



Sorveglianza sulla salute della
Popolazione nei pressi del
Termovalorizzatore di
Torino



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“Risk perception of people involved in biomonitoring of the general population living near an Italian incinerator”

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Background and Aims

Since September 2013 in Turin (Italy), a **waste-to-energy (WTE) plant** started to produce energy by the incineration of municipal solid waste. A **health surveillance system** of the population living near WTE plant was promoted by local authorities through the SPoTT program. One topic of this program is the **biomonitoring** of the resident population before the start-up of WTE plant (T0 step), after 1 year (T1) and 3 years (T2) of plant activity. The surveillance system includes an **evaluation of risk perception** before the entry into operation, here presented.

Methods

394 subjects (35 - 69 years) were randomly sampled from the municipal registry and stratified by sex and five-year age groups: 196 residents in the exposed area (E) and 198 in a control area (C). A **questionnaire** gathered information about risk perception, awareness of environmental and health issues, sources of information used, and the most reliable authorities to provide information on environment and health issues.

A **logistic regression** was performed, controlling for exposure area, gender, age, place of birth, educational level, marital status, presence of children, perceived health status. Differences in the overall sample and between exposed and control group by each variable are tested. Odds ratios are presented with 95% CI

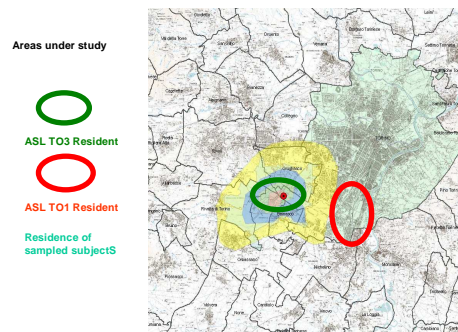


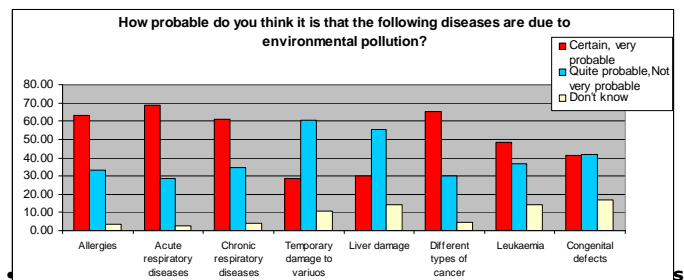
Figure I. Fall-out maps. Red dot is the location of the WTE plant, green area is the municipality of Turin. Blue and yellow areas correspond to two different levels of fall-out maps

Results

- Exposed people are more concerned than unexposed ones about natural events (OR=1.93, CI:1.10-3.41), anthropogenic events (OR=2.11, CI:1.37-3.25) and waste management (OR=2.10, CI:1.27-3.47)
- There are no significant differences between exposed and unexposed in considering certain diseases related to environmental pollution, but only the exposed consider themselves to be at risk for the same diseases.

	Natural dangers	Anthropogenic dangers	Waste management
Unexposed	1	1	1
Exposed	1.93 (1.10-3.41)	2.11 (1.37-3.25)	2.10 (1.27-3.47)
Males	1	1	1
Females	3.75 (2.06-6.85)	1.59 (1.03-2.44)	1.51 (0.92-2.47)
Married/cohabiting	1	1	1
Single/Widow(er)	1.35 (0.57-3.18)	1.03 (0.52-2.03)	1.08 (0.50-2.32)
Separated/divorced	0.68(0.22-2.08)	0.87 (0.35-2.18)	0.47 (0.18-1.20)
Good state of health declared	1	1	1
Poor state of health declared	1.48 (0.84-2.62)	1.15 (0.72-1.84)	0.98 (0.58-1.68)
Area of birth North	1	1	1
Area of birth Centre-South and Islands	1.46 (0.79-2.69)	0.94 (0.57-1.57)	1.25 (0.68-2.29)
Area of birth Abroad	1.14 (0.28-4.61)	1.25 (0.47-3.33)	0.75 (0.28-2.05)
Had children: NO	1	1	1
Had children: Yes	1.16 (0.51-2.63)	1.24 (0.69-2.23)	1.34 (0.70-2.56)
Age class>55	1	1	1
Age class (30.45]	0.41 (0.18-0.91)	0.65 (0.38-1.12)	0.82 (0.44-1.51)
Age class (45.55]	0.96 (0.51-1.79)	1.65 (0.97-2.79)	1.58 (0.84-2.98)
Middle or primary school certificate	1	1	1
High school diploma	0.84 (0.46-1.54)	1.04 (0.64-1.69)	0.95 (0.55-1.65)

Table I. Differences in perception regarding natural and anthropogenic dangers and waste management: results of the multivariate logistic regression, OR (IC 95%).



or illness than the unexposed: allergies (OR=2.16, CI:1.34-3.46), acute and chronic respiratory diseases (OR=2.11, CI:1.31-3.37; OR=1.95, CI:1.20-3.17), temporary damage (OR=4.42, CI:2.16-9.02), liver damage (OR=3.77, CI:1.98-7.17), cancers (OR=5.62, CI:3.33-9.49), leukemia (OR=7.04, CI:3.72-13.33) and congenital diseases (OR=9.00, CI:3.80-21.31).

- Respondents have more confidence in health professionals (38.7% of respondents) than in the institutions and local authorities (24.7%).

Conclusions

The survey shows a general worry status in people exposed to incinerator. The questionnaire will be offered again after three years of operation of the incinerator (T2) to monitor if there will be changes in risk perception and to check the efficacy of SPoTT communication plan.