sanitario, avvalendosi di una scheda appositamente costruita e contenente informazioni socio-demografiche, sanitarie, stili di vita e indicazione di precedenti atti autolesionistici e/o autosoppressivi. I dati che presentiamo sono relativi al periodo giugno-ottobre 2009.

Risultati. Sono stati arruolati 66 ragazzi con un'età media di 17 anni, provenienti per il 30% dallo stato di libertà. Gli stranieri sono il 77,3%, per la maggior parte est-europei e nord-africani. Rispetto ai coetanei liberi, i minori detenuti hanno un più basso grado di istruzione; iniziano a fumare prima e consumano un maggior numero di sigarette; consumano più birra e meno vino, aperitivi e superalcolici e fanno maggiormente uso di sostanze stupefacenti, in particolar modo cannabis, cocaina ed eroina. Data la giovane età, la popolazione in studio non risulta essere affetta da patologie di particolare rilevanza. Il 16,7% dei ragazzi ha dichiarato di aver compiuto almeno un atto di tipo autolesionistico.

Conclusioni. Il principale problema da cui risultano affetti i giovani detenuti riguarda il consumo di sostanze (illegali e/o legali). Questo tipo di comportamento può avere ricadute non soltanto sullo stato di salute ma anche nel favorire la condizione di marginalità ed esclusione dal circuito scolastico e lavorativo. Per tali motivi, quindi, risulta necessario applicare interventi educativi volti a favorirne un adeguato reinserimento sociale piuttosto che veri e propri interventi di carattere sanitario.

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- P15 -

IL DISTURBO PSICHIATRICO NELLE STRUTTURE PENITENZIARIE DELLA TOSCANA: I PRIMI RISULTATI DI UNO STUDIO DI COORTE

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Introduzione. I dati provenienti dall'Organizzazione mondiale di sanità (OMS, 2007) pongono l'accento sulle malattie psichiatriche all'interno degli Istituti penitenziari. Nel mondo, quest'ultime interessano oltre un milione di detenuti, numeri che aumentano se consideriamo anche i sintomi somatici associati allo stress detentivo. Inoltre, i numerosi episodi autolesionistici o suicidari in ambito penitenziario, sottolineano la necessità di interventi specifici.

Obiettivi. Effettuare una valutazione dello stato di salute dei detenuti presenti nelle strutture penitenziarie della Toscana in mancanza di un flusso ad hoc, con particolare attenzione ai disturbi di salute mentale.

Metodi. Studio di coorte prospettico (arruolamento: 15 giugno 2009) su un campione di 2.985 detenuti (95,5% maschi), il 72% dei detenuti presenti alla data dell'arruolamento. La rilevazione dello stato di salute, ripetuta in 3 momenti temporali successivi, è stata effet-

tuata dal personale sanitario dei 19 Istituti penitenziari toscani attraverso una scheda informatizzata costruita ad hoc e contenente informazioni socio-demografiche dei detenuti, sugli stili di vita e registrando l'eventuale diagnosi clinica attraverso la classificazione internazionale delle malattie ICD-IX CM. E' stata prevista, inoltre, la registrazione di precedenti atti autolesionistici e/o autosoppressivi.

Risultati. Complessivamente, 1.940 (65%) risultano portatori di almeno una diagnosi internistica mentre 990 (33,2%) sono affetti da almeno una diagnosi psichiatrica. Il disturbo mentale da dipendenza da sostanze è la principale patologia psichiatrica (38,3%), seguita dal disturbo nevrotico e di adattamento (32,9%) e dal disturbo mentale alcol-correlato (17,2%). Fra le psicosi il 15,2% sono disturbi di personalità, il 12% disturbi affettivi psicotici ed il 7,5% rientra nei disturbi da spettro schizofrenico. Sul totale dei detenuti (N=2.985), il 10,6% ha commesso gesti autolesivi mentre il 4,3% ha tentato il suicidio. Questo indica che in Toscana, all'interno delle strutture penitenziarie, vi è una probabilità 650 volte superiore che avvenga un tentato suicidio rispetto alla popolazione generale.

Conclusioni. In linea con quanto indicato dall'OMS sullo stato di salute dei detenuti, anche nelle strutture toscane la salute mentale rappresenta un importante problema sanitario che richiede interventi tempestivi e multidisciplinari in grado non soltanto di trattare adeguatamente i disturbi preesistenti ma soprattutto di limitare l'insorgere di nuove patologie.

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- P16 -

LIVELLO SOCIOECONOMICO E RIPARTO DEL FONDO SANITARIO

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Introduzione. Il livello socioeconomico è il principale singolo determinante della variazione nel bisogno di salute dopo l'età. Le politiche di allocazione delle risorse affrontano le diseguglianze sociali attraverso la determinazione di un peso in base al quale ripartire le risorse in relazione al bisogno.

Obiettivi. Attraverso l'utilizzo di diverse fonti informative si è valutato il peso di indicatori socioeconomici individuali e aggregati nella spiegazione della variabilità del fabbisogno di assistenza ospedaliera in Italia.

Metodi. Sono state condotte analisi individuali ed ecologiche. Livello individuale: sono state utilizzate l'indagine nazionale campionaria sulle condizioni di salute dell'Istat e lo Studio longitudinale torinese (SLT). Attraverso modelli logistici sono stati stimati i pesi per livello di istruzione, tipologia abitativa, condizione occupazionale e un indice di deprivazione individuale sulla probabilità di ricovero. Analisi ecologica: utilizzando la base dati AGENAS è stato stimato il peso dell'indice di deprivazione sul tasso di ospedalizzazione a livello comunale. Sono state considerate variabili di aggiustamento: età e morbosità cronica per le analisi Istat, età e mortalità per le analisi su SLT ed ecologica.

Risultati. Le analisi su Istat e SLT forniscono stime consistenti sul peso di indicatori individuali nell'uso di assistenza ospedaliera. La

capacità predittiva dei soli indicatori indiretti di bisogno rappresenta una buona approssimazione di quella relativa al modello che tiene conto del bisogno di salute. L'indicatore aggregato di deprivazione comunale evidenzia dei limiti poiché fornisce stime non consistenti con l'atteso.

Conclusioni. La stima dei pesi a livello individuale è attualmente possibile solo utilizzando l'indagine Istat, con i limiti legati alla natura dell'informazione campionaria. Il ricorso al sistema informativo sanitario nazionale sarebbe soddisfacente solo attraverso l'acquisizione della sezione di censimento.

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- P17 -

SPERIMENTAZIONE E VALUTAZIONE DEGLI INSERIMENTI LAVORATIVI NELLA POPOLAZIONE TOSSICO/ALCOL DIPENDENTE DELLA REGIONE TOSCANA

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Introduzione. L'esperienza di alcune Regioni ha dimostrato come una delle risposte maggiormente utilizzate nei trattamenti delle tossicodipendenze sia stata quella degli inserimenti lavorativi, sia che fossero direttamente connessi al trattamento, sia che rappresentassero l'anello conclusivo di un percorso terapeutico. A tal proposito la Regione Toscana nel 2008 ha avviato un percorso comune tra gli operatori del settore delle dipendenze per la definizione di tali interventi, che sono stati poi classificati in inserimenti lavorativi IL, esperienze formative EF e interventi socio-terapeutici ST.

Obiettivi. Valutazione degli interventi (IL, EF e ST) realizzati dai Servizi per le Tossicodipendenze e dagli Enti Ausiliari della Toscana, su persone tossico/alcolodipendenti in carico. Predisposizione di procedure standardizzate degli interventi e verifica dei risultati degli stessi, sia per scopi di trasparenza che di uniformità nei linguaggi, criteri e costi.

Metodi. A seconda del tipo di percorso attivato (IL, EF o ST), è stata prevista una durata da 3 a 14 mesi, una frequenza media per soggetto di 20 ore settimanali e un compenso di €400 mensili. All'attivazione e alla conclusione di ogni intervento sono state compilate dal case manager due apposite schede (pre- e post-intervento) relative all'andamento dello stesso (rapporto con le sostanze, organizzazione dell'attività, aspetti emotivo-relazionali, autonomia personale etc.).

Risultati. La sperimentazione ha avuto una durata di 14 mesi (2009-10), nel corso dei quali sono stati attivati 107 interventi di cui il 27% IL, 13% EF e 60% ST. Il 76% circa dei soggetti coinvolti erano maschi e oltre la metà in età compresa tra i 20 e i 40 anni. L'eroina rappresenta la sostanza primaria per quasi il 76% del campione, seguita da alcol e cocaina (rispettivamente 17,8% e 5,6%). Per la sfera dell'autonomia personale, nel 61,7% degli interventi effettuati è stato riscontrato un miglioramento tra inizio e fine percorso. Il 74,8% degli interventi (n=80) si sono conclusi positivamente e 23 soggetti hanno trovato un lavoro. Tra gli interventi interrotti (n=27) le due cause principali sono state la ricaduta nella dipendenza (40,7%) e l'aggravamento dello stato di salute (26%).

Conclusioni. I risultati di questa sperimentazione mostrano come l'acquisizione di una formazione professionale e le azioni di inserimento possano rispondere alla duplice necessità di far acquisire valide competenze e dare al soggetto gli strumenti necessari per quella progettuale

che gli sarà utile in un progetto di vita. Questa sperimentazione ha inoltre contribuito a porre le basi per creare prassi e modalità operative uniformate e trasferibili tra i servizi pubblici e del privato sociale.

Health care

- P18 -

LA FARMACIA CARDIOMETABOLICA: UN NUOVO MODELLO OPERATIVO DI PREVENZIONE CARDIOVASCOLARE

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Introduzione. Le farmacie rappresentano un apprezzato presidio sanitario che eroga consigli per la salute e, spesso, effettua rilevazioni dei principali fattori di rischio cardiovascolare (CV). La codifica e la sistematizzazione di queste informazioni possono svolgere un ruolo importante nel monitoraggio e nella prevenzione CV. In sintonia con la Legge 62/09 che prevede la cosiddetta "Farmacia dei servizi", è stato avviato lo studio "Farmacia cardiometabolica" (FCM), indirizzato alla prevenzione CV nella popolazione afferente alle farmacie italiane.

Metodi. Il farmacista, debitamente formato su fattori di rischio CV, trattamento dietetico-nutrizionale e comunicazione del rischio, compila una cartella clinica computerizzata con i dati riguardanti anamnesi ed i principali fattori di rischio CV e raccoglie un questionario autocompilato sui consumi alimentari. Questi dati sono trasmessi telematicamente ai medici del CNR. Entro 72 ore il soggetto riceve il profilo di rischio corredato da indicazioni dietetiche e comportamentali (in inglese per gli stranieri) in funzione del fattore di rischio evidenziato e viene avviato ad un follow-up. Qualora i soli consigli dietetici non siano stati in grado di migliorarne il profilo di rischio, il paziente viene indirizzato al MMG. I soggetti ad alto rischio, invece, sono immediatamente invitati a rivolgersi al MMG per l'adozione di interventi terapeutici precoci.

Risultati. Al momento è in corso uno studio pilota che coinvolge 10 farmacie per complessivi 150 soggetti.

Conclusioni. La FCM, concorrendo a identificare i soggetti a rischio e fornendo loro informazioni sul proprio stato di salute al fine di migliorarne consapevolezza e stile di vita, può costituire uno degli snodi per la prevenzione CV sul territorio consentendo di raggiungere anche le zone periferiche e rurali del Paese.

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- P19 -

STIMA DEI COSTI DIRETTI PER L'ASSISTENZA DOMICILIARE DI SOGGETTI CON ULCERA DA PRESSIONE: STUDIO CAMPIONARIO

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Introduzione. Le persone con ulcera da pressione (UdP) rappre-

sentano un impegno di crescente rilevanza nei programmi di assistenza domiciliare integrata (ADI) delle AULSS.

Obiettivi. Stima dei costi diretti del trattamento delle UdP nell'ADI di 3 AULSS della provincia di Padova.

Metodi. Studio osservazionale prospettico con follow-up di 6 mesi (10.09.2007-10.03.2008). E' stato estratto un campione casuale di 151 soggetti in ADI con UdP, stratificato per grado della lesione (4 stadi, secondo l'European Pressur Ulcer Advisory panel). Per ogni soggetto sono state raccolte variabili anagrafiche e cliniche; l'evoluzione dell'UdP è stata quantificata per differenza tra il grado in ingresso e in uscita dallo studio. A ogni accesso a domicilio, gli infermieri registravano: percorso (Km), tempo di assistenza, presenza di operatori socio-sanitari di supporto, accessi (attinenti l'UdP) del medico di famiglia, protezioni anti-decubito forniti dall'AULSS; veniva compilato un diario giornaliero con le quantità dei presidi usati (da una lista pre-definita). I dati sono stati valorizzati in termini monetari. L'osservazione è stata interrotta in base a: guarigione, morte, trasferimento, termine del periodo di follow-up. Sono stati stimati i costi medi per paziente trattato, stratificati per grado dell'UdP. E' stato adattato un modello di regressione lineare multipla per identificare la relazione funzionale tra il costo e potenziali predittori, e per fornire una stima dei costi medi aggiustati.

Risultati. Campione: 151 soggetti, età mediana 83 anni, tempo mediano di follow-up 80 giorni. Stima del costo medio aggiustato per paziente: € 475,85. I costi aumentano all'aumentare della gravità ($p=0,0000$), della durata del trattamento ($p=0,0000$) e sono significativamente influenzati dall'evoluzione ($p=0,0010$).

Conclusioni. Questo primo studio campionario per stimare i costi dell'assistenza per UdP può rappresentare un utile strumento di programmazione dei servizi sul territorio.



- P20 -

DETERMINANTI DI GUARIGIONE IN SOGGETTI CON ULCERA DA PRESSIONE NELL'ASSISTENZA DOMICILIARE INTEGRATA: STUDIO CAMPIONARIO

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Introduzione. Le ulcere da pressione (UdP) rappresentano un problema la cui gravità è riconosciuta a livello internazionale.

Obiettivi. Le ulcere da pressione (UdP) rappresentano un problema la cui gravità è riconosciuta a livello internazionale.

Metodi. Studio osservazionale prospettico con follow-up di 6 mesi (10.09.2007-10.03.2008). E' stato estratto un campione casuale di 151 soggetti in ADI con UdP, stratificato per grado della lesione (4 stadi, secondo l'European Pressur Ulcer Advisory panel). L'osservazione è stata interrotta in base a: guarigione, morte, trasferimento, termine del periodo di follow-up. E' stato adattato un modello di regressione semiparametrico di Cox per stimare il gra-

do di associazione della variabile di esito (guarigione) con potenziali determinanti: sesso, età, comorbidità, gravità dell'UdP e appropriatezza dei presidi utilizzati (secondo linee guida internazionali - Agency for Health Care Policy and Research): il miglior adattamento del modello ha previsto l'inclusione della variabile gravità e della variabile appropriatezza come predittori indipendenti di guarigione. Nessuna interazione significativa tra le variabili.

Risultati. Campione: 151 soggetti, 13.935 giorni di osservazione, età mediana 83 anni, tempo mediano di follow up 80 giorni. All'ingresso 7 erano in stadio di gravità 1, 54 con grado 2, 56 con grado 3, e 33 con grado 4. I guariti sono 70, deceduti 28, trasferiti 11. La probabilità di guarigione è negativamente associata con lo stadio di gravità (Hazard Ratio 0,25; 95%CI: 0,16-0,37, per aumento unitario di grado dell'UdP) e con l'uso non appropriato dei presidi (Hazard Ratio 0,41; 95%CI: 0,22-0,75).

Conclusioni. La guarigione delle UdP è condizionata dalla gravità e dall'uso di presidi di medicazione non appropriati. Individuazione precoce dell'insorgenza delle lesioni e adeguato approccio assistenziale possono contribuire al miglioramento della qualità della vita di questi soggetti.



- P21 -

VALUTAZIONE DELLE MODALITÀ DI TRATTAMENTO E DEI CRITERI DI SCELTA NELL'USO DI ANTIDIABETICI ORALI E INSULINE IN UNA COORTE DI PAZIENTI DIABETICI (STUDIO DI COORTE IN MEDICINA GENERALE)

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Introduzione. Per diabete mellito di tipo II si intende un disordine metabolico caratterizzato dall'alta concentrazione del glucosio nel sangue e una di insulinoresistenza. Lo scopo principale del trattamento farmacologico è il controllo dell'iperglicemia o il mantenimento entro limiti fisiologici.

Obiettivi. Calcolare prevalenza e incidenza del diabete tipo II e valutare il profilo prescrittivo di farmaci antidiabetici negli anni 2003-2008 in un campione di popolazione italiana adulta. Identificare i potenziali criteri di scelta associati all'uso dei diversi schemi terapeutici in atto nel trattamento del diabete.

Metodi. La popolazione è estratta da un database (Health Search-CSD Patient database) di 650 medici di medicina generale (MMG). Sono stati selezionati pazienti con età maggiore di 18 anni e diagnosi di diabete tipo II. Per l'analisi statistica (prevalenza, incidenza) gli anni presi in considerazione sono dal 2003 al 2008, mentre per la prevalenza d'uso di farmaci e per la regressione logistica, sono state utilizzate due coorti di prevalenti (2003 e 2008).

Risultati. Risultati preliminari mostrano nel corso degli anni un aumento della prevalenza di pazienti diabetici (da 55,9/1.000 nel 2003 a 71,2/1.000 nel 2008), e un'incidenza piuttosto stabile (da 6,9/1.000 nel 2003 a 6,2/1.000 nel 2008). Non si è modificata la quota di pazienti trattati con antidiabetici, mentre è sensibilmente aumentata la prevalenza d'uso di metformina e di insuline. Si è ridotta fortemente la quota di sulfaniluree, e sensibilmente l'uso di combinazioni a base di metformina e sulfaniluree.

Conclusioni. La scelta del MMG al trattamento farmacologico è influenzata dall'aumentato stato di severità clinica generale e specificamente dalla presenza di un alto grado di comorbidità. La presenza di complicanze del diabete o di uno scarso controllo glicemico, influenza la scelta del MMG a trattare il paziente farmacologicamente e successivamente di iniziare il trattamento con insuline.



- P22 -

INDAGINE EPIDEMIOLOGICA SUI PAZIENTI E CONSUMI DI ERITROPOETINE IN UN REPARTO DI "NEFROLOGIA E DIALISI" DELL'ASP DI MESSINA

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Introduzione. In dialisi, l'uso appropriato di epoetine (EPO) permette di gestire efficacemente l'anemia da insufficienza renale cronica (IRC) ma pone l'impegno di una attenta valutazione del razionale in termini di efficacia e di bilancio costo-beneficio.

Obiettivi. Questa indagine si propone di tracciare un profilo dei pazienti affetti da IRC dializzati presso la U.O. di "Nefrologia e Dialisi" del P.O. "Barone I. Romeo" di Patti (Messina) e verificare se i consumi di EPO siano appropriati alle loro necessità.

Metodi. L'indagine, sui 60 pazienti sottoposti a dialisi nel 2009, è stata condotta verificando le 720 schede di prescrizione su cui sono indicati valore dell'ematocrito, EPO e dose mensile da somministrare ed analizzando sesso ed età del paziente, tipo di EPO e UI consumate. Poiché 200UI di EPO umana ricombinante (α e β) contengono la stessa massa peptidica di 1 μ g di darbaepoetina α , è stato utilizzato un rapporto di conversione di 200:1 per normalizzare i loro consumi. Inoltre, la somministrazione di EPO è stata associata al valore di ematocrito che aveva determinato la scelta di farmaco e dosaggio.

Risultati. I dializzati sono prevalentemente uomini (58,3%) e l'età media è di 70 anni, con significative oscillazioni. Il paziente più giovane ha 34 anni, il più anziano 89, gli ultraottantenni sono 18 (30%), quelli con meno di 50 anni sono 8 (13,4%). Complessivamente sono stati utilizzati 19.335.000 UI di EPO. L'EPO più impiegata è stata la α con il 61,39% di UI consumate, seguita dalla β con il 17,15%, dalla darbaepoetina α con il 16,37% e dalla metossipolietylenglicole-epoetina con il 16,08%. Nel periodo considerato, 15 pazienti (25%) non hanno mai cambiato né tipo di EPO né dosaggio, 19 (31,7%) non hanno mai cambiato molecola ma hanno variato il dosaggio, 26 (43,3%) hanno cambiato molecola e variato dosaggio. A ciascun paziente sono state somministrate mediamente, nell'anno, 333.050 UI di EPO.

Conclusioni. Si evidenzia una popolazione ultraottantenne dializzata superiore a quella riportata in altri studi con una variabilità di consumi per ogni paziente che riflette il tentativo di stabilizzare l'ematocrito come previsto in letteratura, mentre il cambio di EPO utilizzata, indica un andamento prescrittivo appropriato e rivolto alla ricerca del principio attivo più idoneo al paziente.



- P23 -

LE AMPUTAZIONI AGLI ARTI INFERIORI NEI DIABETICI: QUALITÀ DELLE SDO NELL'INDICAZIONE DELLA COMORBIDITÀ

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Introduzione. Le amputazioni agli arti inferiori sono considerate un indicatore dell'assistenza alle persone con diabete e un indicatore della qualità della prevenzione. In Italia è possibile effettuare una stima della frequenza delle amputazioni tramite l'archivio delle schede di dimissione ospedaliera (SDO).

Obiettivi. Stimare la frequenza delle amputazioni in Italia fra i diabetici tramite le SDO e valutare la qualità della registrazione attraverso record linkage interno.

Metodi. Sono stati considerati tutti i ricoveri per amputazione (cod. ICD9 841 in intervento principale o secondari) nel 2006, con esclusione delle amputazioni per traumatismi e neoplasie. Sono stati selezionati tutti i ricoveri per amputazione con indicazione di diabete (cod.250 in diagnosi principale o secondarie). Per i ricoveri senza indicazione di diabete nel 2006, tramite record linkage, è stato verificato se il paziente fosse stato ricoverato con diagnosi di diabete (in una qualunque diagnosi) nel periodo 2001-2006. Il tasso di dimissione (TD) è stato calcolato come rapporto dei ricoveri per amputazione sulla popolazione diabetica (stimata Istat).

Risultati. Nel 2006 sono stati osservati 13.900 ricoveri per amputazione di cui 7.079 con indicazione di diabete. Attraverso record linkage sono stati recuperati 2.117 casi riferiti a pazienti precedentemente ricoverati con diagnosi di diabete (1.459 ricoverati nello stesso anno). Il TD complessivo è pari a 350 per 100.000, superiore del 31% (range regionale: 13%-50%) rispetto al tasso ottenuto senza linkage interno.

Conclusioni. Nel 2006, in Italia circa 4 diabetici su 1.000 vanno incontro ad amputazione agli arti inferiori. Nonostante l'importanza della patologia, il diabete non viene sempre indicato nei ricoveri per amputazione. L'uso dei soli ricoveri con indicazione contemporanea di diabete e amputazione avrebbe portato a una sottostima del 30%. Un recupero medio del 21% si sarebbe ottenuto considerando solo i ricoveri dello stesso anno.



- P24 -

RUOLO DELLA QUALITÀ DELLE SCHEDE DI DIMISSIONE OSPEDALIERA NELLA VALUTAZIONE COMPARATIVA DEGLI ESITI: MORTALITÀ A 30 GIORNI DAL PRIMO ACCESSO PER BRONCOPNEUMATIA CRONICO OSTRUTTIVA RIACUTIZZATA. OSPEDALE G.B. GRASSI DI ROMA, ASL ROMA D, AA 2006-2007

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Introduzione. Il Programma di valutazione degli esiti degli interventi sanitari nella regione Lazio (PRe.Val.E; periodo 2006-07) ha evidenziato per l'Ospedale Grassi di Roma un rischio relativo (RR) di mortalità a 30 giorni dal primo accesso per broncopneumatia cronico ostruttiva (BPCO) riacutizzata pari a 24 volte quello del riferimento.

Obiettivi. Valutare il ruolo della qualità delle schede di dimissione ospedaliera (SDO) sulla valutazione comparativa degli esiti. Obiettivo secondario: avviare un audit interno all'ospedale per migliorare la qualità delle SDO.

Metodi. E' stato effettuato un reabstract-study sulle 232 cartelle cliniche incluse nella valutazione regionale. Due medici e un'infermiera specificamente formati hanno riprodotto in cieco i codici delle diagnosi e delle procedure secondo una griglia di criteri conforme alle Linee Guida regionali per la codifica delle SDO. Le stime prodotte dal modello di valutazione del RR di mortalità a 30 giorni con le diagnosi ricodificate sono state confrontate con quelle ottenute prima della revisione.

Risultati. Il 72% dei casi di BPCO è stato confermato. La presenza di almeno una diagnosi di intervento, utile alla stima delle comorbidità, è aumentata rispetto ai dati originali (96% vs 68%). Tuttavia i risultati del nuovo modello vedono la posizione dell'Ospedale Grassi sostanzialmente invariata nella valutazione comparativa dell'esito in studio (RR=23).

Conclusioni. Questo studio contribuisce al dibattito sul ruolo della qualità dei dati amministrativi nella valutazione degli esiti degli interventi sanitari. La revisione ha evidenziato: una sovrastima dei casi di BPCO, una bassa completezza delle diagnosi di intervento, un RR invariato. Per una migliore stima delle comorbidità occorrerebbe una revisione delle SDO dei ricoveri precedenti oltre che del ricovero indice. Per l'obiettivo secondario bisognerà attendere l'elaborazione dei dati 2009 relativi ai dimessi per BPCO riacutizzata nello stesso ospedale.



- P25 -

LA CHIRURGIA TIROIDEA NEL VENETO DAL 2000 AL 2008

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Introduzione. In altri Paesi, nell'ambito della chirurgia tiroidea è segnalata una crescita della quota di tiroidectomie totali e della proporzione di neoplasie maligne tra i pazienti operati.

Obiettivi. Fornire dati descrittivi sulla chirurgia tiroidea nel Veneto, indagando trend per tipo di intervento, diagnosi, durata della degenza, e variabilità tra ULSS.

Metodi. Dalle dimissioni ospedaliere 2000-2008 sono stati estratti i ricoveri dei residenti con intervento di tiroidectomia totale (codice ICD9-CM 6.4), tiroidectomia subtotale (6.2, 6.31, 6.39), tiroidectomia sottosternale (6.50, 6.51, 6.52), e diagnosi di tumore maligno della tiroide (193), tumore benigno o di comportamento incerto/non specificato (226, 237.4, 239.7), tireopatia (240.x-242.x, 245.x, 246.x). Sono stati calcolati i tassi grezzi di intervento per ULSS; mediante regressione lineare multilevel (variabile dipendente=ln(degenza)) sono stati indagati i determinanti della durata del ricovero.

Risultati. Sono stati selezionati 21.108 interventi (21% nei maschi, 23% >64aa); la quota di tiroidectomie sottosternali è rimasta stabile al 4%, le totali sono passate dal 64% nel 2000-2002 al 74% nel 2006-2008, a scapito degli interventi parziali; le diagnosi di neoplasia maligna sono passate dal 19% al 26% dei ricoveri. I

tassi grezzi di ospedalizzazione sono cresciuti nei primi anni di osservazione per poi stabilizzarsi almeno tra le donne; nel 2006-2008 tra le donne il range per ULSS è 50-128 x100.000 (Regione=77), tra gli uomini 13-37 100.000 (Regione=23). La degenza media è diminuita da 5,6 giornate nel 2000 a 3,9 nel 2008; alla regressione multilevel inoltre aumenta con l'età, nelle tiroidectomie totali e sottosternali e per neoplasie maligne, e diminuisce con il volume ospedaliero.

Conclusioni. L'aumento della proporzione di tiroidectomie totali e di segnalazioni di neoplasia maligna è in linea con i dati internazionali e sostiene il continuo aumento di incidenza delle neoplasie tiroidee.



- P26 -

CEFALEE E SCLEROSI MULTIPLA: STUDIO CASO-CONTROLLO

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Introduzione. Precedenti studi hanno evidenziato una maggiore prevalenza di cefalea primaria (CP) tra i pazienti affetti da sclerosi multipla (SM) rispetto alla popolazione generale, suggerendo l'ipotesi di meccanismi eziopatogenetici condivisi tra le due malattie.

Obiettivi. Lo studio si è proposto di verificare la comorbidità tra SM e CP e l'eventuale maggiore occorrenza di specifici tipi di cefalea (cefalea tensiva, CT, emicrania con aura, ECA, emicrania senz'aura, ESA, cefalea a grappolo, CG) tra i malati con SM. Sono stati inoltre valutati gli effetti di variabili cliniche (tempo di insorgenza della cefalea rispetto alla SM, tipo di decorso della SM, severità della SM) e terapeutiche (utilizzo di immunomodulanti).

Metodi. Studio caso-controllo tra pazienti con SM e controlli, ai quali è stato somministrato un questionario ad hoc sull'eventuale presenza di cefalea e sue caratteristiche.

Risultati. Sono stati reclutati 251 casi di SM (F 163, M 88, durata media di malattia 13±8 anni, disabilità media espressa secondo la scale EDSS 3±2) e 491 controlli (F 328, M 163). La CP è stata riscontrata nel 53% dei casi e nel 43% dei controlli (OR=1,47; IC95% 1,08-1,99). Si è osservata inoltre, tra i soggetti con CP, una differenza significativa per tipo di cefalea tra casi e controlli: i casi presentavano più frequentemente ESA (44% vs 27%, p=0,001) e meno frequentemente ECA (10% vs 20%, p=0,01). Tra i casi, le variabili cliniche non hanno mostrato un effetto significativo sul tipo di cefalea. Il 24% dei casi è risultato in terapia immunomodulante, il cui utilizzo risulta associato alla presenza di cefalea (p=0,006).

Conclusioni. Il nostro studio ha confermato una maggiore occorrenza di cefalea nella SM. La cefalea non pare interpretabile come secondaria alla SM, dal momento che la sua presenza non è influenzata dal tempo di insorgenza rispetto alla SM. E' quindi probabile che vi siano fattori eziopatogenetici comuni tra le due patologie, che meritano ulteriori approfondimenti.

- P27 -**LA DOMANDA DI RICOVERO OSPEDALIERO SUL TERRITORIO IN SICILIA (2003-2008)**Pollina Addario S,¹ D'Ovidio M,² Dardanoni G,¹ Cernigliaro A,¹ Fantaci G,¹ Tavormina E,¹ Marras A,¹ Scondotto S¹¹Dipartimento per le Attività Sanitarie ed Osservatorio Epidemiologico, Regione Siciliana, Palermo; ²Dipartimento di Epidemiologia del SSR, Regione Lazio, Roma

Introduzione. L'analisi del ricorso alle strutture ospedaliere nelle diverse aree del territorio regionale, costituisce uno strumento per orientare le scelte di programmazione sanitaria e gli interventi di sanità pubblica.

Metodi. La fonte dei dati è costituita dall'archivio delle schede di dimissione ospedaliere (SDO) della regione Sicilia e della mobilità extraregionale. Il periodo di osservazione è riferito agli anni 2003-2008. Sono state esaminate soltanto le SDO relative ai ricoveri per acuti. Per la descrizione del carico di malattia nel territorio sono stati calcolati diversi indicatori sanitari, separatamente per uomini e donne, per le principali categorie diagnostiche (ICD IX CM) per ognuna delle nove province e per singolo distretto sanitario, oltre ad una stratificazione per livello socioeconomico.

Risultati. Nel periodo 2003-2008, il numero medio annuale di ricoveri ordinari per l'intera Regione è risultato pari a 783.195 (48,4% uomini; 51,6% donne). Il rapporto tra i tassi standardizzati di ospedalizzazione per tutte le cause risulta sovrapponibile per entrambi i generi nell'intera Regione e ciò vale per tutte le province ad eccezione di Agrigento in cui il rapporto supera l'unità (1,1).

Conclusioni. I risultati ottenuti delineano un quadro in cui emergono le principali caratteristiche di ricovero nelle differenti realtà regionali. La scelta di produrre informazioni sul ricorso ai servizi ospedalieri sulla base della residenza anagrafica dei pazienti e indipendentemente dal luogo di cura, sottintende che tale analisi non implica alcun giudizio di valore sulle strutture che operano nelle differenti aree. Il fenomeno non è osservato dalla prospettiva economico-gestionale dell'attività dei servizi e della produzione di prestazioni ma è direttamente orientato allo stato sanitario della popolazione. Le indicazioni emerse in relazione alle specifiche categorie diagnostiche sono da ritenersi utili anche ai fini dell'utilizzo dei decisori locali.

**- P28 -****PASSI (PROGRESSI DELLE AZIENDE SANITARIE PER LA SALUTE IN ITALIA) COME SISTEMA DI SORVEGLIANZA DELLA POPOLAZIONE DIABETICA**Minardi V,¹ Lombardo F,¹ Baldissera S,¹ Trinito OM,² Maggini M¹¹Centro Nazionale di Epidemiologia, Sorveglianza e Promozione della Salute, Istituto Superiore di Sanità; ²Dipartimento di Prevenzione, AUSL Roma C, Roma

Introduzione. Dal 2007 è attivo un sistema di sorveglianza della popolazione adulta, PASSI, che monitora l'evoluzione dei fattori di rischio per le malattie croniche, legati ai comportamenti individuali, e la diffusione delle misure di prevenzione. Sono raccolte informazioni anche sulla popolazione diabetica.

Obiettivi. Contribuire a delineare la situazione sanitaria delle persone con diabete, con particolare riguardo ai fattori di rischio modificabili, e a verificare l'assistenza loro offerta.

Metodi. Un campione di residenti di 18-69 anni viene estratto con metodo casuale stratificato dalle anagrafi sanitarie delle ASL di tutte le 21 Regioni/Province Autonome (PA) italiane. Personale addestrato delle ASL effettua interviste telefoniche (di regola 25 al mese per ASL) con questionario standardizzato. I dati vengono trasmessi via internet ad un archivio unico nazionale.

Risultati. Nel 2007-08, nelle 136 ASL partecipanti (85% della popolazione italiana), sono state intervistate 59.024 persone. Il 5% ha dichiarato di avere il diabete (range: 8% Basilicata-2% PA di Bolzano). La prevalenza è risultata più alta negli uomini, negli ultracinquantenni, nelle persone con bassa istruzione e con molte difficoltà economiche. Il 17% ha avuto un infarto del miocardio o altre patologie cardiache, il 56% era iperteso, il 45% ipercolesterolemico, e il 29% obeso; il 23% fumava: di questi l'81% ha ricevuto il consiglio di smettere da un operatore sanitario; l'8% aveva un consumo alcolico a rischio: al 20% è stato consigliato di bere meno alcol.

Conclusioni. L'aumento della proporzione di tiroidectomie totali e di segnalazioni di neoplasia maligna è in linea con i dati internazionali e sostiene il continuo aumento di incidenza delle neoplasie tiroidee. La prevalenza del diabete osservata da PASSI è sovrapponibile alle stime di altre fonti informative. E' confermata l'associazione tra diabete e i principali fattori di rischio socio-demografici noti, compreso lo svantaggio economico e sociale. Le persone con diabete presentano un'elevata frequenza di patologie croniche e di fattori di rischio cardiovascolare. La promozione di stili di vita sani è suscettibile di miglioramento.

**- P29 -****PASSI (PROGRESSI DELLE AZIENDE SANITARIE PER LA SALUTE IN ITALIA)-COMETES: LE CONSEGUENZE DEL TERREMOTO DEL 6 APRILE 2009 SULLA SALUTE DELLA POPOLAZIONE**Minardi V,¹ Mancini C,² Cofini V,³ Carbonelli A,³ Farello P,² Diodati G,⁴ Turchi C,⁵ Savino A,⁵ Natali P,⁶ Taglione I,⁴ Mirante N,¹ Trinito MO,⁷ Gigantesco A,¹ D'Argenio P,¹ Granchelli C,⁴ Salmaso S¹¹Centro Nazionale di Epidemiologia, Sorveglianza e Promozione della Salute, Istituto Superiore di Sanità; ²AUSL L'Aquila, Avezzano e Sulmona; ³Università de L'Aquila; ⁴AUSL Pescara; ⁵AUSL Lanciano-Vasto e Chieti; ⁶AUSL Teramo; ⁷Dipartimento di Prevenzione, AUSL Roma C, Roma

Introduzione. L'Italia è un paese ad alto rischio sismico, a oggi poco si sa sugli effetti del terremoto sulla salute della popolazione coinvolta e su come promuovere il benessere nel periodo post-sisma. A un anno dal terremoto dell'aprile 2009, la Regione Abruzzo con tutte le sue ASL, l'Università degli Studi dell'Aquila, con l'Istituto superiore di sanità e il sostegno del Centro per la prevenzione e il controllo delle malattie del Ministero della salute (CCM), avvia un'indagine sul benessere e gli stili di vita della popolazione colpita dal terremoto, grazie alla metodologia e al network PASSI, già radicato sul territorio abruzzese dal 2007.

Obiettivi. Valutare la frequenza di sintomi di depressione e ansia nella popolazione adulta, pre e post sisma; misurare il livello di stress post-traumatico della popolazione coinvolta; rilevare l'attenzione alla prevenzione individuale; valutare le modifiche comportamentali e l'eventuale peggioramento degli stili di vita.

Metodi. Da giugno a settembre 2010, operatori sanitari delle ASL

abruzzesi intervisteranno, con questionario standardizzato, modificato ed estratto da quello PASSI, un campione di mille cittadini, estratti casualmente dalle liste dell'ASL dell'Aquila. I dati saranno confrontati con le prevalenze rilevate nell'ASL de L'Aquila nel 2007 e 2008 e con le prevalenze riscontrate nelle altre province abruzzesi nel 2009.

Risultati. E' stata costruita una partnership istituzionale capace di sostenere lo studio, i cui risultati saranno disponibili nei primi mesi del 2011.

Conclusioni. I risultati dello studio forniranno una stima di conseguenze non traumatiche del sisma, generalmente trascurate, ma che impegnano il servizio sanitario. Sarà possibile così orientare alcune risorse del servizio e la comunità nazionale e internazionale sarà dotata di strumenti di prevenzione e promozione della salute -in caso di disastro- più efficaci e adeguati.



- P30 -

VIOLENZA DI GENERE: EPIDEMIOLOGIA E PERCORSI DI INTERVENTO IN REGIONE TOSCANA

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Introduzione. La violenza di "genere" riunisce comportamenti contro le donne quali violenza domestica, sessuale e psicologica, mobbing o uso del corpo femminile in modo squalificante. Stimare l'incidenza delle varie forme non è facile, e quello che emerge rappresenta solo una piccola parte del fenomeno. Secondo l'Indagine Multiscopo sulla sicurezza delle donne (Istat, 2006), delle donne intervistate (età 16-70 anni): il 31,9% ha subito nell'arco della vita violenza fisica o sessuale, nel 67,9% dal partner/ex partner, nel 17,4% da un conoscente e solo nel 6,2% da estranei; il 6,6% ha subito forme di violenza sessuale nella minore età; il 33,9% non ne ha parlato con nessuno e più del 90% di non ha denunciato la violenza. Questi dati "confidenziali" contrastano con l'esiguo numero di denunce penali, confermando l'elevatissima quota di "sommerso".

Obiettivi. Valutare la possibilità di utilizzare i dati di ricorso ai servizi sanitari nell'area fiorentina (circa 800.000 abitanti) per la rilevazione del fenomeno e per la strutturazione di percorsi di aiuto, utilizzando sia i dati correnti (SDO), accessi DEA) che quelli del Centro Antiviolenza di Careggi del triennio 2005-07.

Risultati. Si rivolgono ai servizi sanitari per violenza sessuale circa 40 donne/anno. Circa 1.900 donne/anno si rivolgono al DEA per "riferita violenza altrui". Gli accessi DEA ripetuti per "incidente domestico" (3+ episodi/anno, possibile tracciante di violenza domestica) riguardano circa 100 donne/anno.

Conclusioni. Si conferma la quota limitata di casi di violenza sessuale che si rivolge ai servizi sanitari e la impossibilità con i dati attuali di valutare la violenza domestica. Questo rafforza l'importanza dello sviluppo di politiche di contrasto della violenza di genere, come fatto dalla Regione Toscana (LR 59/2007), e della formazione degli operatori per sviluppare la capacità di riconoscere i segnali di una condizione di violenza ed aprire una "finestra di opportunità" per attivare un percorso di aiuto.



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BETA-THALASSEMIA MAJOR E LIVELLI DI ADIPOCITOCHINE

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Introduzione. I pazienti affetti da talassemia major spesso riportano anomalie metaboliche a seconda del livello di sovraccarico di ferro.

Obiettivi. Scopo di questo studio è valutare la funzionalità degli adipociti in questi pazienti.

Metodi. Campioni di sangue a digiuno sono stati raccolti in una coorte di 80 pazienti affetti da beta-talassemia major e in un gruppo di controllo di soggetti sani per valutare le concentrazioni sieriche di adipocitochine (adiponectina, leptina, resistina). I livelli di adipocitochine dei pazienti talassemici e dei controlli sono stati confrontati e correlati con le caratteristiche demografiche della popolazione, gli indici del metabolismo del glucosio e dei parametri legati al sovraccarico di ferro.

Risultati. I livelli di adipocitochine risultano significativamente inferiori nei pazienti talassemici (19,02±8,16 ng/ml) rispetto ai soggetti sani (24,39±9,31), p=0,01. Una correlazione positiva è stata anche trovata tra adiponectina e parametri del metabolismo lipidico; invece i livelli di leptina risultano correlati solo con l'adiponectina (p=0,001) e il colesterolo HDL (p=0,001). Inoltre, nei pazienti talassemici è emersa una correlazione diretta tra ferritina e concentrazioni di adiponectina (p<0,001). Un modello lineare multivariato indica età (p=0,016), trigliceridi (p<0,001) e leptina (p=0,023) come regressori significativi per i livelli di ferritina.

Conclusioni. Nei pazienti affetti da talassemia major, la gravità del sovraccarico di ferro è correlata con la produzione di adiponectina e con il metabolismo lipidico. Il ruolo delle adipocitochine in questa malattia merita ulteriori indagini.

Invecchiamento e disabilità

- P32 -

STIMA DEL BISOGNO ASSISTENZIALE NELLA POPOLAZIONE ANZIANA TOSCANA

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Introduzione. In Toscana nel 2008 risiedevano 862.680 ultra65enni. Nei prossimi anni Istat prevede un aumento degli ultra85enni. E' logico attendersi un aumento del bisogno di assistenza degli anziani, con ricadute su famiglie e servizi socio-sanitari. Sono essenziali politiche in grado di differenziare e gestire l'offerta dei servizi. La Regione Toscana ha istituito il Fondo regionale per la non autosufficienza (LR 66/2008), per organizzare un sistema locale di welfare volto all'assistenza dell'anziano non autosufficiente. La prerogativa è la sostenibilità in termini di costi, risorse umane e strutture, valutabile in via preventiva grazie alla stima della non au-

tosufficienza tra gli anziani. A tal fine, su mandato della Regione Toscana, ARS ha svolto nel 2009 l'indagine BiSS.

Obiettivi. Stimare gli anziani non autosufficienti attesi per ciascun livello di isogratia del bisogno, per fornire ai decisori politici le informazioni utili al raggiungimento del sistema di assistenza all'anziano non autosufficiente.

Metodi. Campione dei residenti ultra65enni, stratificato per età e genere (n=2.551). Stime riportate alla popolazione residente all'1 gennaio 2009. Il livello di isogratia del bisogno è calcolato tramite algoritmo basato su 3 dimensioni: dipendenza nelle attività di base della vita quotidiana, deficit cognitivo, disturbi integrati del comportamento/umore. Gli anziani sono stati valutati con strumenti della valutazione multidimensionale in sede di Distretto.

Risultati. Attesi 66mila non autosufficienti domiciliati (48mila donne, 18mila uomini), pari al 7,8% degli ultra65enni, ai quali si aggiungono 11mila residenti in RSA. Circa 12mila di livello isogratia del bisogno 1, 7.500 di livello 2, 15.500 di livello 3, 24mila di livello 4, 7mila di livello 5.

Conclusioni. Circa 46mila anziani domiciliati possono accedere al fondo (livello isogratia 3-5). Sono questi i numeri sui quali programmare percorsi assistenziali in termini di appropriatezza.

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INVECCHIAMENTO CEREBRALE IN UN'AREA GEOGRAFICA OMOGENEA DEL NORD ITALIA

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Introduzione. La demenza (D) è una sindrome neurodegenerativa associata all'invecchiamento ed è quindi destinata ad aumentare dato l'allungamento medio della vita. A oggi non ne sono ancora chiare l'eziologia e la fisiopatologia: da qui l'importanza di identificare i possibili fattori di rischio/protezione associabili a D. E' stato quindi pianificato uno studio sull'invecchiamento cerebrale nella popolazione anziana residente in un'area geografica circoscritta e omogenea del Nord Italia (Studio InveCe) articolato in una fase di screening (fase-I) per la stima della prevalenza della D, qui presentata, e una di individuazione dei marker e dei possibili fattori di rischio/protezione (studio di follow-up, fase-II).

Obiettivi. 1. Determinare la prevalenza di D e del deterioramento cognitivo non definibile come D; 2. descrivere i profili biologici, psicologici, clinici e sociali di chi invecchia con e senza successo.

Metodi. Sono state arruolate le coorti di residenti ad Abbiategrasso (Milano) nate fra il 1935 e il 1939. Durante due appuntamenti presso la struttura della Fondazione Golgi-Cenci vengono raccolte informazioni socio-ambientali e cliniche mediante questionari strutturati e visita medica, seguite da valutazione neuropsicologica con test validati e da prelievo. La diagnosi di D è formulata in base ai criteri DSM IV e accettata solo se confermata da un altro medico.

Risultati. A novembre 2009 è iniziato l'arruolamento coinvolgendo in sequenza le classi di età a partire dal 1935. Al 31.04.2010 dei 1.747 residenti (M: 43,8%; F: 56,2%) sono stati contattati 951 soggetti nati tra il 1935 e il 1937. Conclusi: 627 (66%); non contattabili: 146

(15,3%); rifiutano 112 (11,8%); rimandano: 66 (6,9%). I valutati per coorte di nascita sono: 70,4% per il 1935, 64% per il 1936, 63,8% per il 1937. Si prevede di terminare le visite a dicembre 2010.

Conclusioni. La rispondenza è stata buona e, come emerso in altri studi, nei soggetti anziani vi è una buona disponibilità ad aderire a studi di screening che li riguardano.

Lavoro e salute

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MESOTELIOMI MALIGNI NELLE PROVINCE DI TRIESTE E GORIZIA

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Introduzione. Il Registro Nazionale Mesoteliomi (ReNaM), che opera attraverso i Centri Operativi Regionali, prevede criteri standardizzati per l'incidenza dei mesoteliomi maligni (MM).

Obiettivi. Descrivere l'incidenza dei MM nelle province di Trieste e Gorizia, alla luce della frequente disponibilità di riscontri autoptici.

Metodi. Sono state esaminate tutte le diagnosi di MM incidenti dal 1995 al 2009 nelle province considerate, distinguendo le prime diagnosi in vita e quelle derivanti da riscontro autoptico. Viene definita autoptica la diagnosi che compare per la prima volta all'autopsia oppure la diagnosi solo sospettata negli ultimi mesi di vita.

Risultati. Sono stati registrati 513 (85,5%) casi di MM tra i maschi e 87 (14,5%) tra le donne. Il MM è pleurico nel 94% dei casi. I tassi standardizzati (su popolazione italiana del 2001) sono risultati pari a 14,6 casi per 100.000 abitanti per i MM pleurici dei maschi e 2 casi per 100.000 per le donne; per gli extrapleurici i tassi sono pari a 1 caso x 100.000 per i maschi e 0,19 per le donne. Le diagnosi autoptiche sono 122 (22% nelle donne e 13% nei maschi); sono diagnosi "certe" nel 89% dei casi (vs 87% delle diagnosi in vita); l'età media è più elevata [80 anni (DS=9) vs 68 (DS=10)] e presentano differenze nell'istotipo (istotipo epiteliale nel 34% vs 52% delle diagnosi in vita; sarcomatoso e bifasico 49% vs 25%).

Conclusioni. Le province di Trieste e Gorizia presentano tassi elevati di MM e il 20% delle diagnosi deriva dai riscontri autoptici. Le diagnosi autoptiche sono quasi sempre "certe", in soggetti con età più elevata e con istotipo diverso rispetto alle diagnosi in vita. L'elevato numero di riscontri autoptici è una caratteristica della quale bisognerebbe tener conto nel confronto con i risultati dei registri mesoteliomi delle altre regioni italiane. La disponibilità di questi dati è una opportunità per approfondire alcuni aspetti della malattia nei due generi.

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CONTROLLI SANITARI E NUOVE DENUNCE DI MALATTIA PROFESSIONALE TRA SOGGETTI EX ESPOSTI AD ASBESTO IN PROVINCIA DI TRIESTE

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Obiettivi. Identificare patologie respiratorie amianto-correlate finora non diagnosticate come professionali ed evidenziare aggravamenti delle medesime.

Metodi. In base alla LR22/01, l'adesione ai controlli è volontaria. Sono previsti: ricostruzione dell'esposizione lavorativa ad asbesto e identificazione delle patologie respiratorie professionali già denunciate, esame clinico, Radiografia del torace ed eventuale HRTC, test di funzionalità respiratoria.

Risultati. Nei primi 18 mesi di attività hanno aderito allo studio 55% dei soggetti. Sono stati esaminati 485 uomini e 12 donne; età media 66 anni (DS=7). I settori lavorativi di provenienza sono: movimentazione merci (41%), navalmecanica (17%), metalmeccanica e metallurgia (17%), trasporti marittimi (7%), altri (18%). Il 18% era già segnalato all'INAIL per BPCO, placche pleuriche o pneumoconiosi, non risultate aggravate. Le nuove denunce sono state 78 pari al 16%: nel 4% dei casi si trattava di persone già denunciate per altra patologia respiratoria. Le denunce comprendono: placche pleuriche senza danno funzionale (86%), tumore polmonare/mesotelioma (6%), interstiziopatia/atelettasia rotonda (8%). La diagnosi di neoplasia, tranne un caso, era già nota o sospettata. L'età media e l'anzianità lavorativa in settori con possibile esposizione ad asbesto dei soggetti denunciati risultano superiori rispetto ai soggetti senza malattia professionale polmonare. I settori lavorativi di provenienza riflettono la rappresentatività della popolazione afferita.

Conclusioni. Gli accertamenti hanno permesso di denunciare patologie clinicamente rilevanti (asbestosi/tumori polmonari) nel 2,2% dei casi. Viene confermata la sotto-diagnosi di placche pleuriche, ma trattandosi di manifestazioni senza danno funzionale resta da valutare il reale beneficio per gli interessati. Un bilancio sull'efficacia di tali controlli nell'individuazione di nuove malattie professionali da asbesto sarà possibile alla conclusione dello studio.



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IL MESOTELIOMA MALIGNO IN EMILIA-ROMAGNA E IN ITALIA: INCIDENZA ED ESPOSIZIONE AD AMIANTO A CONFRONTO

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Introduzione. Il mesotelioma maligno (MM) è un tumore raro ma di grande interesse per la nota associazione ad un'esposizione ad amianto. Il Registro Mesoteliomi dell'Emilia-Romagna (ReM), attivo dal 01.01.1996, è un registro tumori specializzato nello studio dell'incidenza e dell'eziologia del MM, individuato come Centro Operativo Regionale (COR) del Registro Nazionale Mesoteliomi (ReNaM).

Obiettivi. Confrontare i dati di incidenza ed esposizione ad amianto del ReM con quelli del ReNaM.

Metodi. Si analizzano i dati relativi a casi incidenti nel periodo 1993-2001 (II Rapporto ReNaM). I tassi di incidenza standardizzati diretti (TSD) x100.000 sono calcolati con la popolazione italiana 1991 come riferimento.

Risultati. L'archivio ReNaM conta 5.173 casi, di cui 590 (11,4%) trasmessi dal ReM. La distribuzione dei casi per sede è diversa nei due registri: 93,0% MM pleurici e 6,5% peritoneali nel ReNaM, vs 90,0% e 8,0% nel ReM. I TSD del 2001 per la pleura maschi sono nel ReNaM 2,98 vs 2,58 del ReM, per le femmine 0,98 vs 0,77; i valori più elevati si riscontrano in Liguria (10,40 maschi e 2,31 femmine) e in Piemonte (3,95 maschi e 2,13 femmine); i valori minori in Puglia (1,05 e 0,19) e Sicilia (1,96 e 0,58). Il TSD medio di incidenza regionale, periodo 1996-2007, per tutte le sedi è di 2,60 per i maschi e 1,03 per le femmine, per il periodo 1996-2001 è 2,29 e 0,87, per il periodo 2002-2007 2,89 e 1,18. I settori produttivi maggiormente coinvolti su tutto il territorio nazionale sono edilizia (14,7%) e metalmeccanica/ prodotti in metallo (12,2%). In ReM emergono anche riparazione di rotabili ferroviari (13,3%) e zuccherifici/industrie alimentari (10,3%) (dati ReM al 31 Dicembre 2009).

Conclusioni. In ReM i TSD sono di poco inferiori rispetto a quelli ReNaM, e si attesta una maggiore quota di MM peritoneali rispetto ai pleurici. Oltre ai noti settori di utilizzo dell'amianto diffusi in ambito nazionale troviamo in Emilia-Romagna anche settori peculiari del territorio, a riprova del fatto che l'amianto è stato utilizzato in modo trasversale in molte realtà produttive.



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I MESOTELIOMI ASBESTO-CORRELATI E MANSIONI NELLA INDUSTRIA PETROLCHIMICA E RAFFINERIE DI PETROLIO: AGGIORNAMENTO DEL REGISTRO NAZIONALE MESOTELIOMI (RENAM)

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Obiettivi. Le raffinerie di petrolio (R) e le industrie petrolchimiche (P) possono diffondere nell'ambiente di lavoro e di vita polveri, sostanze solforate, idrocarburi, metalli pesanti e amianto (IARC, 1989). In questo studio analizziamo le principali caratteristiche lavorative (aree, mansioni, periodi, età, durata, latenza) dei casi di mesotelioma maligno (MM) pleurico ed extrapleurico esposti ad amianto esclusivamente nelle R o P.

Metodi. Lo studio considera i casi di MM diagnosticati nel periodo 1993-2004 individuati da 15 (su 20) Centri Operativi Regionali (COR) del ReNaM (9.166 pazienti) che hanno fornito soddisfacenti informazioni cliniche e anamnestiche relative a pregresse esposizioni professionali ed extraprofessionali ad amianto. Sono stati analizzati tutti i casi di MM (certi, probabili o possibili) che avessero almeno un'esposizione professionale ad amianto (certa, probabile o possibile) della durata di almeno un anno in uno dei due settori lavorativi: industria chimica-materie plastiche ed estrazione-raffinazione petrolio. Lo studio ha individuato anche i casi di MM certi con esposizione professionale ad amianto certa avvenuta esclusivamente in R e/o P. Per ogni soggetto sono state calcolate la durata di esposizione e la latenza.

Risultati. I casi di MM certo, probabile o possibile che hanno lavorato almeno una volta nel settore R o P sono 299. Tra questi, 42 casi risultano con esposizione ad amianto ignota, mentre quelli con esposizione professionale ad amianto (certa, probabile o possibile) sono

257; di questi 188 (73%) avevano lavorato in petrolchimiche e 69 in raffinerie. La maggior parte sono uomini (93%). Tra le 18 donne, 17 hanno lavorato nell'industria petrolchimica. I casi con MM certo con esposizione professionale certa, esclusivamente in R o P risultano 95, l'età media alla prima esposizione è circa 26 anni; la durata media dell'esposizione è 21 anni, la latenza è di 40 anni.

Conclusioni. Lo studio ha individuato una importante casistica che, per gli stretti criteri di inclusione e selezione, può ritenersi sottostimata. I casi di MM devono essere considerati malati professionali. Il 3° Report ReNaM descrive più compiutamente lo studio.

[Con il contributo di: COR Liguria, COR Lombardia, COR Veneto, COR Sicilia, COR Piemonte, COR Friuli Venezia Giulia, COR Emilia-Romagna, COR Toscana, COR Lazio, COR Marche, COR Abruzzo, COR Campania, COR Puglia, COR Basilicata, COR Sardegna, ReNaM (ISPESL)]

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QUANDO DI LAVORO SI MUORE: SORVEGLIANZA EPIDEMIOLGICA DEGLI INFORTUNI MORTALI IN EMILIA-ROMAGNA SECONDO IL MODELLO "SBAGLIANDO S'IMPARA"

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Introduzione. La Regione Emilia-Romagna (RER) partecipa all'indagine nazionale ISPESL-INAIL-Regioni sugli infortuni mortali occorsi in ambiente di lavoro nel periodo 2005-2008.

Obiettivi. Analizzare l'incidenza degli infortuni mortali in base alle caratteristiche del lavoratore e alla tipologia di impiego.

Metodi. Le inchieste relative agli infortuni mortali sono state condotte secondo il modello "Sbagliando s'impara". 32 operatori dei Servizi di Prevenzione formati ad hoc hanno provveduto all'inserimento online delle schede nel Data Warehouse dell'ISPESL. I dati sono stati revisionati online da un'equipe regionale di Verifica Revisione di Qualità (VRQ), che ha provveduto alla disamina delle correzioni proposte dal gruppo nazionale VRQ e alla validazione finale dei casi.

Risultati. Nel periodo 2005-2008 si sono verificati in RER 187 infortuni mortali che hanno comportato il decesso di 188 lavoratori, tutti di genere maschile. L'indice d'incidenza (II=infortuni x 100.000/occupati) RER del periodo 2005-2007 è pari a 2,5, più alto negli stranieri (9,2) rispetto agli italiani (2,0). Le province con maggiore II sono Ravenna (3,1), Piacenza e Reggio Emilia (3,7). Il 72,2% degli infortuni si è verificato in aziende con meno di 15 addetti; l'età mediana degli infortunati è 46 anni e la classe d'età più colpita è quella inferiore a 35 anni (29,3%). Costruzioni edili e agricoltura, con il 64,2% complessivo degli eventi, sono i settori produttivi più coinvolti. La caduta dall'alto o in profondità è l'incidente più frequente (26,7%); gli agenti materiali coinvolti sono nel 68,0% dei casi "tetti, coperture" (sfondamento) e "attrezzature per il lavoro in quota" (uso inappropriato o assenza).

Conclusioni. Gli infortuni mortali continuano a essere quelli di sempre: più frequenti nelle piccole imprese, in edilizia e agricoltura, con dinamiche "tradizionali" come la caduta dall'alto. La novità sta nella sempre maggiore frequenza di morti stranieri. Ma questo non avvicina la risoluzione del problema.

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MATERNITÀ, LAVORO E SALUTE: RELAZIONE TRA ESITI DI GRAVIDANZA E FATTORI OCCUPAZIONALI

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Introduzione. Negli ultimi vent'anni la Regione Toscana ha inserito le attività di tutela della lavoratrice madre tra le attività istituzionali svolte dai Servizi di prevenzione pubblici delle Aziende sanitarie.

Obiettivi. Studiare l'efficacia delle misure preventive adottate in gravidanza rispetto ai seguenti esiti: nascita pretermine e sottopeso.

Metodi. Nell'ambito di un'iniziativa promossa dalla Regione Toscana è stata svolta un'indagine negli anni 2003-2005 nell'Area vasta Nord-ovest. Tutte le donne che hanno ritirato il libretto di gravidanza hanno compilato una scheda su informazioni socio-demografiche e professionali. Le lavoratrici dipendenti che hanno avuto come esito di gravidanza un nato vivo sono state intervistate telefonicamente a due anni dal parto su lavoro in gravidanza e rientro al lavoro dopo la decadenza del periodo di tutela della maternità. L'esito di gravidanza è stato ottenuto attraverso record linkage con i flussi sanitari correnti.

Risultati. Delle 26.361 donne reclutate, l'88% ha avuto come esito di gravidanza un nato vivo. Le lavoratrici erano in totale il 67% e le dipendenti il 52%. A due anni dal parto sono state intervistate un campione di 5.477 madri lavoratrici dipendenti. Di queste il 20% ha dichiarato di aver lavorato fino al 7° mese di gravidanza, il 25% fino all'8° mese e il 56% ha interrotto il lavoro durante la gravidanza per i seguenti motivi: mansione a rischio (47%), patologia della gravidanza (51%), fine contratto (2%). L'8% delle donne che hanno lavorato in gravidanza ha cambiato mansione per la presenza di fattori di nocività. Da una prima analisi non è emersa una relazione significativa tra gli esiti considerati e i fattori occupazionali.

Conclusioni. Le misure di prevenzione che vengono adottate in gravidanza, come l'allontanamento dal lavoro o il cambio di mansione, risultano essere efficaci nella prevenzione di esiti avversi della gravidanza. Si rendono necessarie analisi più approfondite per singola mansione.

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LA COORTE INTERNAZIONALE DI RIFERIMENTO OCCUPAZIONALE (CIRO) PER CORREGGERE L'EFFETTO LAVORATORE SANO

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Introduzione. Negli studi di coorte occupazionale è essenziale il confronto tra lavoratori esposti e lavoratori non-esposti. Dall'errato confronto con la popolazione generale emerge la significativa sottostima del rischio reale detto "healthy worker effect" (HWE).

Obiettivi. Per minimizzare l'HWE, si propone la costruzione di una unica coorte di riferimento standard costituita da lavoratori

non esposti: la Coorte Italiana/internazionale di Riferimento Occupazionale (CIRO).

Metodi. CIRO è costituita dall'insieme di sottogruppi di lavoratori non esposti individuati nelle principali coorti italiane/internazionali. Come fonte dati si useranno i libri matricola od altri registri. Si dovranno aggregare le sottopopolazioni di lavoratori non esposti; aggiornare periodicamente il loro stato in vita; conservare i dati rispettando la privacy.

Risultati. CIRO permetterà di correggere un grave e frequente errore in epidemiologia occupazionale, la sottostima della direzione e dell'entità del rischio reale.

Conclusioni. CIRO presenta alcuni limiti come la possibile inclusione di ex esposti nella popolazione di riferimento, ma presenta anche alcuni vantaggi perché è omogeneo per le principali caratteristiche; rende possibile controllare le principali variabili (età, nascita, assunzione, ecc); è sufficientemente eterogeneo sotto il profilo della non esposizione; può essere rappresentativo dei lavoratori non esposti; può costituire un riferimento unico per più coorti ecc.

Metodi e uso dei dati correnti

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L'UTILIZZO DEI DATI DI FARMACEUTICA PER STIMARE LA PREVALENZA DI MALATTIE CRONICHE: UN CONFRONTO CON ALTRE FONTI E INDAGINI

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Introduzione. Lo stato di salute di una popolazione è valutato mediante indagini di prevalenza nella popolazione o con metodi indiretti che utilizzano dati amministrativi. L'utilizzo delle prescrizioni farmaceutiche per la stima della prevalenza di malattie croniche è ancora limitato.

Obiettivi. Stimare la prevalenza di malattie croniche nella regione Lazio dai dati di farmaceutica territoriale e confrontarla con quella ottenuta da altri dati amministrativi e da survey.

Metodi. Fonti: Sistema informativo assistenza farmaceutica territoriale (SIAFT) 2006; Sistema informativo Ospedaliero (SIO) 2002-06; Archivio esenzioni patologia (AEP) 2006, Indagine multicentrico (IM) 'Condizioni di salute e ricorso ai servizi sanitari' 2005-06 Identificazione soggetti affetti da malattie croniche; SIAFT: adattamento al contesto italiano del Chronic Disease Score (Clark); SIO: patologie identificate nel Charlson index (Romano) mediante codici ICD-9-CM; AEP: esenti per patologia cronica.

Risultati. SIAFT identifica 31 condizioni croniche. Il 23% della popolazione assume farmaci per patologie cardiovascolari, l'11% per malattie gastrointestinali e il 6% per iperlipidemia. Il 40% della popolazione regionale utilizza farmaci per una o più condizioni croniche. Le prevalenze stimate attraverso l'utilizzo del SIO e dell'AEP risultano sempre più basse rispetto a quelle del SIAFT, tranne per i tumori, le malattie renali e l'epatite cronica. Per malattie cardiovascolari, tumori e disturbi tiroidei le stime sono simili tra SIAFT e IM, mentre stime più elevate si osservano nell'IM per le

condizioni reumatiche, malattie respiratorie e psichiatriche.

Conclusioni. Il SIAFT fornisce per molte malattie croniche stime di prevalenza simili a quelle dell'IM; queste stime sono facilmente ottenibili senza costi aggiunti. Per alcune patologie croniche l'integrazione del SIAFT con il flusso dei farmaci in somministrazione diretta è necessaria per una corretta stima della prevalenza.



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APPROCCIO STATISTICO BAYESIANO PER LA VALUTAZIONE DI ESITI IN AMBITO SANITARIO

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Introduzione. La valutazione della qualità dell'assistenza delle strutture sanitarie si avvale della ricerca continua di tecniche di analisi che forniscano utili indicazioni in ambiti specifici, quali il confronto tra strutture, al fine di poter affrontare le diverse problematiche emerse dall'uso degli approcci ritenuti consolidati.

Obiettivi. Sperimentare uno strumento utile per superare i limiti della valutazione di esito in ambito sanitario, soprattutto legati alla bassa numerosità dei casi trattati nelle singole strutture oggetto di confronto.

Metodi. La valutazione di esito implica un'attenta gestione del tema del potenziale confondimento implicito negli studi osservazionali, mediante l'utilizzo di tecniche statistiche note come risk adjustment e che sono state affrontate seguendo un approccio di tipo bayesiano. La numerosità campionaria nelle diverse strutture spesso molto eterogenea, e in alcuni casi molto ridotta, implica che le stime delle performance basate su alcuni modelli possano risultare inappropriate perché caratterizzate da eccessiva variabilità. Il modello sviluppato vuole gestire l'eventuale eterogeneità tra le strutture oggetto del confronto, proponendo misure di performance standardizzate sulla base di un modello bayesiano, in modo tale da correggere il confronto dall'effetto del case mix, sperimentando indicatori di esito relativi a variabili sia di tipo dicotomico sia discrete.

Risultati. I principali risultati evidenziano l'utilità dell'approccio seguito soprattutto nella interpretazione dei risultati e nel tentativo di considerare nell'analisi anche tutte quelle strutture a bassa numerosità che solitamente vengono escluse, cercando di rivedere la scarsa informazione disponibile estrapolandola dal gruppo gerarchico di riferimento.

Conclusioni. L'approccio, pur nella sua complessità computazionale, offre potenziali spunti per superare i limiti legati alla scarsa numerosità dei centri, evidenziando alcune interessanti possibili soluzioni.



- P43 -

IL REGISTRO NOMINATIVO DELLE CAUSE DI MORTE (RENCAM) DELLA REGIONE SICILIA: ANALISI DELLA MORTALITÀ PER CAUSA (2004-2009)

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Introduzione. La Sicilia recentemente si è dotata di una base informativa di mortalità centralizzata con copertura regionale. Il ReN-CaM siciliano presenta caratteristiche di validità che ne fanno uno strumento utile ed affidabile per fini di sorveglianza e di valutazione. Dalla sua attivazione nel 2004 è stato avviato un programma di valutazione della qualità del sistema e sono stati introdotti interventi per il miglioramento delle caratteristiche dello stesso che ne hanno consentito il consolidamento.

Obiettivi. Descrivere la mortalità per causa in Sicilia nel periodo 2004-2009.

Metodi. Le variabili utilizzate nell'analisi sono sesso, comune di residenza, anno di decesso, comune di decesso, anno di nascita, comune di nascita, età e causa iniziale del decesso. Queste ultime sono codificate utilizzando la nona revisione della Classificazione Internazionale delle malattie, dei traumatismi e delle cause di morte (ICD-IX). Sono state calcolate le principali statistiche di mortalità e la mortalità proporzionale.

Risultati. Le malattie del sistema circolatorio si confermano prima causa di decesso per entrambi i generi (40% uomini; 48% donne). Le patologie tumorali rappresentano la seconda causa di mortalità (28,5% uomini; e 20,6% donne). Le malattie dell'apparato respiratorio costituiscono la terza causa di decesso negli uomini (7,9%), mentre nelle donne la terza causa è rappresentata dalle malattie metaboliche ed endocrine (6%).

Conclusioni. Il profilo di salute regionale è contraddistinto da problemi sanitari riferibili al carico di alcune malattie croniche determinate dal progressivo invecchiamento della popolazione e dalla diffusione di alcuni fattori correlati agli stili di vita come sedentarietà, scorretta alimentazione e fumo verso il cui controllo sono già in corso programmi di sanità pubblica. Il ReN-CaM della Sicilia si conferma come strumento valido e con le caratteristiche di tempestività necessarie per la sorveglianza e la programmazione.

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- P44 -

STANDARDIZZAZIONE DIRETTA: ASPETTI METODOLOGICI, CRITICITÀ E APPLICAZIONI NEL CONFRONTO TRA STRUTTURE OSPEDALIERE

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Introduzione. Nell'analisi comparativa tra strutture ospedaliere è necessario tener conto del "case-mix" dei pazienti per una valida stima delle misure di effetto. L'utilizzo improprio delle metodologie statistiche può comportare ulteriori distorsioni.

Obiettivi. Analisi delle distorsioni derivanti dall'applicazione di differenti tecniche di "risk-adjustment" per il confronto tra strutture ospedaliere in una coorte di pazienti ospedalizzati per IMA.

Metodi. Sono stati selezionati tutti i ricoveri ordinari di pazienti, residenti in Italia, con diagnosi principale o secondaria di IMA avvenuti tra il 01.01.2008 e il 30.11.2008. La mortalità a 30 giorni di ciascuna struttura è stata confrontata con la mortalità media nella popolazione in studio. Le misure di effetto, aggiustate per i po-

tenziali confondenti, sono state calcolate utilizzando la regressione logistica, regressione log-binomiale e particolari modelli di Poisson "modificati", valutando le eventuali distorsioni. Inoltre, i tassi sono stati corretti attraverso un fattore che tiene conto della natura non lineare dei modelli.

Risultati. Le analisi sono state realizzate su oltre 95.000 ricoveri, effettuati in più di 350 strutture ospedaliere. Le difficoltà di conversione degli odds ratio in rischi relativi limitano l'utilizzo della regressione logistica. Il modello log-binomiale ha presentato notevoli problemi di convergenza. L'applicazione del modello di Poisson modificato è risultato soddisfacente, con qualche problema legato ai tempi computazionali. In relazione all'aggiustamento dei tassi, il mancato utilizzo di un fattore di correzione per modelli log-lineari comportava una sistematica sottostima dei tassi aggiustati.

Conclusioni. E' necessaria una valutazione critica delle numerose alternative metodologiche disponibili per il controllo del confondimento. L'utilizzo improprio di queste metodologie può comportare una notevole distorsione dei risultati.

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- P45 -

ANALISI SPAZIALE DI MORTALITÀ E DI MORBOSITÀ PER LA IDENTIFICAZIONE DI AREE A MAGGIOR CARICO DI MALATTIA DEL MOTONEURONE NELLA REGIONE SICILIA NEGLI ANNI 2004-2008

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Introduzione. In Sicilia precedenti studi hanno stimato l'incidenza e la prevalenza della SLA (Sclerosi Laterale Amiotrofica) utilizzando i principali flussi informativi correnti ed evidenziando una disomogeneità territoriale con addensamenti in alcune aree orientali e centro occidentali dell'isola.

Obiettivi. Identificare la presenza di eventuali cluster in Sicilia per cause di mortalità e di ricovero utilizzando il Registro Nominativo delle Cause di Morte (ReN-CaM) e il flusso informativo dei Ricoveri Ospedalieri (SDO).

Metodi. Per evidenziare i cluster sul territorio della malattia del motoneurone, mortalità (ICD9-335.2) e per i ricoverati (ICD9 CM-335.2) in diagnosi principale e secondaria, si è testata l'ipotesi nulla di omogeneità sul territorio regionale del rischio di decesso o di ricovero attraverso la procedura Monte Carlo. L'analisi, tenuto conto della popolosità dell'area è stata aggiustata per sesso e per età. La significatività del cluster è stata fissata con probabilità del 95% ($p < 0,05$).

Risultati. L'analisi in Sicilia ha evidenziato 5 cluster per la mortalità, localizzati nelle province di Messina, Siracusa, Agrigento, Palermo e Catania (pendici orientali dell'Etna). Per i ricoveri si confermano i 5 cluster della mortalità, inoltre viene evidenziato un sesto cluster sempre in provincia di Agrigento e un settimo dell'isola di Pantelleria.

Conclusioni. L'analisi dei cluster conferma l'esistenza di aree a maggiore impatto per la SLA in Sicilia già rilevati dalle analisi precedenti. E' stato identificato un solo cluster di ricoveri ospedalieri statisticamente significativo, tra i comuni della provincia di Catania. Sebbene la SLA sia rara essa rappresenta un importante tema di indagi-

ne per le implicazioni che presenta in termini di sanità pubblica. Pur non essendo possibile sostenere ipotesi di causalità rispetto al territorio la particolare aggregazione in sedi prossime ad aree vulcaniche appare suggestiva e meritevole di ulteriori approfondimenti.



- P46 -

MODELLIZZARE L'USO DELLA SPECIALISTICA AMBULATORIALE IN FUNZIONE DI DETERMINANTI DI BISOGNO DIRETTO E INDIRETTO

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Introduzione. La modellizzazione della frequenza di utilizzo di servizi sanitari richiede una accurata valutazione per la presenza di frequenze elevate con valore nullo e il rischio di sottostima dell'incertezza.

Obiettivi. Stimare il ruolo di determinanti di bisogno diretto e indiretto nel ricorso a visite e accertamenti specialistici attraverso il confronto fra modelli statistici per l'analisi di esiti categorici.

Metodi. La fonte informativa è costituita dall'indagine campionaria ISTAT sulle condizioni di salute (2005). L'esito è la frequenza di visite specialistiche e accertamenti diagnostici (77% di non utilizzatori). Come variabili esplicative sono state considerate sesso, età, istruzione e giudizio sulle risorse economiche. Lo stato di salute è misurato da un indice di morbosità cronica. Sono stati confrontati i seguenti modelli statistici: Poisson, binomiale negativa (NB) e i modelli in due parti regressione Hurdle, zero-inflated Poisson (ZIP), zero-inflated binomiale negativa (ZINB).

Risultati. L'uso di specialistica cresce all'aumentare della cronicità ($p < .01$) e risulta superiore per la classe di età 31-64 anni ($p < .01$), per le donne ($p < .01$), per chi giudica scarse le risorse familiari ($p < .05$). Consumano meno specialistica i giovani ($p < .01$) e chi possiede medio o basso livello d'istruzione ($p < .01$). Il modello NB risulta preferibile al modello di Poisson per la presenza di forte sovradisersione nei dati. I modelli in due parti offrono maggiore flessibilità per la possibilità di modellizzare i valori nulli, ma comportano rischio di sovrapparametrizzazione. Le analisi esplorative condotte per confrontare i modelli di Poisson e NB con i modelli in due parti mostrano un miglior adattamento ai dati da parte dei modelli zero-inflated.

Conclusioni. Nonostante sia estensivo il ricorso al modello di Poisson per predire l'uso di servizi sanitari, i modelli alternativi testati garantiscono un miglior adattamento ai dati fornendo risultati consistenti con l'atteso.



- P47 -

PATED: PROCEDURA PER ANALISI TERRITORIALI DI EPIDEMIOLOGIA DESCRITTIVA

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Introduzione. L'epidemiologia descrittiva ha tra i suoi compiti anche la produzione di indici di rischio assoluto (tassi) o relativo (SMR;

SIR) relativi al territorio e la misura della loro mutazione, nel tempo e nello spazio. Ciò trova applicazione nella redazione di relazioni sanitarie ed atlanti, in studi epidemiologici analitici in aree giudicate ad alto rischio o intorno a punti sorgente di presunti fattori di esposizione, tipicamente ambientali. Tutto ciò deve spesso avvenire con caratteri di tempestività e puntualità, attraverso sistemi rapidi di interrogazione dei sistemi informativi di natura corrente con le caratteristiche di un Rapid Inquiry Facility.

Obiettivi. A questo fine si è sviluppata la procedura PATED (Procedura per Analisi Territoriali di Epidemiologia Descrittiva), volta a facilitare l'accesso a dati sanitari correnti e la produzione di report epidemiologici descrittivi.

Metodi. Il sistema fornisce misure epidemiologiche di occorrenza e di associazione con covariate individuali e contestuali. L'area geografica oggetto di analisi e l'area di riferimento possono essere definite selezionando regioni, aree definite da un cerchio, liste di unità geografiche. Sono utilizzati metodi bayesiani per stabilizzare le stime e individuare cluster spaziali. La procedura è dotata di una interfaccia utente per la definizione guidata dei parametri di analisi e i risultati sono gestiti in forma di ipertesto. Il sistema si basa su un insieme strutturato di macro linguaggio SAS e integra pacchetti software freeware.

Conclusioni. Strumenti come PATED sono giustificati dalla crescente domanda di studi di geografia sanitaria e trovano applicazione per il reporting sistematico di dati statistici ufficiali, per indirizzare politiche di allocazione delle risorse, per concorrere alla redazione di valutazioni di impatto ambientale e sanitario e come supporto all'epidemiologia analitica per lo studio di nessi di causalità e l'individuazione di fattori esplicativi latenti.



- P48 -

CONCLUSIONI TRANQUILLIZZANTI O FRANCAMENTE SBAGLIATE IN EPIDEMIOLOGIA. COME CAPIRE?

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Introduzione. Lo scopo dell'epidemiologia è difendere la salute della collettività e la sottovalutazione del rischio costituisce un gravissimo errore che si estende all'intera popolazione. Oggi l'azione dell'epidemiologia risulta difficile per molte ragioni, come la sinergia tra molteplici basse dosi; l'ampliamento della popolazione esposta e la riduzione di quella di riferimento; la confusione tra epidemiologia e statistica; la riduzione quali/quantitativa degli epidemiologi applicati all'eziologia; la distrazione della ricerca dalla prevenzione primaria ecc.

Obiettivi. Tentare di limitare l'errore diagnostico in epidemiologia, ovvero valutare la credibilità dei risultati degli studi epidemiologici che negano o minimizzano la sussistenza di rischi per la salute pubblica.

Metodi. Vengono elencati alcuni errori metodologici presenti in importanti studi epidemiologici che hanno prodotto risultati tranquillizzanti ma non supportati dalla buona pratica epidemiologica.

Risultati. Molti studi possono produrre false rassicurazioni perché: usano indicatori di esposizione troppo generici; considerano solo po-

chi inquinanti; escludono possibili sinergie tra vari agenti tossici che rispettano i limiti di legge; scelgono una popolazione di riferimento inappropriata; mescolano la popolazione esposta con quella non esposta; perdono i casi esposti; considerano un periodo di induzione-latenza troppo breve; enfatizzano l'assenza di significatività statistica; selezionano solo alcune malattie rare; forniscono un'interpretazione dello studio non coerente con direzione e dimensione dei rischi effettivamente ottenuti nei risultati ed infine non sono liberi da conflitti di interesse.

Conclusioni. Un attento riesame di tutti gli elementi che costituiscono gli studi epidemiologici fa emergere che le conclusioni tranquillizzanti appaiono spesso prive di solide basi scientifiche e sono francamente incoerenti con i risultati dello studio.

Migranti e popolazioni fragili

- P49 -

L'INTERRUZIONE VOLONTARIA DI GRAVIDANZA TRA LE DONNE IMMIGRATE IN UMBRIA

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Introduzione. L'immigrazione è un fenomeno in aumento; in Umbria gli stranieri residenti rappresentano il 9,6% della popolazione (Italia 6,5%) e le donne in età feconda (15-49 anni) rappresentano il 36,1% della popolazione straniera totale e il 68,0% della popolazione femminile straniera. Tale quadro demografico si riflette sull'accesso sanitario compresa l'effettuazione delle interruzioni volontarie di gravidanza (IVG).

Obiettivi. Analizzare il fenomeno delle IVG tra le immigrate in Umbria nel periodo 2006-2008.

Metodi. Lo studio è stato condotto analizzando i dati provenienti dal Modello D12 (Istat) e confrontando alcuni indicatori di accesso e appropriatezza dell'assistenza per cittadinanza.

Risultati. Si evidenzia una riduzione delle IVG tra le italiane e un aumento tra le straniere: il tasso di abortività per le straniere è quasi 4 volte superiore a quello delle italiane (25,3% versus 6,6%). Si registrano differenze significative tra i due gruppi: le donne immigrate hanno un'età minore rispetto alle italiane (MODA: 25-29 anni vs 35-39 anni) sono coniugate (50,9% vs 41,5%), hanno un livello medio-basso di istruzione (52,1% vs 33,1%), dichiarano di essere casalinghe (31,4% vs 18,8%) o disoccupate (13,4% vs 8,4%) e presentano una storia di abortività ripetuta (38,7% vs 16,2%). Si osserva un'associazione statisticamente significativa tra cittadinanza straniera e prevalente uso del consultori familiari per la certificazione (55,1% vs 37,7% OR 2,03; IC95%: 1,83-2,25), esecuzione tardiva dell'IVG (>10 settimana) (17,8% vs 11,5% OR 1,66; IC95%: 1,26-2,20) e tempo di attesa superiore ai 10 giorni dalla richiesta (75,1% vs 72% OR 1,17; IC 95%: 1,04-1,32). Non si riscontrano differenze significative per urgenza, tipo d'intervento e anestesia.

Conclusioni. Nei consultori, punto di riferimento per le donne straniere, è prioritario attivare nuovi programmi di informazione per prevenire gravidanze indesiderate e ridurre differenze nell'appropriatezza dell'assistenza.



- P50 -

SPERIMENTAZIONE DI UN INTERVENTO DI ASSISTENZA DOMICILIARE POST-PARTUM PER LE DONNE IMMIGRATE

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Introduzione. Le donne provenienti da Paesi a forte pressione migratoria mostrano un rischio più elevato di esiti negativi alla nascita e maggiori difficoltà nell'assistenza in gravidanza.

Obiettivi. Valutare l'impatto dell'intervento di assistenza domiciliare post-partum sulla salute delle donne immigrate e loro bambini.

Metodi. In 4 Regioni (Sicilia, Lazio, Lombardia, Piemonte) le donne Pfm che hanno partorito nel periodo 2008-2009 con età gestazionale >37 settimane, bambino di peso >2.500 gr, degenza non superiore a 5 giorni, sono state attribuite al gruppo intervento o controllo in base a criteri di randomizzazione temporale. In ospedale è stato loro somministrato un questionario con l'invito a presentarsi a un controllo a 40 giorni dal parto. Alle donne intervenute è stata proposta una visita ostetrica a 7-10 giorni dal parto, a casa o presso il consultorio familiare/ospedale. Le donne che non si sono presentate a 40 giorni sono state intervistate telefonicamente. Con l'analisi logistica sono state valutate le differenze su: sfera dell'umore, iscrizione al pediatra di famiglia, conoscenze su vaccinazioni e salute riproduttiva, e allattamento al seno.

Risultati. Sono state coinvolte 741 donne (396 intervento, 345 controllo) con 2,4% rifiuti. L'intervento è stato accolto dal 99% delle donne, di cui il 13% ha preferito recarsi al consultorio o ospedale invece di ricevere la visita a domicilio. Nel gruppo controllo è risultata una percentuale significativamente maggiore di donne che non si sono recate nelle strutture a 40 giorni preferendo l'intervista telefonica (51% vs 31% nelle donne intervento). Gli esiti considerati risultano peggiori fra le donne controllo, con OR=1,87 per la sfera psicologica, OR=1,95 sulla mancata iscrizione al PLS, OR=1,79 sulle conoscenze non corrette su vaccinazioni, OR=4,96 per le conoscenze non corrette su salute riproduttiva, OR=1,86 per il mancato allattamento al seno.

Conclusioni. I risultati evidenziano un impatto positivo dell'intervento.



- P51 -**LA SPESA SANITARIA PER GLI IMMIGRATI: UN'ANALISI DEI RICOVERI IN ITALIA E UNA STIMA PER I LIVELLI ASSISTENZIALI NELLA REGIONE EMILIA-ROMAGNA**

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Introduzione. In Italia la componente straniera è una realtà in crescita e il dibattito sulla sostenibilità economica dell'assistenza sanitaria per gli immigrati rende indispensabile la conoscenza, oltre che dei problemi di salute, dei loro costi.

Obiettivi. Mettere a disposizione informazioni confrontabili a livello nazionale, utilizzando i principali flussi di dati correnti, per conoscere la domanda di salute degli immigrati e stimarne i costi. Sperimentare un metodo di calcolo della spesa per livelli d'assistenza sanitaria per gli stranieri residenti in Emilia-Romagna.

Metodi. A livello nazionale l'analisi dei ricoveri ospedalieri ha fornito un quadro dei problemi di salute più importanti per gli immigrati regolari e non. La stima dei costi (anno 2007) è stata effettuata utilizzando la tariffa unica convenzionata (TUC). A livello regionale i flussi sanitari disponibili per stimare la spesa (anno 2007) sono stati: l'anagrafe sanitaria, l'assistenza farmaceutica territoriale (AFT), l'assistenza specialistica ambulatoriale (ASA), l'assistenza domiciliare integrata (ADI) e la salute mentale (SISM) per l'assistenza distrettuale, mentre per l'assistenza ospedaliera sono state utilizzate le schede di dimissione ospedaliera (SDO).

Risultati. A livello nazionale i ricoveri degli immigrati rappresentavano nel 2007 il 3,5% del totale degli ordinari con il corrispondente valore economico pari al 2,8%. La stessa stima riferita agli irregolari vede lo 0,6% per l'utilizzo mentre l'ammontare dei consumi di risorse è dello 0,5%. Nello stesso anno in Emilia-Romagna si stima al 3,3% il costo medio sul totale della spesa per livelli assistenziali per gli stranieri residenti.

Conclusioni. L'uso dei flussi correnti consente di monitorare con buona approssimazione i problemi di salute degli immigrati, unitamente al loro costo. Dal punto di vista della sostenibilità per il SSN gli immigrati si rivelano proporzionalmente meno costosi, essendo giovani e con bisogni contenuti.

Salute materno-infantile

- P52 -**MALFORMAZIONI CONGENITE SUSCETTIBILI ALL'AZIONE DELL'ACIDO FOLICO COSTRUZIONE DI UN INDICATORE DI EFFICACIA DELL'AZIONE PREVENTIVA**

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Introduzione. Il ruolo dei folati nella prevenzione di alcune anomalie congenite (AC), in special modo i difetti del tubo neurale (DTN), è sostenuto da numerosi e autorevoli studi scientifici. E' però poco diffusa l'abitudine a una prescrizione medica di acido

folico (AF) nel periodo preconcezionale nelle donne che programmano una gravidanza o che non la escludano attivamente.

Obiettivi. Indurre le donne ad assumere in periodo preconcezionale un apporto di acido folico appropriato per condizione di rischio, sia aumentandone le prescrizioni su ricettario SSN, sia attuando un corretto counselling peri-concezionale sull'importanza di corretti stili di vita e sana alimentazione.

Metodi. Si è costruito un algoritmo informatico in grado di monitorare, partendo da alcuni flussi correnti presenti in ASL quali i consumi farmaceutici e i certificati di assistenza al parto (CeDAP), informazioni sulla prescrizione di AF in periodo utile per la prevenzione (tre mesi prima del concepimento e primo trimestre di gravidanza).

Risultati. La quota di prescrizioni di AF è esigua sia in periodo preconcezionale (0,6%) sia nel primo trimestre di gravidanza (8,5%). E' quindi evidente un'insufficiente pratica prescrittiva che sottende una carente informazione sul tema.

Conclusioni. Si è costruito un indicatore di efficacia in grado di rilevare la pratica prescrittiva di AF dei medici di famiglia, pratica che si deve accompagnare ad una azione di counselling più vasto per il target di popolazione interessato. Il Registro Malformazione Congenite dell'ASL potrà dire, a medio-lungo termine, se la supplementazione di AF abbia inciso sulle anomalie congenite folico-sensibili. Appare importante l'azione formativa e informativa che l'ASL può attuare presso i MMG e tutti gli operatori coinvolti.

**- P53 -****LA NASCITA FORTEMENTE PRETERMINE: REVISIONE SISTEMATICA QUANTITATIVA DEI RISULTATI DELLA LETTERATURA**

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Introduzione. I tassi di sopravvivenza dei nati fortemente pretermine sono notevolmente migliorati nell'ultimo decennio; tuttavia, per questi bambini rimane il rischio di sviluppare esiti a distanza.

Obiettivi. Valutare, attraverso una revisione sistematica di studi recenti di tipo area-based, la sopravvivenza dei nati con età gestazionale inferiore a 32 settimane e le disabilità al follow-up ai 2 anni di età corretta (± 1 anno).

Metodi. Sono state utilizzate le banche dati Medline, Embase e Cochrane per cercare la letteratura in lingua inglese per studi area-based realizzati in Europa (anni di nascita 1990-2010), pubblicati in lingua inglese. E' stata effettuata l'analisi "pooled" dei dati di sopravvivenza alla dimissione dal reparto di Terapia Intensiva Neonatale (TIN) per età gestazionale con il metodo di stima basato sulla distribuzione beta-binomiale.

Risultati. La ricerca ha prodotto 153 articoli scientifici, soltanto 15 classificati come eleggibili e riguardanti 11 differenti studi europei. Come è noto, la sopravvivenza aumenta all'aumentare dell'età gestazionale. A parità di età gestazionale, ci sono differenze notevoli tra i diversi studi, in parte dovute a differenze di anno di nascita, in parte legate ai criteri di arruolamento adottati o a variazioni casuali, so-

prattutto nelle settimane dove la numerosità dei nati vivi è minore. Per i nati a 22 settimane di età gestazionale la sopravvivenza media è pari al 4% (IC: 1-7), raggiunge il 55% (IC: 47-63) a 25 settimane e il 94% (IC: 93-96) a 31 settimane. Al di sotto di 26 settimane la frequenza di disabilità grave è intorno al 20-30%.

Conclusioni. La sopravvivenza dei nati pretermine aumenta in rapporto ai progressi delle tecnologie perinatali e diventa sempre più essenziale la valutazione e la prevenzione degli esiti nei sopravvissuti.

- ◆ -

- P54 -

IL PERCORSO DI NASCITA DELLE DONNE ITALIANE E STRANIERE IN SICILIA

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Introduzione. Negli ultimi anni in Sicilia il fenomeno dell'immigrazione è divenuto cospicuo e caratterizzato da una maggiore presenza di donne in età riproduttiva, ciò si è tradotto in un progressivo aumento delle nascite di bimbi da genitori stranieri.

Obiettivi. Descrivere e confrontare il percorso di gravidanza, di parto e del ricorso all'assistenza sanitaria delle donne straniere e di quelle italiane che hanno partorito in strutture siciliane nel biennio 2007-2008.

Metodi. Lo studio è stato svolto utilizzando come fonte dei dati i Certificati di Assistenza al Parto (CedAP) della Sicilia di tutti i nati negli anni 2007-2008.

Risultati. La percentuale di bambini nati da madri straniere nel periodo in studio è del 5%. L'analisi relativa all'età materna mette in rilievo l'attitudine delle immigrate a una maternità anticipata rispetto a quella delle donne italiane (età media: 28 anni contro (vs) 30 anni, età modale: 26 anni vs 32 anni). Sia per le donne italiane sia per le straniere la prima visita in gravidanza avviene principalmente tra l'ottava e l'undicesima settimana di gestazione (rispettivamente 57,5% e 58,1%). Durante il periodo gestazionale le donne straniere che non effettuano alcun controllo in gravidanza risultano di gran lunga più frequenti rispetto alle italiane (2,6% vs 0,4%) così come accade per il ricorso all'ecografia (5,6% vs 2,7%). La frequenza di nascite con peso <1.500 grammi conseguente a parti fortemente pre-termine (1,8% straniere; 1,0% italiane) risulta più elevata tra le donne immigrate (1,7% vs 1%). Ciononostante le straniere hanno un ridotto ricorso al parto con taglio cesareo (40,7% vs 54,7%). Il fenomeno della natimortalità risulta più elevato tra le straniere (0,5% vs 0,3%).

Conclusioni. In Sicilia, è emerso un accentuato divario tra donne italiane e straniere relativamente ai principali esiti sanitari del percorso assistenziale dalla gravidanza al parto così come emerso in studi condotti in altre aree d'Italia.

- ◆ -

- P55 -

STUDIO DELLA RELAZIONE TRA FATTORI SOCIO-DEMOGRAFICI E ALCUNI INDICATORI DI SALUTE MATERNA E NEONATALE IN SICILIA ATTRAVERSO I CERTIFICATI DI ASSISTENZA AL PARTO

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Introduzione. Gli indicatori di salute prenatale sintetizzano lo stato di salute di una popolazione e le sue condizioni socioeconomiche e culturali e forniscono indicazioni sulla qualità dell'assistenza durante la gravidanza e il parto.

Obiettivi. Verificare differenze nel livello di alcuni indicatori di salute prenatale in funzione di variabili socio-demografiche allo scopo di evidenziare e quantificare quali condizioni risultano associate ad inappropriata e ad esiti sanitari sfavorevoli per la salute materna e neonatale.

Metodi. Sono stati analizzati i certificati di assistenza al parto (CedAP) dei nati singoli avvenuti nel biennio 2007-2008. Gli indicatori sanitari dicotomici analizzati sono: numero di visite in gravidanza <4, 1° visita in gravidanza oltre l'11-ma settimana (w) di età gestazionale (e.g.), parto cesareo, peso alla nascita molto basso (=37w) e natimortalità; le variabili esplicative sono: età, cittadinanza, titolo di studio, condizione professionale, stato civile e parità. La scelta degli indicatori e dei fattori sociali è avvenuta in funzione della letteratura esistente e della reale disponibilità e affidabilità informativa nei CedAP. Per ciascun indicatore è stato adattato un modello Logit multivariato per identificare i fattori che congiuntamente contribuiscono significativamente alla variabilità della risposta.

Risultati. Diverse condizioni di svantaggio socioculturali (cittadinanza straniera, basso titolo di studio, disoccupazione) sono risultate associate, in maniera rilevante e congiuntamente, a inappropriata nel percorso assistenziale, nella scelta del tipo di parto e alle condizioni di rischio del nato nonché alla natimortalità.

Conclusioni. Tali evidenze empiriche consentono di generare ipotesi sui meccanismi causali che legano la salute materno infantile alle condizioni socio-demografiche, da approfondire per una più mirata programmazione sanitaria.

Salute mentale

- P56 -

C'È UNA DIFFERENZA NELLE CARATTERISTICHE DI PAZIENTI CON DISTURBI BORDERLINE DELLA PERSONALITÀ CON E SENZA ATTACCHI DI PANICO? EVIDENZE DA UNO STUDIO OSSERVAZIONALE LONGITUDINALEDe Vidovich GZ,¹ Ferretti VV,² Morandotti N,¹ Broglia D,¹ Camozzo I,³ Villani S,² Caverzasi E¹¹Sezione di Psichiatria, DSSAP, Università degli Studi di Pavia, Pavia; ²Sezione di Epidemiologia e Statistica Medica, DSSAP, Università degli Studi di Pavia, Pavia;³CIRDiP, DSSAP, Università degli Studi di Pavia, Pavia

Introduzione. La storia naturale dei Disturbi Borderline della Per-

sonalità (DBP) non è ad oggi ben nota in quanto l'eterogeneità della sindrome ne rende difficile la valutazione delle caratteristiche. Attualmente in letteratura non vi è evidenza circa la relazione tra DBP e presenza di attacchi di panico (AP).

Obiettivi. Descrivere le caratteristiche dei pazienti (pz) con DBP per la presenza di AP all'arruolamento (T0) e valutare la variazione delle scale psicopatologiche dopo un anno di follow-up (T1).

Metodi. È stato condotto uno studio esplorativo su pz DBP (secondo i criteri DSM IV) in carico al Centro interdipartimentale di ricerche sui disturbi della personalità (CIRDiP). La psicopatologia e la gravità dei sintomi sono state valutate mediante scale cliniche: Zanarini Rating Scale (ZAN), Social Adaptation Self-evaluation Scale (SASS), Relationship Anecdote Paradigm (RAP) per la Funzione Riflessiva (FR). A T1 sono state descritte le caratteristiche principali del disturbo utilizzando le stesse misurazioni effettuate a T0. Sono stati applicati test non parametrici per dati indipendenti (con-AP vs senza-AP) e appaiati (T1 vs T0).

Risultati. Sono stati arruolati 43 pz. A T0 i pz con AP (16,3%) hanno mostrato valori medi di FR e di SASS maggiori, rispetto ai pz senza AP, ma minori di ZAN. Tali differenze non sono risultate statisticamente significative. A T1 pz con AP hanno mostrato una lieve diminuzione nello score RAP e valori stabili di ZAN, mentre pz senza AP hanno registrato un miglioramento significativo o borderline negli score medi della ZAN (Wilcoxon sign-rank test=2,61, $p=0,009$) e della RAP (Wilcoxon sign-rank test=-1,83, $p=0,068$). La SASS è migliorata, ma non significativamente, in entrambi i sottogruppi. Confrontando i pz con e senza AP, è stata evidenziata una differenza significativa nel net-change rispetto a T0 solo per la ZAN.

Conclusioni. Dopo un anno di follow-up la FR nei pz senza AP è migliorata significativamente, mentre i pz con AP sono rimasti stabili.



- P57 -

STATUS SOCIO-ECONOMICO E UTILIZZAZIONE DEI SERVIZI PSICHIATRICI: UNO STUDIO MULTICENTRICO ITALIANO

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Introduzione. Alcuni studi hanno evidenziato una maggiore concentrazione di persone con disturbi mentali nelle aree socio-economicamente più deprivate e un'associazione tra condizioni socio-economiche e misure oggettive e soggettive di salute mentale.

Obiettivi. Valutare la relazione tra status socio-economico (SES) e utilizzazione dei servizi psichiatrici, tenendo anche conto delle variabili socio-demografiche e cliniche dei pazienti e delle condizioni territoriali.

Metodi. Sono inclusi nello studio tutti i pazienti ($n=2.759$) con almeno un contatto presso tre Unità Operative Psichiatriche italiane (Avellino, Bollate-Milano, Verona). Oltre ad incidenza e prevalenza trattata, sulla base dei contatti avuti dai pazienti in sei mesi, sono stati calcolati indicatori di utilizzazione per l'assistenza psichiatrica ospedaliera, di day-care, ambulatoriale e domiciliare. Un indice SES com-

posito è stato costruito a livello di sezioni di censimento ($n=336.788$) su base nazionale. Modelli di regressione multilevel hanno posto in relazione con l'utilizzazione dei servizi: variabili socio-demografiche e cliniche dei pazienti raccolte tramite questionari e i Sistemi Informativi; indice SES; caratteristiche del territorio e distanza percorsa dai pazienti per recarsi ai servizi psichiatrici.

Risultati. L'incidenza e la prevalenza trattata aumentano nel passare a classi SES deprivate, con differenze per le diverse tipologie assistenziali e trend opposti a seconda del gruppo diagnostico considerato. Con alcune differenze, il numero di contatti per le diverse tipologie assistenziali è in relazione significativa con l'indice SES. Ciascun modello di regressione spiega intorno al 20% di varianza: le variabili ecologiche contribuiscono tra lo 0,02% e lo 3,13% alla varianza totale, spiegata in massima parte dalle caratteristiche socio-demografiche e cliniche dei pazienti. Il centro di appartenenza risulta associato significativamente con l'utilizzazione dei servizi.

Conclusioni. La conoscenza dei determinanti dell'utilizzazione dei servizi psichiatrici rende possibile elaborare proposte organizzative alternative in funzione anche delle caratteristiche socio-economiche del contesto.



- P58 -

UN PROGRAMMA METODOLOGICAMENTE AVANZATO PER LA RILEVAZIONE DELLA QUALITÀ PERCEPITA NEI SERVIZI DI SALUTE MENTALE

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Introduzione. Tra gli esiti valutabili di un servizio sanitario rivestono oggi un ruolo centrale la soddisfazione dei pazienti e quella dei familiari (la cosiddetta qualità percepita). In generale, si può affermare che in Italia oggi non vi sia consenso sul costruito e sulle modalità di valutazione della qualità percepita.

Obiettivi. Sviluppo e diffusione nei servizi di salute mentale italiani di un programma standardizzato per la valutazione della qualità percepita con tecniche e strumenti omogenei e riproducibili, e basati sulle più recenti acquisizioni nel campo.

Metodi. Saranno sviluppati e validati (validità di facciata, di contenuto e di costruito, riproducibilità e accettabilità) strumenti per valutare l'esperienza dei pazienti a proposito dell'occorrenza di buone e cattive pratiche di assistenza. Sarà effettuata una rilevazione pilota (invio postale e una somministrazione diretta degli strumenti) in un campione di utenti di Centri di salute mentale (CSM) e Servizi Psichiatrici di diagnosi e cura (SPDC) di Dipartimenti di salute mentale (DSM) italiani. Si valuteranno tasso di risposta e soddisfazione degli utenti con gli strumenti sviluppati.

Risultati. Al programma partecipano 7 DSM. Sono stati sviluppati 2 questionari per la rilevazione della qualità percepita per utenti di CSM e SPDC. Sono stati effettuati una procedura di content validation con esperti di qualità dell'assistenza e organizzazione di servizi di salute mentale, due focus group con utenti di CSM e SPDC, ed è in corso di effettuazione uno studio di riproducibilità test-retest ($N=60$). Per la rilevazione pilota i questionari saranno inviati per posta a oltre 3.800 utenti e consegnati brevi manu a più di 1.500 utenti.

Conclusioni. Attraverso il programma sarà possibile definire e diffondere raccomandazioni riguardanti la valutazione della qualità percepita, il controllo di qualità dei dati e l'analisi sistematica dei risultati nei DSM a scopo di valutazione e miglioramento interni ed esterni.



- P59 -

EFFICACIA NELLA PRATICA E RAPPORTO COSTI BENEFICI DI UN PROGRAMMA DI SCREENING E GESTIONE DELLA DEPRESSIONE

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Introduzione. Alcune evidenze indicano che in medicina generale (MG) e in altri ambiti clinici un programma di screening per la depressione associato a un supporto attivo da parte dei servizi di salute mentale possa migliorare gli esiti di salute di pazienti affetti da disturbi depressivi non riconosciuti in tali contesti.

Obiettivi. Due studi controllati condotti in MG e in reumatologia valutano fattibilità ed efficacia di un programma di screening della depressione e supporto specialistico psichiatrico per la diagnosi e il trattamento dei pazienti con sospetta depressione. Lo studio in MG, denominato SET-DEP, indaga inoltre il rapporto costo/efficacia e costo/utilità di questo tipo di intervento.

Metodi. Nello studio SET-DEP gli assistiti di 14 medici di MG della ASL RM A compilano: Primary Care Screener for Affective Disorders (PC-SAD) per lo screening della depressione, WHOQOL-Breve, EuroQOL. I positivi allo screening sono randomizzati al gruppo sperimentale (intervento immediato), che riceve comunicazione per lettera del risultato e viene avviato ad una valutazione diagnostica e se necessario al trattamento presso un ambulatorio specialistico dedicato, o al gruppo di controllo (intervento differito). A 3 mesi dallo screening tutti i positivi e un campione di negativi sono valutati con: SCID-I per la diagnosi psichiatrica, Montgomery-Asberg Depression Rating Scale (MADRS), Hamilton Anxiety Rating Scale, WHOQOL-Breve, EuroQOL, intervista per la valutazione dei costi. I pazienti con disturbo depressivo non già trattato sono inviati all'ambulatorio dedicato, dove è prevista anche la raccolta di campioni di saliva. I pazienti della Clinica Reumatologica dell'Università di Pisa compilano PC-SAD e Scala Analogica Visiva del dolore. I positivi allo screening sono valutati tramite SCID-I, MADRS, WHOQOL-Breve. I pazienti con diagnosi di depressione confermata alla SCID sono randomizzati al gruppo sperimentale (terapia psicofarmacologica e psicoterapia) o al gruppo di controllo (terapia psicofarmacologica). WHOQOL-Breve, MADRS e Rome Opinion Questionnaire sono utilizzati per la valutazione di follow-up a 1, 2, 3, e 8 mesi dallo screening.

Risultati. 411 assistiti hanno partecipato allo screening, 150 dei quali positivi. 57 positivi sono stati randomizzati all'intervento immediato, 58 all'intervento differito; 35 positivi con punteggio al PC-SAD suggestivo di particolare gravità sintomatologica non sono randomizzati e sono stati avviati all'intervento immediato "compassionevole". Sono state completate 134 valutazioni di follow-up. Studio condotto in reumatologia: hanno partecipato 212 pazienti, 51 positivi allo screening, 37 dei quali sono stati valutati tramite SCID-I. In 22 è stata confermata la presenza di un disturbo psichiatrico. 20 pazienti con diagnosi SCID di disturbo depressivo sono stati randomizzati, 9 al gruppo sperimentale e 11 al gruppo di controllo. 6 pazienti del gruppo sperimentale e 6 del gruppo di controllo sono attualmente in trattamento e hanno completato il follow-up a 1 mese.

Conclusioni. Lo studio è attivo da 18 mesi in MG, da 1 anno in reumatologia. La valutazione di efficacia è attualmente in corso.

Screening oncologici

- P60 -

QUALITÀ DELL'ASSISTENZA SANITARIA NELLE DONNE RESIDENTI NELLE ASL DI NOVARA E VERBANO-CUSIO- OSSOLA RICOVERATE PER CARCINOMA DELLA MAMMELLA NEL PERIODO 2003/2004

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Introduzione. In Piemonte ogni anno vi sono 2.500 nuovi casi di carcinoma mammario (Linee guida, CPO Piemonte, 2002). L'adesione all'esame mammografico dello screening Prevenzione Serena è del 65% (7° Rapporto Osservatorio Nazionale Screening) e nell'ASL di Novara e Verbano-Cusio-Ossola, l'adesione nel 2008 è stata del 55%.

Obiettivi. Lo studio fa parte di un programma di indagini connesse alla valutazione locale dell'attività di screening e l'obiettivo è di descrivere dal punto di vista clinico un campione di donne affette da carcinoma mammario residenti nelle ASL in oggetto, in relazione alle modalità diagnostiche.

Metodi. Sono state selezionate dall'archivio delle dimissioni ospedaliere (SDO) e dall'archivio di Prevenzione serena le donne di 50-70 anni residenti nelle ASL in studio con ricovero per carcinoma della mammella o connesso trattamento chemio o radioterapico negli anni 2003-2004. Il gruppo di donne (n=132) giunte alla diagnosi attraverso lo screening (Gruppo Screening) è stato confrontato con le donne (n=268) non diagnosticate dal programma (Gruppo SDO).

Risultati. Nell'analisi statistica sono state considerate solo le prime lesioni. Confrontando il gruppo SDO e il gruppo Screening, è stato rilevato che l'82% vs il 66% delle donne aveva una diagnosi di tumore invasivo. Nel gruppo SDO, la frequenza delle tipologie di intervento è stata: quadrantectomia 58%, biopsia escissiona-

le/tumorectomia 23% e mastectomia totale 15%. Nel gruppo Screening, le frequenze sono state: quadrantectomia 54%, biopsia escissionale/tumorectomia 40% e mastectomia totale 4,7%. Ulteriori risultati saranno presentati al convegno, in particolare in relazione agli aspetti biologici della lesione.

Conclusioni. Lo studio ha confermato che l'attività di screening permette l'identificazione precoce dei tumori, permettendo interventi chirurgici meno invasivi; e ha individuato alcune differenze tra la donne partecipanti e non allo screening. Occorre un approfondimento per valutare la possibile sovradiagnosi di lesioni a lenta progressione.



- P61 -

CONFRONTO DEI COSTI PER RICOVERI OSPEDALIERI TRA UN GRUPPO DI DONNE RESIDENTI A SIRACUSA CON DIAGNOSI DI TUMORE MALIGNO MAMMARIO INFILTRANTE "SCREEN DETECTED" E UN GRUPPO "NON SCREEN DETECTED"

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Introduzione. Vari studi dimostrano che lo screening mammografico è vantaggioso per la salute di una comunità; lo è anche per il contenimento della spesa ospedaliera?

Obiettivi. Verificare se i ricoveri ospedalieri per tumore mammario hanno costi differenti tra le "screen detected" (SD) rispetto alle "non screen detected" (NSD). Fornire un ulteriore contributo al management per attivare lo screening mammografico.

Metodi. A 28 donne 50-69enni residenti a Siracusa tra luglio 2001 e ottobre 2003 è stato diagnosticato un tumore maligno mammario infiltrante dopo una mammografia di screening (SD); per altre 28 donne la diagnosi è avvenuta al di fuori del programma di screening (NSD). Dall'archivio SDO si sono poi selezionati i ricoveri per tumore mammario nei 2 anni successivi alla diagnosi, calcolando il totale dei ricoveri e i costi dei DRGs.

Risultati. Tra le SD vi sono stati 66 ricoveri (42 in provincia, 24 fuori) per un costo totale di € 155.842,27, con un costo medio pro-capite di € 5565,79; per mobilità sanitaria passiva il costo è di € 65.558,47. Nelle NSD si sono avuti 76 ricoveri (27 in provincia, 44 fuori) per un costo totale di € 170.518,46 (con un costo medio pro-capite di € 6.089,94); per mobilità passiva il costo è di € 106.457,21. Si è avuto un minor costo totale di € 14.676,19 e come mobilità passiva di € 40.898,74 tra SD rispetto a NSD. Degno di interesse il rilievo che 42 ricoveri su 66 (66%) tra le SD siano in provincia, mentre tra le NSD lo erano 27 ricoveri su 76 (35,5%).

Conclusioni. Si rafforza la convinzione di raccomandare al management la implementazione del programma di screening mammografico. Il più frequente ricorso al ricovero in provincia nelle SD denota una maggior fiducia verso la propria azienda sanitaria, già espressa con l'adesione all'invito per la mammografia, a cui va aggiunto l'effetto "presa in carico" da parte della azienda stessa, che con lo screening offre alle donne un percorso assistenziale completo.

- P62 -

VALUTAZIONE DELLE INDICAZIONI ALLA SORVEGLIANZA ENDOSCOPICA: APPROPRIATEZZA, ADESIONE E DETECTION RATE

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Introduzione. L'adesione all'approfondimento diagnostico in presenza di un test di screening positivo è uno dei parametri fondamentali per valutare l'impatto del programma.

Obiettivi. Valutare l'adesione alla colonscopia di approfondimento (CTA), l'appropriatezza dell'indicazione dopo CTA, l'adesione alla prima CT di follow-up a 3 anni (CTF).

Metodi. Una CTA viene indicata ai soggetti positivi al FOBT o alla sigmoidoscopia (FS-almeno un polipo di diametro ≥ 10 mm, almeno 3 adenomi, adenoma < 10 mm con displasia di alto grado o componente villosa $> 20\%$, cancro), o per lo screening con FS, soggetti con preparazione inadeguata in presenza di polipi, o su indicazione dell'endoscopista. E' previsto un follow-up attivo con lettera, a 3 anni per pazienti con 1 adenoma avanzato o con 3-4 adenomi tubulari; in presenza di 5 o più adenomi o lesioni estese è prevista una CT entro 1 anno.

Risultati. FOBT - L'adesione a CTA è 80%. L'87% dei soggetti che hanno effettuato una CTA ha avuto almeno un esame completo; il 93,2% ha effettuato un solo esame. 8/347 soggetti con colonscopia incompleta hanno eseguito 2 esami. Al 51% dei soggetti con colon incomplete è stato indicato un clisma a doppio contrasto: il 56% ha aderito. L'adesione alla CTF è 52% per i pazienti che al momento della prima colon avevano più di 66 anni, 63% per quelli con età inferiore ($p > 0,05$). FS - L'adesione a CTA è stata del 95%, il 93% dei soggetti ha avuto almeno un esame completo; il 91% di questi ha effettuato un solo esame. Il 52% delle persone con CT incompleta ha ricevuto indicazione al clisma a doppio contrasto e il 27% è stato rinviato a 3 anni; in 3 casi è stata indicata la chirurgia. L'adesione alla CTF è del 57%.

Conclusioni. Un solo esame è sufficiente indicare una CTF in oltre il 90% dei casi, per l'1% dei soggetti si rendono necessarie più di 2 colonscopie. L'adesione al follow-up è insoddisfacente.



- P63 -

EFFICACIA DEL PAP-TEST ORGANIZZATO NEL FAVORIRE L'ADESIONE E RIDURRE DISEGUAGLIANZE NELL'ACCESSO

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Obiettivi. Valutare l'efficacia dello screening organizzato e sufficientemente funzionante rispetto alla prevenzione individuale nel

favorire l'adesione alle linee guida e ridurre le disuguaglianze di accesso.

Metodi. Dati raccolti dal sistema di Sorveglianza PASSI nel 2009 tramite interviste telefoniche mensili, condotte con questionario standardizzato da personale delle ASL, specificamente formato, a residenti 18-69enni estratti dalle liste anagrafiche sanitarie con campionamento casuale stratificato per sesso ed età. 21 Regioni/PA partecipanti; 16.604 donne 25-64enni intervistate (tasso risposta 88%, rifiuti 9%). Si sono considerate "Regioni con screening organizzato e funzionante" quelle nelle quali almeno il 50% delle donne intervistate ha riferito di aver ricevuto la lettera di invito dell'ASL. Analisi su dati pesati del pool nazionale (153 ASL, 94% del totale delle ASL italiane), testando le associazioni tra variabili in studio con regressione logistica.

Risultati. Il 73% (IC95%: 72-74%) delle donne 25-64enni intervistate ha riferito di aver eseguito un Pap-test preventivo negli ultimi 3 anni: 36% all'interno di uno screening organizzato, 37% come prevenzione individuale. La copertura nello screening organizzato è significativamente maggiore al Nord (82,2%; IC95%: 81,2-83,2) e al Centro (79,6%; IC95%: 78,1-81,1) rispetto al Sud (58,0%; IC95%: 55,9-60,1), mentre la quota di prevenzione individuale non mostra differenze territoriali rilevanti. La copertura al test di screening è minore nelle donne di 25-34 anni (66% vs 79% 35-49enni e 71% 50-64enni), con basso livello d'istruzione (68% vs 76%), difficoltà economiche (69% vs 78%) e residenti al Sud. Nelle Regioni con un'alta presenza di programmi organizzati e sufficientemente funzionanti la copertura al Pap-test complessiva è significativamente maggiore (81% vs 66%, $p < 0,01$) e si riducono le differenze nell'accesso per livello d'istruzione (-7% vs -10% $p < 0,01$) e difficoltà economiche (-6% vs -10% $p < 0,01$). Nella regressione logistica si confermano fattori predittivi significativi di adesione alle linee guida la maggiore età (OR 1,76; IC95%: 1,58-1,96 35-49enni vs 25-34enni e OR 1,30; IC95%: 1,16-1,46 50-64enni vs 25-34enni), l'assenza di difficoltà economiche (OR 1,24; IC95%: 1,13-1,35), l'alto livello d'istruzione (OR 1,38; IC95%: 1,26-1,51), la residenza al Centro-Nord (OR 2,55; IC95%: 2,33-2,80) e l'aver ricevuto lettera (OR 2,23; IC95%: 2,04-2,44) o consiglio del sanitario (OR 3,32; IC95%: 3,05-3,61).

Conclusioni. I risultati mostrano la maggior efficacia dei programmi organizzati e funzionanti rispetto alla prevenzione individuale nell'aumentare l'adesione alle linee guida e nel ridurre le disuguaglianze di accesso legate a fattori socio-economici. L'implementazione degli screening organizzati può pertanto contribuire a ridurre differenze territoriali ancora rilevanti.

- ◆ -

- P64 -

EFFICACIA DELLO SCREENING MAMMOGRAFICO ORGANIZZATO NEL FAVORIRE L'ADESIONE E RIDURRE DISEGUAGLIANZE NELL'ACCESSO

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Obiettivi. Valutare l'efficacia dello screening organizzato e sufficientemente funzionante rispetto alla prevenzione individuale nel favorire l'adesione alle linee guida e ridurre le disuguaglianze di accesso.

Metodi. Dati raccolti dal sistema di Sorveglianza PASSI nel 2009 tramite interviste telefoniche mensili, condotte con questionario standardizzato da personale delle ASL, specificamente formato, a residenti 18-69enni estratti dalle liste anagrafiche sanitarie con campionamento casuale stratificato per sesso ed età. 21 Regioni/PA partecipanti; 7.491 donne 50-69enni intervistate (tasso risposta 88%, rifiuti 9%). Si sono considerate "Regioni con screening organizzato e funzionante" quelle nelle quali almeno il 50% delle donne intervistate ha riferito di aver ricevuto la lettera di invito dell'ASL. Analisi su dati pesati del pool nazionale (153 ASL, 94% del totale), testando le associazioni tra variabili in studio con regressione logistica.

Risultati. Il 68% (IC95%: 67-70%) delle donne di 50-69enni intervistate ha riferito di aver eseguito una mammografia preventiva negli ultimi 2 anni: 50% all'interno di uno screening organizzato, 18% come prevenzione individuale. La quota di adesione all'interno dello screening organizzato è significativamente maggiore al Nord (80,2%; IC95%: 78,7-81,7) e al Centro (75,5%; IC95%: 72,9-78,1) rispetto al Sud (48,6%; IC95%: 45,4-51,7), mentre la quota di prevenzione individuale non mostra differenze territoriali rilevanti. La copertura alla mammografia complessiva è minore nelle donne con basso livello d'istruzione (66% vs 73%), con difficoltà economiche (64% vs 75%) e residenti al Sud (49% vs 80% Nord e 76% Centro). Nelle Regioni con un'alta presenza di programmi organizzati e sufficientemente funzionanti la copertura è significativamente maggiore (78% vs 51%, $p < 0,01$) e si riducono le differenze nell'accesso per livello d'istruzione (-3% vs -12%) e difficoltà economiche (-5% vs -7%). Nella regressione logistica si confermano fattori predittivi significativi di adesione alle linee guida l'assenza di difficoltà economiche (OR 1,26; IC95%: 1,12-1,42), la residenza al Centro-Nord (OR 2,32; IC95%: 2,03-2,66), e l'aver ricevuto lettera (OR 2,83; IC95%: 2,50-3,21), o consiglio del sanitario (OR 2,15; IC95%: 1,92-2,42), o aver visto una campagna informativa (OR 1,23; IC95%: 1,09-1,39).

Conclusioni. I risultati mostrano la maggior efficacia dei programmi organizzati e funzionanti rispetto alla prevenzione individuale nell'aumentare l'adesione alle linee guida e nel ridurre le disuguaglianze di accesso legate a fattori socio-economici. L'implementazione degli screening organizzati può pertanto contribuire a ridurre differenze territoriali ancora rilevanti.

- ◆ -

Stili di vita

- P65 -

QUAL E' IL GAP TEMPORALE TRA PRIMO USO E PRIMA RICHIESTA DI TRATTAMENTO PER I SOGGETTI CON PROBLEMI DI ALCOL? QUALI FATTORI INFLUENZANO QUESTO INTERVALLO DI TEMPO?

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Introduzione. Un indicatore epidemiologico indiretto per valutare la capacità di attrazione dei servizi è il tempo di latenza definito come l'intervallo di tempo tra il primo uso di una sostanza e la prima richiesta di cura.

Obiettivi. Stimare la distribuzione del tempo di latenza e valutare l'influenza di alcune variabili su tale indicatore.

Metodi. Sono stati analizzati i nuovi utenti che hanno attivato un primo trattamento presso i Servizi pubblici per le tossicodipendenze (Ser.T) della Provincia di Pavia tra il 2003 e il 2009 per alcolismo. E' stata condotta un'analisi dei tempi di latenza sia stimando le funzioni di sopravvivenza per varie covariate con il metodo di Kaplan-Meier (confrontando le curve con il Log-Rank o Wilcoxon test), sia analizzando l'effetto delle singole variabili sul "rischio" di entrare in trattamento con il modello di Weibull.

Risultati. Sono stati analizzati 750 soggetti, 80% maschi, con una età mediana di primo uso pari a 20 anni e di primo trattamento di circa 43 anni. Il 50% ha un tempo di latenza di circa 18 anni (media 19,4±11,9). E' stata osservata un'associazione significativa con il genere, l'età di 1° utilizzo, il tipo di sostanza alcolica, il poli-abuso e la modalità di invio al Ser.T (attivazione o meno di una procedura legale). Il modello finale di Weibull evidenzia che: le donne (HR=1,31), chi inizia ad usare alcol dopo i 20 anni (HR=1,65) e i poli-abusatori (HR=2,10) hanno un "rischio" maggiore di richiedere un 1° trattamento, mentre chi utilizza prevalentemente vino (HR=0,63) arriva più tardi ai servizi.

Conclusioni. Il 50% dei soggetti alcolisti impiega circa due decadi prima di richiedere un trattamento ai Ser.T. Per ridurre questo gap temporale, le politiche di prevenzione dovrebbero indirizzarsi su un target di popolazione di giovani maschi, non necessariamente utilizzatori di altre sostanze. Inoltre l'abitudine a bere vino, tipica della cultura 'mediterranea', allunga i tempi per una richiesta di aiuto.



- P66 -

LE "MERENDINE" COME FATTORE DI RISCHIO PER IL SOVRAPPESO E L'OBESITÀ NELLO STILE DI VITA DELL'INFANZIA NEI PAESI SVILUPPATI

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Introduzione. In Italia, come in altri Paesi sviluppati, il sovrappeso

so e l'obesità hanno raggiunto proporzioni epidemiche anche tra i bambini. Principali responsabili sono lo stile di vita proprio di una società avanzata, che ha determinato la transizione dalle diete della tradizione regionale a una dieta globalizzata con alimenti di produzione industriale. In particolare, i prodotti da forno comunemente denominati "merendine" hanno sostituito il pane e latte della prima colazione e il panino e la frutta della merenda del passato. Al loro successo contribuiscono la praticità delle confezioni, la presentazione accattivante sia per le mamme sia per i bambini e la pubblicità che li presenta come alimenti salutarì per l'infanzia.

Obiettivi. L'obiettivo dell'indagine è stata la verifica dell'idoneità delle "merendine" come alimenti per l'infanzia, ai fini di una dieta sana nell'attuale stile di vita.

Metodi. Sono stati esaminati 37 prodotti da forno omologabili come "merendine", di 14 diverse ditte produttrici. Dalle "informazioni nutrizionali" presenti sulla confezione di ciascun prodotto sono stati rilevati il peso, le Kcal e il contenuto (in g per 100 g) di carboidrati, proteine, grassi e fibre.

Risultati. Dai dati dichiarati sono risultati i seguenti valori medi (min/max): peso 33,17 g (20-55); Kcal 144,96 (91-276); carboidrati 41,73 (15-62,8); proteine 6,62 (4-9,7); grassi 22,73 (9,2-48,3); fibre 1,02 (0-3,4).

Conclusioni. I prodotti esaminati si caratterizzano per il potere calorico elevato rispetto al loro peso ed al loro volume, per l'elevato contenuto in zuccheri semplici e grassi e per l'esiguo contenuto in fibre. Queste caratteristiche, unite alla facilità con cui possono essere masticati e deglutiti, sono proprie di uno stile alimentare che facilita il sovrappeso e l'obesità nell'infanzia, preludio alla sindrome metabolica dell'adulto.



- P67 -

ALIMENTI VEGETALI PER LA IODOPROFILASSI: ASPETTATIVE AL CONSUMO

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Introduzione. La possibilità di disporre di frutta e verdura con un maggior contenuto di iodio costituisce un'interessante opportunità per coniugare due obiettivi di salute pubblica: la riduzione dell'incidenza di ipotiroidismo e la prevenzione dei tumori e delle malattie cardiovascolari.

Obiettivi. Ci si è proposti di indagare aspettative e preferenze circa il consumo di frutta e verdura arricchite con iodio tramite modifiche delle tecniche di coltivazione.

Metodi. L'indagine è stata effettuata all'inizio del 2010 presso due centri commerciali dell'hinterland bolognese (n=220, età >18 anni, 58% donne) tramite un questionario di indagine predisposto secondo i criteri della consumer science somministrato da personale addestrato. L'elaborazione dei risultati (inclusa un'analisi delle corrispondenze) è stata eseguita con software statistico Sas (Sas Institute, Cary NC, USA).

Risultati. Il ruolo delle sostanze che svolgono una funzione protettiva (es: fibre e iodio) è conosciuto da circa il 70% degli intervistati.

stati. Circa il 50% ritiene che il consumo degli alimenti che le contengono dovrebbe essere frequente o abituale e preferirebbe soddisfarne il fabbisogno con prodotti di origine vegetale. La carenza iodica è un problema conosciuto (84%) e la sua incidenza sulla popolazione è ritenuta importante. Il 58% degli intervistati usa sale iodato. Il 46% si dichiara molto interessato a consumare frutta o verdura arricchite con iodio. Si registra un notevole interesse per le informazioni sulle modalità di coltivazione per ottenere prodotti arricchiti. Le fonti di informazione ritenute più accreditate per fornire indicazioni su alimentazione salute sono il medico di famiglia (77%) e le istituzioni scientifiche (71%).

Conclusioni. I prodotti vegetali arricchiti con iodio riscontrano attenzione e interesse nel campione esaminato e possono costituire un ulteriore strumento di prevenzione comunitaria. Appare comunque decisivo corredarli di qualificate informazioni sui processi di produzione.



- P68 -

VALUTAZIONE DELLA FORMA FISICA E DEL GRADO DI ALLENAMENTO IN UN GRUPPO DI DONNE FIORENTINE

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Introduzione. E' in corso uno studio randomizzato (finanziato dall'Istituto Tumori Toscano) per valutare l'efficacia di un intervento strutturato della durata di 2 anni di modifica dell'attività fisica (esecuzione di un'ora di palestra guidata settimanale e di almeno un'ora di attività moderata giornaliera libera) e/o della alimentazione nel ridurre la densità mammografica, un fattore di rischio noto per il tumore del seno, rivolto a donne in post menopausa di età 50-69 anni, con seno denso, non affette da patologie, non fumatrici, non in terapia ormonale. Nell'ambito dello studio è stata effettuata una valutazione del livello di efficienza fisica al baseline.

Obiettivi. Valutare il grado di allenamento e la forma fisica con test strumentali secondo un protocollo standardizzato.

Metodi. Sono stati misurati, oltre a parametri antropometrici (peso, altezza, circonferenza vita e fianchi), la flessibilità del tronco (test "Sit and Reach"), la forza muscolare isometrica degli arti superiori e la fitness cardiovascolare (stima della VO_2 max con test al cicloergometro).

Risultati. Nelle 143 donne valutate i valori medi erano: indice di massa corporea ($IMC = \text{peso}/\text{altezza}^2$) = $24,5 \text{ kg/m}^2$ DS 3,5; circonferenza vita (CV) = $78,5 \text{ cm}$ DS 7,9; flessibilità del tronco = $38,4 \text{ cm}$ DS 10,7; forza isometrica degli arti superiori = $18,8 \text{ Kg}$ DS 4,3; $VO_2\text{max} = 27,8 \text{ ml/kg/min}$; DS 7,6. Nelle donne normopeso ($IMC < 25$) risultano più alti sia il valore medio di $VO_2\text{max}$ ($p = 0,01$) sia

il valore medio di flessibilità ($p = 0,02$). Nelle donne più giovani ($< 60 \text{ aa}$) la forza isometrica risultava maggiore ($p = 0,01$).

Conclusioni. Questo gruppo di donne, mediamente normopeso, risulta avere una forma fisica e un grado di allenamento compatibili con lo stile di vita prevalentemente sedentario riferito tramite questionario al baseline. La misurazione degli stessi indici in tutte le partecipanti al termine del periodo di intervento consentirà di valutare i cambiamenti indotti dal programma.



- P69 -

IL LIVELLO SOCIO-ECONOMICO DELLE MADRI E L'ERRATA PERCEZIONE DELLO STATO PONDERALE E DELLA SEDENTARIETÀ DEI PROPRI FIGLI

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Introduzione. Il sovrappeso e l'obesità infantile rappresentano un fattore di rischio per l'insorgenza di gravi patologie. Spesso le madri di bambini con eccesso ponderale hanno un'errata percezione dello stato ponderale dei propri figli. Diversi studi hanno dimostrato che questa errata percezione è spesso correlata al basso livello socio-economico delle madri. In Italia, attraverso il sistema di sorveglianza OKkio alla SALUTE, coordinato dall'Istituto superiore di sanità, sono stati raccolti dati sullo stato nutrizionale dei bambini rilevando anche la percezione delle madri circa lo stato ponderale dei figli.

Obiettivi. Con i dati di OKkio alla SALUTE è stato valutato l'effetto del grado di istruzione materna sulla percezione dello stato ponderale e dell'attività fisica del proprio figlio.

Metodi. Un campione rappresentativo di bambini della terza primaria è stato pesato e misurato e attraverso questionari rivolti ai bambini, ai genitori e alla scuola sono state raccolte informazioni su potenziali fattori di rischio.

Risultati. 45.590 bambini sono stati coinvolti nella raccolta 2008. Il 49% delle madri di bambini in sovrappeso e il 10% delle madri di bambini obesi considerano il proprio figlio normopeso o sottopeso. Un fattore in grado di incidere sulla percezione è l'istruzione dei genitori. In particolare, la percentuale di bambini in sovrappeso o obesi non correttamente classificati dalle proprie madri va dal 68% per i figli di donne con basso livello di istruzione al 53% per i figli di donne laureate. Inoltre, il 53% delle madri di figli fisicamente poco attivi ritiene che il proprio bambino svolga un'attività fisica sufficiente, con differenze per istruzione materna. Il fenomeno è più rilevante nel Centro-Sud Italia.

Conclusioni. OKkio alla SALUTE ha evidenziato che le mamme con basso livello culturale sottostimano l'eccesso ponderale e la sedentarietà dei figli. Nella programmazione degli interventi di promozione della salute bisognerà tener conto di ciò.