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# Rapid Review to Update Evidence for the Healthy Child Programme 0–5

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# Summary

## Introduction

The Healthy Child Programme (HCP) is the key universal public health service for improving the health and wellbeing of children through health and development reviews, health promotion, parenting support, screening and immunisation programmes. The current programme for 0-5 year-olds is based on the evidence available at the time of the last update of the HCP 0-5 years in 2009. As local authorities take on the commissioning of the HCP 0-5 years and its delivery via the universal health visiting service, it is important that it is underpinned by the latest evidence.

The purpose of this rapid review is therefore to update the evidence. Specifically, the aim is to synthesise relevant systematic review level evidence about 'what works' in key areas: parental mental health; smoking; alcohol/drug misuse; intimate partner violence; preparation and support for childbirth and the transition to parenthood; attachment; parenting support; unintentional injury in the home; safety from abuse and neglect; nutrition and obesity prevention; and speech, language and communication. In addition, the review seeks to draw out key messages in relation to:

- identifying families in need of additional support; the delivery/effective implementation of interventions at the programme/service level and individual practitioner level
- workforce skills and training
- the economic value/cost benefits of the HCP, including both health and wider societal costs

The rapid review includes systematic review level evidence published from 2008 to mid-2014, and focuses on promotion, universal, selective, and indicated interventions. Searches for primary evidence (notably randomised controlled trials (RCTs) were also undertaken on four outcomes where it was considered that significant new data had been published since the most recent systematic review: obesity prevention for 0-3 year-olds; attachment; parenting support; and speech, language and communication. The study only included reviews published in English and did not include the following:

- aspects of the HCP that will continue to be commissioned by NHS England (ie immunisation/vaccination and screening programmes)
- the HCP delivered during pregnancy by midwives that is commissioned by clinical commissioning groups (except where there is new evidence regarding the interface between the health visiting services and the midwifery services, especially in relation to pre-delivery visits by the health visitor and handover between the services)

- targeted programmes that are delivered in conjunction with health visitors but not necessarily led by them (eg families involved in multi-agency interventions in relation to safeguarding)
- the Family Nurse Partnership programme

An additional focused search was undertaken to identify relevant papers in relation to implementation, identifying families in need of additional support and workforce skills and training. With the exception of the four outcome areas identified above, the review does not include evaluations of interventions that have not yet been synthesised in systematic reviews. The review also excludes systematic reviews that do not address effectiveness.

In order to identify relevant systematic reviews, relevant databases were searched, including those of key organisations (eg Cochrane Collaboration, NICE, EPPI Centre, Campbell Collaboration) and key electronic health, social science and education databases (eg PubMed, PsychInfo, CINAHL). The following inclusion criteria were used: study design (systematic reviews and reviews of reviews); years (2008 to circa July 2014); outcomes (related to the list above); and population (children aged 0-5 and/or parents/carers, and focusing on promotion, universal, selective and indicated interventions). A similar procedure operated in the search for primary studies, except that the timeframe was 2009 to circa November 2014. In both cases the standard searches were supplemented with other sources.

Suitably qualified and trained reviewers reviewed studies that met the inclusion criteria in order to extract key information and critically appraise study quality (different forms were used for the systematic reviews and primary studies respectively). Reviews were checked for accuracy and consistency. Experts were consulted to ensure that the search had identified the main relevant studies, and to review the critical appraisal and interpretation of findings in order to ensure that the results presented accurately reflect the available evidence.

The review includes evidence from 160 systematic reviews. A further 50 RCTs were included as part of the primary reviews.

The economic analysis is based on a review of the systematic reviews conducted by the Washington State Institute for Public Policy that analyse the effects of short-term outcomes in the 0-5 age range on longer-term outcomes. These reviews inform cost-benefit analyses of discrete interventions. For interventions that focus on 0-5 year-olds for which the Social Research Unit has conducted cost-benefit analysis, the report provides information about whether effects on short-term outcomes result in monetary benefits in the longer term.



The summaries below summarise key messages from the research for each topic and indicate whether this is new evidence in relation to the earlier review of the evidence (Barlow et al 2008). Where relevant, reference is made to NICE guidance, which contains systematically-developed recommendations based on the best available evidence. A brief overview of areas for further research is also provided at the end.

## **Maternal mental health**

### **Identification of ante/postnatal anxiety and depression**

The NICE guidance on antenatal and postnatal mental health (NICE 2014a, guideline CG192), which is based on a series of systematic reviews, recommends that at the first contact with primary care or the booking visit, and all contacts after, the health visitor and other healthcare professionals who have regular contact with a woman in pregnancy and the postnatal period (first year after birth) should consider asking the two Whooley depression identification questions and the GAD-2 as part of a general discussion about her mental health and wellbeing and using the EPDS or the PHQ-9 as part of monitoring. [NEW]

### **Identification of severe mental illness and alcohol/substance dependency**

NICE (2014a) recommends that a woman's first contact with services in pregnancy and the postnatal period should also include identification of severe mental illness. If alcohol misuse is suspected, the Alcohol Use Disorders Identification Test (AUDIT) should be used as an identification tool in line with recommendation 1.2.1.4 of the guideline on alcohol-use disorders and preventing harmful drinking (NICE guideline CG115) [NEW], and if drug misuse is suspected, the practitioner should follow the recommendations on identification and assessment in section 1.2 of the guideline on psychosocial interventions for drug misuse (NICE guideline CG51). [NEW]

### **Prevention of antenatal/postnatal depression**

There is currently insufficient evidence of the benefits of feedback during ultrasound and a variety of alternative therapies in preventing maternal anxiety or stress during pregnancy.

Women who receive a psychosocial or psychological intervention during pregnancy or the post-partum period that is designed to prevent postnatal depression are significantly less likely to develop postpartum depression compared with those who receive standard care. Promising interventions include interpersonal psychotherapy, intensive home visiting by professionals, and peer-led telephone support (although evidence on the latter is inconsistent). Interventions that are not supported by the

evidence currently (ie evidence of no impact, or uncertain evidence) include antenatal classes that address postnatal depression, lay-based home visiting, and in-hospital psychological debriefing. Group-based parenting programmes can improve a number of aspects of maternal mental health, including depression and anxiety, although they are not recommended as primary treatments for these conditions.

## **Treatment of antenatal/postnatal depression**

NICE (2014a) recommends that women with persistent subthreshold depressive symptoms, or mild to moderate depression, in pregnancy or the postnatal period should be offered facilitated self-help [NEW], and that where women with a history of severe depression initially present with mild depression in pregnancy or the postnatal period, a TCA<sup>1</sup>, SSRI<sup>2</sup> or (S)NRI<sup>3</sup> should be considered. [NEW]

For a woman with moderate or severe depression in pregnancy or the postnatal period, options should include a high-intensity psychological intervention, for example, cognitive behaviour therapy (CBT); or a TCA, SSRI or (S)NRI; or a high-intensity psychological intervention in combination with medication. [NEW]

Evidence from reviews of interventions other than pharmacological, psychosocial and psychological for treating antenatal/postnatal depression is inconclusive, and does not permit recommendations for depression-specific acupuncture, maternal massage, bright light therapy, or omega-3 fatty acids to treat antenatal depression.

There is no evidence to support the use of group CBT, exercise interventions, or omega-3 fatty acids for the treatment of postnatal depression.

## **Treatment of antenatal/postnatal anxiety**

NICE (2014a) recommends that a woman with persistent subthreshold symptoms of anxiety in pregnancy or the postnatal period should be offered facilitated self-help. This should consist of the use of CBT-based self-help materials over 2-3 months with support (either face to face or by telephone) for a total of 2-3 hours over 6 sessions. [NEW]

Women with anxiety disorders in pregnancy or the postnatal period should be offered a low-intensity psychological intervention (for example, facilitated self-help) or a high-intensity psychological intervention (for example, CBT) as initial treatment in line with

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<sup>1</sup> Tricyclic antidepressants (TCA)

<sup>2</sup> Selective serotonin reuptake inhibitor (SSRI)

<sup>3</sup> Serotonin and norepinephrine reuptake inhibitors (SNRIs)

the recommendations set out in the NICE guideline for the specific mental health problem. [NEW]

## **Treatment of other mental health problems**

NICE (2014a) also makes a range of recommendations for women with eating disorders, alcohol and drug dependency (see section below on 'Drugs and alcohol'), and severe mental illness in pregnancy and the postnatal period.

## **The mother-baby relationship**

NICE (2014a) recommends that the nature of the mother-baby relationship should be assessed, including verbal interaction, emotional sensitivity and physical care, at all postnatal contacts. Practitioners should discuss any concerns that the woman has about her relationship with her baby and provide information and treatment for identified mental health problems. [NEW]

Practitioners are recommended to consider further intervention to improve the mother-baby relationship if any problems in the relationship have not resolved. [NEW]

## **Identifying families in need of additional support**

See section above on the identification of mental health problems.

## **Implementation issues**

Midwives and health visitors are in a key position to educate and support women about mental health and wellbeing, and to identify women at risk.

NICE (2014a) recommends that all interventions for mental health problems in pregnancy and the postnatal period are delivered by competent practitioners. Psychological and psychosocial interventions should be based on the relevant treatment manual(s), which should guide the structure and duration of the intervention. Practitioners should consider using competence frameworks developed from the relevant treatment manual(s) and for all interventions practitioners should: receive regular high-quality supervision; use routine outcome measures and ensure that the woman is involved in reviewing the efficacy of the treatment; and engage in monitoring and evaluation of treatment adherence and practitioner competence – for example, by using video and audio tapes, and external audit and scrutiny where appropriate. [NEW]

NICE (2014a) also recommends that managers and senior healthcare professionals responsible for perinatal mental health services (including those working in maternity

and primary care services) should ensure that there are clearly specified care pathways so that all primary and secondary healthcare professionals involved in the care of women during pregnancy and the postnatal period know how to access assessment and treatment

Further, interventions for mental health problems in pregnancy and the postnatal period should be provided within a stepped-care model of service delivery in line with recommendation 1.5.1.3 of the guideline on common mental health disorders (NICE guideline CG123). [NEW]

## **Workforce skills and training**

NICE (2014a) guidelines recommend that all healthcare professionals providing assessment and interventions for mental health problems in pregnancy and the postnatal period should understand the variations in their presentation and course at these times, how these variations affect treatment, and the context in which they are assessed and treated (for example, maternity services, health visiting and mental health services). [NEW]

Many psychological and psychosocial interventions to improve maternal mental health and wellbeing in the perinatal period require additional training of midwives and health visitors, but no intervention can currently be definitively recommended in clinical practice. It would therefore be premature to consider introducing any of the identified interventions into midwifery training and practice.

## **Smoking**

### **Antenatal**

Psychosocial interventions during pregnancy can increase the proportion of women who stop smoking in late pregnancy, and reduce low birthweight and preterm births. Incentive-based interventions show the largest effect, although caution is needed, because they were only effective with intensive delivery and studies were in the US.

Financial incentives to promote non-smoking during pregnancy show promise, and may meet the treatment needs of socio-economically disadvantaged women and heavy smokers. [NEW]

There is insufficient evidence to assess the efficacy, safety, or impact on birth outcomes of nicotine replacement therapy (NRT) when used to promote smoking cessation during pregnancy.

The provision to pregnant women of feedback on its own (ie not in conjunction with other strategies, such as counselling) about the effects of smoking on the unborn child and on their own health is not effective in smoking cessation.

Proactive telephone counselling is effective in helping to reduce smoking in smokers who seek help from quitlines.

Self-help smoking cessation interventions for pregnant smokers appear to be effective but it is unclear whether more sophisticated and intensive approaches increase intervention effectiveness. [NEW]

A review of smoking cessation relapse prevention interventions found no effect overall or by type or timing for behavioural relapse prevention interventions for pregnant or postpartum women.

The evidence for the efficacy of interventions to establish smoke-free homes in pregnancy and in the neonatal period is inconclusive.

Specific behavioural change components within effective behavioural smoking cessation interventions during pregnancy include: the provision of rewards based on smoking cessation; utilising carbon monoxide (CO) measures; facilitating relapse prevention (helping the smoker understand how lapses occur and how they lead to relapse and to develop specific strategies for preventing lapses or avoiding lapses turning into relapse); information on consequences of smoking and cessation; facilitating problem-solving; identifying relapse triggers; goal setting; assessing current and past smoking behaviour; assessing readiness to quit; appropriate written materials; and facilitating social support. [NEW]

## **Postnatal**

There is insufficient evidence to recommend one strategy over another to reduce the prevalence or level of children's environmental tobacco smoke exposure. [NEW]

A review of postpartum lifestyle interventions that may impact on modifiable cardiovascular risk factors found that half of the smoking cessation and relapse prevention interventions identified were effective. These included (i) office-based advice, education and discussion from a doctor postpartum, and (ii) home and telephone counselling interventions based on motivational interviewing techniques. [NEW]

## **Identifying families with additional needs**

The NICE guidance on quitting smoking in pregnancy and following childbirth (NICE 2010a, guideline PH26) recommends that pregnancy clinics implement routine Carbon

Monoxide (CO) testing to help identify women who smoke. All current smokers and those who stopped in the previous two weeks should be referred to NHS Stop Smoking services, as should those with a CO reading of 7 ppm or above, and light or infrequent smokers even if they register a lower reading (eg 3 ppm). [NEW]

In addition, NICE (2010a) recommends that health visitors and other health professionals (eg GPs, family nurses) should use any meeting to ask women who are pregnant if they smoke and, if they do, to advise them to stop, explain how NHS Stop Smoking can help and make a referral to the service (with consent). [NEW]

Women who quit smoking during pregnancy may demonstrate high rates of relapse after pregnancy, and consequently may need additional support.

## **Implementation issues**

Barriers to the implementation of smoking cessation interventions in healthcare settings include healthcare professionals having different perceptions of their respective role in smoking cessation and negative perceptions about intervention efficacy.

NICE (2010a) recommends that NHS Stop Smoking Service specialist advisers should undertake a range of activities, including discussing the benefits of smoking cessation for the mother and child, offering personalised information, advice and support throughout pregnancy and beyond, and regularly monitor the woman's smoking status. [NEW]

## **Workforce and training**

Based on evidence that professionals often perceive themselves to have limited knowledge and skills to deliver effective smoking cessation interventions, NICE (2010a) recommends that midwives who deliver intensive stop-smoking interventions (one-to-one or group support) should be trained to the same level as specialist NHS Stop Smoking advisers (and receive ongoing support). Health visitors and other health professionals (including midwives) should understand: the risks of smoking to women and children / unborn babies; the significant role of partners; and what NHS Stop Smoking Services provide and how to make a referral to them. [NEW]

An assessment of the presence of effective behavioural change techniques within English Stop Smoking services concluded that only a limited number were used in practice. [NEW]

## Drugs and alcohol

### Antenatal

#### *Antenatal education*

See section below on 'Preparation and support for childbirth and the transition to parenthood'.

#### *Brief interventions<sup>4</sup>*

NICE (2014a) guidance on antenatal and postnatal mental health recommends that if hazardous drug or alcohol misuse is identified in pregnancy or the postnatal period, the woman should be referred or offered brief interventions in line with section 1.3.1 of the guideline on psychosocial interventions for drug misuse (NICE 2007b, guideline CG51) or the guideline on alcohol-use disorders and preventing harmful drinking (NICE 2010b, guideline PH24). These brief interventions typically provide information and advice, and seek to motivate participants to change their behaviour (eg covering potential harms of their behaviour, reasons to change, barriers to change, strategies, setting goals).

#### *Psychosocial / psychological interventions<sup>5</sup>*

NICE (2014a) further recommends that if harmful or dependent drug or alcohol misuse is identified in pregnancy or the postnatal period, the woman should be referred to a specialist substance misuse service for advice and treatment. This may entail the use of psychosocial or psychological interventions (it may also require other forms of treatment, including assisted alcohol withdrawal and detoxification).

NICE (2007b) states that a range of psychosocial interventions are effective in treating drug misuse, including contingency management, behavioural couples therapy for drug-specific problems, and various evidence-based psychological interventions, such as CBT, for common comorbid mental health problems.

For harmful levels of drinking and mild alcohol misuse, NICE guidance on the diagnosis, assessment and management of harmful drinking and alcohol dependence (NICE 2011, guideline CG115) recommends the use of psychological interventions (eg cognitive behavioural therapies, behavioural therapies or social network and environment-based therapies) focused specifically on alcohol-related cognitions, behaviour, problems, and social networks. For harmful drinkers and people with mild alcohol dependence who have a regular partner who is willing to participate in treatment, behavioural couple's therapy is recommended.

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<sup>4</sup> The evidence in this category is not specific to women in pregnancy or the postnatal period.

<sup>5</sup> The evidence in this category is not specific to women in pregnancy or the postnatal period.



[For pregnant women who are dependent on alcohol or opioids, it is important to note that NICE (2014a) recommends offering assisted alcohol withdrawal and detoxification respectively.]

#### *Integrated and non-integrated interventions*

There is some evidence that both integrated (eg comprehensive services that address substance abuse as well as maternal and child wellbeing through prenatal services, parenting programmes, child care, and/or other child-centred services in a centralised setting) and non-integrated (eg standalone substance treatment) programmes can improve some birth outcomes for infants of women who have substance misuse problems during pregnancy. Integrated programmes showed a small improvement in parenting, but not on child protection outcomes. [NEW]

There is some evidence that substance abuse programmes integrated with onsite pregnancy, child or parenting services are effective in reducing maternal substance use, but no evidence that they are more effective at reducing substance use than standalone interventions. [NEW]

### **Postnatal**

#### *Brief interventions*

As above.

#### *Psychosocial interventions*

As above.

#### *Home visiting*

There is little evidence for the effectiveness of home visiting interventions that address substance misuse during the postnatal period.

#### *Integrated programmes*

As above.

### **Identifying families in need of additional support**

NICE (2014a) guidance on antenatal and postnatal mental health recommends that if alcohol misuse is suspected, the Alcohol Use Disorders Identification Test (AUDIT) should be used as an identification tool in line with recommendation 1.2.1.4 of the guideline on alcohol-use disorders (NICE 2011, guideline CG115). [NEW]

NICE (2014a) further recommends that if drug misuse is suspected, the recommendations on identification and assessment in section 1.2 of the guideline on psychosocial interventions for drug misuse (NICE 2007b, guideline CG51) should be



used. This involves asking questions about drug misuse (the nature of the questions depends on the setting), making an assessment and agreeing a care plan, and using biological testing as part of a comprehensive assessment of drug misuse.

## **Implementation**

NICE (2007b) guidance on psychosocial interventions for drug misuse states that staff should discuss with people who misuse drugs whether to involve their families and carers in assessment and treatment plans, and to support families as appropriate.

## **Workforce skills and training**

NICE (2007b) states that all interventions for people who misuse drugs should be delivered by staff who are competent in delivering the intervention and who receive appropriate supervision.

NICE (2010b) guidance on alcohol misuse states that managers of NHS-commissioned services should ensure that staff have enough time and resources to carry out screening and brief intervention work effectively, and that staff have access to recognised, evidence-based packs.

## **Intimate partner violence**

### **Prevention and identification of Intimate Partner Violence (IPV)**

There is insufficient evidence on the benefit of interventions to justify universal screening for intimate partner violence in healthcare settings.

While screening programmes increased screening, disclosure and identification rates, referrals to specialist agencies and services did not increase. There is no evidence that screening impacts on levels of violence or positive health outcomes.

Self-administered screening instruments were more likely to encourage disclosure than face-to-face screening interviews. It was not possible to identify any particular screening tool as more effective at identification than another, given the variability in studies.

Prevention and screening efforts for female genital mutilation (FGM) are best framed in relation to benefits for women's health, rather than opposing traditional practices or beliefs about women's rights. Training local healthcare staff may be beneficial if developed and sustained. [NEW]

The NICE guidance on domestic violence and abuse (NICE 2014b, PH50) reported that while insufficient evidence was found to recommend screening or routine enquiry within healthcare settings, routine enquiry is viewed as best practice by some professionals. The review of evidence underpinning the NICE (2014b) guidance found insufficient evidence for the efficacy of primary prevention programmes relating to IPV.

### **Interventions to support pregnant women at high risk of IPV**

The evidence supports the use of multi-session psychological therapy, based on CBT, during pregnancy for women who at risk or who have experienced IPV. Women who receive such support are less likely to have recurrent episodes of abuse compared to those receiving standard care. [NEW]

Perinatal HV programmes that screen for IPV can identify significant numbers of cases, but are unlikely to reduce IPV and improve maternal and infant health unless effective interventions are implemented.

Intensive advocacy may be effective in reducing physical violence for women leaving shelters two years later but not within the first year. There is insufficient evidence to support less intensive advocacy interventions.

There is no evidence to support interventions to respond to pregnant women who have experienced FGM. Alternative evaluation designs should be considered. [NEW]

### **Preventing further IPV and the adverse consequences of IPV**

There is evidence for the effectiveness a range of different types of intervention concerned with preventing IPV, or re-abuse, and the adverse consequences of IPV (eg for parent mental health). These include advocacy services, skill building, counselling, therapy, and multi-component interventions. [NEW]

NICE (2014b) recommends that practitioners in specialist domestic and sexual violence services should provide all those currently (or recently) affected by domestic violence and abuse with advocacy and advice services tailored to their level of risk and specific needs. It further recommends that practitioners in primary, mental health and related care services should provide people who experience domestic violence and abuse and have a mental health condition with evidence-based treatment for that condition.

There is evidence for the effectiveness of single component therapeutic interventions aimed at the mother and child (including young children) in improving child behaviour, mother-child attachment and stress and trauma-related symptoms in mothers. [NEW]

NICE (2014b) recommends providing specialist domestic violence and abuse services for children affected by domestic violence and abuse, matching the support to the child's developmental stage and seeking to address the emotional, psychological and physical harms arising from a child or young person being affected by domestic violence and abuse, as well as their safety.

### **Group-based interventions for perpetrators of IPV**

There is insufficient evidence to draw clear conclusions about the effectiveness of CBT with men who had physically abused their female partner.

A review of a broader range of interventions, including CBT, psychoeducational and pro-feminist (Duluth) models, found a number of positive outcomes but was unable to attribute these results to particular intervention programmes.

The effectiveness of perpetrator programmes is largely limited to an assessment of their impact on criminal justice outcomes, such as arrest, assault and aggression. There is scope to extend evaluation work to include other measures of behaviour change.

NICE (2014b) recommends that health and wellbeing boards and commissioners who commission perpetrator interventions should commission and evaluate tailored interventions for people who perpetrate domestic violence and abuse in accordance with national standards.

### **Identifying families in need of additional support**

NICE (2014b) recommends that trained staff in antenatal, postnatal, reproductive care, sexual health, alcohol or drug misuse, mental health, children's and vulnerable adults' services ask service users whether they have experienced domestic violence and abuse. This should be a routine part of good clinical practice, even where there are no indicators of such violence and abuse.

### **Implementation issues**

NICE (2014b) recommends that practitioners in specialist domestic and sexual violence services should provide all those currently (or recently) affected by domestic violence and abuse with advocacy and advice services tailored to their level of risk and specific needs. The support should be offered (although not necessarily delivered) in settings where people may be identified or may disclose that domestic violence and abuse is occurring.

## **Workforce skills and training**

NICE (2014b) recommends that frontline staff in all services are trained to recognise the indicators of domestic violence and abuse and can ask relevant questions to help people disclose their past or current experiences of such violence or abuse.

NICE (2014b) further recommends that health and social care professionals are trained in how to respond to domestic violence and abuse. Health visitors and various other professionals (eg GPs, children's centre workers) should be trained to ask about domestic violence and abuse in a way that makes it easier for people to disclose it. Health visitors with additional domestic violence and abuse training should be trained to provide an initial response that includes risk identification and assessment, safety planning and continued liaison with specialist support services.

## **Preparation and support with childbirth and the transition to parenthood**

### **Antenatal education**

Although there is insufficient evidence to show that the techniques taught in traditional childbirth classes can reduce pain in labour, there is evidence that participation in such classes can increase satisfaction with the birth experience. [NEW]

For antenatal education there is: no evidence of impact on low birthweight; limited evidence of impact on parental health behaviours, including personal responsibility for healthcare, exercise, and nutrition; and no evidence of impact on the onset of depression, but some evidence to show that group-based social support, including antenatal preparation for parenthood classes, can be effective in supporting women with sub-threshold symptoms of depression and anxiety. Antenatal group work which has an interactive component and involves local experienced breastfeeders as volunteers is among a range of effective interventions to support the initiation and continuation of breastfeeding.

No studies were found for the effectiveness of group-based antenatal education involving drug-dependent pregnant women.

There is limited evidence (from three studies, including one RCT) of the effectiveness of multimodal programmes for adolescent parents that included a combination of nurse home visiting and/or enhanced Doula programmes with group-based social support.

Parents from minority ethnic groups value information about potential conflicts that may arise between cultural mores and messages communicated in antenatal classes. Limited evidence has found that parents from some minority ethnic groups also value

the opportunity to attend classes in community-based settings rather than city centre hospitals. [NEW]

While there are numerous studies highlighting the increased health and mental health risks to women in prison, there is limited research on antenatal preparation for this vulnerable population.

### **Antenatal preparation for parenthood programmes**

Antenatal programmes that focus on the transition to parenthood in high-risk couples and aim to alleviate pressures on the couple's relationship are effective in reducing relationship deterioration and strengthening parenting roles after the birth of a first child. The strongest effect is for home-based interventions for couples with multiple difficulties, so since they are expensive they are recommended as part of a stepped care approach (ie moving from practice-based assessment and advice to more intensive support). [NEW]

### **Antenatal education for fathers**

Review-level evidence of the impact of antenatal classes on men's preparation for their partner's labour, birth, and early fatherhood, shows that fathers-to-be benefit from participation in adjunctive, men-only sessions within standard antenatal classes, and that adolescent fathers benefit from participation in men-only preparation for fatherhood groups.

### **Identifying families with additional needs**

Psychoeducation for the transition to parenthood might only be necessary for couples assessed as being high-risk for future adjustment problems, suggesting that a stepped care approach is warranted.

### **Implementation issues**

There is a wide range of formats for the delivery of antenatal preparation for childbirth and parenthood. Care needs to be taken to provide support that is accessible and attractive to expectant parents in higher-risk groups (eg teenage mothers) and in minority groups. Qualitative studies with fathers show that men value preparation for parenthood that includes a focus on fatherhood, which may involve men only sessions or sessions led by experienced fathers.

A review of prenatal education that is designed to enhance couple relationship functioning or parenting, or to prevent relationship deterioration after the birth of a first

child, found that the best outcomes are achieved with programmes that are: designed for couples with high level of needs due to a combination of social, personal and relational difficulties; involve skills training; and are delivered in the couple's own home.

## **Workforce skills and training**

The delivery of home visiting programmes by professional staff (usually nurses) produces more positive effects on parent and child outcomes than delivery by para-professionals or volunteers.

## **Attachment**

### **Preparation for parenthood programmes**

As above (section on 'Preparation and support for childbirth and the transition to parenthood').

### **Kangaroo Mother Care (KMC) and skin-to-skin care (SSC)**

KMC in LBW infants can increase some measures of infant growth, breastfeeding, and mother-infant attachment.

Early SSC appears to benefit breastfeeding outcomes and cardio-respiratory stability, and decrease infant crying, with no apparent short- or long-term negative effects.

### **Infant massage**

There is no evidence to support the use of infant massage on a population basis, [NEW] but some evidence to support its use with disadvantaged and depressed mothers of babies.

### **Mentalisation-based programmes**

There is some evidence (from two RCTs) to suggest that mentalisation-based programmes are effective in reducing rapid subsequent childbearing, reducing the risk of child abuse, improving mental health, and improving maternal reflective functioning. [NEW]

### **Video-feedback**

There is good evidence to suggest that video-feedback and Video-feedback Intervention to promote Positive Parenting (VIPP) can improve parental sensitivity and

improve secure attachment. There is also evidence of improvement in both internalising and externalising problems in older children. VIPP can also improve emotional availability, child behaviour, and family environment. There is also evidence of improved attachment security in highly (but not moderately) irritable infants.

### **Home visiting programmes**

There is evidence from one review supporting the use of home visiting to improve maternal behaviours, including sensitivity, and limited evidence to support its use with preterm infants.

### **Sensitivity-focused interventions for preterm infants**

Evidence from two systematic reviews suggests that some brief sensitivity-focused interventions (eg Mother-Infant Transaction Programme; Nursing Systems Towards Effective Parenting-Preterm; Guided Interaction) may be effective in improving maternal sensitivity in mothers of preterm infants. [NEW]

### **Parent-infant/toddler psychotherapy**

There is evidence from one systematic review to suggest that parent-infant/toddler psychotherapy can improve infant attachment security, and limited evidence from one RCT to show improvements in a range of aspects of child functioning in traumatised children (eg child depression, co-occurring diagnoses, child behaviour, maternal post-traumatic stress disorder (PTSD), and maternal depression). [NEW]

### **Attachment and Biobehavioural Catchup (ABC)**

There is limited evidence (two RCTs) for ABC to show reduced negative affect expression, and higher levels of secure attachment and reduced disorganised attachment, although the findings for attachment were not sustained over time. [NEW]

### **Group-based programmes**

There is limited evidence (one small RCT) to show that a group-based programme with adjunctive components can improve maternal depression and some aspects of parent-infant interaction. [NEW]

### **Identifying families in need of additional support**

No specific issues were identified.

## **Implementation issues**

One robust review concludes that the most effective programmes for promoting attachment are shorter in duration, provide direct services to the parent-child dyad, use interveners with professional qualifications, and assess parent-child interactions with free-play tasks.

Recent reviews on the promotion of attachment security in preterm infants recommend routine inclusion of psychosocial support for the infants' mother. One study found different effects among families of higher and lower educational groups, and recommends additional reinforcement sessions for mothers in lower educational groups.

Infant massage programmes are most effective with parents in the middle tier of need, and should not be used on their own with parents who are high risk. A total of 14 mechanisms need to be present to promote the likelihood of massage programmes being effective, including consistency of facilitator, small groups that are provided in appropriate settings, the teaching of infant cues, and opportunities for parental socialisation.

## **Workforce skills and training**

International Association of Infant Massage (IAIM) training provides practitioners with better preparation to deliver infant massage training compared with other training programmes.

## **Parenting support**

### **Preparation for parenthood programmes**

As above (section on 'Preparation and support for childbirth and the transition to parenthood').

### **Kangaroo Mother Care (KMC) and skin-to-skin care (SSC)**

As above (section on 'Attachment').

## **Parenting programmes**

A review of targeted self-administered programmes for parents of children aged 2-9 years found that self-administered programmes led to outcomes similar to those achieved with more intensive therapist input. [NEW]



The evidence supports the use of targeted group-based parenting programmes to improve the emotional and behavioural adjustment of children aged 0-3 years and reduce conduct problems in that age-group. The relative effectiveness of different parenting programmes (eg group-based versus self-administered) requires more research.

There is also strong evidence to support the use of group-based parenting programmes, such as Incredible Years, to treat early signs of behavioural problems.

For children with or at high-risk of developing ADHD there is strong evidence for the effectiveness of behavioural interventions in reducing child behaviour problems.

There is evidence for the effectiveness of Stepping Stones Triple P as an intervention for improving child and parent outcomes in families of children with disabilities. [NEW]

There is some evidence that group-based parenting programmes targeting adolescent parents are effective in improving a number of aspects of parent-child interaction both in the short- and long-term, but further research is needed.

There is evidence that parent training interventions (including one-to-one, home-based, and small group) can improve the parenting knowledge and targeted skills of parents with intellectual disabilities/learning difficulties, and also improve child behaviour and health. However, there is a need for more and larger studies and for more evaluation of the impact on child outcomes and the generalisation of parenting skills.

Recent RCT studies – not included in the systematic reviews – provide further evidence for the impact of parenting programmes in terms of reducing behaviour problems. They also provide evidence for the effectiveness of individual or group-based parent training on reducing child maltreatment in families at risk, and for the positive impact on behaviour of parenting programmes that address specific challenges (eg ‘fussy eating’/mealtime difficulties, and divorce). [NEW]

## **Postnatal education programmes**

Behavioural interventions for infant sleep in the first six months have not been shown to decrease infant crying, prevent sleep and behavioural problems in later childhood, or protect against postnatal depression. In addition, behavioural interventions for infant sleep that are used during the first weeks and months are associated with unintended outcomes, including increased amounts of problem crying, premature cessation of breastfeeding, increased maternal anxiety, and, if the infant is required to sleep either day or night in a room separate from the caregiver, an increased risk of sudden infant death syndrome (SIDS). [NEW]

For older children, both family-based and pharmacological interventions that target sleep and eating problems are effective in the short term, but only systemic interventions have positive long-term effects on young children's sleep problems. [NEW]

### **Identifying families in need of additional support**

One review of self-help parenting programmes found evidence to support the application of the Eyberg Child Behaviour Inventory in order to identify children with conduct disorders exceeding the clinical range. [NEW]

### **Implementation issues**

The implementation programmes with fidelity is an important component of clinical effectiveness in relation to the use of behavioural and cognitive-behavioural group-based parenting programmes. Authorised workshops, a group leader certification/accreditation process, a detailed treatment manual, and checklists can all help achieve a high level of treatment fidelity.

Key barriers to engaging fathers in parenting programmes are: cultural (eg relevance to co-parents); institutional (eg how father-friendly the organisation is); professional (eg staff capabilities, attitudes); operational (eg disaggregation of data by sex); content (eg relevance to fathers); resource (eg sufficiency for implementing changes needed); and policy (eg clear recognition of co-parents in strategies, action plans). [NEW]

### **Workforce skills and training**

Several included studies draw attention to the need to train practitioners in the delivery of manualised programmes.

### **Keeping safe**

#### **SIDS (sudden infant death syndrome)**

Evidence for the impact of home monitoring systems on preventing SIDS is inconclusive owing to the dearth of studies with a comparison group and the difficulty of drawing conclusions from the cohort studies that have been conducted (eg owing to different inclusion criteria, and different types of device). However, observational studies of interventions show that advice on avoiding prone sleeping position and tobacco exposure markedly reduces the incidence of SIDS. [NEW] NICE guidance on postnatal care (NICE 2014c, guideline CG37) recommends informing parents and

carers that: there is an association between co sleeping (parents or carers sleeping on a bed or sofa or chair with an infant) and SIDS; the association between co sleeping and SIDS is likely to be greater when they, or their partner, smoke; and the association may be greater with (a) parental or carer recent alcohol consumption, or (b) parental or carer drug use, or (c) low birth weight or premature infants. (These NICE recommendations cover the first year of the infant's life.)

## Unintentional injury

Parenting interventions, most commonly provided within the home, are effective in reducing child injury and improving home safety. [NEW]

Home safety education increases the use of home safety practices and there is some evidence that it can reduce overall injury rates. There is conflicting evidence regarding the provision of home safety equipment in terms of its impact on safety practices and injury rates. [NEW]

There is a general lack of evidence about the impact of education to prevent dog bites in children. [NEW]

There is evidence that interventions to promote the prevalence of smoke alarms or the use/maintenance of fire alarms in households with children that include education, the provision of equipment, and home inspection are effective in increasing the household possession of a functioning smoke alarm. More intensive interventions that include the fitting of equipment in addition to education, the provision of equipment, and home inspection are most effective. [NEW]

Home safety interventions improve poison-prevention practices such as the safe storage of medicines and cleaning products.<sup>6</sup> [NEW]

Home-safety interventions are effective in increasing stair-gate use and reducing baby-walker use. However, the evidence does not show an increase in the possession of window locks, screens or windows with limited opening, or nonslip bath mats. Only two studies measured falls, and these found no effect on baby-walker related falls. There is

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<sup>6</sup>Home safety interventions improve poison-prevention practices such as the safe storage of medicines and cleaning products, the possession of syrup of ipecac, and having poison control centre numbers accessible, but the impact on poisoning rates is unclear. [NEW]

However, it is not recommended in the UK for parents to give children syrup of ipecac to induce vomiting after the ingestion of poisonous substances, so the findings of the relevant reviews on this issue may therefore only be relevant to countries where it is still recommended that parents keep ipecac at home for such use. In addition, rather than having poison control centre numbers accessible, in the UK members of the public are recommended to call NHS 111.

limited evidence (one cohort study) that the provision of home safety information by health professionals and relatives can also reduce falls and fall-related injuries, and more research is needed on this subject. [NEW]

There is limited evidence of the effectiveness of interventions that modify the home environment in terms of injury reduction (eg the provision of free/low-cost home safety equipment, advice/information, and home-based hazard-assessment). [NEW]

## **Abuse and neglect**

There is insufficient evidence to support the use of one-to-one and group-based parenting programmes to prevent the reoccurrence of physical abuse or neglect in families where there is a history of this, although there is some, albeit limited, evidence that some parenting programmes improve outcomes associated with physically abusive parenting.

There is evidence that home visiting interventions in early childhood for at-risk families lead to reductions in Child Protective Services (CPS) reports, accident and emergency visits, hospitalisations and self-reports of abuse, as well as improved adherence to immunisations, although there is some inconsistency in results across the programmes identified. Home visitation by paraprofessionals holds promise for socially high-risk families with young children, including in the area of reducing harsh parenting. [NEW]

## **Identification of families with additional needs**

Objective risk assessments are the best way to identify families at risk of child abuse and neglect, and clinicians in contact with families during early child years (ie paediatricians, health visitors) are well positioned to conduct these. [NEW] Risk factors include: young age; single/first-time mother; history of child maltreatment; substance misuse; unemployment; and low socioeconomic status. Attention needs also to be paid to specific features of the family's physical environment. NICE provides guidance on when to suspect child maltreatment (NICE 2009a, guideline CG89), and the associated care pathway outlines the actions health visitors should take if child maltreatment is suspected.

NICE guidance on preventing unintentional injuries in the home among under-15s (NICE 2010d, guideline PH30) recommends that local authorities, safeguarding children services, and health and wellbeing boards should prioritise households at greatest risk, through the assessment of local needs, priority delivery, and equipping professionals with relevant materials/knowledge. [NEW]

NICE (2010d) recommends that home safety is integrated into home visits (including by health visitors). Specifically, those undertaking the home visits should provide home

safety advice and, if the family or carers agree, refer them to agencies that can undertake a home safety assessment and can supply and install home safety equipment that complies with recognised standards. Parents/carers should be encouraged to conduct their own home safety assessment using an appropriate tool. [NEW] High-risk families regarding child safety include, among others, those in rented or overcrowded accommodation with high levels of turnover.

## **Implementation issues**

There are numerous facilitators (eg home visits, requiring families to make minimal changes) and barriers (eg socio-economic constraints, parental habits, cultural norms, issues of trust or a lack of control over the home environment) regarding the implementation of injury prevention interventions for children aged under five. [NEW]

NICE (2010d) recommends that education, advice and information about safety are provided during both a home safety assessment and the supply and installation of home safety equipment. Home safety assessments and interventions should be followed up to see if there are any new requirements, and to assess whether the equipment installed is still functional and appropriate. [NEW]

The timing regarding the provision of injury prevention information and the cost of safety equipment are important considerations in relation to injury prevention. [NEW]

## **Workforce skills and training**

The most effective home visiting interventions to reduce unintentional injury for children in the home are delivered by trained healthcare professionals (eg social workers, child health nurses, qualified family support workers, and family nurses).

Where home safety equipment requires skilled fitting, it is essential in socio-economically deprived communities that it is installed by technicians in order for it to remain installed in the longer term. [NEW]

## **Nutrition and obesity prevention**

### **Promotion of breastfeeding**

Effective strategies to promote breastfeeding include peer support, either one-to-one or as part of a group, and structured support from professionals. Strategies that rely mainly on face-to-face support are significantly more likely to begin and sustain breastfeeding than advice offered from a distance (eg via telephone).

There is some new evidence that online interventions may also contribute to breastfeeding initiation and duration. The duration of effective online support is unclear.

A review of workplace interventions to support and promote breastfeeding in an employment context (on-site or outside of the workplace) among women returning to paid work after the birth of a child found no RCT or quasi-RCT studies.

No form of antenatal breastfeeding education has been found to be significantly more effective than another in increasing breastfeeding initiation or duration.

### **Prevention and treatment of child overweight and obesity**

The most effective interventions for the prevention and treatment of overweight and obesity in children involve a multi-component and holistic approach that aims simultaneously to improve diet and physical activity in the multiple domains of children's lives. Specifically, they involve parents/the whole family, physical activity, nutritional education, and – for children in school/preschool – support from teachers. Attention to social and environmental factors is important and often given insufficient attention. Narrow interventions focusing on single aspects of behaviour are unlikely to achieve long-term change in efforts to tackle obesity. [NEW]

The following have been identified as effective components of interventions: decreasing preschoolers' screen time; decreasing consumption of high fat/calorie drinks/foods; increasing physical exercise; increasing sleep; modifying parental attitudes to feeding; and promoting authoritative parenting. [NEW]

Interventions to reduce children's sedentary behaviour have a small but significant effect on reducing time spent in these behaviours and/or improvements in anthropometric measurements. Parent training can have a significant effect on reducing children's screen time. There is evidence to recommend the use of electronic TV monitoring devices in order to achieve this. [NEW]

While there is evidence to support a positive relationship between increased or higher physical activity and favourable measures of adiposity in preschoolers, there is a need for more rigorous research designs in this age group. [NEW]

In terms of the promotion of healthy eating, the most effective strategies to increase children's acceptance of unfamiliar (and healthy) foods are: intensive; incorporate behavioural strategies; give a clear message; and are tailored to the educational level and material resources of families.

There is strong evidence that the involvement of whole families (parents and children) in interventions that promote both healthier diet and more exercise can have an impact on reduction of BMI. [NEW]

Interventions to increase fruit and vegetable consumption in children aged under 6 years show no, or at best mixed, effects.

There is evidence that general parenting programmes that include lifestyle components such as physical activity and nutrition have small-to-moderate effects on weight-related measures.

There is a relative lack of evidence about what is effective with children under the age of six years in terms of lifestyle weight management for overweight and obese children.

Findings from recent RCTs not included in the systematic reviews, but including children in the 0-3 years age range, and addressing effective methods of preventing obesity in young children indicate that some home visiting programmes delivered during the postnatal period have positive effects on family/parental nutritional practices (eg increased duration of breastfeeding, later introduction of solid foods, less use of food as a reward or to make children feel better), and – in one study – on children's intake of water, vegetables and healthy snacks. These programmes focus on diet and/or exercise. [NEW]

There is also emerging evidence – again from recent RCTs that include some children in the 0-3 years age range – to support the use of group-based interventions with mother-infant dyads in altering maternal feeding practices (eg reduced sweet snack intake, increased consumption of water and fruit/vegetables) and reducing the time that children spend watching television. [NEW]

Findings from recent RCTs (as above) of multi-component and anticipatory guidance interventions are also promising, with evidence of impact on, for example, television viewing and family nutritional practices. [NEW]

## **Infant feeding problems**

There is evidence that family-based behavioural programmes are effective in ameliorating severe feeding problems in children under the age of five.

## **Identifying families with additional needs**

Universal healthcare checks in the early years provide an opportunity for health professionals to identify families who may need additional support.



Several socio-demographic factors are associated with a lack of physical activity, indicting groups of children and families to be given special attention.

NICE guidance on managing overweight and obesity in children and young people (NICE 2013, guideline PH47) recommends that if health professionals (including health visitors) have concerns about a child's weight they should measure their BMI and use UK-WHO growth charts to determine if children are overweight or obese. They should tell parents or carers of children who have been identified as being overweight or obese about local lifestyle weight management programmes and make a referral if it is clinically appropriate and the family is ready. [The guidance notes that programmes specifically aimed at children aged under six are excluded from the recommendation owing to no evidence about the effectiveness of these interventions being identified.]

## **Implementation issues**

NICE guidance on maternal and child nutrition (NICE 2008, guideline PH11) recommends a co-ordinated programme of interventions across different settings to increase breastfeeding rates: raising awareness of the benefits; giving information about the barriers and how to overcome them; providing training for professionals; offering peer support programmes; providing education and information for pregnant women on how to breastfeed; offering proactive support during the postnatal period; and implementing structured programmes that encourage breastfeeding – with the UNICEF 'Baby Friendly Initiative' as a minimum standard.

Greater efforts should be made to deliver parent interventions to address obesity in an accessible format (eg online), since for young children parents are the primary agent of change and parents can find it hard to attend face-to-face sessions owing to time commitments.

## **Workforce skills and training**

NICE (2008) recommends that health professionals who provide advice and support to breastfeeding mothers have the required knowledge and skills, and that support workers are also adequately trained and receive ongoing support.

Interventions that involve physical activity should be delivered by trained staff in order to ensure intervention efficacy.

## **Oral health**

## **Evidence-based guidance**



There is strong evidence to for interventions that contribute to the oral health of children aged 0-5 years, for example in relation to feeding practices, diet, and tooth-brushing with fluoride toothpaste. Public health interventions for this age group should follow these guidelines.

## **Access to fluoride**

The targeted and timely provision of toothbrushes and fluoride toothpaste reduces tooth decay.

There is high-quality evidence from a number of systematic reviews that fluoride varnish is effective in preventing caries. There is evidence that targeted fluoride varnish programmes are effective in reducing caries. [NEW] NICE guidance on oral health (NICE 2014e, guideline PH55) recommends that local authorities and health and wellbeing commissioning partners should consider fluoride varnish programmes for nurseries in areas where children are at high risk of poor oral health.

## **Oral health education/promotion**

There is inconclusive evidence for the impact on child oral health outcomes of person-centred counselling based on motivational interviewing, for example with new mothers. [NEW]

One-off education by dental staff in the general population (eg dental staff providing education to new mothers or visiting schools annually) has limited effects on clinical outcomes. [NEW]

There is a lack of RCT evaluations of providing training to health, education and social care professionals to help them deliver oral health interventions as part of their daily professional role. However, there is some evidence of effectiveness (eg on maternal tooth-brushing behaviour, child tooth decay). The success of such interventions will depend largely on the extent to which the education provided by practitioners is evidence-based. [NEW]

There is evidence from comparison group studies that integrating oral health advice into home visits by health/social care workers, targeted at families at higher risk of oral disease can reduce tooth decay. This requires building the capacity of health and social care workers to provide such support and providing regular update training. [NEW]

## **Supervised tooth-brushing**

Supervised tooth-brushing (with fluoride toothpaste) in targeted childhood settings is effective in reducing tooth decay. Targeting is important: programmes are more effective in areas with high rates of tooth decay and less effective when children are already brushing their teeth twice a day with fluoride toothpaste. [NEW] NICE (2014e) recommends that local authorities and health and wellbeing commissioning partners should consider commissioning a supervised tooth-brushing scheme for early years settings in areas where children are at high risk of poor oral health.

### **Healthy food and drink policies in childcare settings**

Reviews did not identify any comparison group studies of healthy food and drink policies in childcare settings but it is argued that this intervention has value for other reasons (eg reducing inequalities by creating a health-promoting atmosphere, low cost/resource implications, potential for sustainability).

### **Multi-component strategies**

There is evidence from one interrupted time-series evaluation that oral health promotion campaigns delivered through multiple venues and targeting several aspects of oral health may be associated with a reduced risk of dental decay in children under the age of five living in deprived communities. [NEW]

### **Identifying families with additional needs**

The main risk factors for poor oral health in children are well established. Tools that help health visitors and other professionals to assess risk are available, although as yet there is no consensus on which one is best. [NEW]

### **Implementation issues**

Where possible, high quality oral health advice should be integrated into health programmes. [NEW] NICE (2014e) recommends that frontline health and social care staff are able to give parents, carers and other family members advice on the importance of oral health and how to promote it (eg promoting breastfeeding, healthy food/drink, the use of fluoride toothpaste).

Targeting high-risk families is important to achieve the best effects, as is good engagement with parents, schools and dental practices. [NEW]

Public health approaches need to provide education that is in line with evidence-based guidelines. [NEW]

## **Workforce skills and training**

All frontline staff in early years services, including education and health, should receive training at their induction and at regular intervals, so they can understand and apply the principles and practices that promote oral health. [NEW] NICE (2014e) recommends that health and social care staff working with children at high risk of poor oral health should receive training on a range of issues, including how good oral health contributes to people's overall health and well-being, the consequences of poor oral health, how to prevent tooth decay, techniques for maintaining good oral hygiene (eg the use of fluoride toothpaste), and what advice to give carers.

## **Promotion of child development, including speech, language and communication**

### **Speech, language and communication**

Speech and language interventions that take place in preschool settings have a significant effect on mainly cognitive outcomes, but also social skills and progress within school.

Interventions aimed at improving vocabulary through instruction, such as dialogical reading and storybook reading, have a large effect on vocabulary measures, especially when delivered by trained professionals. However, middle- and upper-income at-risk children are significantly more likely to benefit from vocabulary interventions than those children also at risk and poor. [NEW]

Early childhood education and care programmes aimed at young children from socially disadvantaged backgrounds have considerable positive short-term effects and somewhat smaller long-term effects on cognitive development. However, they cannot compensate completely for developmental deficits that are due to children's socio-economic background.

Parent-implemented language interventions are effective for young children with language impairments, showing a positive impact on children's receptive and expressive language skills, receptive and expressive vocabulary, expressive morphosyntax, and rate of communication. [NEW]

Speech and language therapy (SLT) interventions for children with primary speech or language delay or disorder have mixed effects, which include a positive effect for children with expressive phonological and expressive vocabulary difficulties. [NEW]

There is limited evidence of the effectiveness of home-based interventions (such as

home visiting programmes) that are specifically targeted at improving developmental outcomes, such as cognition and intrapersonal development, for preschool children from socially disadvantaged families. The Nurse Family Partnership seems to be an exception to this statement. [NEW]

Recent RCTs (not included in the systematic reviews) that evaluated the effectiveness of interventions aimed at improving young children's speech, language and communication show evidence of a positive impact for some (though not all) interventions aimed at helping parents to read to and use enriched language with their children. They also show a generally positive effect for interventions aimed at supporting teachers to work more effectively (through training and/or new curricula). The interventions are mostly targeted, either at socio-economically disadvantaged children or at children with signs of difficulties in the areas of speech, language or literacy. [NEW]

### **Social, emotional and cognitive development**

There is evidence that programmes that aim to improve young children's self-control are effective for improving self-control and reducing problem behaviours.

Home visiting interventions for at-risk families show positive benefits, including for parent-child interaction, parenting behaviour and children's cognitive and socio-emotional development. NICE guidance on social and emotional wellbeing in the early years (NICE 2012, guideline PH40) recommends that health visitors or midwives should offer a series of intensive home visits by an appropriately trained nurse to parents assessed to be in need of additional support. Activities should be based on a set curriculum and cover issues such as maternal sensitivity, home learning and parenting skills.

There is moderate evidence that programmes in educational and day care settings for young children can have a positive impact on various outcomes, including cognitive development, school readiness, behaviour and attainment. NICE (2012) recommends that children's services (including health visitors) should ensure that all vulnerable children can benefit from high-quality childcare outside the home on a part- or full-time basis and can take up their entitlement to early childhood education, where appropriate. Services should aim to enhance children's social and emotional wellbeing and build their capacity to learn.

### **Identifying families with additional needs**

A range of factors indicate that children may need additional support with language and communication in the early years, including low income, low level of maternal education, low birthweight, and parental substance misuse.

A range of factors indicate that children may need additional support with socio-emotional development in the early years, including speech and communication difficulties, parental substance misuse, and intimate partner violence. Relevant professionals (including health visitors) should engage in outreach activities to reach vulnerable families.

NICE (2012) recommends that health professionals in antenatal and postnatal services should identify factors that may pose a risk to a child's social and emotional wellbeing (including factors that could affect the parents' capacity to provide a loving and nurturing environment). They should discuss with the parents any problems they may have in relation to the father or mother's mental health, substance or alcohol misuse, family relationships or circumstances and networks of support.

## **Implementation issues**

There needs to be a closer relationship between speech and language therapists, teachers and parents to increase the chances of speech and language interventions being successful.

Barriers to involving parents in interventions to improve young children's social, emotional and cognitive development include a lack of parental knowledge about the content and potential benefits of services and a lack of programme flexibility.

A range of approaches can enhance parents' ongoing commitment to home visiting interventions, including home visitors being flexible to parental needs in terms of delivery, and tailoring programme content based on parental needs.

NICE (2012) recommends that health and early years practitioners are systematic and persistent in their efforts to encourage vulnerable parents to use early years services. Examples of recommended activities are targeted publicity campaigns, sending out repeat invitations, and home visits by family support workers.

## **Workforce skills and training**

Speech, language, and communication interventions need to be implemented by individuals who have received appropriate training.

For home visiting programmes, the more structured and intensive interventions (with a focus on child-mother interaction) delivered by specially trained nurses during the first 18 months appear to be more effective in terms of impact on vulnerable children's social and emotional wellbeing than lower intensity and less structured interventions involving lay providers.

## **Implementation issues**

### **Identifying families with additional needs**

Early identification takes place over a period of time as the child develops and the parent builds trust in the practitioner, and as the practitioner is able to assess and analyse the information from an ecological perspective.

Identifying families with additional needs involves the following: universal assessment points being used as an opportunity to promote wellbeing as well as to identify risk; the use of a partnership model of working; training the workforce, for instance to undertake promotional interviews and use a range of standardised assessment tools alongside their professional skills; and infrastructure arrangements to enable reviews to take place.

### **Matching needs and services**

Not all families are able to benefit from services being provided, so it is important to match needs and services.

### **Reaching the ‘hard to reach’**

Difficulties in engaging families, including both recruitment and retention, are one of the main reasons for interventions failing.

There is evidence from the evaluation of parenting and child mental health programmes to suggest that brief, intensive engagement interventions that target both practical (eg schedules, transportation) and psychological (eg family members’ resistance, beliefs about the treatment process) barriers, at the point of entry to treatment, can be effective in improving engagement in early sessions.

### **Working with families, and family readiness to change**

One of the key factors in facilitating behaviour change is the relationship that programme staff are able to establish with the participating families. Such relationships

need to be based on a partnership model of working – that is, they need to be supportive, guiding, motivating, strengths-based, and consistent.

A number of interventions have been developed to promote parent engagement with programmes by providing practitioners with core sets of skills to enable partnership and collaborative working.

In addition to partnership working, the evidence suggests the importance of continuity in terms of the extent to which pregnant women and new mothers/parents are provided with the opportunity to establish a small number of key relationships.

### **Practitioner readiness and motivation to change**

A range of factors can affect a practitioner's readiness to take on board the practices involved with the delivery of new ways of working and new services. This has implications for recruitment, training, and supervision.

The design and introduction to practice of evidence-based ways of working need to take account of practitioners' motivations (eg concern for social injustice, professional autonomy, desire to build relationships with families).

### **Fidelity**

Some local adaptation or co-construction to ensure that a programme is delivered in a culturally sensitive way can result in the most effective delivery. However, adaptation that involves core programme components being delivered suboptimally or not at all, is likely to diminish the impact.

Various strategies are recommended to help strengthen implementation fidelity, including training, coaching and monitoring.

### **Workforce development**

Good recruitment, training and supervision are all core to the effective delivery of interventions.

Further training will be required for many of the evidence-based ways of working that have been identified in this review. Skills training for the workforce on an ongoing basis should therefore be a major part of investment plans for trusts.

### **Economic analysis**

Systematic reviews of the links between short-term outcomes in trials (eg child abuse/neglect, conduct problems) and longer-term outcomes (eg school completion, test scores, crime) form the foundation for estimates of the monetary benefits of interventions over the life course for a wide range of areas. Three reviews focus specifically on predictors measured before the age of five.

Cost-benefit data are presented for 11 interventions for children in the 0-5 age range for which UK cost-benefit data exists. There is a positive cost-benefit ratio for 8 of the 11 programmes analysed. These include parent training, early education and home visiting interventions.

In many cases, improvement in one early outcome can yield future benefits in many different areas in a child's life. In addition, some outcomes lead to benefits via multiple other intermediate steps. For example, a reduction in child abuse and neglect can lead to increased earnings via subsequent improved test scores, attainment of higher levels of education, or reduced depression.

Similarly, multiple early outcomes can contribute in combination to the same benefit, such as reductions in disruptive behaviour, ADHD symptoms, and internalising symptoms, all leading to children's increased projected earnings as adults.

## **Research recommendations**

This review did not explicitly seek to identify areas for new research. However, some areas where research is needed to help enhance the delivery of the Healthy Child Programme can be identified. The data extraction and critical appraisal tables contain additional information on this subject.

### **General**

Further research is needed to:

- examine how effective promotional interviews are in identifying women in need of further support, and improving outcomes
- establish if it possible to develop integrated targeted care pathways to improve outcomes across a range of domains (eg nutrition, attachment, learning)

### **Maternal mental health**

Further research is needed to:

- identify interventions that can be delivered by midwives and health visitors as part of the Healthy Child Programme, and that are effective in supporting women experiencing anxiety and depression in the antenatal period



- address the gap in the literature on effective interventions in maternal mental health and wellbeing in pregnancy
- explicitly address the benefits for fathers
- examine the comparative effectiveness of different types of programmes, along with the mechanisms by which such programmes bring about improvements in parental psychosocial functioning

## **Smoking**

Further research is needed to

identify the most effective smoking cessation and relapse prevention interventions for women in pregnancy and postpartum

- test for longer-term effects, and use nicotine monitors and cotinine measures as well as behavioural outcomes

## **Drugs and alcohol**

Further research is needed to:

- identify effective methods of working with substance-dependent women in pregnancy to support the mother and protect the foetus
- test the effectiveness of integrated programmes that combine substance treatment with a focus on parenting
- test the effectiveness of home visiting with higher-quality, larger-scale trials

## **Intimate partner violence**

Further research is needed to:

- identify effective methods of supporting couples experiencing 'situational' violence, that address both the inter-partner violence and the parenting
- protect women and children exposed to extreme controlling violence
- determine whether interventions prevent or reduce domestic violence episodes during pregnancy, or have any effect on maternal and neonatal mortality and morbidity outcomes, using high-quality RCTs with adequate statistical power
- establish the most effective interventions for women who are identified at risk of domestic violence during pregnancy
- compare screening versus case finding (with or without advocacy or therapeutic interventions) for women's long-term wellbeing, to better inform future policies in healthcare settings

## **Preparation and support for childbirth and the transition to parenthood**

Further research is needed to:

- establish the most effective ways of supporting pregnant women and their partners to prepare for birth and parenting
- test the impact on health outcomes of health promotion interventions that aim to identify and modify risk factors before pregnancy

## **Attachment**

Further research is needed to:

- evaluate the effectiveness of targeted preparation for parenthood programmes
- assess whether video feedback can be effectively delivered by health visitors as part of the Healthy Child Programme
- investigate the mechanism of change in interventions on outcomes for both mothers and preterm infants
- isolate the effects for fathers
- study whether interventions targeting preterm infants within existing programmes may strengthen the impact and cost benefits of home visiting in at-risk populations

## **Parenting support**

Further research is needed to:

- assess the impact of media-based, universal methods of supporting parenting (eg apps, websites, leaflets)
- evaluate the impact of parenting interventions that are designed specifically to support fathers
- assess the long-term effectiveness of parenting support
- evaluate the impact of parent training interventions for parents with intellectual disabilities/learning difficulties on child outcomes and the generalisation of parenting skills
- consider what dose of home visiting interventions is most beneficial and address retention issues

## **Keeping safe**

Further research is needed to:

- determine what works to reduce falls and fall-related injuries
- identify ways of integrating effective methods of protecting children from unintentional injuries
- identify effective methods of supporting parents who are at risk of child abuse
- identify effective poisoning prevention interventions

- assess the effectiveness of home safety education using objective measures of injury

## **Nutrition and obesity prevention**

Further research is needed to:

- identify primary methods of preventing obesity during the perinatal period
- evaluate some of the innovative family-based methods of working to support healthy diet and exercise, and to address early signs of obesity
- establish the benefits of various types of workplace interventions to support, encourage and promote breastfeeding among working mothers
- examine interventions targeting different types of sedentary behaviours and the effectiveness of specific behaviour change techniques across different contexts and settings
- investigate the impact of food advertising on food choices made by preschool children and their parents, the impact of widening choice in the range of confectionery marketed in shops and supermarkets for young children, the effectiveness of programmes such as Five-a-Day, printed information such as Birth to Five, and the effectiveness of the re-structured Healthy Start programme
- study the effectiveness and cost-effectiveness of interventions to reduce inequalities in childhood obesity

## **Promotion of child development, including speech, language and communication**

Further research is needed to:

- assess the effectiveness of both universal and group-based targeted methods of supporting early language and learning
- assess the effectiveness and cost-effectiveness of home visiting compared with centre-based methods of providing targeted support
- investigate interventions targeting areas that enhance cognitive function, such as joint attention, imitation, memory, problem solving and decision making

## **Oral health**

Further research is needed to:

- identify the best ways of identifying children who need targeted support
- test different methods for promoting effective oral health behaviours in the family, especially multi-component, community-based strategies

# 1. Introduction

## Background

The Healthy Child Programme (HCP) is the key universal public health service for improving the health and wellbeing of children, through health and development reviews, health promotion, parenting support, and screening and immunisation programmes. Its goals are to identify and treat problems early, help parents to care well for their children, change health behaviours, and protect against preventable diseases. The programme is evidence-based and aims to prevent problems in child health and development, and contribute to a reduction in health inequalities. The HCP is published in two volumes – ‘Pregnancy and the First Five Years of Life’, and ‘From 5 to 19 Years Old’. The current programme for 0-5 year-olds is based on the evidence available at the time of the last update of the HCP 0-5 years in 2009 (see Barlow et al 2008). As local authorities take on the commissioning of the 0-5 years HCP and its delivery via the universal health visiting service, it is important that the HCP is underpinned by the latest evidence.

In *Fair Society, Healthy Lives*, Marmot (2010) suggests that giving every child the best start in life is one of the key mechanisms for equalising the life-chances of children and reducing social adversity. The two time-points that are identified as being key to achieving this – pregnancy and the first two years of life – represent ‘sensitive developmental periods’ during which there is significant ‘biological embedding of adversities’.

‘Sensitive developmental periods’ refer to biological time-points during which the effects of experience on the brain are particularly strong, and when certain types of experience need to be present. This input is also described as ‘experience-expectant’ and involves basic sensory and motor functions, including visual and language systems. Although the precise mechanisms by which the experience-expectant development occurs are not yet well known (Twardozs and Lutzker, 2010), it is now accepted that if an infant’s development is not functioning normally during this period, it can have long-term implications for the child’s later wellbeing (Shonkoff, 2009).

The biological embedding of social adversity refers to the way in which adverse factors, including relationships, nutrition, and physical/chemical and built environments, can interact with the child’s genetic predisposition either during sensitive periods in the development of the brain or other organs, or through cumulative effects of damage over time, resulting in physiological adaptations and disruptions to the functioning of key organs, with significant consequences in terms of later functioning (Center on the Developing Child, 2013).

Shonkoff (2009), in a seminal paper that was published in the *Journal of the American Medical Association*, summarised the evidence about the ways in which social adversity disrupts developing brain architecture and other organ systems and regulatory functions. He highlighted the long-term consequences of this in terms of children's learning (ie linguistic, cognitive, and socio-emotional skills), behaviour (adaptive vs. maladaptive responses), and physiology (ie hyper-responsive/chronically activated stress response). The paper demonstrated the ways in which the latter is associated with stress-related chronic disease, unhealthy lifestyles and widening health disparities.

The HCP Pregnancy and the First Five Years of Life, therefore, has a key role to play in reducing social adversity by breaking this cycle of disadvantage.

## **Aim of review**

The purpose of this rapid review is to (a) update the evidence in relation to the HCP for 0-5 years, and, in doing so, (b) support the transfer of commissioning to local authorities.

Specifically, the aims are to synthesise relevant systematic review-level evidence about 'what works' in key areas: parental mental health; smoking; alcohol/drug misuse; intimate partner violence; preparation/support for childbirth and the transition to parenthood; attachment; parenting support; unintentional injury in the home; safety from abuse and neglect; nutrition and obesity prevention; and child development, including speech, language, and communication. Searches for primary evidence (notably RCTs) were also undertaken on four outcomes only (obesity prevention for 0-3 year-olds; attachment; parenting support; and speech, language, and communication) where it was felt by a group of experts that significant new studies had been published that were not captured in the systematic reviews covered.

In addition, the review seeks to draw out key messages in relation to: identifying families in need of additional support; the delivery/effective implementation of interventions at programme/service level and individual practitioner level; workforce skills and training; and the economic value/cost benefits of the HCP, including both health and wider societal costs. It is envisaged that the review will inform both the overall service delivery of the HCP and the practice of individual practitioners.

The focus of the rapid review on systematic reviews of 'what works' means that evidence from primary research has not yet been synthesised in the review, except in the case of the four outcomes highlighted above. In addition, many of the reviews have included diverse types of evidence (ie studies other than RCTs), so the level of rigour of the included studies and the confidence that can be attached to the findings is reflected in a critical appraisal of each review (contained in the data extraction tables).

A significant proportion of the systematic reviews covered a wider age range than is of interest for this review. In such cases, efforts are made in this review to indicate how many of the constituent studies include children in the 0-5 years age range. Where relevant, reference is made throughout the report to NICE guidance, which contains systematically-developed recommendations based on the best available evidence.<sup>7</sup>

The study only includes reviews published in English and does not include the following:

- aspects of the HCP that will continue to be commissioned by NHS England (ie immunisation/vaccination and screening programmes)
- the HCP delivered during pregnancy by midwives that is commissioned by Clinical commissioning groups (except where there is new evidence regarding the interface between the health visiting services and the Midwifery services especially in relation to pre-delivery visits by the health visitor and handover between the services)
- targeted programmes that are delivered in conjunction with health visitors but not necessarily led by them (eg families involved in multi-agency interventions in relation to safeguarding)
- the Family Nurse Partnership

## Methods

In order to identify relevant systematic reviews, relevant databases were searched, including those of key organisations (eg Cochrane Collaboration, NICE, EPPI Centre, Campbell Collaboration) and key electronic health, social science and education databases (eg PubMed, PsychInfo, CINAHL). The following inclusion criteria were used: study design (systematic reviews and reviews of reviews); years (2008 to circa July 2014); outcomes (related to the list of topics in the section above on ‘Aim of review’); and population (children aged 0-5 and/or parents/carers, and focusing on promotion, universal, selective and indicated interventions). Experts in the respective fields covered were consulted and asked to identify any systematic reviews that were not identified by the search of electronic databases.

Studies that met the inclusion criteria were critically appraised to assess their quality. This focused on issues such as: whether the review addressed a clear question; how comprehensive a search was undertaken; the type of studies included and whether their quality was assessed; what results were presented; and whether those results apply to the UK. Other data extracted included: a description of the interventions being reviewed; a description of the review findings; a summary of the authors’ conclusions; and messages regarding the identification of families in need of additional support, effective implementation and workforce skills and training. A more detailed description

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<sup>7</sup> It is important to note that the guidance cited in this report is necessarily selective and paraphrased, and not to be used in place of the full NICE guidance on the topic in question.

of the search and review process is provided in Appendix A, and data extraction tables for the systematic reviews are in Appendix B.

A total of 160 reviews were included. A larger number of reviews was identified but the main reasons for excluding reviews were as follows: they did not clearly cover any part of the 0-5 age range; they duplicated included reports published in another form; they were earlier versions of a subsequently updated review that is included; or they extended beyond the focus of the review on promotion, universal prevention, selective prevention and indicated prevention (defined in Appendix A).

Suitably qualified and trained researchers completed the reviews, using bespoke guidance to supplement their existing knowledge and experience. In order to help ensure consistency and accuracy, a proportion of completed data extraction forms were completed by two researchers and then compared, and reviewers received comments on a selection of their reviews and were asked to make amendments accordingly – both to those reviews and others where similar issues arose. All completed data extraction forms were read by at least two members of the team and, in some cases, amended further after checking back to the original source.

A similar procedure operated in the search for and appraisal of primary studies, except that the timeframe was 2009 to circa November 2014 and a different data extraction and critical appraisal form was used. In both cases the standard searches were supplemented with other sources (details in Appendix A). The data extraction tables for the primary studies are in Appendix C. A total of 50 RCTs were included and a further eight QED studies were reviewed (captured in the data extraction tables).

An additional focused search was undertaken to identify relevant papers in relation to implementation, identifying families in need of additional support and workforce skills and training. In order to inform the economic analysis, a further review was undertaken of the systematic reviews conducted by the Washington State Institute for Public Policy, which analyse the effects of short-term outcomes in the 0-5 years age range on longer-term outcomes. These are relevant because they inform the resulting cost-benefit analysis. For interventions that focus on 0-5 year-olds for which the Social Research Unit has conducted cost-benefit analysis, information is provided about whether effects on short-term outcomes have resulted in monetary benefits in the longer term, such as impact on child behaviour leading to reductions in the costs from crime.

Experts were consulted to ensure that the search had identified all relevant papers, and to review the critical appraisal and interpretation of findings in order to ensure that the results presented accurately reflect the available evidence.

## Order of what follows

The findings of the review are ordered thematically, as follows:

- maternal mental health
- smoking
- drugs and alcohol
- intimate partner violence
- preparation/support for childbirth and the transition to parenthood
- attachment
- parenting support
- keeping safe – includes the prevention of sudden infant death syndrome (SIDS); home safety (preventing unintentional injury), and safeguarding (preventing/addressing abuse/neglect)
- nutrition and obesity prevention – includes breastfeeding/healthy weaning, obesity prevention
- oral health
- promotion of child development, including speech, language, and communication
- implementation issues – identifying families in need of additional support, matching needs and services, reaching so-called hard-to-reach families, working in partnership with families, family 'readiness to change', fidelity, and workforce development (recruitment, training, supervision)
- economic analysis



## 2. Maternal mental health

During pregnancy, depression and anxiety affects a significant number of women. Postnatal depression or anxiety is often preceded by depression or anxiety during pregnancy. The task of improving maternal mental health is important in terms of its impact not only on the mother but also on both the foetus and infant/child. Poor maternal mental health during pregnancy can affect foetal development, including cellular growth and brain development, with consequences for child physical, cognitive, emotional and behavioural outcomes after birth and through childhood. In the postnatal period, maternal mental health can influence the quality of parent-child interactions and children's socio-emotional development during infancy and childhood. It is therefore essential to support women's mental health during pregnancy and postpartum.

This chapter reviews universal strategies to identify and prevent common maternal mental health problems during pregnancy and after birth, and summarises the evidence regarding effective antenatal and postnatal interventions that are both offered universally or to at risk women. It also summarises key messages regarding implementation, identifying families in need of additional support, and workforce skill and training.

### Antenatal

#### Identification/prevention/treatment of common mental health problems

The evidence regarding the identification, prevention and treatment of depression and anxiety in the antenatal period is summarised in NICE guidance on antenatal and postnatal mental health (NICE 2014a, guideline CG192), which is based on a series of systematic reviews published in NCCMH (2014).

This guidance recommends that at a woman's first contact with primary care or her booking visit, and during the early postnatal period, the practitioner should consider asking the following depression identification questions as part of a general discussion about a woman's mental health and wellbeing:

- During the past month, have you often been bothered by feeling down, depressed or hopeless?
- During the past month, have you often been bothered by having little interest or pleasure in doing things?

Practitioners should also consider asking about anxiety using the 2-item Generalized Anxiety Disorder scale (GAD-2):

- During the past month, have you been feeling nervous, anxious or on edge?

- During the past month have you not been able to stop or control worrying?

NICE (2014a) suggested that if a woman responds positively to either of the depression identification questions, is at risk of developing a mental health problem, or there is clinical concern, practitioners should consider:

- using the Edinburgh Postnatal Depression Scale (EPDS) or the Patient Health Questionnaire (PHQ-9) as part of a full assessment
- referring the woman to her GP or, if a severe mental health problem is suspected, to a mental health professional

If a woman scores 3 or more on the GAD-2 scale, practitioners should consider:

- using the GAD-7 scale for further assessment
- referring the woman to her GP or, if a severe mental health problem is suspected, to a mental health professional

If a woman scores less than 3 on the GAD-2 scale, but the practitioner is still concerned she may have an anxiety disorder, they should ask the following question:

- Do you find yourself avoiding places or activities and does this cause you problems?

If she responds positively, practitioners should consider:

- using the GAD-7 scale for further assessment
- referring the woman to her GP or, if a severe mental health problem is suspected, to a mental health professional

The NICE (2014a) guidance also recommends that at all contacts after the first contact with primary care or the booking visit, the health visitor, and other healthcare professionals who have regular contact with a woman in pregnancy and the postnatal period (first year after birth), should consider asking the two depression identification questions and the GAD-2 as part of a general discussion about her mental health and wellbeing, and using the EPDS or the PHQ-9 as part of monitoring.

## **Screening for antenatal depression/anxiety**

Austin et al (2008) examined whether antenatal psychosocial assessment reduces perinatal mental illness. The review included two small RCTs, both with significant methodological limitations. One (Carroll et al, 2005) involved the ALPHA antenatal health assessment tool, and one (Webster et al, 2003) the Edinburgh Depression Scale (EPDS) together with a discussion with the woman of their likely risk of postnatal depression based on their EDS score. The authors concluded that while the use of an antenatal psychosocial assessment may increase the clinician's awareness of

psychosocial risk, neither study provides sufficient evidence that routine antenatal psychosocial assessment by itself leads to improved perinatal mental health outcomes.

### **Identification of severe mental illness**

NICE (2014a) recommends that at a woman's first contact with services in pregnancy and the postnatal period, practitioners should ask about:

- any past or present severe mental illness
- past or present treatment by a specialist mental health service, including inpatient care
- any severe perinatal mental illness in a first-degree relative (mother, sister or daughter)

NICE (2014a) recommends referring to a secondary mental health service (preferably a specialist perinatal mental health service) for assessment and treatment, all women who:

- have or are suspected to have severe mental illness
- have any history of severe mental illness (during pregnancy or the postnatal period or at any other time)

In both cases the woman's GP should know about the referral.

Where a woman has any past or present severe mental illness or there is a family history of severe perinatal mental illness in a first-degree relative, practitioners should be alert for possible symptoms of postpartum psychosis in the first two weeks after childbirth.

If a woman has sudden onset of symptoms suggesting postpartum psychosis, she should be referred to a secondary mental health service (preferably a specialist perinatal mental health service) for immediate assessment (within four hours of referral).

When a woman with a known or suspected mental health problem is referred in pregnancy or the postnatal period, she should be assessed for treatment within two weeks of referral and provided with psychological interventions within one month of initial assessment.

### **Identification of alcohol and drug misuse**

NICE (2014a) recommends that if alcohol misuse is suspected, the Alcohol Use Disorders Identification Test (AUDIT) should be used as an identification tool in line with recommendation 1.2.1.4 of the guideline on alcohol-use disorders (NICE guideline CG115).

It also recommends that if drug misuse is suspected, the practitioner should follow the recommendations on identification and assessment in section 1.2 of the guideline on psychosocial interventions for drug misuse (NICE guideline CG51).

## **Prevention of antenatal depression/anxiety**

### *Feedback during ultrasound*

Nabhan and Faris (2010) investigated the impact of the level of feedback received during routine ultrasound on improving maternal state anxiety and health behaviours. The review included four RCT studies, all of which compared low and high feedback during ultrasound scan in pregnancy.<sup>8</sup> The authors concluded that there is insufficient evidence to support either high or low feedback during a prenatal ultrasound to reduce maternal anxiety and promote health behaviour, although they note one small trial of the impact of feedback level on the health attitudes of women. Women who had high feedback during ultrasound were more likely to stop smoking during pregnancy and avoid alcohol during pregnancy.

### *Alternative therapies*

Beddoe and Lee (2008) examined the effectiveness of mind-body interventions (eg psychoeducation, relaxation, yoga and meditation) during pregnancy on perceived stress, mood and other perinatal outcomes. The review identified 12 studies (including five RCTs and five QEDs) that met the criteria (which included that interventions should target healthy pregnant women). The review found modest evidence from several poorly-designed studies that pregnant women derive health benefits from such interventions in conjunction with standard prenatal care. Intervention group outcomes included higher birthweight, shorter length of labour, fewer instrument-assisted births, and, critically (for this section of the report), reduced perceived stress and anxiety. However, the authors concluded that methodological limitations in the studies reviewed, including small sample size and lack of control group, mean that the findings should be treated with caution.

Marc et al (2011) focused on the period from pregnancy to one month postpartum and included eight RCTs evaluating the effectiveness of hypnotherapy (one trial), imagery (five trials), autogenic training (one trial) and yoga (one trial). In most studies participants were not selected based on elevated risk. Compared with usual care, in one of two studies of the use of imagery during the antenatal period the intervention may have had a positive effect on anxiety during labour, decreasing anxiety at the early and middle stages of labour. Another study (Ip et al, 2009) showed that imagery during pregnancy had a positive effect on anxiety and depression in the immediate postpartum period. Autogenic training might be effective for decreasing women's anxiety before

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<sup>8</sup> Low feedback means that women cannot see the monitor screen and are given only a summary statement of the scan, whereas with high feedback women can see the monitor screen and receive detailed visual and verbal explanations.

delivering. No statistically significant effects were found for using yoga during pregnancy to reduce state anxiety. The authors concluded that there is some but no strong evidence for the effectiveness of mind-body interventions for the management of anxiety during pregnancy.

## **Treatment of antenatal depression/anxiety<sup>9</sup>**

### *Depression*

NICE (2014a) recommends that women with persistent subthreshold depressive symptoms, or mild to moderate depression, in pregnancy or the postnatal period, should be offered facilitated self-help (delivered as described in recommendation 1.4.2.2 of the guideline on depression in adults [NICE guideline CG90]).

For a woman with a history of severe depression who initially presents with mild depression in pregnancy or the postnatal period, TCA, SSRI or (S)NRI antidepressants should be considered.

For a woman with moderate or severe depression in pregnancy or the postnatal period, the following options should be considered:

- a high-intensity psychological intervention (for example, cognitive behaviour therapy (CBT))
- a TCA, SSRI or (S)NRI antidepressant if the woman understands the risks associated with the medication and the mental health problem in pregnancy and the postnatal period and:
  - she has expressed a preference for medication; or
  - she declines psychological interventions; or
  - her symptoms have not responded to psychological interventions
- a high-intensity psychological intervention in combination with medication if the woman understands the risks associated with the medication and the mental health problem in pregnancy and the postnatal period and there is no response, or a limited response, to a high-intensity psychological intervention or medication alone

### *Anxiety*

NICE (2014a) recommends that a woman with persistent subthreshold symptoms of anxiety in pregnancy or the postnatal period should be offered facilitated self-help. This should consist of use of CBT-based self-help materials over 2-3 months with support (either face to face or by telephone) for a total of 2-3 hours over six sessions.

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<sup>9</sup> High-intensity intervention refers to a formal psychological intervention usually delivered face to face (either in a group or individually) by a qualified therapist who has specific training in the delivery of the intervention. Low-intensity intervention refers to a psychological or psychosocial intervention delivered by a trained coach or facilitator (rather than a therapist) to enable use of self-help materials.

For a woman with an anxiety disorder in pregnancy or the postnatal period, the guidelines recommends that she be offered a low-intensity psychological intervention (eg facilitated self-help) or a high-intensity psychological intervention ( CBT) as initial treatment in line with the recommendations set out in the NICE guideline for the specific mental health problem. The guidelines noted that it is important to be aware that:

- only high-intensity psychological interventions are recommended for post-traumatic stress disorder
- high-intensity psychological interventions are recommended for the initial treatment of social anxiety disorder
- progress should be closely monitored and a high-intensity psychological intervention offered within two weeks if symptoms have not improved

NICE (2014a) also made a range of recommendations for women with eating disorders, alcohol and drug dependency, and severe mental illness in pregnancy and the postnatal period.

#### *Alternative therapies*

Dennis and Dowswell (2013a) reviewed interventions other than pharmacological, psychosocial and psychological for treating antenatal depression. They included six RCTs involving 402 women from the US (four studies), Switzerland, and Taiwan. One trial (Field et al, 2009) found that maternal massage by a significant other had a positive effect on maternal depression when compared with standard care. However, in two other studies (Manber et al, 2004; Manber et al, 2010) comparing maternal massage with non-specific acupuncture (control group) the former showed no effect on depression-related measures. Another trial (Wirz-Justice et al, 2011) found that bright light therapy had a significant effect on mean depression scores, favouring the intervention, but no effect on treatment response or remission rates. A study of depression-specific acupuncture also had mixed results (Manber et al, 2010). The use of omega-3 fatty acids was associated with a reduction in maternal depression in one trial (Su et al, 2008) but had no effect on depression in another trial (Freeman et al 2008). The authors concluded that the evidence is inconclusive and does not permit recommendations for depression-specific acupuncture, maternal massage, bright light therapy and omega-3 fatty acids to treat antenatal depression.

## **Postnatal**

### **Screening for depression/anxiety**

Hewitt and Gilbody (2009) reviewed postnatal screening for mental health problems and identified four screening studies, all using the EPDS. Two of the studies (Evins et al, 2000; Kung et al, 2002) examined EPDS threshold scores at six weeks and two examined EPDS scores at 16 weeks (MacArthur et al, 2002; Webster et al, 2003). The

meta-analysis showed a significant reduction in the risk of postnatal depression. However, in a number of studies the screening intervention was included with enhanced care, such as counselling or interviewing training, which may have confounded the results. The authors concluded that there is insufficient evidence that the EPDS is effective in the postnatal detection of postnatal depression, and the subsequent improvement in maternal and infant health and wellbeing.

NICE (2014a) recommendations for the identification of depression and anxiety are the same as those described above for the antenatal period.

## **Prevention of postnatal depression/anxiety**

### *Home visiting*

Yonemoto et al (2013) conducted a meta-analysis of 12 RCTs of mixed quality that evaluated home visiting interventions in the early postpartum period (beginning 2-10 days after birth) aimed at improving maternal and infant health. Studies of interventions that focused exclusively on high-risk groups were excluded. The frequency and duration of included interventions varied from one session to six weeks, with only one, weekly or fortnightly visits. The evidence for effectiveness is limited – the meta-analysis did not provide evidence that such home visits have an impact on maternal physical or mental health, but more home visits were associated with lesser emergency medical care for babies and increased likelihood of exclusive breastfeeding.

### *Psychosocial and psychological interventions*

Dennis and Dowswell (2013b) reviewed psychosocial and psychological interventions aimed at preventing postnatal depression. The review included pregnant women and new (less than six weeks postpartum) mothers, including those at no known risk and those identified as being at risk of developing postpartum depression. The review included 28 RCTs involving nearly 17,000 women. It found that women who receive a psychosocial or psychological intervention are significantly less likely to develop postpartum depression compared with those who received standard care. The review identified promising interventions, including: the provision of intensive, professionally-based postpartum home visits provided by public health nurses or midwives; flexible, individualised midwifery-based postpartum care that incorporate postpartum depression screening tools; telephone-based peer support; and interpersonal psychotherapy (which by focusing on the interpersonal issues associated with depression is theoretically well placed to address two of the strongest risk factors for postpartum depression, namely marital conflict and lack of support).

The review also identified less promising interventions. Antenatal classes addressing postpartum depression were shown in four trials to have no preventative effect. In-hospital psychological debriefing showed some evidence of positive effect in four of five trials but differences between groups were not statistically significant when the results



were pooled. It is not clear whether home visits conducted by laypeople are effective: one RCT (Armstrong et al, 1999) showed that the addition of home visits by a community support worker had no protective effect on postpartum depression, possibly because the visitors spent more time delivering practical support (eg housework, infant care) than providing emotional and appraisal (feedback) support. The preventative effect of CBT is also not clear, mainly because only one study contributed to the meta-analysis (another did not have usable data and also showed no clear impact on depression outcomes). With regard to improving the quality of perinatal care provided to women, an RCT of early postpartum follow-up found no positive effect on maternal mental health outcomes (Gunn et al, 1998). Finally, three trials of continuity/models of care interventions failed to demonstrate a preventative effect.

The review also examined aspects of intervention delivery. It found that: professional and lay-based interventions are both effective in reducing the risk to develop depressive symptomatology; individually-based interventions reduced depressive symptomatology at final assessment, as did multiple-contact interventions; interventions initiated in the postpartum period significantly reduced the risk to develop depressive symptomatology; and identifying mothers 'at-risk' assisted the prevention of postpartum depression.

The findings of the Dennis and Dowswell (2013b) Cochrane review are broadly supported by the Alderdice et al. (2013) review of reviews of interventions to improve maternal mental health and wellbeing, which in relation to preventing postnatal depression only includes studies pre-2008 (2001-2005), and states that the highest quality data came from an earlier (2004) version of the above Cochrane review.

#### *Group-based parenting programmes*

Barlow et al (2012) reviewed the effectiveness of group-based parent training programmes (behavioural, cognitive-behavioural and multimodal) in improving parental psychosocial health. It included families with children of various ages, including the 0-5 years range, from both population and clinical samples – that is, with or without child behavioural problems. The review focused on RCTs and quasi-randomised controlled trials that compared a group-based parenting programme with a control condition and used at least one standardised measure of parental psychosocial health. In total, 48 RCTs were included, of which at least 26 included children in the 0-5 years age range. The review included universal and targeted programmes. The results showed that parenting programmes were effective immediately post-intervention in producing statistically significant improvements in a number of aspects of parental psychosocial functioning, including depression, anxiety, stress, anger, guilt, confidence and satisfaction with the partner relationship. However, the review only supports the use of parenting programmes to improve the short-term psychosocial wellbeing of parents: only stress and confidence continued to be statistically significant at six-month follow-up, and none were significant at one year. There was no evidence of any effect on self-



esteem. The authors noted the need for more research that (i) explicitly addresses the benefits for fathers, (ii) examines the comparative effectiveness of different types of programme, and (iii) explores the mechanisms by which such programmes bring about improvements in parental psychosocial functioning.

#### *Telephone support*

One review (Lavender et al, 2013) involving 27 RCTs examined telephone support versus usual care (no additional telephone support) during pregnancy and the first six weeks postpartum. The aims of the interventions being evaluated were to help people to stop smoking, to continue breastfeeding, or to provide general support and advice. Two of the studies focused on women at high risk of postnatal depression: one identified women during pregnancy (Little et al, 2002), the other after birth (Pugh et al, 2002). These showed that women who received support had lower average depression scores in the postnatal period but without clear evidence that women who were supported were less likely to have a diagnosis of depression. Several studies examined whether telephone support reduces anxiety during pregnancy or after birth but there was no consistent evidence confirming that this was effective. Overall, the authors concluded that despite some encouraging findings, there is insufficient evidence to recommend routine telephone support for women accessing maternity services, as the evidence from included trials is neither strong nor consistent. Although benefits were found in terms of reduced depression scores, increased breastfeeding duration and increased overall satisfaction, the current trials do not provide strong enough evidence to warrant investment in resources.

#### *Alternative therapies*

Sado et al (2012) evaluated the effectiveness of hypnosis for preventing postnatal depression compared with usual care. They found one small RCT showing that highly susceptible, hypnotically treated women reported lower mean depression scores after birth compared to the other groups of women (Harmon and Hynan, 1990). However, the effect on the risk of postnatal depression was not measured. The authors concluded that there is no evidence from RCTs on whether or not hypnosis during pregnancy, childbirth, and the postnatal period is effective for preventing postnatal depression.

### **Treatment of postnatal depression, anxiety and other mental health problems**

NICE (2014a) recommendations regarding the treatment of depression, anxiety and other mental health problems (eg eating disorders, severe mental illness, drug/alcohol dependency) are described above under the section on antenatal treatments.

### **The mother-baby relationship**

NICE (2014a) recommends that it is important to recognise that some women with a mental health problem may experience difficulties with the mother-baby relationship, and that the nature of this relationship should be assessed, including verbal interaction, emotional sensitivity and physical care, at all postnatal contacts. Practitioners should discuss any concerns that the woman has about her relationship with her baby and provide information and treatment for the mental health problem.

NICE (2014a) further recommends that practitioners consider further intervention to improve the mother-baby relationship if any problems in the relationship have not resolved.

## **Other interventions**

Alderdice et al (2013) conducted a review of reviews to identify non-invasive interventions intended to enable midwives to offer effective support to women during the perinatal period, such as antenatal psychosocial assessment, mind-body interventions, psychosocial and psychological interventions, home visiting interventions, counselling, exercise, or parenting programmes. The review examined reviews that focus on treating postpartum depression, and included 32 reviews evaluating the effectiveness of interventions that could be used or co-ordinated by midwives in relation to some aspect of maternal mental health and wellbeing during the perinatal period. A number of examples of possible interventions worthy of further research were identified, including midwifery-led models of care in the prevention of postpartum depression, psychological and psychosocial interventions for treating postpartum depression and the facilitation/co-ordination of parent-training programmes. No reviews were identified that supported a specific midwifery role in maternal mental health and wellbeing in pregnancy. The authors concluded that there is little evidence to inform the current role of midwives in maternal mental health, and further research is needed.

Stevenson et al (2010) reviewed the clinical effectiveness and cost-effectiveness of group CBT compared with currently used packages of care for women with postnatal depression. It included six trials, including three RCTs and three non-randomised trials. Three studies showed the treatment to be effective in reducing depression when compared with standard primary care. However, the authors recommended the need for caution as a result of the following: the relative paucity of RCT evidence; the low quality of some evidence due to poor reporting, which may affect the generalisability of the findings; the lack of adequate evidence on which to assess group CBT compared with other treatments for postnatal depression; and uncertainty about cost-effectiveness as a result of uncertainty about the efficacy of group CBT, its costs, and the duration of benefit. The review concluded that there is inconsistent and low-quality information on which to base any recommendations for service provision.

Daley et al (2012) examined the effectiveness of exercise in the management of postnatal depression. The review included RCTs and quasi-RCTs that compared any type of exercise intervention with other treatments or no treatment in women with postnatal depression. Five studies were included in the review. A meta-analysis showed that when compared with no exercise, exercise reduced symptoms of postnatal depression. However, the effect size was reduced considerably (non-significant) when the analysis excluded a trial examining exercise as a co-intervention with social support. The authors concluded that it is uncertain whether exercise reduces symptoms of postnatal depression.

Leis et al (2009) evaluated RCTs assessing home-based psychological interventions to prevent and treat postpartum depression. Six studies met the inclusion criteria, of which five assessed treatments for postnatal depression and one assessed a preventive intervention for postpartum depression. Interventions used cognitive behavioural, psychodynamic, and non-directive counselling approaches. Of the six studies reviewed, four reported statistically significant treatment effects on postpartum depression following the intervention (Appleby et al, 1997; Chabrol et al, 2002; Cooper et al, 2003; Holden et al, 1989), and each of the three types of psychological interventions was shown to reduce levels of maternal depression. The authors concluded that home-based psychological interventions are a promising approach for addressing postnatal depression.

Borja-Hart and Marino (2010) examined the use of omega-3 fatty acids for the prevention or treatment of perinatal depression.<sup>10</sup> They identified seven studies (including four RCTs), only six of which were included, as one trial was discontinued early due to the relapse of depression symptoms. The findings show that while there was an improvement in depression rating scale scores, the results were only statistically significant in three trials. In addition, concern about the methodological limitations (eg small sample sizes), means that these results are inconclusive. However, further investigation of omega-3 fatty acids was recommended because they were effective in improving depression scores and appeared to be safe during pregnancy.

## **Identifying families in need of additional support**

Women are in regular contact with healthcare services during the perinatal period and both health visitors and midwives are in a key position to educate and support women about mental health and wellbeing and identify women at risk, including those experiencing increased stress, women at risk of developing mental health problems or women with existing mental illness (Alderdice et al, 2013).

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<sup>10</sup> Omega-3 fatty acids are correlated with depressive symptoms during pregnancy and after delivery, and owing to their role in serotonin functioning may produce antidepressant effects.

The following factors may lead a family to be identified as being in need of additional support: life stresses (eg bereavement, separation, unemployment, illness, moving house); a lack of social support networks; a past history of psychological or psychiatric disorders; a history of physical, emotional or sexual abuse; drug or alcohol abuse; a dysfunctional personality; coping styles; and parenting behaviours. All of these can contribute to the onset of mental health problems during pregnancy or at childbirth and over the following year (Austin et al, 2008; see also Marc 2011).

Dennis and Dowswell (2013a) noted that pregnant women are at higher risk of depression than non-pregnant women, and often do not want to take medication during pregnancy.

Dennis and Dowswell (2013b) commented that identifying mothers 'at risk' may assist in the prevention of postpartum depression. However, currently there is no consistency in the identification of women 'at-risk', and a review of 16 antenatal screening tools suggests that there are no measures with acceptable predictive validity to accurately identify asymptomatic women who will later develop postpartum depression.

NICE (2014a) recommends the use of simple questions to identify women at risk of depression or anxiety in the antenatal or postnatal periods, followed by more detailed measures if required (as above).

## **Implementation issues**

Alderdice et al (2013) identified the importance of tailoring the intervention to the individual needs of the woman.

Dennis and Dowswell (2013b), in their review of psychosocial and psychological interventions to prevent postpartum depression, suggested that the decreased effect related to groups could be due to high group attrition and thus insufficient intervention dosage. This, in turn, may reflect the barriers that make it harder for pregnant women and new mothers to attend sessions outside of their homes – hence the value of individual support in the home. Leis et al (2009) commented that home-based interventions may be well suited to low-income mothers, as they can overcome transportation and childcare barriers that may be experienced by this group of mothers. NICE (2014a) recommends that all interventions for mental health problems in pregnancy and the postnatal period should be delivered by competent practitioners. Psychological and psychosocial interventions should be based on the relevant treatment manual(s), which should guide the structure and duration of the intervention. Practitioners should consider using competence frameworks developed from the relevant treatment manual(s) and for all interventions practitioners should:

- receive regular high-quality supervision

- use routine outcome measures and ensure that the woman is involved in reviewing the efficacy of the treatment
- engage in monitoring and evaluation of treatment adherence and practitioner competence – for example, by using video and audio tapes, and external audit and scrutiny where appropriate

NICE (2014a) also recommends that managers and senior healthcare professionals responsible for perinatal mental health services (including those working in maternity and primary care services) should ensure that there are clearly specified care pathways so that all primary and secondary healthcare professionals involved in the care of women during pregnancy and the postnatal period know how to access assessment and treatment.

Furthermore, NICE (2014a) recommends that interventions for mental health problems in pregnancy and the postnatal period should be provided within a stepped-care model of service delivery in line with recommendation 1.5.1.3 of the guideline on common mental health disorders (NICE guideline CG123).

## **Workforce skills and training**

A review of non-invasive interventions (Alderdice et al, 2013) designed to enable midwives to offer effective support to women concluded that many of the interventions identified (eg psychological and psychosocial interventions) would require additional midwifery training. However, it was also noted that while many of the reviews included in this review of reviews provided some evidence of effects, findings were confounded by poor design and the overall poor quality of many of the included studies. Overall, no review identified an intervention in the perinatal period that could be definitively recommended in clinical practice. As such, the authors concluded that it would be premature to consider introducing any of the identified interventions into midwifery training and practice.

NICE (2014a) recommends that all healthcare professionals providing assessment and interventions for mental health problems in pregnancy and the postnatal period should understand the variations in their presentation and course at these times, how these variations affect treatment, and the context in which they are assessed and treated (eg maternity services, health visiting and mental health services).

### 3. Smoking

Smoking and environmental tobacco exposure during pregnancy affects foetal nutrition, influencing negative birth outcomes including birthweight, and increases the risk of poor health outcomes such as respiratory conditions or diabetes. Low birthweight can impact on children's cognitive development, emotional and behavioural development, and influence the likelihood of developing chronic illness in later life. Exposure to environmental tobacco smoke during infancy and childhood can impact negatively on child health outcomes, including: asthma in children who have not previously exhibited symptoms; increased risk for sudden infant death syndrome (SIDS); lower respiratory tract infections, such as pneumonia and bronchitis; and middle ear infections.

This chapter reviews strategies for effective smoking cessation during pregnancy and after birth for women and others in the family home. It concludes by summarising recent evidence about the ways in which women who smoke during pregnancy may be identified, and identifies key messages from the research on how smoking cessation interventions may be most effectively delivered to families.

#### Antenatal

Smoking cessation is one of the few effective strategies for the prevention of low infant birthweight, premature birth and neonatal mortality. Two reviews (Chamberlain et al, 2013; Coleman et al, 2012) focused respectively on psychosocial and pharmacological interventions to promote smoking cessation during pregnancy, updating an earlier Cochrane review (Lumley et al, 2009), that focused on both types of intervention. Psychosocial interventions refer to non-pharmacological strategies that use cognitive-behavioural, motivational and supportive therapies to help women to quit, including counselling, health education, feedback, financial incentives, and social support from peers and/or partners.

Chamberlain et al (2013) evaluated the effectiveness of psychosocial interventions that aim to motivate and support women to stop smoking in pregnancy, or prevent smoking relapse among women who have spontaneously quit. The review identified 77 RCTs, including 48 counselling-based<sup>11</sup> interventions, seven health education<sup>12</sup> interventions, seven feedback<sup>13</sup> interventions, four incentive-based interventions, and 10

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<sup>11</sup> These include motivational interviewing, cognitive behaviour therapy, psychotherapy, relaxation, problem solving facilitation, and other strategies.

<sup>12</sup> These interventions involve providing women with information about the risks of smoking and advice to quit, but without further support or advice about how to make this change. Interventions where women receive automated support such as self-help manuals or automated text messaging but without personal interaction were included in this category.

<sup>13</sup> These include interventions such as ultrasound monitoring and carbon monoxide or urine cotinine measurements, with results fed back to the mother.

interventions based on social support (from a peer or partner). The analysis focused mainly on the outcome of smoking abstinence in late pregnancy. Overall, incentive-based interventions showed the largest effect. However, the authors advised caution because all four trials (Donatelle et al, 2000; Heil et al, 2008; Tuten et al, 2012; Mantzari et al, 2012) evaluating these were based in the US, and interventions were only effective with intensive delivery. Counselling demonstrated a significant effect only where it was provided in conjunction with other strategies, and it was unclear whether any type of counselling strategy was more effective than others. Feedback interventions showed significant effects only when compared with usual care and when provided in conjunction with other strategies, such as counselling. Social support interventions were effective when delivered by peers but in a single trial of support provided by partners the effect was unclear. The effect of health education was unclear. The effects were mixed where the smoking interventions were provided as part of broader interventions to improve maternal health, rather than targeted smoking cessation interventions. In addition, analyses showed that women who received psychosocial interventions had an 18% reduction in preterm births and infants born with low birthweight respectively. The authors concluded that psychosocial interventions during pregnancy can increase the proportion of women who stop smoking in late pregnancy, and reduce low birthweight and preterm births.

Coleman et al (2012) identified six RCTs of pharmacological interventions to promote smoking cessation during pregnancy, with or without concurrent psychosocial support. Of the pharmacological interventions within the scope of the review (nicotine replacement therapy (NRT), bupropion, varenicline or any other medications), only evaluations of NRT efficacy with associated behavioural support were identified. The authors concluded that there is insufficient evidence to determine the efficacy, safety or impact on birth outcomes of NRT when used to promote smoking cessation during pregnancy.

Guyer et al (2009) focused on children from conception to age five years and narratively synthesised over 200 relevant studies (RCTs, QEDs, reviews, surveys, cost analyses) of interventions that promote health and prevent disease within the domains of tobacco exposure, unintentional injury, obesity and the mental health of preschool children. Several types of tobacco-related interventions were covered, including smoking cessation interventions for pregnant women (with and without partner support). The study found that many anti-tobacco interventions, particularly multi-faceted ones, are effective in increasing smoking cessation rates and in reducing negative birth outcomes.

Higgins et al (2012) examined financial incentives for maternal non-smoking during pregnancy, as assessed by biochemical measures. The review included six controlled trials, four of which were RCTs. Participants were economically disadvantaged women. Incentives were generally associated with higher levels of abstinence and better birth



outcomes than control treatments. Higher value incentives appeared more effective than lower value incentives. The authors concluded that financial interventions showed promise, and may in particular meet the treatment needs of socio-economically disadvantaged women and heavy smokers. They argued that more traditional broad-reach and low-cost public-health interventions may need to be supplemented with higher cost, more intensive interventions, including voucher-based financial incentives.

Hajek et al (2009) identified 54 RCTs or QEDs evaluating relapse prevention interventions for smoking cessation. Although this review was not limited to special populations relevant to the current rapid review (that is, pregnant or postpartum women and families), the authors conducted two specific meta-analytic comparisons of 14 RCTs of behavioural interventions for abstinent pregnant or postpartum women, including brief counselling sessions, telephone contact, psychotherapy and motivational interviewing. No studies of pharmacological interventions specifically to prevent relapse were identified for abstinent pregnant or postpartum women. One analysis compared the efficacy of telephone counselling, individual counselling and self-help interventions for pregnant women, identifying smoking status at delivery as the primary outcome measure. The second analysis compared the timing of intervention during pregnancy, intervention during pregnancy and postpartum, and intervention postpartum, with not smoking at the longest follow-up after delivery. The authors found no intervention effect overall or by type or timing for behavioural relapse prevention interventions for pregnant or postpartum women.

Naughton et al (2008) evaluated the efficacy of self-help smoking cessation interventions for pregnant smokers and investigated whether self-help material intensity, type or delivery are associated with cessation. They included 15 RCTs and quasi-RCTs of self-help smoking cessation interventions for pregnant smokers without significant cessation counselling. A meta-analysis of 12 of these found that self-help interventions on average nearly doubled the odds of quitting compared with standard care. Further analysis found no evidence that more intensive materials were significantly more effective than less intensive interventions. The authors concluded that self-help interventions appear to be more effective than standard care but that, owing mainly to a lack of trials, it is unclear whether more sophisticated and intensive approaches increase intervention effectiveness. (These findings should be read in the context of the findings of the Chamberlain et al (2013) review, which included self-help interventions in the category 'health education' and found unclear evidence of effectiveness.)

One review focused on identifying specific behavioural change components within effective behavioural smoking cessation interventions during pregnancy (Lorencatto et al, 2012). Across seven interventions evaluated by RCT, 11 behaviour change techniques were identified as effective for specialist support during pregnancy. These included: the provision of rewards based on smoking cessation; utilising carbon



monoxide measures; facilitating relapse prevention (helping the smoker understand how lapses occur, how they lead to relapse and how to develop specific strategies for preventing lapses or avoiding lapses turning into relapse); information on consequences of smoking and cessation; facilitating problem-solving; identifying relapse triggers; goal setting; assessing current and past smoking behaviour; assessing readiness to quit; appropriate written materials; and facilitation of social support.

Nabhan and Faris (2010) investigated the impact of the level of feedback received during routine ultrasound on improving maternal state anxiety and health behaviours. The review included four studies (all RCTs), all of which compared low feedback and high feedback during ultrasound scan in pregnancy. One small trial (129 participants; Reading and Cox, 1982) reported the impact of feedback level on the health attitudes of women, including smoking cessation. It found that women who had high feedback during ultrasound were more likely to stop smoking. (This should be read in the context of the finding of the Chamberlain et al (2013) review above.)

One review (Baxter et al, 2011) evaluated the efficacy of interventions to establish smoke-free homes in pregnancy and in the neonatal period. This review included 12 studies (10 RCTs and two QEDs), which covered six counselling interventions, two counselling interventions with educational components, three interventions that developed plans for smoke-free homes, and one motivational interviewing intervention. Overall, evidence regarding intervention effectiveness was inconclusive. Counselling interventions may be effective, but results were mixed. Mixed results may be due to inconsistent measures of smoking across individual studies: studies that included both self-report measures and physiological indicators of smoking often found contradictory results. The authors also commented that the quality of studies varied, and recommended that future research should use nicotine monitors and cotinine measures to assess smoking cessation in combination with behavioural outcomes.

## Postnatal

Three systematic reviews evaluated the effectiveness of postnatal interventions for smoking cessation and relapse prevention (Hoedjes et al, 2010; Priest et al, 2008; Stead et al, 2013), including individual-level interventions and family-based interventions to establish or maintain smoke-free homes.

The review by Priest et al (2008) included 36 studies (RCTs, controlled trials and QED studies) of family and carer interventions to reduce the exposure to tobacco smoke of children aged under 12 years. Of these, 12 focused exclusively on parents and carers of children aged less than one year, and six studies focused exclusively on preschool children. Interventions included telephone counselling, motivational interviewing, and home visiting. Overall, there was a statistically significant intervention effect in only 11

of the 36 studies, and the authors concluded that there is currently insufficient evidence to recommend one strategy over another to reduce the prevalence or level of children's environmental tobacco smoke exposure. Of these 11, four were RCTs involving parents of children aged 0-5 years: three were counselling based – one specifically telephone counselling (Davis et al, 1992), one individual counselling (Lancaster and Stead, 2005), and one using motivational interviewing techniques (Emmons et al, 2001) – and the fourth was a home visiting programme (Armstrong et al, 1999), with an educational component regarding the effects of smoking around young children on SIDS outcomes.

Postpartum lifestyle interventions are recommended for women after pregnancies complicated by pre-eclampsia, intrauterine growth restriction and/or gestational diabetes, owing to their increased cardiovascular risk. Hoedjes et al (2010) evaluated the effectiveness of such interventions aimed at smoking cessation and preventing smoking relapse for women during the postnatal period. Although none tailored to his high-risk group were found, other postpartum lifestyle interventions were identified. Outcomes included self-reported smoking levels, maternal cotinine levels, and smoking abstinence. Four of five smoking cessation interventions and four of eight smoking relapse prevention interventions were found to be effective. These included office-based advice, education and discussion from a doctor postpartum, and four home and telephone counselling interventions based on motivational interviewing techniques. It should be noted that the review did not assess the quality of the included studies.

Stead et al (2013) examined the impact of proactive telephone counselling on smoking cessation. Four of the 77 RCTs included were of interventions that occurred during pregnancy and/or the postpartum period (McBride et al, 1999; McBride et al, 2004; Rigotti et al, 2006; Stotts et al, 2002) but the majority of the remainder could potentially be relevant to parents of children in the early years. The interventions were brief, involving one to six calls of 8-30 minutes each. Results from meta-analyses showed that among smokers who contacted helplines, quit rates were higher for groups randomised to receive multiple sessions of proactive counselling. Telephone counselling not initiated by calls to helplines also increased quitting. The authors concluded that proactive telephone counselling aids smokers who seek help from quitlines. Telephone quitlines provide an important route of access to support for smokers, and call-back counselling enhances their usefulness. There is limited evidence about the optimal number of calls, although the impact of low intensity interventions (one to two calls) was not significant.

## **Identifying families in need of additional support**

Priest et al (2008) noted that women who quit smoking during pregnancy may demonstrate high rates of relapse after pregnancy, and consequently may be identified as requiring additional support; prevention of relapse for this group is a potentially

important means of preventing environmental tobacco smoke exposure for their children.

The evidence underpinning the NICE (2010a) guidance on quitting smoking in pregnancy and following childbirth (NICE 2010a, guideline PH26) showed that there is good evidence that women in the UK under-report smoking during pregnancy and that CO monitoring in antenatal clinics can help to identify pregnant smokers. NICE (2010a) recommends that in pregnancy clinics midwives implement routine Carbon Monoxide (CO) testing – an immediate and non-invasive biochemical method – to help identify women who smoke. The risks of smoking to the unborn child and the benefits for the child and mother should be explained, and the woman should be advised to stop (not just cut down). All current smokers and those who stopped in the previous two weeks should be referred to NHS Stop Smoking services, as should those with a CO reading of 7 ppm or above, and light or infrequent smokers even if they register a lower reading – for example, 3 ppm.<sup>14</sup> They should also be given the NHS Pregnancy Smoking Helpline number and local helpline numbers.

NICE (2010a) further recommends that health visitors and other health professionals specified (eg GPs, family nurses) use any meeting to ask women who are pregnant if they smoke and, if they do, to advise them to stop, explain how NHS Stop Smoking can help and make a referral to the service (with consent). Those with specialist training should give pregnant women who smoke information about: the risks to the unborn child of smoking when pregnant; the hazards of exposure to second hand smoke for both mother and baby; and the benefits of stopping smoking.

## Implementation issues

A review of factors aiding the delivery of effective smoking cessation interventions, which informed the NICE (2010a) guidance, drew on qualitative studies and surveys from various countries, including the UK. It found that: not all staff ask all pregnant women about their smoking status during consultations; some women (and professionals) perceive the information and advice provided by health professionals to be insufficient or inadequate; the way that information/advice is communicated to pregnant women smokers can impact on how the advice or information is received (suggesting that a less 'preaching' and more empathetic approach may be helpful); there is variance in practice among staff in terms of the type of intervention offered during and following a consultation (eg leaflet, referral to a specialist programme, personal support); staff perceive that they have limited skills and knowledge to implement successful smoking cessation interventions; staff perceive that lack of time

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<sup>14</sup> If mothers have a high CO reading (more than 10 ppm) but say they do not smoke, NICE (2010a) recommends that midwives should advise them about possible CO poisoning and ask them to call the free Health and Safety Executive gas safety advice line.

is a significant barrier to the implementation of smoking cessation interventions; and staff perceptions regarding the limited effectiveness of interventions may impact on their delivery of services.

Chamberlain et al (2013) examined facilitators of the effective implementation of smoking cessation interventions during pregnancy, and identified readily available materials, written protocols, feasible time commitments from healthcare providers, and good training. Barriers to the implementation of smoking cessation interventions in healthcare settings included differences in the perception of healthcare professionals' about their role in smoking cessation and negative perceptions of intervention efficacy. The latter was also identified by one of the reviews of evidence underpinning the NICE (2010a) guidance (see above).

The Stead et al (2013) review of telephone counselling interventions for smoking cessation identified that targeted advertising may result in a higher number of calls from underserved or minority groups.

The Baxter et al (2011) review of interventions to establish smoke-free homes in pregnancy and the neonatal period noted that the findings were inconsistent due to poor-quality implementation, which suggests that concentrating on implementation quality would improve consistency of findings and intervention efficacy. It also suggested that in order to reduce attrition and improve uptake, more research on barriers and facilitators to participation is needed.

NICE (2010a) recommends that NHS Stop Smoking Services specialist advisers should:

- establish how much the woman smokes; discuss risks to the unborn child and the health benefits to mother and child of stopping
- encourage partners who smoke to quit; address any concerns of the woman or her partner about quitting
- offer personalised information, advice and support, both throughout pregnancy and beyond
- regularly monitor smoking status using CO monitoring
- establish links with other services (eg ante- and postnatal services)
- validate biochemically if the mother has quit. NICE (2010a) also recommends that NRT only be used if smoking cessation without NRT fails, but that it should be prescribed only for two weeks and only from once the woman has stopped smoking (from that day). Subsequent prescriptions should only be given to women who have demonstrated on reassessment that they are still not smoking.

## Workforce skills and training

Lorencatto et al (2012) assessed the presence of effective behavioural change techniques within English Stop Smoking Services, and concluded that only a limited number of techniques were used in practice.

In the light of evidence that professionals often perceive themselves to have limited knowledge and skills to deliver effective smoking cessation interventions, NICE (2010a) recommends that midwives who deliver intensive stop-smoking interventions (one-to-one or group support – levels 2 and 3) should be trained to the same level as specialist NHS Stop Smoking advisers (and receive ongoing support). NICE (2010a) further recommends that other midwives and other health professionals who work with the target group (including health visitors) should: know what support local NHS Stop Smoking Services offer and how to refer the women being targeted; understand the impact that smoking can have on a woman and her unborn child; understand the dangers of exposing a pregnant woman and her unborn child – and other children – to second hand smoke; understand the important role that partners and 'significant others' can play in helping a woman who smokes and is pregnant (or who has recently given birth) to quit (this includes the need to get them to consider quitting if they themselves smoke); and not carry out brief interventions with pregnant women but rather use their skills to initiate a referral to NHS Stop Smoking Services.

## 4. Drugs and alcohol

Substance misuse during pregnancy has detrimental effects on foetal development, and negative long-term impacts after birth for a child's development, including their health and behaviour. In the postnatal period, parental substance use can impact the parent-child relationship, further affecting children's socio-emotional development. Children whose parents misuse substances are at higher risk for substance misuse in later life.

This chapter reviews antenatal and postnatal interventions for parents (mostly mothers) who are using substances or have a substance misuse problem. No universal interventions were identified. It also draws out key messages from reviews about identifying families in need of additional support, implementation, and workforce skills and training.

### Antenatal

#### Antenatal education

See Chapter 6.

#### Psychosocial and educational interventions

Stade et al (2009) reviewed four RCTs of psychological and educational interventions to reduce levels of alcohol consumption for pregnant women and women planning a pregnancy. These included motivational interviewing, counselling with a self-help book, and brief interventions with follow-up reinforcement. All participants were drinking alcohol during pregnancy. The narrative review demonstrated some reduction in levels of alcohol consumption across all four studies but the timing of the reduction was not consistent. Given the small number of studies and a high risk of bias within study results, the authors concluded there is little evidence regarding the efficacy of educational and psychological interventions for reducing drinking alcohol during pregnancy.

#### Brief interventions<sup>15</sup>

NICE (2014a) guidance on antenatal and postnatal mental health recommends that if hazardous<sup>16</sup> drug or alcohol misuse is identified in pregnancy or the postnatal period,

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<sup>15</sup> The evidence in this category is not specific to women in pregnancy or the postnatal period.

<sup>16</sup> 'Hazardous' in this context refers to being at risk of a drug- or alcohol-related problem.

the woman should be referred or offered brief interventions in line with section 1.3.1 of the guideline on psychosocial interventions for drug misuse (NICE 2007b, guideline CG51) or the guideline on alcohol-use disorders and preventing harmful drinking (NICE 2010b, guideline PH24).

In relation to drug misuse, NICE (2007b) recommends that opportunistic brief interventions focused on motivation should be offered if concerns about drug misuse are identified by the person or staff member. These interventions should: normally consist of two sessions each lasting 10-45 minutes; explore ambivalence about drug use and possible treatment, with the aim of increasing motivation to change behaviour; and provide non-judgemental feedback.

In relation to alcohol misuse, NICE (2010b) states that brief interventions can be delivered by health, social care, education or criminal justice professionals with relevant training. Interventions should take 5-15 minutes and use a recognised, evidence-based resource that is based on FRAMES principles (feedback, responsibility, advice, menu, empathy, self-efficacy). They should cover: the potential harm caused by their level of drinking; reasons for changing the behaviour; barriers to change; practical strategies to help reduce alcohol consumption; and lead to a set of goals. Progress should be routinely monitored. Where required, an additional session of structured brief advice should be offered or, if there has been no response, an extended brief intervention (20-30 minutes) should be offered, comprising motivational interviewing or motivational-enhancement therapy. Where necessary, up to four additional sessions should be offered or a referral should be made to a specialist alcohol treatment service.

## **Psychosocial / psychological interventions<sup>17</sup>**

NICE (2014a) further recommends that if harmful<sup>18</sup> or dependent drug or alcohol misuse is identified in pregnancy or the postnatal period, the woman should be referred to a specialist substance misuse service for advice and treatment. This may entail the use of psychosocial or psychological interventions (it may also require other forms of treatment, including assisted alcohol withdrawal and detoxification – see below).

NICE (2007b) made recommendations for the use of psychosocial interventions in the treatment of people who misuse opioids, stimulants and cannabis in the healthcare and criminal justice systems. As well as recommending brief interventions and self-help, it stated that a range of psychosocial interventions are effective in treating drug misuse, including contingency management, behavioural couples therapy for drug-specific problems, and various evidence-based psychological interventions, such as CBT, for common comorbid mental health problems.

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<sup>17</sup> The evidence in this category is not specific to women in pregnancy or the postnatal period.

<sup>18</sup> 'Harmful' in this context refers to those whose health is being harmed by drugs or alcohol.



For harmful levels of drinking and mild alcohol misuse, NICE guidance on the diagnosis, assessment and management of harmful drinking and alcohol dependence (NICE 2011, guideline CG115) recommends the use of psychological interventions (eg cognitive behavioural therapies, behavioural therapies or social network and environment-based therapies) focused specifically on alcohol-related cognitions, behaviour, problems, and social networks. Behavioural couple's therapy was recommended for harmful drinkers and people with mild alcohol dependence that have a regular partner who is willing to participate in treatment.

### **Assisted alcohol withdrawal**

For pregnant women who are dependent on alcohol, NICE (2014a) recommends offering assisted alcohol withdrawal in collaboration with specialist mental health and alcohol services (preferably in an inpatient setting), and working with women who do not want assisted alcohol withdrawal to help them reduce their alcohol intake. (NICE (2011) contains detailed recommendations on assisted alcohol withdrawal (guideline CG115).)

### **Detoxification**

For pregnant women who are dependent on opioids, NICE (2014a) recommends offering detoxification in collaboration with specialist mental health and substance misuse services, and working with a woman who does not want detoxification to help her reduce her opioid intake. (NICE (2007c) makes recommendations for the treatment of people who are undergoing detoxification for opioid dependence arising from the misuse of illicit drugs (guideline CG52).)

### **Perinatal (ie ante and postnatal components)**

#### **Integrated and non-integrated programmes**

Three meta-analyses reviewed the efficacy of integrated and non-integrated intervention programmes for reducing maternal substance use (Milligan et al, 2010), improving birth outcomes (Milligan et al, 2011) and improving parenting (Niccolls et al, 2012) for children of women with substance misuse problems during pregnancy.

Milligan et al (2011) assessed the efficacy of 10 substance misuse interventions integrated with onsite services. Within the meta-analysis, six quasi-experimental studies compared integrated treatment with no treatment control groups (two of these studies included pregnant women only, and four included pregnant and parenting women), two quasi-experimental studies compared integrated treatment programmes



with non-integrated (standalone) treatment programmes for pregnant women only, and two RCTs compared integrated with non-integrated (standalone) treatment for pregnant and parenting women. Integrated programmes were based within obstetric clinics, residential treatment clinics, day treatment clinics, and outpatient clinics. All participants had substance abuse problems at baseline. A meta-analysis found that integrated programmes were more successful at improving birth outcomes when compared to no treatment controls, including positive toxicology screens, higher weight at birth and fewer birth complications. Although women in integrated programmes were more likely to attend more prenatal visits than women in non-integrated programmes, there was only one significant improvement on birth outcomes for integrated services: children were less likely to be born prematurely. There was no difference in birthweight or gestational age between integrated and non-integrated programmes. The authors concluded that there may be advantages to using integrated programmes compared with non-integrated programmes, but also note that the studies included in the meta-analysis were of low to moderate quality.

Milligan et al (2010) assessed the efficacy of interventions for reducing maternal substance misuse that are integrated with onsite pregnancy, child or parenting services. The focus was on women who are pregnant or actively parenting, and the ages of the children involved ranged from birth up to 16 years. (Separate meta-analyses were not conducted for different age-groups.) Interventions took place in a variety of settings, including outpatient treatment, residential treatment, and prison. Within the review, nine of the 21 integrated interventions were assessed within 10 cohort studies with no comparison groups. Three RCTs and seven QEDs compared integrated interventions with non-integrated interventions, and two QEDs compared the efficacy of integrated interventions with no-treatment control groups. A meta-analysis found that integrated treatment programmes were effective at reducing maternal substance use across cohort studies and when compared with no treatment controls (the two latter QEDs involved women during pregnancy). However, there were no significant differences in programme effect between integrated treatment programmes and non-integrated treatment programmes. The authors cautioned that studies included in the meta-analyses were of low to moderate quality, and concluded that the findings indicate the need for further research on integrated programmes for women with substance abuse issues and their children.

Niccols et al (2012) examined the effectiveness of integrated programmes on parenting. The review included 24 cohort studies, three QED studies, and four RCTs. Results from three RCTs comparing integrated programmes to addiction treatment-as-usual found that most improvements in parenting skills favoured integrated programmes, although the effect sizes were on the whole small. Results for child protection services involvement did not differ by group. The results from the three RCTs show that parenting improvements were associated with the use of attachment-based

parenting interventions, children residing in the treatment facility, and improvements in maternal mental health.

## **Postnatal**

### **Brief interventions**

As above.

### **Psychosocial/psychological interventions**

As above.

### **Assisted alcohol withdrawal**

NICE (2014a) does not comment specifically on assisted alcohol withdrawal in the postnatal period.

### **Detoxification**

NICE (2014a) does not comment specifically on detoxification in the postnatal period.

### **Home visiting**

Turnbull and Osborn (2012) assessed six RCTs and one controlled trial of seven home visiting interventions for drug and alcohol abusing women after birth (ranging from six months to three years postpartum). Intervention content included assessing mother and child wellbeing, facilitating parent-child interaction and helping parents access drug and alcohol treatment services. A meta-analysis did not identify any intervention effects for levels of drug use or alcohol consumption. The authors concluded that there is not enough evidence to recommend the use of home visiting to address substance misuse problems, and that more evidence derived from higher quality, larger scale trials is needed. One of the studies included visits during pregnancy and after birth (Black et al 1994). In this intervention, community health nurses provided educational information and facilitated parent child interaction. As only two visits occurred antenatally, the authors cautioned against categorising this RCT as being predominantly based during pregnancy. The individual study did not demonstrate sustained differences in remaining drug free between the intervention and comparison group.

## Identifying families in need of additional support

If alcohol misuse is suspected, NICE (2014a) guidance on antenatal and postnatal mental health recommends that the Alcohol Use Disorders Identification Test (AUDIT) should be used as an identification tool in line with recommendation 1.2.1.4 of the guideline on alcohol-use disorders (NICE 2011, guideline CG115). NICE (2010b) recommends that AUDIT should be used to help decide whether to offer a brief intervention (and if so what) or to make a referral. It recommends that people who may be dependent on alcohol should be referred to specialist services.

If drug misuse is suspected, NICE (2014a) recommends that the recommendations on identification and assessment in section 1.2 of the guideline on psychosocial interventions for drug misuse (NICE 2007b, guideline CG51) should be used. This involves asking questions about drug misuse (eg type, quantity, frequency), making an assessment and agreeing a care plan, and (for health professionals) using biological testing as part of a comprehensive assessment of drug misuse (but not relying on it as the sole method of diagnosis and assessment).

## Implementation issues

NICE (2007b) guidance on psychosocial interventions for drug misuse states that staff should discuss with people who misuse drugs whether to involve their families and carers in assessment and treatment plans, and support families as appropriate (detailed guidance is given).

## Workforce skills and training

One study (Milligan et al, 2010) suggested that weak research results were due to low quality studies and inconsistent measures of substance use. The authors suggested that assessments of substance use should be standardised across the workforce.

NICE (2007b) guidance on psychosocial interventions for drug misuse states that all interventions for people who misuse drugs should be delivered by staff who are competent in delivering the intervention and who receive appropriate supervision.

NICE (2010b) guidance on alcohol misuse recommends that managers of NHS-commissioned services should ensure that staff have enough time and resources to carry out screening and brief intervention work effectively, and that staff have access to recognised, evidence-based packs. It further recommends that managers of NHS-commissioned services must ensure staff are trained to provide alcohol screening and structured brief advice. If there is local demand, staff should also be trained to deliver extended brief interventions.

NICE guidance on pregnancy and complex social factors (NICE 2010c, guideline CG110) is based on evidence including qualitative studies, cohort studies, QEDs and RCTs. It recommends that healthcare professionals and non-clinical staff (such as reception staff) should be given training on (i) the psychosocial needs of women who misuse substances during pregnancy, and (ii) appropriate communication strategies.

## 5. Intimate partner violence

Intimate partner violence (IPV), included in definitions of domestic violence or domestic abuse, includes acts of physical, emotional, psychological, and financial abuse by those who are or have been intimate partners or family members, as well as sexual abuse and stalking (Home Office, 2013). A variety of terms are used to denote violence against a partner, including spouse abuse, battering, and partner abuse. The UK definition of domestic violence also includes female genital mutilation (FGM), forced marriage and other acts of 'honour' based violence. The UK government also updated the definition in March 2013 to include coercive control and to include violence in teenage intimate relationships (those aged 16 and 17 years). Although women can be violent in relationships with men, and violence is also found in same-sex partnerships, the overwhelming health burden of partner violence is borne by women (WHO, 2013).

Intimate partner violence is strongly associated with a range of poor outcomes for both infants and young children, including PTSD and emotional and behavioural problems. A range of interventions have therefore been developed that are aimed at supporting all members of the family affected both directly and indirectly by IPV. This chapter reviews the evidence about effective prevention and identification/screening for IPV, effective methods of supporting women at risk of IPV during pregnancy and after childbirth, effective methods for preventing future IPV and its adverse consequences, and methods of treating perpetrators. Key messages for implementation, identifying families with additional needs and workforce skills and training are considered at the end of the chapter. Despite the wide definition of partner violence, the majority of the evidence pertains to interventions focused on violence towards adult women from a male partner. Furthermore, the majority of the reviews included here have been conducted in the areas of health or criminal justice, despite most commissioned services being offered in the community by domestic violence services and agencies working together across the range of children's and early years provision.

### **Prevention and identification/screening for Intimate Partner Violence (IPV)<sup>19</sup>**

Five systematic reviews evaluated the effectiveness of screening tools for the identification of IPV (O'Campo et al, 2011; O'Reilly et al, 2010; Rabin et al, 2009; Taft et al, 2013; Todahl and Walters, 2011). They were all concerned with screening in healthcare settings but the O'Reilly review also included screening in other settings. The reviews examined the effectiveness of different screening tools, screening formats, and additional protocols such as cueing (which refers to providing information to a

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<sup>19</sup> It is important to note that the UK National Screening Committee is responsible for recommending screening programmes  
<http://www.screening.nhs.uk/uknsc>

practitioner about a woman, prior to an encounter, that 'cues' them to domestic violence). They examined the benefits of screening during pregnancy as compared to screening in the wider population. Two further reviews involved studies of home visiting, which provides an opportunity to identify IPV (Sharps et al, 2008, Van Parys et al, 2014).

Rabin et al (2009) included 33 studies of 21 screening tools. None of the tools had well-established psychometric properties. The Abuse Assessment Screen (AAS, sensitivity 93%–94%, specificity 55%–99%) is the only screening tool that asked specifically about abuse during pregnancy and therefore potentially represents an important screening tool for obstetric populations. Todahl and Walters (2011) included 31 studies to assess the influence of IPV screening activities (largely IPV training) on a range of outcomes including detection and documentation rates, provider knowledge and referrals. O'Campo et al (2011) included 23 studies of 17 screening programmes. Only three studies had a control group, and the focus of the review was on the rate of screening and the rate of identification of abuse. Programmes that took a comprehensive approach were judged to be more successful in increasing the rate of screening for IPV, regardless of disclosure, as well as increasing disclosure and identification rates. O'Reilly et al (2010) concluded from a review of three screening studies and three intervention studies that screening during pregnancy can be considered effective, although this is limited to the outcome of identifying abuse and not receipt of support services. The authors concluded that the higher rate of identification in pregnancy is possibly due to higher levels of contact with healthcare staff.

The most recent review (Taft et al, 2013) examined universal screening of women by healthcare professionals for IPV in a range of settings, including GP practices, antenatal and postnatal services, hospital, and specialist services. The review included 11 studies, nine of which were RCTs, and extended the focus of screening to include not only identification of victims but also: referrals to and the take-up of support services; women's experience of violence following screening; and women's physical and mental health. The review found that screening increased the identification of victims, particularly in antenatal settings. The evidence from the three studies that examined referrals to support services suggests that screening does not significantly increase referrals for support, and there was insufficient evidence to judge whether it resulted in increased uptake of specialist services. Finally, the two studies that measured women's experience of violence after screening found no effect in terms of a reduction in levels of abuse at 6, 12 or 18 months.

Patients, including victims of violence, are generally supportive of IPV universal screening provided it is done with a non-judgmental attitude, privacy, and a rationale is provided for screening (Todahl and Walters, 2011). Screening is also more likely to be successful when there are support services to enable the victim to address their short- and long-term health, social and safety needs (O'Campo et al, 2011); however, few of

the reviews examined impact on service receipt. Self-administered screening instruments were more likely to encourage disclosure than face-to-face screening interviews, although it was not possible to identify any particular screening tool as more effective than another, given the variability in studies.

Four components were found to increase provider efficacy for screening and asking about IPV: institutional support; effective protocols; ongoing training; and access to support services (onsite) for referrals. IPV universal screening instruction generally increases providers' confidence in their ability to screen in a safe manner and subsequent screening and detection rates (O'Campo et al, 2011). Providers are perhaps also more likely to screen when they believe that IPV is a factor in their patients' lives and believe that screening is their responsibility and within their role (Taft et al, 2013; Todahl and Walters, 2011).

Despite the evidence for increased identification, the lack of long-term follow-up in the majority of studies reviewed precludes from the possibility of being conclusive about the effectiveness of these identification responses in terms of either the offer and/or take-up of protective and recovery services or improved outcomes. Thus, while there is evidence from one study to suggest that screening does not cause harm, there is insufficient evidence of benefit to justify universal screening for IPV in healthcare settings.

An additional systematic review addressed the issue of female genital mutilation (FGM) (Berg and Denison, 2012). The authors examined eight evaluation studies of preventative interventions all from African countries, with low relevance to the UK. All studies were judged to be of low quality, making conclusions difficult. However, three different prevention approaches in this field were identified: empowerment; health education; and community activities. Although limited effects were demonstrated in the evaluation studies reviewed, the authors argued that there is potential for some of these interventions to be further developed. In particular, interventions were more likely to succeed when they were tailored to the local context and framed in relation to health.

The NICE guidance on domestic violence and abuse (NICE 2014b, PH50) is based on several reviews of the evidence, including a review of intervention effectiveness (including RCTs, QEDs, systematic reviews, and qualitative studies), one cost effectiveness review, one economic modelling study, and five expert reviews. Although insufficient evidence was found to recommend screening or routine enquiry within healthcare settings it was noted that routine enquiry is viewed as best practice by some professionals (see section below on 'Identifying families in need of additional support'). Further, the review of evidence underpinning the NICE (2014b) guidance found insufficient evidence for the efficacy of primary prevention programmes relating to IPV.

Currently, there is insufficient evidence of benefit to justify the implementation of a universal screening programme for IPV. More specifically, while screening may increase disclosure and identification of victims, it does not result in increased referrals to specialist services or improved long-term health outcomes. Despite this, the evidence suggests a number of issues that could be addressed in relation to implementing screening (see sections below on 'Identifying families in need of additional support', 'Implementation issues' and 'Workforce skills and training').

## **Interventions to support women at high risk of IPV during pregnancy and after the child's birth**

Four systematic reviews evaluated interventions to address IPV in pregnancy and after the child's birth (Jahanfar et al, 2013; Ramsay et al, 2009; Sharps et al, 2008; Van Parys et al, 2014). One examined a range of interventions (Jahanfar et al, 2013), two examined home visiting programmes (Sharps et al, 2008; Van Parys et al, 2014) and one examined the effectiveness of advocacy programmes (Ramsay et al, 2009).

Jahanfar et al (2013) reviewed a range of interventions to address IPV, including: brief computerised assessment and advice intervention; video advice; counselling; counselling plus home visits; home visiting; and psychological therapy interventions. The review included nine RCTs predominantly carried out in the US. There is evidence from one psychological therapy intervention of reduced episodes of IPV during pregnancy and the postpartum period but very few statistically significant intervention effects for maternal depression during pregnancy and the postnatal period, and no significant intervention effects for any neonatal outcomes. Inconsistency in how outcomes were reported made it difficult to assess the overall effectiveness of interventions and of intervention components. For example, most studies did not report on whether there had been a reduction in episodes of violence.

Sharps et al (2008) reviewed seven RCTs and one cross-sectional study of perinatal home visiting programmes that included a focus on prevention of IPV. No perinatal home visiting interventions were designed to address IPV but the included programmes, which screened for IPV, found high rates and also found that the presence of IPV limited the ability of the intervention to improve maternal and child outcomes. This suggests that screening is insufficient on its own, and that the addition of a specific IPV component or intervention to perinatal HV programmes is needed to reduce IPV and improve maternal and infant health.

The Van Parys et al (2014) review of nine RCTs of home visiting programmes and three multifaceted counselling interventions found some promising results. Five studies reported a statistically significant decrease in physical, sexual and/or psychological partner violence. The three programmes with the strongest effect were of 12-24 months duration and involved either structured home visits (two studies) or support by trained



mentors. Home visiting was also found to be more effective when it is delivered by trained nurses rather than by paraprofessionals. Two studies that showed weaker effects were briefer: one was incorporated into antenatal classes of 2-8 sessions and the other was a brief counselling session with additional media. Limited evidence was found for improved mental health, less postnatal depression, improved quality of life, fewer subsequent miscarriages, and less low birthweight/prematurity. Home visiting interventions addressing IPV in non-perinatal population groups have been found to be effective in minimising IPV and improving outcomes.

Ramsay et al (2009) reviewed 10 RCTs of advocacy interventions within and outside healthcare settings for women who have experienced IPV or are at high risk of further abuse. Some studies targeted women during pregnancy; others specified the presence of a young child. The evidence for the effectiveness of intensive (more than 12 hours in duration) advocacy services was inconclusive, with no significant impact at 12 months on quality of life or depression scores. However, long-term risk for re-experience of abuse may be reduced. The evidence for less intensive advocacy (less than 12 hours in duration) was equivocal.

One systematic review focused on interventions aimed at improving outcomes for pregnant woman who had experienced FGM. Balogun et al (2013) found no studies meeting the study design for inclusion (ie a study with comparison group). The authors indicated that most research in this field has looked at the consequences of FGM for women and has used qualitative methods or case study design. They suggested that the experimental evaluation required to provide definite evidence for any particular intervention may be ethically difficult to achieve.

## **Preventing further IPV and the adverse consequences of IPV**

The review underpinning the NICE (2014b) guidance found evidence for a range of different types of intervention concerned with preventing IPV, or re-abuse, and the adverse consequences of IPV, for example for parental and mental health, and child behaviour and emotions. The interventions considered in the review are not specific to women during pregnancy or in the postpartum period.

Thus, the review indicated that in relation to adults there is: (1) moderate evidence from 10 studies (including five RCTs) that advocacy services may improve women's access to community resources, reduce rates of IPV and parenting stress and improve child wellbeing; (2) moderate evidence from six studies (including four RCTs) that skill building for people who have experienced domestic violence and abuse can improve their coping, wellbeing and safety, and reduce coercive/violent behaviour towards the individual; (3) moderate evidence from nine studies (including five RCTs) that counselling interventions may improve PTSD, depression, anxiety, self-esteem, stress management, birth outcomes for pregnant women, and the re-occurrence of violence

(amongst other things) for women who have experienced domestic violence and abuse; (4) moderate evidence from eight studies (four RCTs) that therapy interventions may be effective for improving various PTSD symptoms, depression, trauma symptoms, psychological and social outcomes, parenting/ family-related outcomes and in some cases may reduce likelihood of future IPV or re-abuse; (5) moderate evidence from four studies (two RCTs) that behavioural couples therapy included within substance use treatment is associated with improved abuse outcomes, and in some studies with improved substance use measures; (6) weak evidence from three studies (two RCTs) that couples interventions (which do not include treatment for substance users) are associated with a reduction in aggression outcomes or improvements in relationship skills, satisfaction and conflict.

In relation to children, the review indicated that there is moderate to strong evidence (from six studies, including three RCTs) that single component therapeutic interventions aimed at the mother and child are effective with diverse samples in improving child behaviour, mother-child attachment and stress and trauma-related symptoms in mothers. All six studies included children in the age range of interest (eg 3-5 years). In the cases of the single component therapeutic interventions for children, and single component psych-educational interventions for children, most studies focused on older children (albeit that several included 4-5 year-olds at the low end of their sample age range). In addition, the review examined several categories of multi-component interventions (eg involving therapy and/or advocacy), and found moderate evidence of effectiveness, with outcomes including reduced trauma symptoms and stress in adults and children, and improved child behaviour and emotions. About half of these studies only included children older than five years.

NICE (2014b) recommends providing specialist domestic violence and abuse services for children affected by domestic violence and abuse, matching the support to the child's developmental stage (important given the focus of this review on 0-5s) and seeking to address the emotional, psychological and physical harms arising from a child person being affected by domestic violence and abuse, as well as their safety. This includes the wider educational, behavioural and social effects. It states that interventions should be timely and should continue over a long enough period to achieve lasting effects.

## **Interventions for perpetrators of IPV**

Two reviews (Akoensi et al 2013; Smedslund et al 2011) evaluated group-based interventions for perpetrators of IPV.

Smedslund et al (2011) included six RCTs of interventions for perpetrators involving cognitive behavioural therapy (CBT) with or without additional components. The interventions differed in intensity and included men with mandatory or voluntary

participation. A meta-analysis of four of these trials comparing CBT with a non-intervention control found no clear evidence for an effect on violence. Care should be taken when generalising the results of this review, as there may be different baseline risk of violence across populations and different reasons why men take part in these programmes. Research evidence is as yet insufficient to draw conclusions about the effectiveness of cognitive behavioural interventions for physically abusive men in reducing or eliminating male violence against female partners.

Akoensi et al (2013) included 12 RCTs of group-based interventions for perpetrators of IPV, a quarter of which were UK-based studies but only one of which included a comparison group. Many of the studies included court mandated programmes for perpetrators. Interventions usually combined cognitive-behavioural, educational, and pro-feminist ('Duluth') techniques, with sessions ranging from 3-30. All seven studies that report on change in behaviour report a reduction in IPV. One UK based study (Adva, 2008) which was based on the pro-feminist Duluth model, and had a more robust design, reported statistically significant change on 19 outcome measures, including the psychological, behavioural and emotional, academic functioning of perpetrators' children. Although the evaluations showed various positive effects after treatment, methodological problems relating to the evaluation designs do not allow attribution of results to the programmes or suggest more or less effective treatment components.

The review underpinning NICE (2014b) concluded that there is inconsistent evidence for the efficacy of programmes that address perpetrators of domestic violence and abuse. There is some evidence that interventions for perpetrators reduce aggressive feelings and contribute to attitudinal change but results for behavioural outcomes are mixed, and there is large variation in the type of intervention and the gender of the perpetrator. Specifically, there is inconsistent evidence from 10 studies (one quasi-RCT) that short duration ( $\leq 16$  weeks) group interventions reduce recidivism/ abuse outcomes but moderate evidence from nine studies (one RCT, one quasi-RCT) that they improve attitudinal, psychological and interpersonal outcomes (the majority of studies reported improvements on various measured outcomes). In terms of longer (over 16 weeks) group interventions, there is inconsistent evidence from eight studies (one RCT) that they reduce recidivism or abuse outcomes, and inconsistent evidence from eight studies (no RCTs) that they improve attitudinal, psychological and interpersonal outcomes among abusers. There is also moderate evidence from eight studies (two RCTs) that individual interventions for abusers may improve aggressive feelings towards partner, attitudinal change, understandings of violence and accountability, or short-term help seeking. Evidence from several studies suggests that motivational interviewing (MI)-based feedback may not impact on aggression or violence, but may impact on some attitudinal outcomes.

NICE (2014b) recommends that health and wellbeing boards and commissioners who commission perpetrator interventions should commission and evaluate tailored interventions for people who perpetrate domestic violence and abuse in accordance with national standards. The interventions should primarily aim to increase the safety of the perpetrator's partner and children (if they have any).

## **Identifying families in need of additional support**

O'Campo et al (2011) reviewed strategies to screen for domestic violence. One component of successful (in terms of disclosure) screening programmes was the availability of support services to enable the victim to address their short- and long-term health, social and safety needs. Supports for individuals who disclosed IPV included mental health services, safe shelters, transitional housing, healthcare, employment assistance and legal services. Programmes that provided immediate access to onsite support, for example through an onsite case manager or coordinator, showed the most improvement in screening rates as well as provider confidence and self-efficacy.

Rabin et al (2009) reviewed IPV screening tools tested in healthcare settings and found that no single tool had well-established psychometric properties. Further testing and validation are therefore critically needed. In addition to having sound psychometric properties, IPV screening tools used in healthcare settings ideally should be brief, comprehensive, and tested in diverse populations. Different tools cover different areas; for example, some screen for emotional abuse and some for physical abuse only. Individual providers must determine the optimal balance between brevity and comprehensiveness. Inquiring about different forms of abuse may be important for a number of reasons.

One review of home visiting programmes that included screening for IPV (Sharps et al, 2008) found high rates of prevalence. Home visiting may provide a good opportunity to screen for IPV but this demands training and networking capacities for those who deliver home visiting programmes. There is no evidence to date on the effectiveness of standard home visiting programmes on reduction of domestic violence, pointing to the need for care plans, networking and referrals with specialised agencies.

O'Reilly et al (2010) drew attention to the need for antenatal care providers to develop rapport with pregnant women – the review emphasises the importance of the ongoing relationship to enable women to feel safe reporting violence.

The NICE (2014b) guidance recommends that trained staff in antenatal, postnatal, reproductive care, sexual health, alcohol or drug misuse, mental health, children's and vulnerable adults' services ask service users whether they have experienced domestic violence and abuse. This should be a routine part of good clinical practice, even where there are no indicators of such violence and abuse.

## Implementation issues

Comprehensive programmes have institutional support for IPV screening, which includes investment, approval and support for the integration of the programme at higher levels within healthcare settings or institutions, and occasionally involves making linkages with community resources (O'Campo et al, 2011). In many cases, information about the prevalence and impact of IPV, as well as local resources, are communicated to patients and providers, raising organisation-wide awareness and support. This creates an overall culture of IPV awareness and its healthcare-based solutions, which helps reinforce the need of screening and facilitated support for the victim.

Barriers to IPV screening by healthcare professionals may reside at the individual professional level (lack of training and resources, unfavourable attitudes to the problem), at the clinic or team level (lack of systems for safety and links with referral agencies) or at the wider political level (violence-tolerant societies, other healthcare priorities for funding and services, such as lack of funding for law enforcement or domestic violence services) (Taft et al, 2013).

The review of evidence underpinning the NICE (2014b) guidance on domestic violence and abuse found moderate evidence from 11 studies (before-after, cross-sectional, or qualitative: no RCTs) that partnerships to address domestic violence are effective at increasing referrals, reducing further violence, or supporting victims of domestic violence. These partnerships typically involve agencies such as social services / child welfare, the police and those focused on domestic violence or substance misuse. The review also concluded that there is moderate evidence from six studies (before-after, cross-sectional, or qualitative) that various enabling factors are associated with effective partnership working, including: leadership and management, active membership, community involvement, strong relationships and communication, training and resources. Conversely, the barriers and challenges to effective partnership working in domestic violence include: lack of resources (financial and human), differences in the culture of agencies/ organizations, leadership and management issues, lack of commitment, limited monitoring, and addressing diverse populations (based on nine studies).

NICE (2014b) recommends that practitioners in specialist domestic and sexual violence services should provide all those currently (or recently) affected by domestic violence and abuse with advocacy and advice services tailored to their level of risk and specific needs. The support should be offered (although not necessarily delivered) in settings where people may be identified or may disclose that domestic violence and abuse is occurring.

NICE (2014b) further recommends that practitioners in primary, mental health and related care services should provide people who experience domestic violence and abuse and have a mental health condition with evidence-based treatment for that condition. Interventions may include psychological therapy (for example, trauma-focused cognitive behavioural therapy), medication and support, in accordance with national guidelines.

## **Workforce skills and training**

The review by Taft et al (2013) on universal screening of women for intimate partner violence (IPV) in healthcare settings identified the lack of training of individual professionals as a barrier to screening. This is supported by Todahl and Walters (2011), who did conclude, more positively, that practitioners' anxieties about universal screening for IPV are reduced by the provision of instruction on safe and sensitive screening and by the expectation of screening in work settings. Screening and practice rates are not maintained unless the practice environment includes an expectation for screening—including screening policies, procedures, and practitioner accountability.

O'Campo et al (2011) found that many of the successful (in terms of disclosure) IPV screening programmes incorporated thorough initial and ongoing mandatory training sessions for staff. This was seen as instrumental for building high provider self-efficacy for screening.

One review of home visiting programmes that included screening for IPV (Sharps et al, 2008) found that although home visiting is a good opportunity to screen for IPV this is limited when those who deliver home visiting programmes lack training on assessment. The authors suggested networking with local domestic violence agencies for training and referrals.

Sprague et al (2012) reviewed 22 studies in order to identify barriers to intimate partner violence screening by health providers. It identified several barriers, the most common being personal discomfort, lack of knowledge and time constraints. The authors concluded that increased education and training regarding intimate partner violence is needed to address perceptions and attitudes to remove such barriers.

NICE (2014b) recommends that frontline staff in all services are trained to recognise the indicators of domestic violence and abuse and can ask relevant questions to help people disclose their past or current experiences of such violence or abuse. Staff should know, or have access to, information about the services, policies and procedures of all relevant local agencies for people who experience or perpetrate domestic violence and abuse. They should understand how it affects children and know how to refer children to child protection services.

NICE (2014b) further recommends that health and social care professionals are trained in how to respond to domestic violence and abuse. Health visitors and various other professionals (eg GPs, children's centre workers) should be trained to ask about domestic violence and abuse in a way that makes it easier for people to disclose it. This involves an understanding of the epidemiology of domestic violence and abuse, how it affects people's lives, and the role of professionals in intervening safely. Staff should also be able to respond with empathy and understanding, assess someone's immediate safety and offer referral to specialist services. Health visitors with additional domestic violence and abuse training should be trained to provide an initial response that includes risk identification and assessment, safety planning and continued liaison with specialist support services.

NICE (2014b) also recommends that pre-qualifying training and continuing professional development for health and social care professionals should include domestic violence and abuse.



## 6. Preparation and support for childbirth and the transition to parenthood

Pregnancy and the immediate postnatal period provide a key opportunity to support both the mother and baby's health and wellbeing. Preparation and support for childbirth has traditionally focused on antenatal education in order to improve outcomes such as pain in labour, low birthweight, type of delivery, uptake and continuity of breastfeeding, and antenatal health behaviours. More recently there has been increasing recognition of the importance of supporting parents through the psychological transition to parenthood, and this has given rise to new methods of working, some of which span the perinatal period (ie rather than being delivered in the antenatal period alone).

There has also been increasing recognition of the need to support fathers during the transition to parenthood, and this chapter examines the effectiveness of a range of interventions that target both men and women, or men alone, during the perinatal period. These interventions aim at improving both physical and psychological outcomes for parents and infants.

This chapter starts by examining interventions that are delivered on a universal basis (ie irrespective of income or need), and then describes the effectiveness of interventions that target at-risk groups (eg adolescent and ethnic minority parents), both pre and postnatal. The chapter concludes by examining issues relating to the identification of parents in need of additional support as well as discussing issues around the implementation of parenting support and associated workforce skills and training needs.

### Antenatal

#### Antenatal education

A Cochrane review (Gagnon and Sandall, 2011)<sup>20</sup> included RCTs of any structured group-based or one-to-one educational programme provided during pregnancy by an educator to either parent that included information related to pregnancy, birth or parenthood. Interventions directed exclusively to (i) increasing breastfeeding success, or (ii) knowledge of and coping skills concerning postpartum depression, or (iii) improving maternal psycho-social health including anxiety, depression and self-esteem, or (iv) reducing smoking were excluded. Nine trials were included, ranging in size from 10 to 318 participants. No consistent results were found. Sample sizes were very small

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<sup>20</sup> The review was published in 2007 but edited (no change to conclusions) and published again in 2011.



to moderate, ranging from 10 to 318. Knowledge acquisition, sense of control, factors related to infant-care competencies, and some labour and birth outcomes were measured, but no data were reported for anxiety, breastfeeding success, or general social support. One, large scale and robust study was found to positively affect childbirth outcomes by increasing vaginal birth after caesarean. Overall, however, the authors concluded that the effects of general antenatal education for childbirth or parenthood, or both, remain largely unknown.

A review by Schrader-McMillan et al (2009), which included 69 studies (six reviews, two reviews of reviews and 61 individual studies not in the systematic reviews), evaluated the effectiveness of group-based antenatal education on preparation for any aspect of pregnancy, childbirth or early parenthood. This review included studies with a range of methodological designs, from systematic reviews and RCTs to pre-post studies, surveys and qualitative studies. The results are summarised below. Some address areas which are covered in more depth elsewhere in this report (eg see Chapter 10 for breastfeeding).

#### *Labour and childbirth*

Schrader-McMillan et al (2009) concluded that there is little evidence that the techniques taught in traditional childbirth classes can reduce pain in labour. There is also limited evidence that antenatal education is associated with a higher incidence of vaginal birth or reduction in use of epidurals. However, there was some, limited evidence, based on a small number of studies, that adjunctive interventions such as antenatal music therapy are associated with increased relaxation in labour.

#### *Breastfeeding*

Effective interventions to support the initiation and continuation of breastfeeding were found to include: antenatal group work which has an interactive component and involves local experienced breast feeders as volunteers, peer support schemes (such as Best/Breast/Bosom Buddy), and programmes that combine multimodal education and social support programmes with other media (Schrader-McMillan et al, 2009).

#### *Low birthweight (LBW)*

Evidence about the effect of antenatal social support on LBW was mixed. One rigorous systematic review found no evidence that any form of psychosocial support (with the exception of smoking reduction programmes) reduced LBW (Schrader-McMillan et al, 2009). More recent studies in the US found that one form of antenatal parent education (the Centering Pregnancy programme) was associated with reduction of LBW. The evidence suggests that the prevention of LBW requires a longitudinal and integrated strategy to promote the optimal development of women's reproductive health, not only during pregnancy but also over the life course.

### *Health behaviours*

Schrader-McMillan et al (2009) included one systematic review, one RCT, two pre-post intervention studies, and one survey that assessed the impact of antenatal education on maternal health behaviours. There is evidence of an association between engagement in group-based antenatal education and improvement in maternal health behaviours. A large-scale survey in Australia found associations between attendance at antenatal and decreased risk of cigarette smoking, fewer missed antenatal appointments, reduced alcohol consumption during pregnancy, and increased likelihood of breastfeeding.

### *Prevention/treatment of antenatal depression*

Schrader-McMillan et al (2009) reported that there continues to be no evidence that participation in antenatal education prevents the onset of depression or is effective as treatment. However, the authors concluded that group-based social support, including antenatal preparation for parenthood classes, can be effective in supporting women with sub-threshold symptoms of depression and anxiety. There is also some evidence, based on a limited number of small-scale studies, that massage and music therapy, when provided as adjuncts to antenatal education and support, can reduce anxiety and improve mood in depressed pregnant women.

### *Adolescent mothers*

The review by Schrader-McMillan et al (2009) found some evidence (based on one RCT and two non-experimental studies) of the value of multi-component support and education for adolescent mothers. This included the combination of nurse home visiting and/or enhanced Doula programmes with group-based social support. The authors of these studies concluded that multimodal interventions should be tailored, as far as possible, to meet the needs of individual adolescent mothers and adjusted to their developmental stage, coping strategies and exposure to stressful situations.

One further qualitative study included in the Schrader-McMillan et al (2009) review found that adolescent mothers prefer to learn in peer groups: adolescent mothers who were interviewed felt inhibited in groups in which a majority of the women attending are different from themselves (ie usually older, believed to be more affluent and to have partners).

### *Drug-dependent pregnant women*

Schrader-McMillan et al (2009) found no evidence of the effectiveness of group-based antenatal education as a stand-alone support for drug-dependent pregnant women, and concluded that the needs of pregnant women who are on remission from drugs can be best served through specialised individualised programmes (eg Parents Under Pressure) that include a parent-education component.

### *Women in prison*

While there are numerous studies highlighting the increased health and mental health risks of women in prison, there is limited research on antenatal preparation for this vulnerable population. The review by Schrader-McMillan et al (2009) included one qualitative study which shows that women in prison, like mothers-to-be elsewhere, value participative learning methods, the possibility of social support, learning about feeding and early child care, the opportunity to acquire knowledge about labour and childbirth.

### *Stakeholder opinions*

Schrader-McMillan et al (2009) included qualitative studies that focused on stakeholders' opinions about antenatal education. These reported that parents:

- expressed the need for antenatal education that will help them through the transition to parenthood (interviews with parents suggest that standard antenatal classes do not prepare parents adequately for the changes in their relationship or for early childcare)
- value the opportunity to meet and make friends with other parents-to-be and speak highly about antenatal education that facilitates this process (eg National Childbirth Trust) through the use of small classes that incorporate opportunities to establish relationships, and that continue beyond the birth
- value the opportunity to attend classes in community-based settings rather than city centre hospitals; and value participative – as opposed to didactic – forms of learning. Participative learning is valued by parents in both high- and low-risk groups.

### *Parents in minority ethnic groups*

Schrader-McMillan et al (2009) included a small number of largely qualitative studies of stakeholder views by parents from minority ethnic groups. These found that parents from minority ethnic groups value information that addresses the potential conflicts that may arise between cultural mores and the standard messages communicated in antenatal classes.

## **Antenatal preparation for parenthood**

More recently, antenatal group-based programmes that aim to help parents make the transition to parenthood have been developed and evaluated. These programmes include a focus on the emotional changes that parents experience at this time, the couple relationship, parenting skills, and issues such as bonding and attachment. The review by Schrader-McMillan et al (2009) included four RCTs and two QED studies on the effectiveness of antenatal parenting programmes that focus on the transition to parenthood. Outcomes examined include: the quality of partner relationship/partner support; early childcare/parenting skills; and child outcomes. These studies found consistent evidence that programmes which focus on the transition to parenthood and

aim to alleviate pressures on the couple's relationship help to prevent relationship deterioration and strengthen parenting roles after the birth of a first child. Programmes that focus on the transition to parenthood are also associated with high levels of user satisfaction.

Petch and Halford (2008) reviewed 25 studies (all RCTs) of any form of prenatal education designed to enhance couple relationship functioning or parenting, or to prevent relationship deterioration after the birth of a first child. Four of the five universal antenatal programmes reported positively on measures of couple satisfaction. The authors noted that further research is needed, however, as included studies involved couples with mixed levels of need and risk. Seventeen studies were targeted at parents in higher-risk groups. Couples psychoeducation was found to enhance adult wellbeing in two of the three studies in which it was assessed, with reduced maternal depressive symptomatology. The strongest effects were found for interventions that involved couples with high levels of needs due to a combination of social, personal and relational difficulties, and for psychoeducation that is delivered in couples' homes. Clinic- and hospital-based programmes were less successful than home visiting programmes in improving parenting in high-risk mothers. The authors recommended that as risk is hard to assess with precision, the best strategy would involve a stepped-care approach, moving from assessment and advice in healthcare practice to more intensive and expensive home-based psychoeducation for those who need it.

Pinquart and Teubert (2010a) found that couple-focused interventions designed to prevent a decline of couple adjustment during the transition to parenthood have positive effects on couple adjustment, couple communication, parenting, and parent psychological wellbeing. None of these effects were maintained one year after the intervention. There was no effect on relationship stability immediately after the intervention but one year later the improvement was significant. Although there was no effect on parenting stress after the intervention, parental mental health showed positive effects one year later. The meta-analysis included 16 RCTs and five QEDs of interventions that aimed to strengthen marital relationships by preparing couples for the difficulties inherent during the transition to parenthood, and promote relationship skills. These interventions are delivered to expectant or new parents (six months of parenthood), as couples or mothers or fathers. One third of the interventions were antenatal, one third were postnatal and the remainder included components both before and after birth. The review covered interventions that were delivered by professionals or paraprofessionals and 1-82 sessions in duration. Interventions with more than five sessions had larger effects. Only interventions led by professionals (eg clinical psychologists, social workers) had significant effects on couple adjustment and couple communication. There were stronger effects on couple communication if the intervention had both a prenatal and postnatal component.

Pinquart and Teubert (2010b) undertook a meta-analysis of 142 studies of parenting programmes in the antenatal and postnatal period. Only 10 interventions were delivered during the antenatal period alone. Thirty-eight interventions were held during both pregnancy and after childbirth. Approximately two-thirds of the interventions worked with at-risk families and the majority were delivered to mothers only. On average, these interventions were found to have small but significant effect sizes on parenting, child abuse/neglect, parental stress, health promoting parental behaviour, child development, parental psychological health, and couple adjustment. Only interventions with an explicit focus on improving the couple relationship had a significant effect on couple adjustment. The inclusion of an antenatal component was not found to moderate the size of the observed effects.

### **Antenatal education for fathers**

The review by Schrader-McMillan et al (2009) included one systematic review and seven studies (one RCT, six pre-post studies) on antenatal preparation for fatherhood. The review found that men value guidance by experienced fathers and participation in discussion groups with other fathers-to-be in which there are opportunities to focus on their own experiences and psychosocial needs, including coping with depression and anxiety. It also found that adolescent fathers can benefit from participation in men-only preparation for fatherhood groups, and that fathers-to-be benefit from participation in adjunctive men-only sessions within standard antenatal classes.

Qualitative studies found that men identified the need for opportunities to talk to other men. Small-scale studies suggest that men may have unrealistic expectations of their ability to help their partner through labour and childbirth, and that childbirth education and antenatal classes in general are perceived by many men to be 'women's spaces' from which they are excluded.

Gagnon and Sandall (2011) included one RCT of an antenatal parenting intervention for men only (Pfannenstiel and Honig, 1991). The content of the training included newborn care, normal newborn behaviour, paternal self-image, attitude towards the infant, pregnancy, parent-infant interactions, normal child development. The study reported increased paternal sensitivity and empathetic behaviour, as measured by the Assessment of Father-Infant Sensitivity scale based on 10-minute videotapes of infant feeding.

### **Health promotion prior to pregnancy**

Whitworth and Dowswell (2009) reviewed health promotion interventions that aim to identify and modify risk factors before pregnancy. They assessed the impact of these interventions on infant birthweight, preterm birth, maternal or infant mortality and maternal satisfaction and anxiety. Four RCTs were included, but no data were available

for many of the review's pre-specified outcomes (eg the development of pregnancy complications, miscarriage, therapeutic abortion, and neonatal condition at birth, women's preferences for care and costs). A meta-analysis found that only one outcome (mean birthweight) reached statistical significance, and the authors noted that this needs to be interpreted with caution because pregnancy outcome data were available for only half of the women randomised. There was some evidence that health promotion interventions were associated with positive maternal behavioural change, including lower rates of binge drinking. Otherwise no evidence was found for the effect on groups for preterm birth, congenital anomalies, or weight for gestational age.

## **Postnatal**

No reviews of interventions in the postnatal period were identified.

## **Identifying families in need of additional support**

Petch and Halford (2008) argued that psychoeducation for the transition to parenthood might only be necessary for couples assessed as being high risk for future adjustment problems. A 'stepped-care' approach was recommended. Thus, all couples could receive a minimum level of intervention (eg complete a short assessment that provides a report on couple and parenting strengths and challenges, plus brief information about adjusting to parenthood). If, based on this, couples request further education or support, they could be offered a brief programme focused on skill-training in couple processes and parenting skills, with an option for a further intensive, home-based, psychoeducation programme for couples assessed at high-risk for adjustment problems.

## **Implementation issues**

In relation to preparation for parenthood programmes, Petch and Halford (2008) found that the best outcomes are achieved with programmes that: are designed for couples with a high level of needs, because of a combination of social personal and relational difficulties; involve skills training; and are delivered in the couple's own home.

Pinquart and Teubert's (2010a) review of interventions to prevent the decline of couple adjustment and promote positive communication during the transition to parenthood found that interventions held in a group format had larger effects than other interventions on parental health-promoting behaviours, but weaker effects on social development of the child. In addition, interventions led by professionals (eg clinical psychologists, social workers) had stronger effects with regard to child mental health. The authors recommended that interventions that focus on the transition to parenthood take place both pre-and postnatally, last at least six sessions, and include a component focused on parenting.

A second review by Pinquart and Teubert (2010b) focused on interventions that educate expectant and new parents in parenting skills, coping with stressors, promoting positive interactions between the partners, and stimulating child development. This found that three to six months is an optimal length of interventions for promoting positive parenting and social development of the child. Again, the engagement of professional staff was recommended for selective/indicated prevention aimed at promoting mental health of the child. The authors also recommended interventions that begin in the antenatal period and continue post-birth. As interventions have stronger effects on outcomes that related directly to the intervention goals, researchers and practitioners should carefully match intervention goals with the assessed outcomes.

### **Workforce skills and training**

Petch and Halford (2008) cited research showing that in the case of home visiting, programmes delivered by professional staff (usually nurses) produce substantially more positive effects on parent and child outcomes than those delivered by para-professionals or volunteers. These results were confirmed in the reviews by Pinquart and Teubert (2010a, 2010b – see above).

## 7. Attachment

Around two-thirds of infants are securely attached to at least one primary caregiver, with the remainder being insecurely attached (ie either 'avoidant' or 'anxious/resistant'). Secure attachment is associated with more optimal functioning across all outcomes. A significant number of children in disadvantaged populations (some estimates suggest as many as 40%) are also classified as being 'disorganised'. Disorganised attachment is associated with a range of later problems, including conduct disorder. Parenting during the first year of life is one of the primary predictors of infant attachment security, with attuned and responsive parenting being associated with secure attachment, and unresponsive/punitive or erratic/intrusive parenting being associated with avoidant and anxious/resistant attachment respectively. A range of abusive/neglectful parenting practices are associated with disorganised attachment. A range of factors may compromise a parent's ability to provide such attuned and responsive parenting, including parental mental health problems (eg anxiety and depression), social isolation, domestic violence, substance dependency, and poverty.

Pregnancy and the postnatal period are therefore prime windows of opportunity to support parents to provide the type of parent-infant interaction that will promote the infant's secure attachment. The next section summarises the results of systematic reviews that examined the effectiveness of interventions aimed at improving attachment or related outcomes (eg parental sensitivity) on a universal, targeted or indicated basis. This is followed by key messages about: identifying families in need of additional support; implementation; and workforce skills and training.

### **Antenatal programmes**

#### **Preparation for parenthood**

See Chapter 6.

### **Postnatal programmes**

#### **Skin-to-skin contact/Kangaroo Mother Care**

Kangaroo Mother Care (KMC) and skin-to-skin contact (SSC) are universal interventions. They involve the carer holding the baby so that there is close contact between them. The review by Moore et al (2012) updated the evidence comparing early SSC with usual hospital care. Of the 34 RCTs included, only three were conducted from 2008 onwards. The results suggested that the intervention appears to benefit breastfeeding outcomes and cardio-respiratory stability (the latter for late pre-



term infants), and reduce infant crying, and has no apparent short- or long-term negative effects. They further indicated that SSC may also improve maternal attachment behaviours, although the results are mixed. One study, from Russia (Bystrova et al, 2003), assessed maternal and infant behaviour and interaction and found no evidence of benefit for maternal positive affective involvement at 12 months following birth, but SSC dyads appeared more mutual and reciprocal than those who were separated immediately post-birth and later reunited for rooming-in. A small subsample of a second study (Bergman et al., 2004; Bigelow et al, 2010) found significant effects of SSC during the first 24 hours post-birth on maternal sensitivity to infant's behavioural cues, which demonstrated a dose-response effect, but its longer-term effect could not be studied.

One updated systematic review focused explicitly on the use of KMC with stabilised low birthweight infants as an alternative to conventional neonatal care mainly in resource-limited settings (Conde-Agudelo et al, 2011). It included 16 RCTs (11 from low- and middle-income countries – where the potential beneficial effects of Kangaroo Mother Care on morbidity and mortality of low birthweight infants (LBW) would be expected to be greatest – and five from high-income countries). As well as indicating that KMC yielded benefits in terms of reduction in the risk of mortality, nosocomial infection/sepsis and hypothermia (risks which are higher in low-income as opposed high-income countries), the review found an increase on some measures of infant growth, breastfeeding, and mother-infant attachment. The authors concluded that the review supports the use of KMC in LBW infants as an alternative to conventional neonatal care, mainly in resource-limited settings.

## **Infant massage**

One systematic review was identified (Bennett et al, 2013; Underdown et al, 2011), comprising 34 RCTs involving healthy parent-infant dyads in which the infant was under the age of six months. No significant differences were found for a range of aspects of infant temperament, parent-infant interaction and mental development. The authors concluded that the findings do not currently support the use of infant massage with low-risk groups of parents and infants. They argue that there may be more potential for change with demographically and socially deprived parent-infant dyads, and that future research should focus on this.

## **Video-feedback**

Video-feedback involves a professional videotaping up to 10 minutes of interaction between carer and baby, returning subsequently to examine the tape with the parent, and using the videotape to point out examples of positive parent-infant interaction. One review of 29 studies (13 RCTs, eight QEDs, and eight pre-post designs) examined the effectiveness of video feedback on parental behaviours, sensitivity, responsiveness,

verbal and non-verbal communication, and child problem behaviours (Fukkink, 2008). Of these, 23 included children aged under five years. A meta-analysis showed a positive, statistically significant effect for video feedback intervention on parenting behaviours. Brief video-feedback interventions with parents in high-risk groups were the most effective. The aggregate effect on child behaviour was described as being between 'small' and 'average'. The authors concluded that family programmes that include video feedback achieve the intended dual level effect: parents improve their interaction skills, which in turn help in the development of their children. Parents become more skilled in interacting with their young child and experience fewer problems and gain more pleasure from their role as parent.

## **Home visiting**

Two recent systematic reviews were identified that evaluate the effectiveness of targeted home visiting on attachment-related outcomes (Goyal et al, 2013 – this study examined their effectiveness with preterm infants; and Nievar et al, 2010). Home visiting programmes are manualised interventions that involve an intensive series of home visits beginning prenatally (in some models) and continuing during the child's first two years of life. They are delivered by specially trained personnel who provide information, support, and training regarding child health, development, and care. The programmes are multifaceted as regards to the issues they address, but this is driven largely by the theoretical underpinnings of the programme. Common themes include early infant care, infant health and development and parenting skills, but others include maternal health and wellbeing, diet, smoking, drug/alcohol use, exercise, transition to parenthood, and the parent's relationship with their partner

Goyal et al (2013) reviewed 17 studies (15 controlled trials and two cohort studies) and concluded that home visiting for pre-term infants promotes improved parent-infant interaction. Nievar et al (2010) included 35 controlled studies evaluating the effectiveness of home visiting programmes and found that interventions were moderately successful (ie a medium effect size) at improving maternal behaviours, as measured by a combination of survey and observational measures that assessed the home learning environment and maternal sensitivity.

## **Sensitivity and relationship-focused interventions**

Kersten-Alvarez et al (2011) included 10 controlled studies evaluating 13 preventive interventions aimed at improving sensitivity in depressed mothers (including interpersonal psychotherapy, non-directive counselling, CBT, infant massage, home-based interaction coaching, parent training, support group, and mother-infant therapy), and found a small-to-medium effect on maternal sensitivity. Interventions including baby massage were highly effective in improving maternal sensitivity.

Mortensen and Mastergeorge (2014) included 18 studies (15 of which were RCTs) of 18 interventions (including home visiting; VIPP; parent-infant programme; Family Check-Up; pregnancy programmes focusing on alcohol use), all of which targeted low-income mother-child dyads. A meta-analysis found limited evidence of effectiveness across all 18 relationship-based interventions. However, the results were most effective for RCTs and programmes that were shorter in duration, provided direct services to the parent-child dyad, used interveners with professional qualifications, and assessed parent-child interactions with free-play tasks.

Two reviews examined the effectiveness of a range of sensitivity-based parenting interventions in improving outcomes for preterm infants (Benzies et al, 2013; Evans et al, 2014). Evans et al (2014) included 17 RCTs and quasi-RCTs evaluating the effectiveness of parenting programmes aimed at improving the sensitivity of parents of preterm infants. The studies evaluated a range of standardised programmes, eight of which were found to improve parent-infant interaction: Mother-Infant Transaction Programme (MITP); State Moducation (SM); Nursing Systems Towards Effective Parenting-Preterm (NSTEP-P); Infant Behavioral Assessment and interaction Programme (IBAIP); guided participation (GP); Kangaroo Holding; Traditional Holding; and an individualised family-based intervention.

Benzies et al (2013) included 18 RCTs, of which only six contributed data to a meta-analysis of sensitivity/responsiveness and showed no evidence of effectiveness. However, there was significant heterogeneity and it could be argued that the results for these interventions should not have been combined. As with the above review, individually results from MITP and NSTEP showed highly significant results.

### **Parent-infant/toddler psychotherapy**

Parent-infant/child psychotherapy is a targeted intervention that involves a therapist working with the parent and infant/toddler together, establishing a therapeutic alliance with the parent in order to identify unconscious patterns of relating in terms of the parents' own experiences of being parented and their internal working models. The aim of the therapy is to help the parent to recognise the way in which their current interactions are shaped by past experiences, and thereby enable them to respond more freely and sensitively to their infant.

One systematic review has evaluated the effectiveness of parent-infant/toddler psychotherapy (Barlow et al, forthcoming), and included eight RCTs comparing the effectiveness of parent-infant/toddler psychotherapy (PIP) with a no-treatment control group (four studies) or comparing PIP with other kinds of treatment (four studies). Meta-analyses indicated that parents who received PIP were more likely to have an infant who was rated as being securely attached to the parent after the intervention; however,

there were no significant differences in studies comparing outcomes of PIP with another model of treatment.

## **Identifying families in need of additional support**

A review of parenting interventions for mothers of pre-term infants (Evans et al 2013) found some differences in intervention effects in studies reporting on mothers in high and low educational groups, suggesting that mothers in lower educational groups may need more intense reinforcement sessions than those in higher education groups.

## **Implementation issues**

Benzies et al (2013) stated that interventions for preterm infants and their mothers should include psychosocial support for mothers.

The review by Moore et al (2012) of interventions to encourage early skin-to-skin contact stated that factors such as room temperature, lack of privacy, overcrowding, concerns about modesty, supplemental bottle or pacifier use, and 24-hour rooming-in may play a role in the effectiveness of SSC. The review also cited a study (Widstrom et al, 2011) which found that some infants may take up to 45 minutes to latch after crawling towards and reaching the nipple and recommends that this process should not be disturbed or forced. The intervention is likely to be more successful if a clinician reassures the mother that healthy full-term babies are able to crawl to the breast and begin to nurse on their own without assistance when they are ready.

Mortensen and Mastergeorge's (2014) review of interventions that target low-income mother-child dyads found (on the basis of limited evidence) that the most effective programmes were shorter in duration, provided direct services to the parent-child dyad, used interveners with professional qualifications, and assessed parent-child interactions with free-play tasks.

Benzies et al (2013) examined the effectiveness of a range of sensitivity-based parenting interventions in improving outcomes for preterm infants.

Underdown et al (2013) found that infant massage programmes are most effective with parents in the middle tier of need, and should not be used on their own with high-risk parents. Underdown and Barlow (2011) identified 14 mechanisms that need to be present in order for infant massage programmes to be effective, including:

- the person inviting parents is involved in the facilitation of the group
- the programme uses a consistent facilitator
- the setting (environment) is physically and culturally safe and comfortable for the parents

- the facilitator maintains a setting and atmosphere that is 'containing' (ie enables a sense of security and safety) and affirms mothers and infants
- massage strokes and other forms of touch are taught confidently and in a particular sequence
- an optimum group size (four to eight dyads)
- opportunities for social interaction are facilitated in ways that are appropriate for the group
- facilitator has the necessary technical skills and knowledge (these include of massage, touch, infant communication and infant mental health promotion)
- the facilitator has the necessary personal qualities (eg warmth, friendliness)
- facilitator role models sensitive interactions and communications with a teaching doll (and does not massage other people's babies)
- the programme includes teaching parents about infant states, through observation of their own baby (not via 'one-size-fits-all' hand-outs or lists);
- singing and/or infant directed speech (IDS) is used within the group and is role-modelled by the facilitator
- the facilitator supports the parent's use of reflective functioning/mentalising (developing an understanding of infant behaviour from the baby's point of view)
- information is shared (as a three-way process between facilitators, parents and other parents) about the impact of early interaction in infant development

## **Workforce skills and training**

Underdown and Barlow (2011) found that the International Association of Infant Massage (IAIM) training provides practitioners with better preparation to deliver infant massage training compared with other training programmes.

## **Additional primary studies**

This section describes the results of an additional search to identify interventions that are aimed at improving child attachment, or that assessed the impact of an intervention on a related measure of attachment such as parental sensitivity or parent-child interaction. The search focused on primary studies that evaluated any method of improving attachment-related outcomes, targeted children aged 0-5 and were published 2009 - 2014. Studies were excluded if they targeted foster parents, if they were already included in systematic reviews covered above, and if they were non-randomised studies (although the latter are listed in Appendix C). Fourteen studies were identified that met the criteria, including 12 RCTs and two QED studies (Sleed et al, 2013; Torres et al 2011 – not discussed further here but in Appendix C). All were provided in the postnatal period, and all were targeted (rather than universal).

## Mentalisation-based programmes

Two RCTs examined the effectiveness of mentalisation-based interventions focused on improving the reflective functioning of women experiencing a range of problems, including child protection issues, during the perinatal (Sadler et al, 2013) and postnatal period (Suchman et al, 2010, 2011).

The first of these, Minding the Baby (MTB), is a manualised, mentalisation-based, interdisciplinary home visiting programme delivered by two specially trained practitioners (a nurse and a social worker) in the home setting over an extended period; mothers are visited for an hour a week beginning in the third trimester of pregnancy through to the child's first birthday, at which point visits take place bi-weekly through to the child's second birthday. Session length can vary based on each family's need. Clinicians support reflective parenting, promote the mother-infant attachment relationship, and model and foster a range of parenting skills.

The intervention was evaluated as part of an RCT (Sadler et al, 2013) involving 139 mothers of mostly Latina or African-American or Caribbean descent with low education and income, some of whom (around 11% in total) had child protection concerns. The results show that relative to mothers in the control group the intervention group mothers had fewer instances of rapid subsequent childbearing and a trend toward fewer open cases with child protection services (0% compared to 5%). There were no significant differences between groups in maternal depression or psychological distress but a trend toward improved communication for teenage mothers. 67% of the intervention group teenage mothers versus 94% of the control group had scores in the disrupted range. There were no group differences in the reflective functioning of mothers, which improved in both groups. The study also found a significantly higher percentage of secure infants in the MTB group ( $n = 41$ , 64%) compared with the control group ( $n=30$ , 48%). In addition, a significantly lower percentage of intervention group dyads (27%) were classified as having disorganised attachment compared with the control group dyads (43%).

The second intervention in this category, the Mothers and Toddlers Programme (MTP), comprises 12 weeks of individual therapy as an adjunct to standard outpatient substance abuse treatment programmes. The aim of the MTP is to improve maternal capacity for reflective functioning and for sensitivity and responsiveness to toddler emotional cues. The early sessions focus on building a strong therapeutic alliance with the therapist and assisting the mother to address any challenging circumstances she is facing, whether practical (eg financial problems) or relational. The next stage involves 'ensuring that the mother has adequate support and skills for tolerating and regulating strong affect (both positive and negative)'; the aim of this part of the therapy is 'clarification of the mother's representational world' with a view to identifying 'areas of distortion, harshness, incoherence, and insensitivity' that can be explored with a view to



developing a more 'coherent and integrated understanding of herself and her toddler'. Attempts are made to link these representations with the way in which the mother is interacting with others, including her baby, the ultimate objective being to enable her to engage in a 'mentalising process about the mother-child relationship'. The therapy also involves exploring what emotions are elicited when she focuses on her toddler playing through the observation of videotaped play sessions.

The results of a small RCT involving 47 women and their children found moderately higher mean reflective functioning scores for the MTP group, and slightly higher scores for coherence, sensitivity, and quality of representation subscales for MTP group when compared with the comparison intervention. The results also showed an intervention effect of improved caregiving behaviour for MTP mothers, and improved depression and global distress – but not for control group mothers (Suchman et al, 2010). At six-week follow-up the combined data for women receiving the 12- and 24-week programmes showed that the higher mean reflective functioning score was maintained but reduced. At follow-up there was also a slightly higher quality of maternal representation for MTP group, and moderately higher mean score for child communication with the mother for the MTP group. Differences in scores in depression were not sustained (Suchman et al, 2011).

### **Parent-infant/toddler/child psychotherapy**

One RCT was identified that evaluated the effectiveness of parent-child psychotherapy. Ghosh Ippen et al (2011) examined the effectiveness of a standard parent-child psychotherapy that was delivered by a psychotherapist and involved a mean number of 32 weekly 60-minute sessions with both the parent and child aimed at enhancing the parent's capacity to provide safe and developmentally appropriate caregiving to the child.

The results of an RCT with 75 parent-child dyads involving preschool age children (3-5 years) who had experienced multiple traumatic and stressful life events found significant improvements favouring the intervention group for PTSD (5% cf. 53%), child depression, co-occurring diagnoses, child behaviour, maternal PTSD, and maternal depression.

### **Video feedback**

Four studies were identified that evaluated the effectiveness of video feedback with a range of high-risk parent-child dyads involving children under the age of five, including: Canadian maltreating parents (Moss et al, 2011); Portuguese parents living in poverty (Negrão et al, 2014); Turkish minority parents living in the Netherlands (Yagmur et al, 2014); and mothers of irritable infants (Cassidy et al, 2011).

Moss et al (2011) evaluated the effectiveness of a home visiting programme using video interaction with maltreating parents. The programme consisted of eight weekly 90-minute home visits structured in four sequences, including discussion on parent chosen theme, videotaped interactive session, video feedback session and wrap-up session. The results of an RCT involving 67 caregiver-child dyads found significant improvements for the intervention group in parental sensitivity; more intervention children became secure and fewer remained insecure, and more intervention children moved from being disorganised to organised. Older children in the intervention group showed lower levels of internalising and externalising problems (Moss et al, 2011).

Negrão et al (2014) examined the use of VIPP-SD (Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline) with Portuguese mothers of children aged 1-4 years who were in poverty and about whom there were caregiving concerns. The work involved three stages over about three months in total. The first two sessions focused primarily on building a relationship with the mother, concentrating on child behaviour and emphasising positive interactions in the video feedback. The third and fourth sessions focused on improving parenting behaviours by showing the mother when her parenting strategies work and to what other situations she could apply these strategies. The final two sessions provided feedback and information from the previous sessions. In each session, mother-child interaction was videotaped followed by feedback of videos recorded in the previous session. Sessions 1-4 were scheduled at two-week intervals.

The results of a small RCT involving 55 families found significant improvements favouring the intervention group in overall measures of emotional availability, child behaviour and family environment, with post hoc results showing significant improvements in a number of domains: maternal non-intrusiveness, child responsiveness and involvement. There were also improvements in maternal sensitivity, structuring and non-hostility but these were not statistically significant. The results also showed a significant improvement in family cohesion but not expressiveness or conflict.

Yagmur et al (2014) evaluated the effectiveness of a culturally sensitive adaptation of VIPP-SD for Turkish minority parents in the Netherlands (VIPP-TM). The intervention involved six home visits lasting 2.5-3 hours over four months. Visits were recorded and used to illustrate themes. The results of an RCT involving 86 mother-infant dyads found significant improvements favouring the intervention group for sensitive parenting and non-intrusiveness. There was no effect on maternal discipline overall or on the subscales for laxness, physical discipline, or supportive presence.

One study examined the effectiveness of an individually delivered version of the group-based Circle of Security programme, which involves the use of videotaped feedback to help the mother enhance her observation skills and to recognise infant signals related



to these needs (Cassidy et al, 2011). The programme also aims to help parents to understand and manage psychological factors that may interfere with their responses. This programme involves three one-hour home visits every three weeks when the infants are aged between 6.5-9 months. Approximately two weeks later, a final visit is delivered during which the home visitor gives the mother a copy of videotapes used in the intervention and discusses any ongoing parenting concerns.

An RCT involving 220 parents and irritable infants found no main effect but evidence of improved attachment security for the highly (89% cf. 62%) but not moderately irritable infants (63% cf. 58%). Maternal security was an important moderating factor. For example, irritable infants of securely attached mothers were more likely to be securely attached compared with no effect for moderately irritable infants of securely attached mothers.

### **Attachment and Biobehavioural Catchup (ABC)**

Two studies examined the effectiveness of the Attachment and Biobehavioural Catchup (ABC) intervention with vulnerable parents of children aged under five years (Bernard et al, 2012; Lind et al, 2014).

ABC is a manualised intervention that typically involves around ten sessions focused on providing parents with 'in the moment' feedback about the parents' interactions with their child. It uses video feedback to highlight parents' strengths, challenge weaknesses, and celebrate changes in behaviours. Sessions 1 and 2 focus on providing nurturance when children are distressed. Sessions 3 and 4 focus on behaving in synchronous ways (or following the child's lead with delight), and sessions 5 and 6 focus on avoiding intrusive and frightening behaviour. Sessions 7 and 8 see the parent coach discuss how the parent's own attachment experiences may influence the parent's current interactions with their children. Sessions 9 and 10 help consolidate gains made through the prior sessions and celebrate change (Lind et al 2014).

Lind et al (2014) examined the effectiveness of ABC with 260 US parents of children under two years of age following allegations of maltreatment. The results showed significant differences favouring the ABC group in terms of lower levels of negative affect expression. Children in the ABC group displayed lower overall levels of anger, lower levels of anger toward parent, and lower levels of global anger/sadness.

Bernard et al (2012) evaluated the effectiveness of ABC in an RCT involving 113 parents and young children (aged 1.7 to 21.4 months) identified as being at risk of maltreatment (indicated by recent contact with child protection services). The study found that a lower proportion of children in the ABC group (32%) were classified as having a disorganised attachment compared with children in the control group (57%) (this effect was sustained after excluding children over 24 months old at the time of

assessment). Although a higher proportion of children in the ABC group were classified as securely attached (52%) compared with children in the control group (33%), this effect was not sustained after children over 24 months old at time of assessment were excluded.

## **Group-based programmes**

Puckering et al (2010) examined the impact of the Mellow Babies group-based programme on parent-infant interaction. Mellow Babies is a group-based day programme targeting women experiencing depression and is underpinned by cognitive behavioural theory. The intervention was delivered over 14 weeks, with mothers and infants attending the group for a whole day once a week. Babies were cared for in the crèche in the morning, providing the mothers with an opportunity to reflect on their own lives, draw links between past and present feelings and relationships, and consider ways of managing depression using broadly cognitive behavioural approaches. In the afternoon, participants engaged in play-time – involving interaction coaching, baby massage, looking at picture books, lap games and nursery rhymes – in order to promote sensitive interaction and attunement. The babies were then returned to the crèche and the afternoon sessions involved the use of videos of mothers interacting with their baby to demonstrate sensitive interaction.

The results of a small RCT involving 20 mothers found significant improvements in maternal depression and parent-infant interaction (in terms of positive anticipation, positive responsiveness, negative autonomy and negative control). There were also trends favouring the intervention group for negative distress, positive control, positive co-operation, and positive autonomy. There were no significant differences between groups for positive distress, negative anticipation, negative responsiveness or negative co-operation.

## **Interventions for preterm babies**

Two studies evaluated the effectiveness of sensitivity-based interventions for parents of preterm infants (White-Traut et al, 2014; Milgrom et al, 2013).

White-Traut et al (2014) evaluated the effectiveness of H-HOPE, which included (i) twice-daily infant stimulation using the ATVV (auditory, tactile, visual, and vestibular-rocking stimulation, with sensitivity and responsiveness to infant behavioural cues), and (ii) four maternal participatory guidance sessions (two in hospital, two at home and two phone calls) which consisted of redefinition and re-education for mothers along with education and social support through individualised participatory guidance. The results of an RCT with 198 premature infants born at 29-34 weeks gestation, with at least two social-environmental risk factors, showed a trend toward more positive mother-infant interaction during both feeding and play for dyads who received the H-HOPE

intervention compared with those in the attention control group. (These differences were statistically significant, or marginally significant when covariates were controlled.) Milgrom et al (2013) evaluated the effectiveness of an enhanced version of the Mother-Infant Transaction Programme (PremieStart) involving nine sessions in NICU (Neonatal Intensive Care Unit) and one home visit. The sessions included training on topics such as parental sensitivity to signs of infant stress and providing graded stimulation. Enhanced provision focused on additional topics (eg massage, kangaroo care, multi-sensory stimulation). An RCT with 109 mothers of babies born at <30 weeks gestation found that intervention mothers were more sensitive in providing infant care, stressed their infants less, and showed greater awareness of, and responded more appropriately to, negative infant cues. At six months corrected-age, intervention infants showed higher mean scores on a measure of communication and symbolic behaviour.

## Summary

The results of the additional primary studies broadly confirm the findings of the systematic reviews reviewed earlier in the chapter, in that they show evidence of small to medium improvements in a range of outcomes related to infant/child attachment security, including parental sensitivity and reflective functioning.

The theories of change underpinning these different programmes are diverse and range from psychoanalytic models (eg parent-infant psychotherapy) that focus primarily on changing the parents' internal working models, through programmes that focus explicitly on improving parents' capacity for reflective functioning (eg Minding the Baby, Mother and Toddler Programme), to those that focus more explicitly on the interaction between the parent and infant/toddler and on sensitive parenting, based on attachment theory (video feedback and VIPP). There is, however, an increasing eclecticism, with programmes drawing on different theoretical traditions, and almost all (apart from the home visiting programmes) building in the use of video feedback.

There is also considerable divergence in terms of the frequency and duration of interventions, with home visiting programmes such as Minding the Baby involving intensive visits over a prolonged period of time and most other types of programme involving intensive work over brief periods of time – often a few months (eg video feedback and parent-infant psychotherapy). The limited evidence available regarding the comparative effectiveness of these interventions shows that there is little difference between them and increasing evidence supporting the use of brief, sensitivity-focused interventions (cf. Bakermans-Kranenburg et al, 2003).

Although some of these interventions require delivery by specialist practitioners (eg parent-child psychotherapists), many of the remaining interventions are manualised (eg ABC, VIPP) or can be delivered effectively by health visitors as part of the Healthy Child Programme (HCP) following appropriate training (eg video feedback). These

methods of working could be provided by health visitors as part of the Universal Plus offer.

## 8. Parenting support

Parents have the most critical role in children's social and emotional wellbeing. Children's secure attachment depends on their early relationships with primary carers. Parenting behaviours in terms of the use of positive discipline and supervision, and the avoidance of coercive cycles of interaction, have a key role to play in children's emotional and behavioural adjustment.

A range of types of parenting support have been developed to support parents to provide positive parenting during the first five years of a child's life, and take a variety of forms in terms of where (ie home, clinic, children's centre, school) and how (ie media-based, self-administered, one-to-one, group-based, one-to-one, or a combination of the above) they can be delivered. The primary focus of most such programmes is on providing parents with psychoeducation regarding parenting, although many of these programmes also aim to improve aspects of parental functioning (eg parental mental health, confidence, and self-esteem).

This chapter describes the available evidence regarding the effectiveness of parenting support interventions that are delivered universally (ie to all parents irrespective of income or need), and to parents who are at risk (ie experiencing problems such as poverty, infant regulatory or child behaviour problems). It concludes by examining issues relating to the identification of parents in need of additional support and also issues relating to the implementation of parenting support. All programmes that explicitly target parenting during the perinatal period were included in Chapter 6 and all programmes that target attachment as an outcome were included in Chapter 7. Reviews that target parents of children with specific conditions such as autism have not been included.

### **Antenatal**

See Chapter 6.

### **Postnatal**

#### **Preparation for parenthood programmes**

See Chapter 6.

#### **Kangaroo Mother Care (KMC) and skin-to-skin care (SSC)**

See Chapter 7.

## **Self-administered parenting programmes**

O'Brien and Daley (2011) examined the effectiveness of self-administered programmes aimed at parents of children aged 2-9 years in improving child behaviour over the short and longer term. They reviewed 13 studies (including 10 RCTs) that evaluated bibliotherapy and multimedia interventions, or interventions with minimal therapist support, for parents of children with behaviour problems. All studies apart from one included children in the 0-5 years age range (24/36 months and over). Self-help programmes led to outcomes similar to those achieved with more intensive therapist input. Parents viewed self-help favourably but significantly less so than programmes including some form of therapist input.

## **Individual and group-based parenting programmes to enhance social emotional wellbeing and/or prevent treat early behavioural problems**

Two reviews examined the effectiveness of largely targeted group-based and individually focused parenting programmes that focus primarily on promoting social and emotional wellbeing or preventing/reducing behavioural problems.

Barlow et al (2010) examined individual and group-based parent training programmes aimed at improving the emotional and behavioural adjustment of children from birth to three years. They included eight studies in total – six RCTs, one quasi-randomised trial and one QED. Meta-analyses produced consistent evidence that parenting programmes are an effective way of enabling parents to reduce conduct problems in children. The authors concluded that the findings provide some support for the use of group-based parenting programmes to improve the emotional and behavioural adjustment of children under age three, but that there is still insufficient evidence to know if such programmes could prevent the problems. They also pointed out that there is limited evidence available on the long-term effectiveness of these programmes, and that the relative effectiveness of different parenting programmes (eg group-based versus self-administered) requires further research.

Piquero et al (2008) focused on family or parent training programmes that aim to prevent anti-social behaviour and delinquency as a result of improving the quality of the parent-child relationship. The review identified 55 studies (all RCTs) of home visiting, parent training or multi-component interventions that combine parent training for parents of preschool children with day-care. Although the criteria specified interventions from birth onwards, most interventions included or were designed for parents of under-fives. The authors concluded that, overall, the findings support the continued use of early family/parent training to prevent problems such as anti-social behaviour and delinquency. They added that further research is needed to understand causal mechanisms and that longer follow-up is needed to assess impact of interventions when children reach adolescence.

Menting et al (2013) undertook a meta-analytic review of Incredible Years Parent Training (IYPT) on disruptive and prosocial child behaviour, and aimed to explain variability in intervention outcomes. Fifty studies, in which an intervention group receiving the IYPT was compared with a comparison group immediately after intervention (41 RCTs, 8 QEDs, 1 unspecified design), were included in the analyses. The mean age of participating children was between three and nine years. The study did not provide a breakdown of effects according children's age range. Overall, results showed that the IYPT is an effective intervention. Positive effects for distinct outcomes and distinct informants were found. For parental report, treatment studies were associated with larger effects than were indicated and selective prevention studies. Furthermore, the initial severity of child behaviour was revealed to be the strongest predictor of intervention effects, with larger effects for studies including more severe cases. Findings indicated that the IYPT is successful in improving child behaviour in a diverse range of families, and that the programme may be considered well-established.

Sanders et al (2014) undertook a systematic review and meta-analysis of the effects of the multilevel Triple P-Positive Parenting Program system on a broad range of child, parent and family outcomes. Multiple search strategies identified 116 eligible studies conducted over a 33-year period, with 101 studies comprising 16,099 families analysed quantitatively. The age range of children across trials spanned birth to 18 years (average child mean age across trials was 5.85 years). Significant short-term effects were found for: children's social, emotional and behavioural outcomes; parenting practices; parenting satisfaction and efficacy; parental adjustment; parental relationship and child observational data. Significant effects were found for all outcomes at long-term, including parent observational data. Targeted and treatment approaches were associated with larger effect sizes than universal studies, although significant effect sizes were reported for preventative programmes as well. Study power was found to be a significant moderator for some outcomes. The severity of initial child problems moderated the effects on parental relationship, as conflict over child rearing is one of the most common complaints presented by couples with children. Child age was not found to have significant effects at multiple moderator level. Study approach, study power, Triple P level, and severity of initial child problems produced significant effects in multiple moderator models when controlling for other significant moderators.

Wilson et al (2012) reviewed 33 studies of Triple P, including 31 RCTs (29 of the 33 clearly included children aged 2-5 years). The authors included all (five) levels of Triple P as well as specialist versions; interventions ranged duration and varied in setting. Of the 23 studies that could be meta-analysed, the results showed a significant improvement in behaviour for maternal but not paternal reported outcomes. The authors note a number of sources of potential bias in the included studies.

Panter-Brick et al (2014) reviewed 34 parenting programmes for fathers and mothers or for fathers alone that focused on improving fathers' knowledge, parenting behaviours and interaction with children, and improving child outcomes. They found that few

interventions disaggregate 'father' or 'couple' effects in their evaluation. Additionally, they concluded that the lack of robust evaluation (only 11 programmes had RCTs) made it difficult to evaluate findings and substantiate the claims that programmes have made for positive outcomes or father engagement.

## **Parenting programmes for children experiencing conduct problems or ADHD**

Furlong et al (2012) undertook a systematic review to assess the effectiveness and cost-effectiveness of behavioural and cognitive-behavioural group-based parenting programmes for improving child conduct problems, parental mental health and parenting skills. The mean age of the children across the 13 included studies was 64 months (five years and four months); children were aged between three and nine years in all but three of the studies where a small number of children (less than 10% of the samples) were just under three years old. The severity of conduct problems varied considerably between studies. In seven trials, all children at pre-treatment scored above the clinical cut-off point on a validated measure for conduct problems, whereas six studies reported that at pre-treatment all or most of the children were diagnosed with either Conduct Disorder (CD) or Oppositional Defiant Disorder (ODD) as well as scoring above the clinical cut-off point on a validated questionnaire. Five studies reported a low level of comorbidity with Attention Deficit Hyperactive Disorder (ADHD). The results indicated that parent training can produce a statistically significant reduction in child conduct problems, whether assessed by parents or independently. The intervention led to statistically significant improvements in parental mental health and positive parenting skills. Parent training also produced a statistically significant reduction in negative or harsh parenting practices according to both parent reports and independent assessments). Further research is needed on the long-term assessment of outcomes.

Charach et al (2013) included 55 comparative studies evaluating the effectiveness of parent behaviour training (PBT), combined home and school/day care interventions, and methylphenidate use, in preschool children at high risk of developing ADHD. Only studies examining PBT interventions could be pooled statistically using meta-analysis. Eight studies rated as 'good' examined PBT (n = 424) and showed a statistically significant improvement in child behaviour. Only one good study evaluated methylphenidate (n = 114), so the strength of evidence for methylphenidate was low. Combined home and school/day care interventions showed inconsistent results. The literature reported adverse effects for methylphenidate but not for PBT. The authors concluded that PBT interventions have greater evidence of effectiveness than methylphenidate for the treatment of preschoolers at risk for ADHD.

A Health Technology Assessment (HTA) review (Dretzke et al, 2009) assessed the impact of structured parenting programmes to treat conduct problems in children. It identified 57 RCTs, with the majority of studies focusing on children aged 12 and under



(no further information on age). There was a consistent trend across all studies showing a benefit from parenting programmes in terms of children's behaviour, with a meta-analysis of the most commonly reported child behaviour outcomes showing statistically significant improvements. The authors concluded that parenting programmes are an effective way of reducing behavioural problems but that the relative effectiveness of different parenting programmes (eg group-based versus self-administered) requires further research.

Daley et al (2014) reviewed 32 RCTs evaluating the effectiveness of behavioural interventions for children under 18 years with ADHD in improving child and parent outcomes. Six of the included studies focused on children under five years of age. They found significant improvements in parenting quality for positive and negative parenting and parenting self-concept, and in child ADHD, conduct problems, social skills, and academic performance. Effects that persisted for studies involving blinded assessments included positive and negative parenting, and conduct problems. The authors concluded that behavioural interventions have positive effects on a range of outcomes when used with patients with ADHD. There is blinded evidence that they improve parenting and decrease childhood conduct problems. These effects also may feed through into a more positive parenting self-concept but not improved parent mental wellbeing.

Sonuga-Barke et al (2013) included 54 RCTs evaluating the effectiveness of non-pharmacologic interventions such as dietary (restricted elimination diets, artificial food colour exclusions, and free fatty acid supplementation) and psychological (cognitive training, neurofeedback, and behavioural) interventions for children under 18 years with ADHD. However, only six of these studies focused on preschool children and all examined the effectiveness of parent training programmes. One study with a mean age of 5.2 years examined the effectiveness of dietary changes. The results showed that when the outcome measure was based on ADHD assessments by raters closest to the therapeutic setting, all dietary and psychological treatments produced statistically significant effects. The results for blinded assessment showed that effects remained significant for free fatty acid supplementation and artificial food colour exclusion but were substantially attenuated to non-significant levels for other treatments. The authors concluded that free fatty acid supplementation produced small but significant reductions in ADHD symptoms even with probably blinded assessments, although the clinical significance of these effects needs to be determined. Artificial food colour exclusion produced larger effects but often in individuals selected for food sensitivities. The authors further concluded that better evidence for efficacy from blinded assessments is required for behavioural interventions, neurofeedback, cognitive training, and restricted elimination diets before they can be supported as treatments for core ADHD symptoms.

Fabiano et al (2009) reviewed all available evidence concerning the effectiveness of behavioural treatments for children under 18 years with ADHD. A total of 174 studies of behavioural treatment were identified from 114 individual papers, but only 20 of these were between-group studies. Unweighted effect sizes indicated that behavioural treatments are highly effective. The authors concluded that based on these results, there is strong and consistent evidence that behavioural treatments are effective for treating ADHD.

## **Parenting programmes for parents of children with disabilities**

Tellegen and Sanders (2013) evaluated the effect of the Stepping Stones Triple P (SSTP) programme on parenting and child outcomes in families of children with disabilities. Based on 12 studies (nine RCTs, three uncontrolled studies), all of which included children aged 2-5 years (across all studies the age range was 1.5 -17 years), they found significant moderate effect sizes for reduced child problems. This was for a range of different forms of delivery of the intervention (including individual or group-based, and programmes of varying intensity). Significant overall positive effect sizes were also found for parenting styles, parenting satisfaction and efficacy, parental adjustment, parental relationship, and observed child behaviours. No significant treatment effects were found for observed parenting behaviours. The authors concluded that the evidence base supports the effectiveness of SSTP as an intervention for improving child and parent outcomes in families of children with disabilities.

## **Group-based parenting programmes for teenage parents**

Barlow et al (2011a, 2011b) reviewed individual and group-based parenting for improving psychosocial outcomes for teenage parents and their children in the antenatal period and infancy (up to 13 months). The study identified eight RCTs of group-based parenting programmes that used at least one standardised instrument to measure emotional and behavioural adjustment of teenage parents. The programmes ranged from brief interventions delivered over one or two sessions to programmes delivered over the course of six to 10 weeks. The following outcomes were subject to meta-analysis: (i) parental psychosocial outcomes (including psychosocial health, parenting knowledge, parenting behaviours and skills, sense of competence in the parenting role, and parent interaction with child); (ii) child health and development outcomes (including child cognitive development and child interaction with parent); and (iii) combined parent-child relationship: any combined parent-child interaction. Of the nine meta-analyses conducted, the four showing statistically significant findings favouring the intervention group concerned the following outcomes: parent responsiveness to the child post-intervention; infant responsiveness to mother at follow-up; and parent-child interactions post-intervention and at follow-up. The results of the remaining five (ie out of the nine) meta-analyses were inconclusive. The authors

noted that variations in the measures used, the included populations and interventions, and the risk of bias within the included studies limited the conclusions that could be reached. They concluded that the findings provide some evidence that parenting programmes may be effective in improving a number of aspects of parent-child interaction both in the short- and long term, but that further research is now needed.

## **Parenting programmes for parents with learning difficulties**

Two reviews (Coren et al, 2010; Wade et al, 2008) examined the effectiveness of parenting programmes for parents with learning difficulties.

Coren et al (2010) reviewed the effectiveness of one-to-one and small group-based parent training interventions for parents with intellectual disabilities who have children aged 0-18. Three RCT studies were included, all of which focused on parents of children in the 0-5 age range. A meta-analysis was not possible but the authors found evidence, respectively, of: (i) improved maternal-child interaction following group parent training compared with the control group; (ii) increased parent knowledge of life-threatening emergencies, ability to recognise dangers and identify precautions and smaller improvements in their ability to implement precautions, use medicines safely and recognise child illness and symptoms; and (iii) improved child care and safety skills. The authors concluded that the evidence seems promising with regard to the ability of such interventions to improve parenting knowledge and skill in this population, but that there is a need for more and larger studies.

Wade et al (2008) reviewed the effectiveness of home-based parenting programmes for parents with intellectual disabilities. Most combined individualised training using pictorial aids, modelling and discussion, with use of self-instruction materials. The review included seven studies (two RCTs and five studies with QED designs and small samples). With one exception, all included studies were exclusively with parents of children in the 0-5 years age-range. Overall, studies found that parents could be taught to increase the performance of targeted skills or tasks. Significant post-intervention effects were found for parent knowledge and/or behaviour in the two experimental studies, and the small QED studies demonstrated that parents could be taught to increase performance of targeted skills or tasks. Further, most studies reported short- to mid-term retention of skills (ie between one month and one year), and two showed maintenance of skills with the majority of parents over the longer term (more than two years post-intervention). Lastly, positive changes were found in the four studies that assessed child behaviour or health associated with parent training interventions. The authors concluded that evidence from the review supports the use of individually administered home-based behavioural interventions for parents with intellectual disability. However, it noted that the effect of parent training interventions on child outcomes and the generalisation of parenting skills are rarely investigated. They also

advised caution owing to methodological issues, including the small sample sizes (only 123 parents were included across all seven studies).

## **Postnatal education interventions**

Bryanton et al (2013) reviewed postnatal education interventions for one or both parents of infants that commence within two months of birth. These interventions can be delivered to individuals or groups, and vary in terms of duration and delivery setting. They aim to improve infant health and parent-infant relationships, and include five infant sleep enhancement interventions, three general post-birth health interventions, three interventions on infant care and four on infant safety. Twenty-seven RCTs were identified, 13 of which were included in meta-analyses, but only four results are not subject to extensive heterogeneity. These showed that education about sleep enhancement resulted in a mean difference of 29 more night-time minutes of infant sleep in 24 hours at six weeks of age compared with usual care. However, it had no significant effect on the mean difference in minutes of crying time in 24 hours at six weeks and 12 weeks of age. Education related to infant behaviour increased maternal knowledge of infant behaviour by a mean difference of 2.85 points. The authors concluded that the benefits of educational interventions for infants remain unclear. Education about infant behaviour can potentially enhance mothers' knowledge; however, more and larger, well-designed studies are needed to confirm these findings.

## **Behavioural sleep interventions**

Douglas and Hill (2013) reviewed 43 studies of behavioural sleep interventions for infants aged 0-6 months. Techniques included: delayed response to infant cues; regulation of feeding; sleep algorithms; behavioural conditioning; decreased daytime stimulation; identification of 'tired cues'. The review included studies using a mixture of designs, including RCTs, cohort studies and cross-sectional designs. It concluded that behavioural interventions for infant sleep in the first six months have not been shown to decrease infant crying, prevent sleep and behavioural problems in later childhood or protect against postnatal depression. The authors also concluded that when interventions are applied as a population-level prevention strategy in the first weeks of life there is a risk of unintended outcomes, such as premature cessation of breastfeeding, increased crying, and the increased risk of SIDS.<sup>21</sup> They also noted that many studies linking behavioural sleep interventions to child and maternal health outcomes have methodological constraints.

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<sup>21</sup> Blair PS, Heron J, Fleming PJ. (2010). Relationship between bed-sharing and breastfeeding: longitudinal, population-based analysis. *Pediatrics*. 126:e1119–e1126; Task Force on Sudden Infant Death Syndrome (2010). SIDS and other sleep-related infant deaths: expansion of recommendations for a safe infant sleeping environment. *Pediatrics*. 128: e1341.

## **Systemic interventions to help parents address problems in infancy**

Carr (2009) reviewed systemic interventions (family therapy and other family-based approaches) for problems in infancy, including sleep, feeding and attachment difficulties. Based on a systematic review of 41 studies of family-based behavioural programmes for sleep problems in young children (Mindell, 1999) and nine RCTs of family-based and pharmacological interventions for young children (Ramchandani et al, 2000), the author concluded that both family-based and pharmacological interventions are effective in the short term, but only systemic interventions have positive long-term effects on young children's sleep problems. In family-based interventions, parents are coached in, for example, reducing or eliminating children's daytime naps and developing positive bedtime routines.

## **Identifying families in need of additional support**

O'Brien and Daley's (2011) review of self-help parenting programmes found evidence to support the application of the Eyberg Child Behaviour Inventory in order to identify children with conduct problems exceeding the clinical range.

## **Implementation issues**

The review by Furlong et al (2012) of behavioural and cognitive-behavioural group-based parenting programmes for parents of 3-12 year-olds with early-onset conduct problems noted that implementation of the programme with fidelity appears to be an important component of clinical effectiveness. Practitioners must consider whether their organisation is willing to provide sufficient resources so that they can deliver the intervention with fidelity. The Menting et al (2013) review of Incredible Years Parent Training (IYPT) found that authorised workshops, a group leader certification/accreditation process, a detailed treatment manual, and checklists can help achieve a high level of treatment fidelity. Additionally, Bryanton et al (2013) noted that implementation of parent education programmes could be improved if an assessment is included to determine whether the information was successfully taught to participants.

Barlow et al (2012) observed that the benefits of parenting programmes can be short term and that some parents need additional support if the improvements are to be maintained over time.

Panther-Brick et al (2014) identified seven key barriers to engaging fathers in parenting programmes: cultural (eg relevance to co-parents); institutional (eg how father-friendly the organisation is); professional (eg staff capabilities, attitudes); operational (eg disaggregation of data by sex); content (eg relevance to fathers); resource (eg

sufficiency for implementing changes needed); and policy (eg clear recognition of co-parents in strategies, action plans).

## **Workforce skills and training**

Douglas and Hill (2013), in their review of behavioural sleep interventions for infants aged 0-6 months old, noted that doctors, child health nurses, midwives and researchers are inadequately trained in the identification and management of feeding problems (which may be the underlying cause of frequent waking and should be the focus of intervention).

## **Additional primary studies**

This section presents the results of a search to identify primary studies evaluating the effectiveness of parent support interventions. The focus was on studies of interventions for parents of children aged 0-5 years that were published between 2009 and 2014 and not already summarised in systematic reviews covered earlier in this chapter.

Sixteen additional studies were identified, two of which were non-randomised trials and therefore not further described here (Griffin et al, 2010; Reichle et al, 2012 – summarised in Appendix C). The remaining 14 RCTs all concern targeted programmes and break down as follows. One concerns a fathers-only parenting group and a couples parenting group. Three comprise psychoeducational programmes aimed at improving parents' skills and confidence with a view to enhancing children's social and emotional wellbeing. Four studies comprise parenting interventions aimed at the secondary prevention of child behavioural problems, three of these being variants of the Incredible Years programme. Two studies focus on interventions that are aimed at reducing the risk of child maltreatment, where this has already occurred. Finally, four studies evaluate the effectiveness of interventions aimed at supporting parents of children experiencing specific problems (ie families in which a child has asthma, or mealtime difficulties, or where parents are getting divorced). The latter are all variants of the Triple P programme.

## **Parenting and couples programmes to increase father involvement**

### *Supporting Father Involvement*

Cowan et al (2009) evaluated two interventions. Both aimed to develop a positive relationship between the father and the child, promote the father's positive involvement and promote healthy child development. One intervention was for couples and one for fathers only. Both were delivered in community setting to groups by two mental health professionals over 16 two-hour weekly meetings. Both focused on the wellbeing of parents, the relationship between them, coping with stress and enhancing social support, and were almost identical in curricula. The interventions target low-income

families that were expecting a child or where the youngest child was aged seven years or younger (in the study the median age of the youngest child was 2.25 years). The study randomised 405 families in California to one of three conditions – the two intervention groups and a low-dose comparison condition where parents attended a three-hour group session. Eleven months after the end of the interventions, compared with families in the low-dose comparison condition, intervention families showed positive effects on fathers' engagement with their children and couple relationship quality. Participation in a fathers' or couples' group was associated with stable levels of children's problem behaviours as the parents perceived them over 18 months compared with consistent increases in problem behaviours in children of parents in the low-dose comparison condition. Participants in the couples' groups showed more consistent effects than those in fathers-only groups. Intervention effects were similar across family structures, income levels, and ethnicities. However, the impact on child behaviour was not statistically significant and the study has some methodological limitations such as differential attrition.

### **Parenting programmes to enhance social emotional wellbeing and/or prevent behavioural problems**

Three studies evaluated the effectiveness of a parenting programme in enhancing children's social and emotional wellbeing and/or preventing behavioural problems – two evaluating ParentCorps (Brotman et al, 2011; Dawson-McClure et al, 2014)<sup>22</sup> and one evaluating the Family Links Programme (Simkiss et al, 2013).

#### *ParentCorps*

ParentCorps aims to help parents develop effective parenting practices in order to encourage the healthy development and school success of their children. It was designed specifically to promote effective parenting practices and prevent behaviour problems among ethnically diverse children from disadvantaged, urban communities (in the US). The 13-week intervention was provided in pre-kindergarten and involved children aged 4 years and their parents (there is no other targeting of children). Parent and child groups were held concurrently in adjacent classrooms with some group activities to bring parents and children together to allow parents to practice new skills. Parent groups aimed to enhance parent child interaction and positive reinforcement. In the child groups, group leaders used effective behaviour management practices to promote children's positive behaviours and reduce or prevent behaviour problems. Two studies (Brotman et al, 2011; Dawson-McClure et al, 2014) evaluated the effect of ParentCorps on parenting and related child outcomes. Both trials took place in the US.

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<sup>22</sup> Brotman et al. (2013) also evaluate ParentCorps but focus on the impact on academic test scores. The Dawson-McClure et al. (2014) study is a follow-up of Brotman et al. (2013).



A cluster randomised trial of ParentCorps involving eight schools in a large urban school district found medium-size effects for both effective parenting practices and child behaviour problems (Brotman et al, 2011). Approximately 64% of the children in these schools were eligible for free lunch. The intervention effect on observed parenting practices was moderated by the baseline score of this measure; there was a large intervention effect for parents who had baseline scores below the median and a small effect for parents with baseline scores above the median. In terms of secondary outcomes, there were small and non-statistically significant intervention effects on parent involvement and child school readiness and these effects were not significantly moderated by baseline scores.

A second RCT of ParentCorps (Dawson-McClure et al, 2014) involved 1050 preschool children and their parents in 10 schools in deprived areas. The trial design involved matching schools on size and splitting them into pairs; within each pair, one school was randomly assigned to the intervention and the other to the control group. This study evaluated intervention impact on parenting (knowledge, positive behaviour support, behaviour management, involvement in early learning) and child conduct problems over a two-year period (end of kindergarten). Intent-to-treat analyses showed intervention effects on knowledge, positive behaviour support, and teacher-rated parent involvement. None of these effects were moderated by baseline parenting or child dysregulation, indicating that the intervention effect on parenting was similar across levels of baseline risk. For parent-rated involvement, the corresponding baseline measure was a statistically significant moderator; among parents with lower levels of involvement, there was an intervention effect on parent involvement. For harsh and inconsistent behaviour management, baseline dysregulation was a statistically significant moderator, such that among parents of children with high levels of dysregulation (20% of the sample) there was an intervention effect to reduce harsh and inconsistent behaviour management. Although there was no main effect on conduct problems, for dysregulated boys (but not girls) there was an intervention effect on conduct problems (particularly for high-risk boys), suggesting, the authors argued, that the intervention 'normalised' the level of problems in high-risk boys to that of low-risk boys.

### *Family Links Nurturing Programme*

The Family Links Nurturing Programme (FLNP) comprises a group-based parenting programme based on the Nurturing Parenting programme. FLNP consists of 10 weekly two-hour sessions delivered by two trained facilitators to groups of 6-10 parents. It aims to build parenting skills, positive behaviour management and communication strategies, and develop parents' capacity to look after their own emotional needs through coping and relaxation techniques. This programme targets families with children aged 2-4 years.



The results of an RCT (Simkiss et al, 2013) in deprived areas in south Wales (the catchment areas of 'Flying Start' early years centres) involving 286 families showed no statistically significant difference between intervention and control groups on any of the outcome measures. For most outcomes, improvement was observed in both groups, with families in the FLNP arm of the trial improving more than those in the control arm by a small and not statistically significant amount (the differences were much smaller than those which the trial was powered to detect). The three month results suggest that differences in parental wellbeing were greatest at the end of the programme and declined over the next six months. In contrast, the observed differences in child wellbeing increased over time. It may be that the results were influenced by the trial potentially being underpowered and the programme having a low uptake (eg 34% of families allocated to the intervention group did not attend any sessions), but a per protocol analysis reflected the results at both time points.

## **Parenting programmes in the secondary prevention of behavioural problems**

Four studies evaluated the effectiveness of a parenting programme in treating child behaviour problems. Three of these evaluated versions of the Incredible Years programme (Azevedo et al., 2013; McGilloway et al, 2012; Reedtz et al, 2011), and one of which evaluated an attachment-based programme (Somech and Elizur, 2012).

### *Hitkashrut*

Hitkashrut ('attachment' in Hebrew) comprises a parent training programme that uses a family systems approach (Somech and Elizur, 2012). It is targeted at at-risk preschoolers (3 - 5 years), namely those identified by their teacher as having behaviour problems (above 80th percentile based on the Strengths and Difficulties Questionnaire). The children participate along with their parents. Hitkashrut aims to motivate children to move from antisocial to prosocial attitudes through reshaping parent-child interaction and their relationship. The focus is on inhibiting negative and coercive parenting, and promoting cooperative relationships with responsiveness and positive affectivity. It uses psychoeducational instruction along with experiential learning such as group discussions, role-plays, and homework assignments. The programme's six components include: (1) interaction quality/time; (2) parent-child communication skills; (3) behaviour management; (4) discipline skills; (5) parent self-regulation capacity; and (6) couple communication skills. The programme involves 14 two-hour sessions with groups of 5-7 parents (couples) facilitated by psychologists.

The results of an RCT in Israel involving 209 families (140 allocated to the treatment condition, and 69 allocated to the minimum input control condition of two sessions with facilitators using Hitkashrut's key components and hand-outs) found a statistically significant positive post-intervention impact on all outcomes. Intention-to-treat analysis showed a statistically significant post-intervention effect on child behaviour problems, callous-unemotional traits and effortful control. In addition, the odds of a clinically

significant improvement were greater for the intervention group for all these child outcome variables. Statistically significant positive intervention effects were also found on all parent variables: parental distress, negative/inconsistent parenting and marital quality. Mediation analysis revealed that both negative/inconsistent parenting and parental distress were statistically significant partial mediators of child behaviour problems. Parental practices and distress were mediators. The gain in clinically significant improvement in child behaviour problems was maintained at one-year follow-up.

### *Incredible Years parenting programmes*

Three studies evaluated the effect of the Incredible Years (IY) programme on child behavioural problems. One study (Azevedo et al, 2013) evaluated the effectiveness of IY parent training on the hyperactive and inattentive behaviours of preschoolers in Portugal. Parents of 100 children aged 3-6 years with ADHD behaviours were allocated to either an intervention (n=52) or control group (n=48). Medium-to-large intervention effects were found in primary caregivers' reported measures of children's ADHD behaviours and on self-reported parenting practices. Independent observations indicated statistically significant short-term effects on positive parenting and coaching. Primary caregivers had a high attendance rate and reported high satisfaction with the programme. Additionally, 43% of children in the IY arm of the trial clinically improved in the primary ADHD outcome measure compared with 11% in the control arm. Preliminary results therefore suggest that IY parent training made a difference in the behaviour of Portuguese preschoolers with early signs of ADHD.

A shortened version of Incredible Years (S-IY) was delivered to the parents of Norwegian children with the aim of enhancing protective factors/reducing risk factors related to the development of childhood socio-emotional and behaviour problems. The intervention focused on enhancing a positive parenting style, and reducing punitive and harsh parenting. The S-IY intervention differs from the regular Basic IY intervention in both length (six rather than 12 parent sessions) and content (regular Basic IY covers effective limit setting, ignoring negative behaviours and timeout, none of which are covered in the S-IY). The results of an RCT in Norway (Reedtz et al, 2011) involving 89 parents randomised to the intervention group and 97 to the control group found statistically significant differences favouring the intervention group regarding reductions in harsh parenting (moderate to large effects) and children's behavioural problems (small effects), and a strengthening of positive parenting (large effects) and parents' sense of competence (small effects). It should be noted that although the analysis was intent-to-treat with imputation of missing data, there were high levels of attrition and loss to follow-up.

A further trial of the IY Basic Parent Training Programme (IYBP) involved children with early signs of behavioural problems in highly disadvantaged urban areas in Ireland (McGilloway et al, 2012). The intervention was evaluated as part of a community-based

RCT involving 149 children (aged 32-88 months) who scored above a clinical cut-off on the Eyberg Child Behaviour Inventory (ECBI). The study found statistically significant differences favouring the intervention group on the ECBI Intensity and Problem subscales. There were also intervention effects on child hyperactive-inattentive behaviours, social competence, total difficulties and observed child problem behaviour but not child positive behaviour. Statistically significant improvements were also found for parent depression, parental stress and critical parenting (the effect on positive parenting was not statistically significant). Moderator analyses showed that child or family demographic characteristics or risk factors did not moderate the effects of the IYBP intervention on the primary child outcomes.

### **Individual or group-based programmes targeted at reducing child maltreatment in families at identified risk**

Two studies evaluated the effectiveness of a parenting programme in reducing child maltreatment in families identified as at risk (Hurlburt et al, 2013; Silovsky et al, 2011).

#### *Safe Care+*

One study evaluated the effectiveness of an augmented form of SafeCare (SafeCare+) aimed at preventing child maltreatment in higher risk populations in rural communities (Silovsky et al, 2011). SafeCare+ (which includes Motivational Interviewing) is delivered to individual parents in the home and involves three modules: planned activities training, which promotes positive parenting; home safety skills; and child healthcare. Trainers also teach problem solving and communication skills across all modules. Sessions are weekly, lasting approximately 90 minutes, over 18-20 weeks.

An RCT involving 105 US parents of young children (aged five years or less) who had identifiable risk of depression, intimate partner violence, or substance abuse found a statistically significant positive effect on reports due to domestic violence. More specifically, seven reports were made for control group participants compared with none for the intervention group; there was a statistically significant difference in survival between control and intervention groups. There was a statistically significant effect on nonviolent discipline post-intervention but this was not maintained at follow-up. A statistically significant effect was found for child abuse potential inventory post-intervention but the size of the effect declined by more than half at follow-up. There was a marginal but non-significant effect trend on family resources at follow-up. There was no statistically significant impact on child welfare reports. No impact was found for parental depression or intimate partner violence. Effects on substance abuse were not reported due to insufficient statistical power to detect differences in the low prevalence.

#### *Incredible Years*

Hurlburt et al (2013) evaluated the effectiveness of the basic Incredible Years programmes (two-hour weekly sessions over 8-9 weeks) with parents in Head Start,

regardless of whether they reported having a history of child maltreatment. The study, an RCT, compared whether parenting practices and child behavioural outcomes differed in families who self-reported a history of child maltreatment relative to families who did not. It was conducted in 64 classrooms in seven Head Start centres in the US involving families of 481 children (average age 4.7 years).

The study found that programme effects were similar for parents who did and did not report a history of child maltreatment. Statistically significant intervention effects were found for parents who did not report a history of maltreatment on positive parenting, nurturing parenting, and discipline competence outcome measures. There was evidence of reduced negative parenting behaviours, including total critical statements and harsh/critical parenting. Children of parents participating in the IY intervention showed reductions in negative nonverbal affect and improvements in positive affect. The effect on parental total commands, parent-reported child behaviour problems, observed deviance/noncompliance and poor conduct was not statistically significant. However, parents with a reported history of prior maltreatment had greater initial room for improvement in areas such as harsh/critical parenting, nurturing/supportive parenting, and discipline competence than parents without such a history. Among families with a self-reported history of child maltreatment, there was a statistically significant effect on positive parenting, nurturing/supportive parenting, and discipline competence (effect sizes not reported). None of the other outcomes had a statistically significant impact. In part, this may be due to the lower power associated with the smaller sample size in this group. However, the overall pattern of results between the two groups was relatively similar. The association found between the number of sessions attended and improved parenting outcomes suggests that more intensive intervention may be necessary to address some of the additional parenting problems present among parents in contact with child welfare services. Furthermore, additional sessions continued to benefit families regardless of prior child welfare contact.

## **Parenting programmes that address specific challenges**

Four studies evaluated the effectiveness of interventions designed to support parents of children experiencing specific problems: parenting of children with asthma (Clarke et al, 2013); children who are 'fussy eaters' (Adamson et al, 2013; Morawska et al, 2014); and children of parents who are divorcing (Stallman and Sanders, 2014). All of the interventions comprised variants of the Triple P programme, and all studies were conducted in Australia.

### *Hassle Free Mealtimes Triple P*

Hassle Free Mealtimes Triple P comprises a two-hour discussion group focusing on positive parenting strategies specific to the mealtime context. Two RCTs of this programme were identified.

The first, by Morawska et al (2014), involved 86 parents of children aged 2-5 years with mealtime difficulties (44 parents randomised to the intervention group, and 42 parents randomised to the control group). The results showed statistically significant improvements in the frequency of child problem behaviours,<sup>23</sup> feeding experience and the amount eaten at mealtimes for the intervention group, immediately after participating in the intervention when compared to the waitlist control group. No impact was found on the number of child problem behaviours,<sup>24</sup> speed of eating, child behaviour or child emotional adjustment. At six months post-intervention, improvements were maintained for the frequency of problem behaviours, feeding experience and amount eaten at mealtimes when comparing follow-up scores against pre-test scores for the intervention group only. Additional intervention effects were observed for improvement in child behaviour and child emotional adjustment when comparing follow-up scores against pre-test scores for the intervention group only. For parent effects, there was statistically significant improvement in parental confidence, use of appropriate parenting strategies, parenting cognitions and parental sense of self-efficacy for the intervention group immediately after participating in the intervention when compared to the waitlist control group. The study found no impact on parental cognitions about their partner, or assessment of wider parenting practices. At six months post intervention, improvements were maintained for parental confidence, use of appropriate parenting strategies, parenting cognitions and parental sense of self-efficacy when comparing follow-up scores against pre-test scores for the intervention group only. Intent-to-treat analyses for post-test scores produced the same pattern of results. Intent-to-treat analyses for follow-up scores were not reported.

The study by Adamson (2013) involved 96 parents of children aged 1.5- 6 years with mealtime difficulties (49 parents were randomised to receive the intervention, and 47 were allocated to the waitlist control group, via drawing a number from an envelope). The study found statistically significant improvements at post-test, favouring the intervention group for the frequency and number of feeding problems, parental confidence in managing mealtime behaviour, mealtime parenting strategies and cognitions, intensity of child behaviour problems, parenting style and parental behaviour self-efficacy. There was a statistically significant increase in observed positive child behaviours at mealtimes. In addition there was a statistically significant decrease in observed negative child behaviours at mealtimes (conceptualised as improvement in parent-child interactions, but no effect observed for parent behaviour) as well as fewer parent-reported disruptions at mealtime and lower ratings of overall difficulty at mealtimes for the intervention group compared with the control group.

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<sup>23</sup> This was measured in terms of the frequency of 21 problem mealtime behaviours on a 5-point scale from 1=almost always to 5=never.

<sup>24</sup> This was measured in terms of the number of 21 misbehaviours viewed as problematic by parents using a yes-no format).

At six month follow-up (but without a control group) there was evidence of sustained change for: the frequency and number of child behaviour problems; parental mealtime confidence, strategies and cognitions; parenting style; parenting behaviour self-efficacy; fewer disruptions at mealtimes; lower ratings of overall difficulty at mealtimes; and observed child positive and negative behaviour at mealtimes. There was no sustained change for the intensity of child behaviour. Statistically significant improvement between post-test and follow-up was observed for child problem behaviours, parental setting self-efficacy, and reduction in observed negative parenting behaviours at mealtimes.

Analyses of clinical change at post-test found a significant effect for intensity of child behaviour, parental confidence in managing child behaviour and all problematic child behaviour/parenting mealtime behaviour subscores. Reliable Change Index calculations for outcome variables with significant effects suggest statistical reliability for all of these measures apart from the ECBI intensity subscale and the number of feeding problems. Analyses of clinical and reliable change at six-month follow-up showed broadly similar results.

#### *Online Triple P for parents of children with asthma*

Clarke et al (2013) evaluated the feasibility of an eight-week self-directed online version of Triple P designed to help parents manage childhood asthma and behaviour. The intervention combines (i) two asthma-specific tip sheets providing brief education about asthma management and links between asthma, behaviour and parenting, and (ii) a seminar series including 10 minutes of video clips that aim to improve parents' knowledge, confidence and parenting practices.

The RCT involving 13 parents found that uptake was low, with very few parents (approximately 10% of those who viewed the consent form) providing consent and registering for the study. Further, attrition was high, with no family adhering to the intervention. Only one family completed post-intervention measures, so it was not possible to analyse the impact of the programme on outcomes. The authors concluded that before attempting an outcome study there is a need for further work with parents of children with asthma to explore barriers to the uptake of parenting interventions and factors relating to adherence and attrition.

#### *Family Transitions Triple P*

Family Transitions Triple P is a group-based 12-session parenting programme designed to minimise the adverse effects of parental divorce on children. It is designed for families of children aged 2-14 years, and focuses on positive parenting skills, reducing conflict and acrimony over parenting issues, improving communication with children about the divorce experience, building parents' stress management and coping skills, and encouraging parents to establish a new life for themselves by balancing work, family and recreational activities. The intervention also targets child behaviour

and specifically managing misbehaviour. The programme concludes with three individual telephone consultations lasting 20-30 minutes each. An enhanced version includes an additional 12 weekly telephone calls to remind parents to attend the group session and help them to address any barriers to attendance.

An RCT (Stallman and Sanders 2014) involving 138 parents found no statistically significant difference between the number of sessions attended by parents who received the weekly telephone call (enhanced) and those in the standard intervention condition. For this reason, data from the enhanced and standard intervention conditions were collapsed into one intervention condition. The only statistically significant effect for the full group was on parent-reported child behaviour, where a significant effect was found for child behaviour problems on both the intensity and problem score scales. However, no statistically significant differences were found on either scale for teacher-report of child behaviour. There was a statistically significant intervention effect for parenting style for parents with younger children (age not mentioned), for overreactivity and verbosity, but not for laxness. Among parents with older children, there was no statistically significant intervention effect for parenting style. The study involved a 12-month follow-up for the intervention group only. Follow-up results looked at pre-test follow-up significance and did not report maintenance of effects. At long-term follow-up, parents continued to improve on measures of parental distress (depression and stress), parental anger, and communication. They also experienced less acrimony toward their former partners.

## Summary

Statistically significant effects favouring the intervention were reported for a number of parenting programmes: Hitkrashut; Supporting Father Involvement; Hassle Free Mealtimes Triple P; ParentCorps; and for further applications of the Incredible Years programme (including a six-session version). Significant effects were found for Family Transitions Triple P for one outcome only. No statistically significant effects were found for the Family Links Programme or for an augmented form of the SafeCare (SafeCare+) programme, but both appear to have experienced significant difficulties in terms of the implementation of the intervention and the study. No results were reported for an online version of Triple P for children with asthma, due to high levels of attrition among the participants.

A number of the included studies build on strong existing evidence of effectiveness (eg Incredible Years and Triple P), but questions remain about the optimum duration of IY programmes with parents who have maltreated children. The authors of a rigorous study on the effect of the basic eight-week version of IYPB with maltreating parents recommended a version of the programme that is of longer duration and higher intensity with families who have more severe and compounded risks for child maltreatment. An online version of Triple P for parents of children with asthma could



not show evidence of effect because of very high levels of attrition in both the intervention and the control group. It may be that this format is not sufficient to engage and retain parents of children with this challenging health condition. Family Transitions Triple P, which seeks to mitigate the effects on children of their parents' divorce, appears to have some effectiveness in improving child behaviours, with better outcomes for younger children. However, these improvements were not corroborated in teacher reports on child behaviour, suggesting that further research is needed. There is evidence to support the application of a brief, targeted version of Triple P with children who present challenging behaviours at mealtimes.

Findings are also promising for programmes such as ParentCorps and Hitkashrut, which involve both parents and children in psychoeducation within preschool settings. The programmes are aimed at enhancing the engagement of teachers and improving communication between families and school. This format has the potential to increase active engagement, support and feedback to families and educators; the common practice of simply disseminating information to parents and teachers is very unlikely to support the sustained changes in behaviour needed for population-level impact.

There is a need for further evaluations of parenting interventions that actively engage fathers and for more interventions designed specifically to support fathers.

Although some of these interventions require the engagement of specialist practitioners (eg parent-child psychotherapists for Hitkashrut), many are manualised (eg Incredible Years, Triple P, Supporting Father Involvement) and can be delivered by trained health visitors as part of the Healthy Child Programme following appropriate training. The two school-based interventions ParentCorps and Hitkashrut are designed to be delivered in partnership with schools, the former specifically for disadvantaged communities.



## 9. Keeping safe

This chapter focuses on keeping children safe through the prevention of (i) abuse and neglect, (ii) unintentional injuries and (iii) sudden infant death syndrome (SIDS). Taking the first of these, abuse and neglect in early childhood have multiple negative outcomes throughout the life course, including mental health difficulties and poor socio-emotional functioning. A range of interventions have been developed in recent years to prevent child abuse and neglect, notably by changing how parents interact with their children via parenting groups or home visits. The next subject is unintentional injuries, which account for over 160 child deaths and more than 100,000 hospital admissions each year in the UK. This has led to various efforts to prevent unintentional injuries in the home, mainly by changing parenting practices and providing or installing safety equipment. Lastly, SIDS refers to the sudden death of an infant under one year of age that remains unexplained after a review of the clinical history, examination of the scene of death and post-mortem. Observed associations with risk factors such as prone sleeping position and prenatal or postnatal exposure to tobacco smoke have informed public health practice in this area.

This chapter reviews the evidence for prevention and early intervention in each of these areas. It concludes by considering implementation issues, how to identify families in need of additional support, and implications for workforce skills and training.

### **Antenatal**

No reviews of interventions in the antenatal period were identified.

### **Postnatal**

#### **Prevention of sudden infant death syndrome (SIDS)**

Although several reviews were identified that include recommendations about safe sleeping practices in relation to preventing SIDS, they were not included in this review because they did not focus on interventions per se. Two reviews that explicitly examined interventions were included (Hauck and Tanabe, 2009; Strehle et al, 2012). Strehle et al (2012) reviewed 11 studies of home monitoring devices aimed at reducing death from SIDS among infants aged under two years (10 cohort studies and one RCT, although the latter was only a feasibility study for a larger trial and considered to be weak methodologically). Studies used a variety of home monitoring devices, although these were rarely specified. The authors concluded that there is little high-level evidence that home monitoring systems are effective in preventing SIDS. They noted that a lack of consistency across studies (in terms of inclusion criteria, definitions of at

risk infants, monitoring devices and the subjective nature of parental reports of apparent life-threatening events) made it difficult to draw conclusions. They also stressed that the evidence does not show that the use of home monitoring devices is ineffective, and called for further research.

Hauck and Tanabe (2009) conducted a review of interventions designed to reduce the incidence of SIDS. These interventions disseminated information and advice, mainly through campaigns (media, newspaper, professional education) on subjects such as avoiding prone sleeping and tobacco-smoke exposure and promoting breastfeeding. The authors aimed to include systematic reviews and RCTs but did not find any RCTs. They included observational studies (case control and cohort studies) and the quality of evidence was deemed to be 'very low'. Based on 17 studies, the authors concluded that interventions advising about avoiding prone sleeping markedly reduce incidence of SIDS, and based on seven studies they concluded that advising against tobacco-smoke exposure also appears to reduce SIDS. The contribution of advice on avoiding bed sharing and overheating/overwrapping and on promoting breastfeeding was deemed to be unclear because no study examined any of these alone. They found no studies of interventions that provide advice to avoid soft sleeping surfaces or to promote the use of soother/pacifier or room sharing (but not bed sharing).

NICE guidance on postnatal care, covering the first year of an infant's life (NICE 2014c, guideline CG37) recommends informing parents and carers that: there is an association between co-sleeping (parents or carers sleeping on a bed or sofa or chair with an infant) and SIDS; the association between co-sleeping and SIDS is likely to be greater when they, or their partner, smoke; and the association may be greater with (a) parental or carer recent alcohol consumption, or (b) parental or carer drug use, or (c) low birth weight or premature infants.

## **Prevention of unintentional injury**

Thirteen reviews examined strategies to reduce the risk of unintentional injuries to children (Cooper et al, 2012; Duperrex et al, 2009; Guyer et al, 2009; Kendrick, Barlow et al, 2008; Kendrick, Smith et al, 2008; Kendrick, Watson et al, 2008; Kendrick et al, 2009; Kendrick et al, 2012; Kendrick et al, 2013; a review for NICE, 2010d; Pearson et al, 2011; Turner et al, 2011; Young et al 2013).

### *Accidental injury*

Kendrick, Barlow et al (2008) reviewed 13 studies that evaluated the efficacy of 11 home visiting programmes (including seven RCTs), and two paediatric-based programmes (both RCTs) for improving parenting practices and reducing unintentional injury of children in the home. All participants in these studies were families with children aged 0-5 years, and the majority of families were identified as being at risk for negative child health outcomes. Home visiting interventions were typically delivered by

child health nurses, health visitors or social workers. A meta-analysis of the RCT evaluations found that intervention families had a significantly lower risk of injury compared with control families. Additionally, several studies identified fewer hazards within the home for intervention families. The authors concluded that parenting interventions, provided within home visiting interventions, can effectively reduce unintentional injury in young children.

Kendrick et al (2013) focused on parent education and training programmes aimed at reducing the risk of accidental injury to children. The review included 22 studies (16 RCTs, two non-RCTs, one partially randomised trial, two controlled before and after studies and one QED). The majority of interventions were delivered via home visiting, but some were provided from paediatric practices. Most were delivered during pregnancy or around the time of the child's birth and recruited parents with elevated risk of adverse child outcomes. Outcomes measured included self-reported or medically attended unintentional injury, the possession and use of home safety equipment, and safety practices (using the HOME inventory). A meta-analysis of 10 of the RCTs revealed a statistically significant lower risk of injury in intervention families compared with control families. Several studies found statistically significant fewer home hazards or a greater number of safety practices in intervention families. Ten studies measured scores on the HOME inventory and data from three studies were included in a meta-analysis, which found no evidence of a difference in the quality of home environment between treatment arms. The authors concluded that parenting interventions, most commonly provided within the home, are effective in reducing child injury, and that there is fairly consistent evidence that they improve home safety.

Guyer et al (2009) narratively synthesised over 200 studies (RCTs, QEDs, reviews, surveys, cost analyses) of interventions that promote health and prevent disease in preschool children within the domains of tobacco exposure, unintentional injury, obesity and mental health. In terms of injury prevention, the review found that the best interventions involve improving the characteristics/engineering of the home through law, regulation and design.

### *Thermal injuries*

Kendrick et al (2009) focused on home-safety education interventions aimed at reducing thermal injuries (eg burns and scalding) in families with children aged 0-19 years. In 14 of 24 studies, the intervention included the provision of safety equipment. Twenty-four studies were included in a meta-analysis (17 RCTs, three non-RCTs, four cost-benefit analyses), and outcomes measured included: rate of medically attended thermal injuries; possession of functional smoke alarm, fitted fireguard and fire extinguisher; keeping hot drinks or food; keeping matches and lighters out of reach; and having a safe hot water temperature. The results showed that home-safety interventions were effective in increasing the proportion of families with a functional smoke alarm and with safe hot tap water temperature. There was also some evidence

that the intervention increased the possession of fitted fireguards, but a lack of evidence that interventions reduced medically attended thermal injury rates.

### *Dog bites*

Duperrex et al (2009) reviewed educational programmes aimed at modifying the behaviour of children in the presence of a dog so as to prevent dog bite injuries. The review identified two studies, but only one (Wilson et al, 2003) targeted children in the 0-5 years age range. The intervention tested in this cluster-RCT study involved a single 30-minute educational session for 4-6 year-olds in kindergarten complemented by an information brochure for parents in the home. Children in the intervention group were reported to have increased knowledge and caution, but the link between the appropriate behaviour of children and the risk of being bitten was not addressed. The study was also considered to have several limitations regarding methodological quality and reporting. The authors concluded that there is a general lack of evidence about the impact of education to prevent dog bites in children and adolescents, and recommended further studies that look at dog bite rates after an intervention.

### *Poisoning*

Kendrick, Smith et al (2008) examined the effect of education and safety equipment on poisoning prevention practices and poisoning. The review included 18 studies (14 RCTs and 4 QEDs). The interventions included in the review were delivered by various people, including health professionals, paraprofessionals and lay workers, to children (aged 0-19, including 14 studies that focused exclusively on children under five years) and/or their parents/carers in hospitals, home or community, or through the mail. The results showed that home safety interventions improve poison-prevention practices such as safe storage of medicines and cleaning products.<sup>25</sup> Effects tended to be greater when free or discounted equipment was also provided (ie compared with educational interventions alone), and when the intervention was delivered in the home rather than a clinical setting. Only a few studies measured poisoning rates, and overall these showed no evidence of a reduction in poisoning rates. The authors concluded that although home safety education and the provision of safety equipment improve poison-prevention practices, the impact on poisoning rates is unclear.

### *Childhood falls*

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<sup>25</sup>Home safety interventions improve poison-prevention practices such as the safe storage of medicines and cleaning products, the possession of syrup of ipecac, and having poison control centre numbers accessible, but the impact on poisoning rates is unclear. [NEW]

However, it is not recommended in the UK for parents to give children syrup of ipecac to induce vomiting after the ingestion of poisonous substances, so the findings of the relevant reviews on this issue may therefore only be relevant to countries where it is still recommended that parents keep ipecac at home for such use. In addition, rather than having poison control centre numbers accessible, in the UK members of the public are recommended to call NHS 111.

Kendrick, Watson et al (2008) focused on the prevention of childhood falls at home. They reviewed home-safety interventions that provide home-safety education with or without free/low-cost/discounted safety equipment. The study included 14 RCTs, and seven QEDs. Of these 21 studies, 15 studies included only children under five years, while the remainder could include children and young people in the 0-19 years age range. The interventions all sought to increase fall-prevention practices and reduce fall-injury rates. They could be delivered to individuals or groups, children or families, by health or social care professionals, school teachers, lay workers or volunteers. Home-safety interventions were effective in increasing stair-gate use and reducing baby-walker use. However, the evidence did not show an increase in the possession of window locks, screens or windows with limited opening, or nonslip bath mats. Only two studies measured falls, and these found no effect on baby-walker related falls. The authors concluded that home-safety education and the provision of safety equipment improved some fall-prevention practices but the impact on fall-injury is unclear.

Young et al (2013) also focused on the prevention of childhood falls in the home. The review included educational interventions, safety equipment provision/availability/discount, counselling, and campaigns to prevent childhood falls in the home and to promote fall prevention practices. Of the 29 primary studies identified, all of which concerned children in the 0-19 age range, 19 focused exclusively on children aged 0-5 years. The review included 20 RCTs, eight QEDs and one cohort study. Only seven of 20 RCTs and five of the other nine studies found a significant reduction in falls or an increase in the use or possession of home safety equipment which includes, safety gates on stairs, non-slip bath mats, protective devices on table corners or bench tops and high chair harness. Three studies (none of which were RCTs) reported falls/fall-related injuries as an outcome, and only one of these (a cohort study) found the intervention to be effective. This study involved the provision of home safety information by health professionals and the infant's grandmother. The authors concluded that more research is urgently needed into the impact of interventions on reducing falls and falls-related injuries.

### *Home safety*

Pearson et al (2011) reviewed 19 interventions that supplied or installed home safety equipment within the family home. Twelve of these were evaluated by RCT or cluster-RCT. Home safety equipment included smoke alarms, electrical socket covers, stair guards and bath mats. It is important to note that the review was not limited to children aged 0-5 years. Only seven studies reported child injury outcomes (DiGuseppi et al, 1999; Mallonee et al, 1996; Watson et al, 2005; Kendrick et al, 1999; King et al, 2001; Cagle et al, 2006; Carman et al, 2006). A narrative review identified that only interventions that included an assessment of levels of risk in the home were successful at reducing child injury rates. In terms of installing equipment, interventions that were integrated into wider health programmes, often including home visiting and educational components where trusting relationships with households were formed, were more

successful in improving smoke alarm installation rates. The effectiveness of interventions for installing other safety equipment (eg stair gates) was found to be highly mixed, and the evidence suggests that rates always decrease after six months.

Kendrick et al (2012) reviewed 98 studies of interventions that provide families with home safety education, 56 of which were RCTs. Forty-one studies, some of which were RCTs, concerned interventions that provided families with low-cost or free home safety equipment. Forty-one interventions were delivered to families whose children were aged 0-5 only. However, the narrative review or meta-analysis does not specifically consider results for this age group. Intervention content included education on thermal injuries, poisoning and the use of home safety equipment. Relatively few studies reported on injury outcomes. There was no evidence that home safety interventions reduce rates of thermal injuries or poisoning, although some evidence suggests that they can reduce overall injury rates. Home safety interventions (specific advice and provision of/referral to safety equipment) were found to be effective in increasing the use of various safety practices (having a safe hot tap water temperature, a functional smoke alarm, having or practising a fire escape plan, storing medicines and cleaning products out of reach, having syrup of ipecac and the poison control centre number accessible<sup>26</sup>, having a fitted stair gate, not using a baby walker, using socket covers on unused sockets and use of fire guards). The review found mixed results for the provision of home safety equipment. Interventions that provide home safety equipment were found to be more effective at improving home safety practices than interventions that do not provide equipment. In contrast, the authors also found that interventions that do not provide equipment result in a greater reduction of child injury rates than interventions that do provide home safety equipment. The authors concluded that there is conflicting evidence regarding the provision of home safety equipment. They found no consistent evidence that home safety interventions are less effective in those at greatest risk (younger children, boys and those facing deprivation).

NICE guidance on preventing unintentional injuries among the under-15s in the home (2010d, guideline PH30) was based on two systematic reviews, one cost-effectiveness analysis, and fieldwork. The two reviews examined, respectively, (i) the effectiveness and cost-effectiveness of home safety equipment and risk assessment schemes, and (ii) barriers to, and facilitators of, the prevention of unintentional injury in children in the home. Evidence about barriers and facilitators is reflected later in this chapter (sections

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<sup>26</sup>Home safety interventions improve poison-prevention practices such as the safe storage of medicines and cleaning products, the possession of syrup of ipecac, and having poison control centre numbers accessible, but the impact on poisoning rates is unclear. [NEW]

However, it is not recommended in the UK for parents to give children syrup of ipecac to induce vomiting after the ingestion of poisonous substances, so the findings of the relevant reviews on this issue may therefore only be relevant to countries where it is still recommended that parents keep ipecac at home for such use. In addition, rather than having poison control centre numbers accessible, in the UK members of the public are recommended to call NHS 111.

on 'Identifying families in need of additional support', 'Implementation issues' and 'Workforce skills and training'). In terms of effectiveness, a range of results were found and it is not possible to summarise all of them here. As an example, however, there was strong evidence (from four RCTs) that the free or discounted supply of a range of safety equipment, in conjunction with safety education, increases knowledge about the prevention of poisoning and scalds. There was also moderate evidence (three RCTs) that the free or discounted supply of smoke alarms in conjunction with safety education increases the rate of installation of these devices. There was weak evidence that: the free or discounted supply of a range of safety equipment, in conjunction with safety education, increases the rate of installation of safety equipment as a whole (one RCT) and increases knowledge about the prevention of suffocation (one RCT); free home safety equipment (or its delivery) and installation with safety education increases the use of smoke alarms at 12 months (one RCT) and increases the safe storage at 12 months of cleaning products and sharp objects (one RCT). The evidence of effectiveness was inconsistent in a number of areas, including the impact of the free supply and installation of smoke alarms on rates of installation and rates of injury (two RCTs), and how a free or discounted supply of a range of safety equipment, in conjunction with safety education, affects knowledge about the prevention of fires, falls and wounds (three RCTs). It is important to note that evidence does not explicitly relate to children aged 0-5 years, although fieldwork conducted for the guidelines emphasised that children aged under five years have specific needs that are different to older children.

Turner et al (2011) reviewed the effectiveness of interventions that modify the home environment in terms of injury reduction. Of the 29 studies identified, nine included children in the 0-5 years age range. The interventions offered varied in content and intensity but included the provision of free/low-cost home safety equipment, advice/information, and home-based hazard-assessment. Of the five studies that reported on the outcome of injuries in children, only one reported significantly fewer injuries. None showed a significant reduction in medically attended injuries. Overall, the authors concluded that there is insufficient evidence to determine whether interventions that focus on modifying environmental home hazards reduce injuries.

Cooper et al (2012) reviewed 23 studies (17 RCTs and six QEDs) of interventions that promote the prevalence of smoke alarms or the use/maintenance of fire alarms in households with children. These interventions included education, low-cost/free equipment, fitting, home inspection (or a combination of some or all of these), and covered all children up to the age of 19 (no details were provided on the number of studies including children aged 0-5 years). The authors used a network meta-analysis and found that, compared with usual care, interventions that included education, the provision of equipment and home inspection were effective in increasing the household possession of a functioning smoke alarm. More intensive interventions that included fitting, in addition to education, the provision of equipment and home inspection were



most effective when compared with usual care. (They were most effective even when analysis was repeated considering only RCTs.) The authors also found that Ionization smoke alarms with lithium batteries were most likely to be the best type to increase possession of a functioning smoke alarm. The authors concluded that smoke alarm promotion programmes could provide the combination of interventions that is most likely to be effective.

## **Prevention of abuse and neglect**

All of the interventions identified under this category were targeted.

### *Parenting programmes*

Barlow et al (2008) reviewed one-to-one and group-based parenting programmes that target parents of children aged 0-19 years with a history of child physical abuse/neglect with a view to preventing its reoccurrence. The study included seven RCTs, several of which covered children in the 0-5 years age range. Only one study of Parent-Child Interaction Therapy (PCIT), for children aged 4-12 (Chaffin et al, 2004), showed an impact on the re-report of physical abuse. Another study, involving children aged 3-8 (Hughes and Gottlieb, 2004), showed that parenting programmes such as Incredible Years improve a number of aspects of parenting, such as parent autonomy, structure and involvement. A further study (Terao, 1999) revealed improvements in the number and intensity of child behaviour problems. The authors concluded that there is insufficient evidence to support the use of parenting programmes to reduce physical abuse or neglect (indicated by objective assessments of abuse, ie medical reports or placement of child on child protection register). They added that there is some, albeit limited, evidence that some parenting programmes improve outcomes associated with physically abusive parenting.

### *Home visiting*

Mikton and Butchart (2009) identified 17 systematic reviews examining the effectiveness of around 149 perinatal studies of home visiting programmes. These reviews produced somewhat diverse conclusions about the effectiveness of home visiting programmes in preventing maltreatment, with some reviews suggesting that they are effective (Daro and McKurdy 2007), some suggesting that there is no evidence of effectiveness (Sweet and Appelbaum 2004), and others highlighting problems in reaching any firm conclusion as a result of issues such as surveillance bias (Bull et al, 2004). Mikton and Butchart (2009) concluded that although there is evidence to suggest that home visiting programmes are effective in improving risk factors associated with abusive parenting, there is very limited evidence of effectiveness in terms of objective measures, mostly confined to 15-year follow-up of the Nurse Family Partnership, which showed a 48% reduction in actual child abuse.



Selph et al (2013) reviewed 11 RCTs of interventions aimed at reducing child abuse and neglect. Ten involved home visiting interventions in early childhood for children at risk of child abuse/neglect. The review found that home visiting interventions led to reductions in CPS (Child Protective Services) reports, accident and emergency visits, hospitalisations and self-reports of abuse, as well as improved adherence to immunisations, although the authors note some inconsistency in results across the programmes identified.

Peacock et al (2013) reviewed 21 RCTs of perinatal home visiting programmes delivered by paraprofessionals to disadvantaged families, notably those considered to be at risk for child abuse and neglect. The majority of the studies were from the US. Results were mixed. Home visiting programmes were associated with decreases in harsh parenting (most relevant for this chapter), improved cognition and language development in young children, reductions in low birthweight, improved weight-for-age in young children, and a reduction in child health problems. However, findings that were not statistically significant were much more common than significant ones. The authors concluded that home visitation by paraprofessionals holds promise for socially high-risk families with young children. Initiating the intervention prenatally and increasing the number of visits improves development and health outcomes for particular groups of children. They recommended that future studies should consider the most beneficial dose of the intervention and address retention issues.

Avellar and Supplee (2013) assessed a wide-variety of home visiting programmes serving pregnant women or families with children from birth to age five. It reviewed 32 programme models, including 207 impact studies (RCTs and QEDs) and 198 implementation studies, but focused on 12 that met specified criteria for being an evidence-based programme (set by the US Department of Health and Human Services). The interventions contributed to various positive outcomes, including improved birth outcomes, child development (cognitive, behavioural, social) and reductions in child maltreatment. Five of the six programmes for which the impact on child maltreatment was evaluated showed favourable effects. The authors concluded that home visiting programmes show promise as a way to work with high-risk families, also referred to as those who are difficult to engage in supportive services.

#### *Clinic-based interventions*

One RCT identified by Selph et al (2013) (Dubowitz et al, 2009) trialled a clinic-based risk assessment and intervention delivered by social workers to families of children aged five years and under. This intervention was associated with fewer CPS reports, episodes of physical assaults, delays and non-adherence to early immunisations than those in the control group three years after intervention.

### **Identifying families in need of additional support**

## Prevention of unintentional injury

In a review of parent education and training programmes to prevent unintentional injury (mostly delivered via home visiting, but some paediatric practice-based) Kendrick et al (2013) found that methods of identifying at-risk families include criteria such as: young age; single/first-time mother; history of child maltreatment; substance misuse; unemployment; and low socioeconomic status.

NICE (2010d) states that high-risk families as regards injury prevention include those in rented or overcrowded accommodation with high levels of turnover, and that young or poorly educated mothers may find it more difficult to anticipate changes in their child's development, which could pose different home safety risks. It also stated that culture may affect parents' awareness and conceptualisation of risks to child safety. Several barriers to child safety in the home were identified. With adolescent and immigrant families, for example, mothers may be concerned that asking about child injury or taking an unintentionally injured child to hospital will trigger child protection concerns. Similarly, with young parents living with extended family or those in rented accommodation there can be a lack of maternal autonomy to make household/financial decisions. People in vulnerable communities may also be suspicious of strangers coming into their home to assess the property or make free offers. The NICE (2010d) guidance recommends that families with children under five years, people living in rented or overcrowded conditions and on a low income, and properties that lack appropriately installed safety equipment/where hazards have been identified through the Housing Health and Safety Rating System, be considered 'priority households'. Surveys and existing data such as local council housing records along with needs assessments can be used to identify 'priority households' for home safety assessments and the supply and installation of home safety equipment. The guidelines recommend that local authorities, safeguarding children services, and health and wellbeing boards should prioritise households at greatest risk.

NICE (2010d) also recommends that GPs, midwives, social workers and health visitors who work with families with children under 15 years should provide child-focused safety advice and, if the family agrees, refer them to agencies that can conduct a home safety assessment and supply and install home safety equipment. It further recommends encouraging parents, carers and others living with children and young people under 15 years to conduct their own home safety assessment using an appropriate tool.<sup>27</sup>

## Prevention of abuse and neglect

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<sup>27</sup> NICE recommends tools provided by the Royal Society for the Prevention of Accidents and SafeHome.

The Selph et al (2013) review recommends that objective risk assessments are the best way to identify families at-risk of child abuse and neglect, due to the reluctance of parents to self-report risk factors and children's inability to do so, and that clinicians with contact with families during early child years (ie paediatricians, health visitors) are well-positioned to conduct these risk assessments. NICE provides guidance on when to suspect child maltreatment (NICE 2009a, guideline CG89), and the associated care pathway outlines the actions that health visitors should take if child maltreatment is suspected.

## **Implementation issues**

### **Prevention of unintentional injury**

The Kendrick et al (2008) review of home visiting interventions to improve parenting practices and reduce unintentional injury for children in the home recommends the routine integration of injury prevention strategies (eg training, access to equipment) within the wider objectives of the programme (see below). Effects tended to be larger when interventions were delivered at home rather than in a clinical setting.

The Ingram et al (2012) review included 57 studies assessing the implementation of injury prevention interventions for children aged under five years. It identified seven facilitators and six barriers to such implementation. Facilitators for successful implementation included: the intervention approach, such as home visits; the use of a focused message; requiring participants to make minimal changes; the provider's ability to develop a relationship with the family; the provision of safety equipment; the use of specific behaviour change models, including motivation techniques; and utilising incentives for participation.

Barriers included: cultural issues; socio-economic constraints; the use of complex interventions; deliverer constraints, such as the time needed for training or the need for high staff level; physical barriers, such as rented housing, or difficulty using safety equipment; and behavioural barriers, such as parental habits. The authors concluded that, in order to optimise outcomes, implementation should account for barriers and facilitators that are relevant to the context of the intervention, the intervention itself and the population. This and other reviews drew attention to the increased risk for families in rented accommodation and those who move frequently in terms of engaging with services/interventions or not being identified in the first place (NICE 2010d). NICE (2010d) recommends collaboration between agencies to improve the efficacy of home injury prevention.

NICE (2010d) recommends that education, advice and information about safety are provided during both a home safety assessment and the supply and installation of home safety equipment. Home safety assessments and interventions should be

followed up to see if there are any new requirements, and to assess whether the equipment installed is still functional and appropriate.

Also in relation to injury prevention, NICE (2010d) guidance recommends that the timing of when information is provided is important. One study cited found that new parents retain more information about child safety that is provided by a doctor some time after birth in contrast to immediately following birth. NICE also identifies the importance of addressing the cost of safety equipment: if the perceived cost is high, this can be a major barrier to its use, although families may also be suspicious about the provision of free equipment. Further barriers to implementation identified in the evidence underpinning the NICE (2010d) guidance included:

- adolescent mothers or mothers from immigrant families being worried that asking about a child injury or taking an unintentionally injured child to hospital will trigger child protection concerns
- some mothers lacking the autonomy to make household/financial decisions (eg young parents living with extended family, those in rented accommodation)
- people in vulnerable communities being suspicious of free offers or of strangers coming in to their home to assess the property

Training on the use and installation of safety equipment increases the likelihood of intervention efficacy. NICE (2010d) recommends that education, advice and information are given during a home safety assessment and during the supply and installation of home safety equipment. Home safety assessments and interventions should be followed up to see if there are any new requirements and to see if the equipment installed is still functional and appropriate.

The review by Turner et al (2011) of interventions to reduce risk of physical injuries in the home found that a single home visit was insufficient to encourage a lasting adoption of home safety measures.

## **Prevention of abuse and neglect**

In relation to abuse and neglect, Selph et al (2013)'s review of home visiting interventions to reduce child abuse and neglect and related health outcomes found that most statistically significant benefits were demonstrated by the trials with the more intense interventions, such as several nurse visits for 24 months or longer. In contrast, the Segal et al (2012) review of home visiting programmes to reduce child abuse and neglect as well as related health outcomes did not find individual programme components (eg mode of delivery, timing) that routinely predicted success. Rather, the most important feature of successful programmes was found to be the match between the target population, the theoretical foundation of the programme, and the components of the intervention.

## **Workforce skills and training**

### **Prevention of unintentional injury**

The Kendrick, Barlow et al (2008) review of home visiting interventions to improve parenting practices and reduce unintentional injury for children in the home noted that most effective interventions are delivered by trained healthcare professionals, such as social workers, child health nurses, qualified family support workers and family nurses.

Pearson et al (2011) noted that where home safety equipment requires skilled fitting, there is evidence that in socio-economically deprived communities installation by technicians is essential for the equipment to remain installed in the longer-term. NICE (2010d) cited one study that found that adolescent mothers struggle to deal with issues of blame, and therefore recommends that care providers try not to assign blame for the child's injury to the mother while at the same time challenging the idea that injuries are unavoidable.

NICE (2010e) recommends that relevant professional bodies (eg the royal colleges) develop professional standards (and curricula) for unintentional injury prevention. These should be incorporated into the professional skills and development programmes by all relevant organisations. Additionally, the wider childcare workforce, especially those working directly with children, young people and their families should be provided access to education and training in how to prevent unintentional injuries. Education and training should help participants to develop an understanding of the importance of preventing unintentional injuries, their consequences and preventive measures.

### **Prevention of abuse and neglect**

In relation to child abuse and neglect, Peacock et al (2013) noted the possibility that a lack of training could explain why some home visiting programmes delivered by paraprofessionals show few effects. The effectiveness of such interventions could be enhanced by providing lay home visitors with robust training and ongoing support.

## 10. Nutrition and obesity prevention

Good nutrition during infancy has multiple positive outcomes for health during childhood and later life, and breastfeeding is strongly associated with a range of health and wider (eg cognitive) benefits for the child. Adolescent mothers and women from socio-economically disadvantaged backgrounds are least likely to start or continue breastfeeding. Recent research has focused on identifying effective strategies for supporting breastfeeding decision-making for women in these groups, as well as supporting positive nutrition for all families. Nutritional habits formed in early life influence food choices and subsequent nutrition during childhood. Increasing rates of obesity, particularly in childhood, have given rise to a wide range of efforts to promote healthier eating increased physical activity amongst young children. Risk factors for obesity in children include diet, exercise, family history and socio-economic factors.

This chapter reviews antenatal and postnatal strategies to promote breastfeeding, and interventions to prevent and treat being overweight or obese during early childhood. The chapter concludes by reviewing key issues from the research in relation to the identification of families with additional needs, the implementation of interventions, and workforce skills and training.

### Antenatal

#### Promotion of breastfeeding

Four reviews (Lee et al, 2008; Lumbiganon et al, 2012; Moreton et al, 2012; Renfrew et al, 2012) examined the evidence of antenatal interventions to promote breastfeeding. (See Chapter 6 for evidence regarding Antenatal preparation for parenthood and Antenatal home visiting; and see Chapter 7 for Kangaroo Mother Care/Skin-to-Skin Contact).

#### *Individual and group breastfeeding support*

The review by Renfrew et al (2012) included 67 studies (including 54 RCTs) of individual and group breastfeeding support (both face-to-face and via the telephone) in the antenatal and postnatal period. When meta-analysed, all forms of extra support showed an increase in the duration of any breastfeeding (this includes partial<sup>28</sup> and exclusive<sup>29</sup> breastfeeding). All forms of extra support together also had a positive effect

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<sup>28</sup> Also known as mixed feeding, 'partial' breastfeeding refers to feeding that involves breastfeeding alongside water-based drinks, food-based fluid, semi-solid or solid food or non-human milk (see [http://www.who.int/maternal\\_child\\_adolescent/topics/child/nutrition/hivif\\_qa/abbrev/en/](http://www.who.int/maternal_child_adolescent/topics/child/nutrition/hivif_qa/abbrev/en/)).

<sup>29</sup> 'Exclusive' breastfeeding refers to when the infant receives only breast milk without additional food or drink (see [http://www.who.int/nutrition/topics/exclusive\\_breastfeeding/en/](http://www.who.int/nutrition/topics/exclusive_breastfeeding/en/)).

on the duration of exclusive breastfeeding. Extra support by both lay people and professionals had a positive impact on breastfeeding outcomes.

Moreton et al (2012) reviewed different types of public health intervention in the ante- and postnatal periods to promote safe and healthy feeding practices in babies born at term, up to about six months of age. The study included nine systematic reviews, 20 RCTs, and 14 corroborative UK studies. In a narrative synthesis it found that written information alone or in combination with formal interactive health education has a limited impact on breastfeeding initiation rates, and that there is a lack of good quality evidence on the impact of media activity on breastfeeding initiation and duration. However, peer support was found to have a positive impact on the initiation and duration of any and exclusive breastfeeding (although it was noted that results are not always statistically significant), and structured support from professionals was found to increase rates of exclusive breastfeeding. Other findings were that breastfeeding specialists successfully increase the duration of 'any' or 'exclusive' breastfeeding – at least in the short-term – and that antenatal classroom education and discussion has a positive effect on breastfeeding initiation. Group education on positioning and attachment was found to have a positive effect on the duration of exclusive breastfeeding.

#### *Antenatal breast examination*

Lee et al (2008) sought to identify RCTs on the potential of antenatal breast examination to promote breastfeeding, but no suitable studies were found.

#### *Antenatal breastfeeding education*

Lumbiganon et al (2012) examined the effectiveness of antenatal breastfeeding education for increasing breastfeeding duration, and included 19 RCTs, 16 of which contributed data to the analyses. One of the included studies (Wolfberg et al, 2004) found that peer counselling significantly increased breastfeeding initiation compared with routine care. However, in studies that compared different forms of breastfeeding education, no intervention was found to be significantly more effective than another in increasing breastfeeding initiation or duration. Combined breastfeeding education interventions were not significantly better than a single intervention in initiating or increasing breastfeeding duration, although one trial (Duffy et al, 1997) found that a combined breastfeeding education intervention significantly reduced nipple pain and trauma. Another study of a combined intervention reported a marginally significant increase in exclusive breastfeeding at six months in women receiving a booklet plus video plus lactation consultation compared with the booklet plus video only (Mattar et al, 2007). The combination of breastfeeding booklet plus video plus lactation consultation was also significantly better than routine care for exclusive breastfeeding at three months. Overall, however, the authors concluded that owing to significant methodological limitations and small effect sizes, it is not appropriate to recommend any specific antenatal breastfeeding education.



## Postnatal

### Breastfeeding

#### *Telephone support*

The review by Lavender et al (2013) of telephone support for women during pregnancy and the first six weeks postpartum included nine RCTs examining the effect of telephone support on breastfeeding initiation and duration (eight focused on support in the postnatal period). The authors concluded that results were inconsistent but that the evidence suggests that telephone support may increase the duration of breastfeeding.

#### *E-based interventions*

Pate (2009) included 21 studies (16 RCTs and 5 non-randomised trials with concurrent control groups) that examined the effectiveness of breastfeeding intervention delivery methods. The study compared the effectiveness of interventions to promote breastfeeding delivered online (e-based) and those delivered by healthcare professionals (provider-based). It found that e-based interventions had a moderate positive effect on breastfeeding, but provider-based interventions had very little or no effect. The author concluded that e-based interventions are effective and may be considered as an alternative to provider-based interventions, which are time-consuming and expensive. Provider-based methods with e-based components may also improve the likelihood of success.

#### *Support for breastfeeding in the workplace*

An updated Cochrane review (Abulwadud and Snow, 2012) found no RCTs or quasi-RCTs looking at workplace interventions to support and promote breastfeeding among women returning to paid work after the birth of their children.

#### *Promotion of breastfeeding in neonatal units*

Three reviews assessed interventions designed to promote or support breastfeeding in neonatal units (Beake et al, 2011; Jaafar et al, 2012; Renfrew et al, 2010).

Renfrew et al (2010) examined clinical, public health, and health promotion interventions to increase breastfeeding for infants in neonatal units, including skin-to-skin contact, peer support, staff training, and policy initiatives. Forty-eight studies were identified, but the paper focuses on a sub-set of 21 studies (15 RCTs, six before-after) addressing interventions tested in at least one good-quality or more than one moderate-quality study. Interventions that improved breastfeeding/breast milk consumption were skin-to-skin contact, simultaneous milk expression, peer support in hospital and the community, multidisciplinary staff training and UNICEF Baby Friendly accreditation of the associated maternity hospital. The authors concluded that breastfeeding/breast milk feeding is promoted by close, continuing skin-to-skin contact



between mother and infant, effective breast milk expression, peer support in hospital and community, and staff training. They added that the interventions inter-relate and seem likely to be less effective if implemented individually. However, the authors also noted that the applicability of studies to UK neonatal units is limited because most infants assessed were clinically stable and therefore likely to be untypical of infants in UK tertiary neonatal units.

The review by Beake et al (2011), which compared structured and non-structured breastfeeding programmes to encourage the initiation and duration of breastfeeding in acute and primary healthcare settings, included 26 studies: one RCT, two controlled trials, one cross-sectional study, two descriptive studies, 15 cohort studies and five systematic reviews. Most studies found a statistically significant improvement in breastfeeding initiation following the introduction of a structured breastfeeding programme (although effect sizes varied), and an impact on the duration of exclusive breastfeeding and duration of any breastfeeding to six months was also evident (although not all studies found statistically significant differences). Structured programmes include the international Baby Friendly Hospital Initiative (BFHI),<sup>30</sup> which is underpinned by the 10 Steps to Successful Breastfeeding (World Health Organization and UNICEF 1989), and country-specific programmes.

## **Prevention of obesity and overweight**

### *Diet*

Four reviews assessed interventions that attempt to promote a healthy diet (Bourke et al, 2014; D'Souza et al, 2008; Peters et al, 2012; Wolfenden et al, 2012).

Peters et al (2012) reviewed 17 RCTs that targeted parental knowledge of nutrition, or parenting skills, to promote healthy eating for children aged 2-5 years. Although longer-term interventions demonstrated more efficacy than short-term interventions in reducing fat/energy intake, the findings provided conflicting evidence about the effect of parental knowledge of nutrition on children's diets. In addition, there was limited evidence about long-term effectiveness due to a lack of follow-up in many studies. The authors concluded that there is a lack of high quality intervention research with parents of preschoolers that address parenting practices and skills.

Two reviews (Bourke et al, 2014; D'Souza et al, 2008) focused specifically on the promotion of a healthy diet in young children. D'Souza et al (2008) included eight reviews and eight further studies which focused on diet as a means of weight management and on the promotion of child health more generally, including the use of education, advice and counselling programmes to promote healthy eating, reduce food

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<sup>30</sup> The BFI is an accreditation programme from UNICEF. It works to improve standards of care by supporting breastfeeding and the parent infant relationship. (<http://www.unicef.org.uk/BabyFriendly/>)

allergies and intolerance, prevent diet-related caries and promote the uptake of iron rich foods. Interventions for parents of young children whether from professionals, paraprofessionals or trained peer supporters, were found to be successful in improving children's diet where they were intensive, incorporated behavioural theories, gave a clear message and were tailored to parents' educational level and family resources. Interventions for children aged 2-5 years were successful in improving children's acceptance of novel or previously disliked foods if they included behavioural approaches, avoided a didactic approach, used food-based activities and repeated exposure, included food tasting and offered choice rather than simple exposure.

Bourke et al (2014) evaluated the effectiveness of family-focused interventions that aim to increase daily fruit and vegetable consumption. Two of the five RCTs included children in the 0-5 years age range. One concerned children aged 4-9 years (Raynor et al, 2011) and evaluated two interventions: the 'decrease' intervention promoted restrictive dieting to reduce the intake of non-nutrient-dense, energy-dense foods, while the 'increase' intervention promoted the consumption of healthy food choices. Both interventions showed a statistically significant increase in fruit and vegetable consumption after six months compared with baseline, but the rise was not significant at 12-month follow-up. The second study (Burrows et al, 2008), which included 5-9 year-olds, also examined two interventions: one involved a parent-centred family lifestyle and food choice modification programme (PRAISE) and the other combined the PRAISE intervention with a child-centred physical activity programme (COMBINED). This study showed no significant change between baseline and 12-month follow-up, but it noted that the recommended servings per day of fruit and vegetables were already met at baseline and there was no negative change in fruit and vegetable consumption. The authors of the review noted that in both studies nutritional education was only delivered to the parents, and not directly to the children themselves, and suggested that the failure to deliver nutritional education to the children may be one reason for the apparent fall-off in increased fruit and vegetable consumption between six and 12 months. Overall, the authors concluded that narrow interventions focusing on single aspects of behaviour are unlikely to achieve long-term change in efforts to tackle obesity. Rather, a holistic approach is required which targets behaviour change in multiple aspects of children's lifestyles and their surroundings, including nutritional education, parental support and physical activity.

Wolfenden et al (2012) examined interventions for increasing fruit and vegetable consumption for children aged five years and under. The review included five RCTs examining specific feeding practices, home visiting and a preschool education intervention respectively. Overall results were disappointing, with studies showing no or at best, mixed effects. According to the authors, the review provides little specific direction for health policy makers and practitioners. Among those trials which significantly increased consumption, the effect sizes were small and intervention effects typically assessed only in the short term.

## *Exercise*

Five systematic reviews (Maniccia et al, 2011; Schmidt et al, 2012; Timmons et al, 2012; van Grieken et al, 2012; Wahi et al, 2011) and one review of reviews (Biddle et al, 2004) focused on interventions to increase physical activity and/or reduce sedentary behaviour and 'screen time'.

Timmons et al (2012) undertook a systematic review of the relationship between physical activity and health in 0-4 year-olds, covering the outcomes of adiposity, bone and skeletal health, motor skill development, psychosocial health, cognitive development, and cardiometabolic health indicators. It identified 18 studies, 11 of which concerned adiposity: three studied infants (all prospective cohort studies), one studied toddlers (prospective cohort), and seven studied preschool children (four RCTs, three prospective cohort studies). There was mixed evidence for the impact of activity levels in infants on adiposity measures. In preschool children, three of the four RCTs found no effect of a physical exercise programme on BMI or total body fat, while the fourth (a dance class) found no effect on the prevalence of obesity but protected girls (not boys) against gains in BMI. Three observational studies found associations between higher activity at baseline and subsequent measures of adiposity. The authors concluded that while there is evidence to support a positive relationship between increased or higher physical activity and favourable measures of adiposity, there is a need for more rigorous research designs in this age group, including high quality RCTs (eg larger samples, use of direct measures).

Biddle et al (2014) examined the effectiveness of interventions aimed at decreasing sedentary behaviours among children and adolescents. The review included 10 systematic reviews, five of which included meta-analyses. One of the reviews focused on children aged 0-5 years exclusively, and at least some of the others included children in this age-group (it is not known how many or what ages). Overall, interventions that focused on decreasing sedentary behaviour were associated with reduced time spent in these behaviours and/or improved anthropometric measurements such as body mass index (BMI) and body fat percentage (BF%). Where the effect size was reported, there was a small but significant effect in favour of sedentary behaviour reduction for intervention groups. Moderator analyses showed a trend favouring interventions with children younger than six years. Interventions directed at preschool children may be more effective because parents have more control over lifestyle behaviours at this age. Effective strategies identified by the review include the involvement of family, behavioural interventions, and electronic TV monitoring devices. The authors suggested that future research should examine interventions targeting different types of sedentary behaviours and the effectiveness of specific behaviour change techniques across different contexts and settings.

Maniccia et al (2011) reviewed 33 studies (RCTs, controlled trials, pre/post studies) aimed at reducing the screen time of children aged 0-18 years. Of these, 29 were included in meta-analysis. Two studies within this review focused exclusively on children aged under five years: one assessed parent training (Sege et al, 1997) and the other assessed an intervention to reduce television watching in childcare centres (Dennison et al, 2004). Six of the remainder focused exclusively on children in the age range 12-18 years, meaning that the others (21) were all for children in the 5-11 age range (and therefore relevant at the lower end). The overall meta-analysis showed a large short-term effect of interventions but a small long-term effect. However, a subgroup analysis for the two studies concerned only with 0-5 year-olds demonstrated no significant intervention effect in terms of reducing children's screen time. The authors argued for more research on the relevance and sustainability of effects, the effects of moderating factors, and identifying critical components of effective interventions.

Schmidt et al (2012) focused on strategies to reduce screen time among children aged under 12 years. The review included 47 studies (including 37 RCTs and 4 QEDs), 13 of which included children aged 0-5 years. Studies utilising electronic TV monitoring devices, contingent feedback systems, and clinic-based counselling were most effective. However, more work is needed on children aged 0-5 years.

Wahi et al (2011) examined studies of interventions that focus on reducing screen time. The review identified 13 RCTs involving children aged 3-11 years. A meta-analysis showed that overall the interventions led to no improvement with regards to BMI or screen time, although a sub-group analysis on preschool children showed a statistically significant reduction of screen time (3.72 hours per week). This sub-group analysis involved two trials, focusing respectively on a classroom-based health promotion curriculum (Dennison et al, 2004) and an automated monitor controlling screen time (Epstein et al, 2008).

Van Grieken et al (2012) reviewed school and home-based interventions designed to prevent excessive sedentary behaviour in children and adolescents and so prevent them from being overweight. They included 34 studies, 30 of which were RCTs. Meta-analysis showed statistically significant decreases in the amount of sedentary behaviour and BMI, although results look less promising if only looking at the six studies where the mean age was in the 0-5 years range. With this caveat in mind, the authors concluded that interventions in the school and general population setting aiming to reduce only sedentary behaviour and interventions targeting multiple health behaviours can result in significant decreases in sedentary behaviour.

#### *Diet and exercise*

Fourteen reviews focused on diet and exercise, including a narrative synthesis (Guyer et al, 2009), a review of reviews (Cislak et al, 2012) and 12 systematic reviews (Bleich

et al, 2013; Bond et al, 2009, 2010; Ciampa et al, 2010; Gerards et al, 2011; Hesketh and Campbell, 2010; Hillier-Brown et al, 2014; Hoelscher et al, 2013; Kuhl et al, 2012; Monasta et al, 2010; Showell et al, 2013; Skouteris et al, 2011; and Waters et al, 2011).

Bleich et al (2013) evaluated community-based interventions designed to prevent obesity among children and adolescents aged 2-18 years. The nine studies that were included (5 RCTs, 4 QEDs) focused on interventions based in the community, school or home (or a combination of these). The authors concluded that a combined diet and physical activity intervention within the community, providing there is a school element, is the most effective intervention. However, only three studies included children in the 0-5 age range, two of which also included much older children. One study, however, focused on 2-3 year-olds with a follow-up of 48 months (De Silva-Sanigorski et al 2010). The 'Romp and Chomp' intervention sought to reduce obesity and promote healthy eating and active play in children aged 0-5 years and included community capacity building and environmental (political, sociocultural, and physical) changes to increase healthy eating and active play in early-childhood care and educational settings. A large quasi-experimental study (c.30,000 participants) found statistically significant results favouring the intervention group for BMI (3.5-year-old subsample only) and for prevalence of overweight/obesity in (both 2- and 3.5-year-old subsamples). There was also significantly lower intake of packaged snacks, fruit juice and cordial.

Kuhl et al (2012) included 11 RCTs evaluating the effectiveness of interventions including parent/child education and family-based behavioural management programmes for children aged 2-5 years and their families. The results indicated that family-based behavioural management programmes effectively reduce children's calorie intake, and that multi-component treatment interventions may be more effective than prevention programmes in weight management for obese preschoolers. Components of interventions that show promise include decreasing preschoolers' screen time, decreasing consumption of high fat/calorie drinks/foods, increasing physical exercise, increasing sleep, modifying parental attitudes to feeding and encouraging authoritative parenting. However, the authors concluded that further research is necessary to identify the way in which the intervention components are related, and to identify causal links to weight management. They also concluded that prevention programmes have yielded modest success in slowing weight gain in preschool children across all weight categories, but may not be sufficient to address established obesity in that age group. Direct intervention to reduce established obesity, on the other hand, has more consistent promise.

Guyer et al (2009) narratively synthesised over 200 studies (RCTs, QEDs, reviews, surveys, cost analyses) of interventions that promote health and prevent disease within the domains of tobacco exposure, unintentional injury, obesity and mental health of preschool children. They found that the evidence regarding the effectiveness of

childhood obesity interventions is unclear because very few interventions have targeted obesity prevention in this age group (at least at that time).

Cislak et al (2012) included 18 systematic reviews (covering 375 experimental trials) which generally supported the effectiveness of reward/positive reinforcement parental strategies, parental involvement in programmes, and CBT in reducing child/adolescent body mass and/or obesity. The review excluded studies of interventions solely for children aged 0-4 years, so findings are relevant only for children aged four years and above (included here because the present review covers children in the age range 0-5 years). The results provided evidence that parental involvement increases the effectiveness of obesity prevention, and can be increased by teaching parents reward/reinforcement strategies and other behavioural or cognitive strategies, and through participation in family counselling. Results also indicated that the healthy nutrition of children/adolescents was related to parental monitoring and several behaviour-specific family variables (eg high intake of healthy foods and low intake of unhealthy foods by parents and siblings, low pressure to consume foods, and a lack of restrictive control over food choices).

Skouteris et al (2011) included 11 studies targeting parental risk factors for obesity (eight RCTs, one non-randomised controlled trial, one QED, and one pre/post). The review included diverse types of interventions (individual and group-based parent education programmes, variation among topics covered, and variation in the medium of delivering information, ie newsletters and classes). Only six studies measured child weight, and only three of these measured child weight pre- and post-test. Three of the six studies that measured child weight before and after intervention found positive significant outcomes favouring the intervention group on child weight/BMI. Four studies reported significantly decreased energy intake. Although some studies targeted parental variables (eg role modelling), they did not assess whether such variables mediated child weight change. Most interventions that targeted parental variables had at least one positive outcome, but the inconsistency among outcomes measured and reported across the 11 studies limits the possibility of identifying which interventions are most effective, and which parental variables are worth targeting.

Ciampa et al (2010) focused on interventions that target dietary behaviours and/or physical activity in children younger than two years in order to prevent or reduce overweight and obesity. The 10 studies (three RCTs, two QEDs, three cohort studies and two pre/post studies) included in the review were deemed by the authors to be of poor or fair quality. The results showed that interventions had modest success in affecting measures such as dietary intake and parental attitudes and knowledge about nutrition, but no intervention improved child weight status (this was examined in five studies). The authors concluded that few published studies attempt to intervene among children younger than two years to prevent or reduce obesity. They added that there is limited evidence that interventions may improve dietary intake and parental attitudes

and knowledge about nutrition for children in this age group, and suggested that in order to achieve clinically important and sustainable effects future research should focus on designing rigorous interventions that target young children and their families.

Hillier-Brown et al (2014) reviewed studies of the effectiveness of interventions, both targeted and universal, in reducing socio-economic inequalities in obesity-related outcomes amongst children. The review included 23 studies, the majority of which were from the US and included children aged 6-12 years (some studies included children in the 0-5 years age range). At the individual level (n=4), there was indicative evidence that screen time reduction and mentoring health promotion interventions could be effective in reducing inequalities in obesity. Two of the three individual-level interventions that included children aged 0-5 years (including a nutrition and physical activity intervention for children who were obese or at risk of obesity, and a physical activity intervention for children at risk of obesity) reduced BMI for low-income but not for high-income children, having a positive impact on obesity-related inequality. The third study, which included a primary care obesity management programme, and counselling on diet and physical activity by a GP, did not have any effect on BMI, waist circumference or prevalence of overweight/obesity. Evidence was inconclusive for the community level interventions (n = 17), with some but not all studies suggesting that school-based health promotion activities and community-based group-based programmes are effective in reducing obesity. For example, a community-level nutrition and physical activity intervention which included children under five years only found no impact on BMI, while another intervention in preschools that included changes to the school's environment to encourage physical activity along with the provision of healthy snacks, nutrition education and exercise sessions, found some beneficial intervention effects overall after 9.5 months in terms of body fat and waist circumference (but not BMI or prevalence of overweight). The authors concluded that there was no evidence that any of the intervention types increase inequalities; indeed several studies found that interventions could at least prevent the widening of inequalities in obesity.

Waters et al (2011) evaluated the effectiveness of interventions to prevent child obesity. It examined measureable physical differences (notably BMI) but also changes in behaviour and sedentary non-activity. Fifty-five trials were included (47 RCTs, seven non-randomised control studies), seven of which concerned children aged 0-5 years. Overall, the authors concluded that there is strong evidence to support the use of prevention programmes in relation to BMI, especially for children aged 6-12 years, although a meta-analysis also showed a positive impact for 0-5 year-olds. The authors sought to highlight the most promising practices, including parent support and home activities that encourage children to be more active, eat more nutritious foods and spend less time in screen-based activities, and action to improve the nutritional quality of food in school and increase opportunities for physical activity throughout the school week.

A review (Hoelscher et al, 2013) of primary, secondary and tertiary interventions to prevent and treat obesity concluded that multi-component interventions are most effective for primary prevention, meaning that early childhood and school-based interventions should integrate behavioural and environmental approaches that focus on dietary intake and physical activity. The review included programmes for children aged 2-18 years (the findings are not presented based on age). Interventions for preschool children were mostly held in the home or childcare settings, and emphasised nutrition and physical activity. For children under five years, the authors recommended the active participation of a caregiver and the close monitoring of weight goals.

Hesketh and Campbell 2010 reviewed 23 studies (including 15 RCTs). The studies evaluated interventions aimed at preventing obesity in a variety of settings (home, childcare, primary care, in groups and a mixture of all these) in children under five years of age. Most were conducted in preschool/childcare (n = 9) or home settings (n = 8), and approximately half targeted socioeconomically disadvantaged children (n = 12). The outcomes measured were wide-ranging but generally concerned BMI, physical exercise, types of food consumed (specifically vegetables) and the nutritional value of foods consumed. Although overall the quality of included studies was high, several of the studies reported were rated as lower quality as they were not well reported. The authors found that interventions that promoted exercise programmes were not effective in reducing BMI, although there were mixed results for the Hip Hop Jnr. programme for African-American children. Interventions focusing on diet were more successful, particularly when they took place in the home. Such interventions were deemed successful if they resulted in a better diet, such as a reduction of sweet intake. Results for group-based and mixed-setting interventions appear to be positive but were not statistically significant according to the authors. It was concluded that interventions that attempt to change behaviours that create obesity were not successful. However, using a combination of settings and focusing upon diet alongside physical activity might be beneficial.

Monasta et al (2010) reviewed seven RCTs evaluating interventions designed to prevent overweight and obesity in children under five years of age. Four evaluations were based within preschools: two combined nutrition education sessions for children and physical activity sessions, one provided interactive learning sessions for children, and the last provided physical activity sessions for children. A further two studies were based within the home: one evaluation which was not exclusive to children under five focused on the effect of family-based counselling, while a second study provided maternal education in combination with parenting support. The remaining study evaluated the effect of providing hospital-based medical staff with training designed to promote breastfeeding. None of the interventions demonstrated a significant impact on child weight. The authors suggested that the lack of intervention effect was partly due to the low overall quality of the studies in the review, in addition to poor intervention implementation. However, they also suggested that the lack of effect may be due to a



lack of focus within interventions on the social and environmental factors which impact lifestyle and consequently overweight and obesity.

Showell et al (2013) reviewed six RCTs of home-based interventions designed to prevent childhood obesity, two of which included children in the 0-5 age range. One study evaluated a 52-week behavioural and environmental intervention to prevent weight gain among entire households, and included children aged 5-17 years. The second study evaluated a 14-week family-based intervention (parent-child dyads) for 3-5 year-olds designed to increase fruit/vegetable intake, decrease fat intake, reduce television viewing, and increase physical activity. Both studies reported an increase in fruit and vegetable intake, but there were no differences between the intervention and control groups in amount of physical activity, television viewing, or general screen time, and neither found significant beneficial effects in terms of BMI, weight, or prevalence of overweight/obesity. Based on all studies, the authors concluded that there is no strong evidence to support home-based interventions to prevent child obesity, and that further research is needed.

Bond et al (2009, 2010) reviewed weight management schemes for children aged under five that are designed to maintain appropriate weight and/or achieve weight loss and/or manage weight gain. They included four RCTs, covering three interventions with diet and physical activity components and one focused on physical activity. Two had preschool and home components, and two were based at home and kindergarten respectively. Although there was some evidence of positive trends, studies showed no statistically significant differences in weight measures between the intervention and control groups with the exception of a subgroup in a trial of Hip-Hop Jr. trial (African-American sites). This intervention involved diet and physical activity components in preschool plus educational components at home. Based on an analysis of what did and did not work, the authors concluded that future interventions should consider a number of elements, including: effective training for staff involved in the delivery of the intervention, cultural sensitivity, sustained moderate to vigorous physical activity, nutritional education for children, active engagement of parents/carers as participants and role models of a healthy lifestyle, combined with education about healthy diets and exercise.

Gerards et al (2011) studied the impact of general parenting programmes which include lifestyle components, such as physical activity and nutrition, on preventing or treating childhood obesity. The review included seven studies (five RCTs) and found a small-to-moderate effect on weight-related measures in all of them (three of the studies included children in the 0-5 years age range). The authors concluded that there is evidence to suggest that general parenting interventions provide an effective strategy for the management of childhood obesity.

## Reduction of overweight or obesity

Reviews of the effectiveness of lifestyle weight management for overweight and obese children found limited evidence about what is effective with children under the age of six years.

Ho et al (2012) identified 38 RCTs of lifestyle interventions aiming to reduce obesity and overweight in children. Overall, the authors concluded that lifestyle interventions can lead to improvements in weight and cardio-metabolic outcomes. However, only five of the studies included children in the 0-5 years age-range. One of these (Shelton et al, 2007) included children aged under five years (it focused on 3-10 year-olds). This showed a significant impact on BMI. A further four studies in the review included children aged five years in the lower end of a wider age-range (Hughes et al, 2008; McCallum et al, 2007; Rooney et al, 2005; Wake et al, 2009). None of these found a positive effect on weight loss.

Knowlden and Sharma (2012) reviewed studies of family and home-based interventions targeting overweight and obese children aged 2-7 years. The majority of the programmes incorporated educational sessions targeting parents as the primary mode of intervention delivery. Nine RCTs were included, six of which included children in the 0-5 years age range (aged three years and over). Of these, five showed a positive effect on BMI and/or energy intake. Two found a statistically significant reduction in children's BMI and energy intake relative to a control group – a parent group (Shelton et al, 2007) and a multiple component intervention that included home visits (in which home therapists removed high-calorie/low-nutrition foods) and a supply of vegetables (Stark et al, 2011), although both studies were small. Another RCT had three arms, comparing a parent-centred dietary-modification programme, a child-centred physical activity skill development programme, and a combination of both. All three groups showed reduced BMI scores at 12 and 24 months, with the parent programme showing the strongest effect at 24 months (Collins et al, 2011; Okely et al, 2010).

Oude Luttikhuis et al (2009) examined the efficacy of lifestyle, drug and surgical interventions for treating obesity in childhood. They included 64 RCTs, 54 of which concerned lifestyle interventions (meaning a focus on diet, physical activity or behaviour change). Only five studies included children in the 2-5 years age range, all of which were lifestyle interventions. The authors noted that studies in the review varied greatly in intervention design, outcome measurements and methodological quality. They concluded that while there is limited quality data to recommend one treatment programme over another, combined behavioural lifestyle interventions compared with standard care or self-help can produce a significant and clinically meaningful reduction in overweight in children and adolescents.

Whitlock et al (2010) examined the benefits and harms of behavioural and pharmacologic weight-management interventions for overweight and obese children and adolescents. None of the pharmacological interventions reviewed are relevant for this current review as they all concern children aged 12-18 years. The authors concluded that the available research supports at least short-term benefits of comprehensive medium- to high-intensity behavioural interventions in obese children and adolescents. However, it should be noted that only three studies of behavioural interventions included children aged 4-5 years (as part of a wider age-range); all were low intensity and none showed an overall positive effect on weight outcomes.

NICE guidance on managing overweight and obesity in children and young people (NICE 2013, guideline PH47) focused on lifestyle weight management services for overweight and obese children and young people aged under 18 years. Although some studies in the evidence reviews that underpinned it were of programmes with a lower age limit of 3-5 years, NICE stated that no evidence was identified about the effectiveness of programmes aimed specifically at children under six years.<sup>31</sup> Overall, the evidence suggested that whole family interventions can be effective in reducing BMI in overweight and obese children. The guidance recommends that interventions should be multi-component, meaning that they should focus on: diet and healthy eating habits; physical activity; reducing the amount of time spent being sedentary; and changing the behaviour of the child and all close family members. Nine core components were identified, including (amongst others): behaviour change techniques; parenting skills training; an emphasis on all family members eating healthily and being physically active, regardless of weight; and tailoring the plan to meet individual needs (accounting for the child's age, gender, ethnicity, cultural background, economic and family circumstances, any special needs and how overweight or obese they are). The latter should include helping the family to set goals, monitoring progress against them and providing feedback.

## **Addressing infant feeding problems**

Carr (2009) reviewed reviews (systematic reviews and meta-analyses) and individual studies (controlled and uncontrolled studies) of systemic interventions that included family therapy and other family-based approaches aimed at ameliorating family functioning to resolve problems in infancy and beyond. The majority of interventions involved children of primary school age and beyond. Two reviews and one individual study were conducted with children under five years. One individual study found that family-based behavioural problems are particularly effective in resolving food refusal,

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<sup>31</sup> NICE stated: 'The absence of such programmes from the recommendations is a result of this lack of evidence and should not be taken as a judgement on whether or not they are effective and cost effective'. NICE guidance on the identification, assessment and management of overweight and obesity in children, young people and adults (NICE 2014d, guideline CG189), which include children aged two years and above, does make reference to lifestyle interventions in relation to children.

self-feeding difficulties and other problems relating to infant feeding. One systematic review concluded that family-based behavioural programmes are effective in ameliorating severe feeding problems.

## **Identifying families in need of additional support**

### **Promotion of breastfeeding**

Only one review (Moreton et al 2012) identified strategies to identify women who may need additional support with breastfeeding; this recommended using home visits to identify concerns with breastfeeding.

### **Prevention /reduction of overweight and obesity**

Universal healthcare checks in the early years provide an opportunity for health professionals to identify families who may need additional support with healthy nutrition, including during health visits for children between two and three years; for older children, similar opportunities arise at immunisation and school entry checks (D'Souza et al, 2008).

A number of studies within the Oude Luttikhuis et al (2009) review identified families at need for targeted interventions through BMI screening, for example screening all pupils within a school (which could include some 4-5 year-olds). The Institute of Medicine has called for universal BMI screening within school settings; however, this suggestion has proved controversial (Hoelscher et al, 2013).

In a review of obesity in preschool children, Kuhl et al (2012) found that families from minority ethnic backgrounds and low-income populations demonstrate the lowest rate of identification of preschool children as obese, and therefore may not request or engage with additional support from services. It is acknowledged that programmes to address child overweight and obesity may not be as effective if the family does not recognise that the child is obese.

NICE (2009b) guidelines on promoting the physical activity of children and young people noted that some groups may need special consideration because their circumstances limit access and opportunities to physical activity, including those in care, children of asylum seekers, home-educated children and children not attending early years services.

NICE (2013) guidance recommends that when health professionals (including health visitors, children's community nurses, dietetic teams, GPs, primary care teams, obesity specialists, paediatricians, school nurses and school healthcare teams) have concerns about a child's weight, they should weigh them in light clothing on clinically approved,

regularly calibrated scales. In children older than two years, height should be measured using a stadiometer. For children aged four years and older the UK growth charts should be used to determine BMI centile for the child's age and gender, while the UK-WHO 0-4 growth chart should be used to determine if children younger than four are a healthy weight.

NICE (2013) further recommends that health professionals (as above) should tell the parents or carers of children and young people who have been identified as being overweight or obese about local lifestyle weight management programmes.<sup>32</sup> They should explain what these involve and how they can take part. If referral to a lifestyle weight management programme is clinically appropriate, and the family accepts that the child is overweight or obese, NICE recommends: explaining the benefits of the programme and the risks of not addressing child's weight; identifying and addressing fears/concerns; providing information about the programme and expectations of results; and, if the family is ready, making the referral. If the family is not ready, it recommends telling them that they can self-refer later, to offer a follow-up appointment in 3-6 months' time, and to provide or point to information on healthy eating, physical activity and reducing sedentary behaviour. If children need specialist support to manage their weight, they should be referred to specialist obesity services.

## **Implementation issues**

### **Promotion of breastfeeding**

The review by Moore et al (2012) of early skin-to-skin contact for mothers and their healthy new-born infants identified specific barriers to its effective implementation in the context of breastfeeding promotion, notably room temperature, lack of privacy and maternal modesty.

Renfrew et al (2012) review on individual and group breastfeeding support (included both face-to-face and via the telephone) concluded that the promotion of breastfeeding is likely to be effective in settings with high initiation rates, so efforts to increase the uptake of breastfeeding should be in place. Although support may be offered by professional or lay/peer supporters, or a combination of both, strategies that rely mainly on face-to-face support are more likely to succeed. Support that is only offered when women seek help is unlikely to be effective; women should be offered ongoing visits on a scheduled basis so they can predict that support will be available. Support should be tailored to the setting and the needs of the population group.

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<sup>32</sup> It is important to note the lack of evidence for the effectiveness of lifestyle weight management interventions pertaining specifically to children aged under six years – see above.

NICE guidance on maternal and child nutrition (NICE 2008, guideline PH11) recommends a co-ordinated programme of interventions across different settings to increase breastfeeding rates (including awareness of the benefits, information about the barriers and how to overcome them, training for professionals, peer support programmes, education and information for pregnant women on how to breastfeed, proactive support during the postnatal period, and implementation of a structured programmes that encourage breastfeeding – with the UNICEF ‘Baby Friendly Initiative’ as a minimum standard). NICE (2008) further recommends that midwives and health visitors ensure that pregnant women and their partners are offered structured breastfeeding information and support on an individual or group basis by a trained person, and that in individual antenatal consultations GPs, midwives and obstetricians encourage breastfeeding (especially with those least likely to breastfeed, such as young mothers, or those with low education or from disadvantaged groups). Midwives and health visitors should promote informal group sessions in the last trimester of pregnancy on the subject of how to breastfeed effectively. Additionally, NICE (2008) recommends that prior to a mother leaving hospital (or a birth centre, or the home in the case of a home birth), midwives and health visitors should ensure that a mother can demonstrate how to position and attach the baby correctly and identify signs that the baby is feeding well. They should provide continuing and proactive support at home and provide contact details for voluntary organisations that can give extra support. Last, NICE (2008) recommends that service commissioners and managers of maternity and children’s services should provide accessible breastfeeding peer support programmes and ensure that peer supporters are adequately trained and receive ongoing support as part of a multidisciplinary team.

## **Prevention / reduction of overweight and obesity**

A review of interventions to prevent obesity in children aged 2-7 years concluded that parents should be the primary agent of change but noted that the recruitment and retention of parents to, for example, face-to-face educational sessions can be challenging owing to time commitments (Knowlden and Sharma, 2012). The authors suggested that alternative methods of programme delivery may be more convenient for parents, such as online learning or engagement over social media. Online learning may reach more people at a lower cost (Pate, 2009).

A specific barrier to implementing environmental nutrition interventions (that attempt to change factors such as cultural or social environments) is the difficulty of collaboration with agencies outside the healthcare sector (Monasta et al, 2010). Support from the wider community is associated with intervention efficacy (Bourke et al, 2014). No specific strategies to increase community support were identified. Facilitators for community support should reflect that overweight and obesity is unevenly distributed within society and disproportionately affects disadvantaged groups (Woodman et al, 2008).

NICE guidance on promoting physical activity for children and young people (NICE 2009b, PH17) recommends multi-component physical activity programmes in school (ie for children aged four years and older), including education and advice to increase the awareness of the benefits of physical activity and to give children and young people the confidence and motivation to get involved. It also recommends creating a more supportive school environment, including new opportunities for physical activity during breaks and after school. Active school travel plans are also recommended. For children aged up to 11 years NICE (2009b) recommends that practitioners (including early years providers, children's centre staff and childminders) provide a range of indoor and outdoor physical activities for children on daily basis. Activities should: be tailored to the child's developmental age and physical ability; be inclusive, progressive and enjoyable; and develop the child's movement skills (eg crawling, running, climbing) as well as include more advanced options (eg swimming, dancing).

NICE (2009b) also makes recommendations about how health practitioners and others who have regular contact with children and their parents and carers (eg early years providers) can encourage families to be physically active, for example by: making them aware of government advice that children should undertake a minimum of 60 minutes moderate to vigorous physical activity a day; providing information and advice on the benefits of physical activity, and examples of local opportunities; and encouraging parents and carers to get involved in physical activities with their children, to use active modes of travel for local journeys, and to act as a role model by incorporating physical activity into daily life.

Within the caveat, as indicated above, that there is a lack of evidence on the effectiveness of lifestyle weight management interventions for children aged under six years, NICE (2013) identifies a number of facilitators for engaging parents in lifestyle weight management programmes including:

- ensuring venues are convenient and accessible for families
- providing programme sessions at a convenient time, such as evenings or weekends
- using flexible forms of delivery, such as rolling programmes, to enable parents to meet other commitments
- identifying a specific team of members of staff who deliver the programme
- maintaining regular contact with parents, and following up with those who do not attend sessions



## **Workforce skills and training**

### **Promotion of breastfeeding**

A review of structured and non-structured breastfeeding programmes by Beake et al (2011) and a review by Monasta et al (2010) provided further robust evidence for the UNICEF Baby Friendly Hospital Initiative. This involves training all healthcare staff (eg paediatricians, nurses, midwives) in direct contact with mothers during the perinatal and postnatal period on breastfeeding promotion.

NICE (2008) recommends that health professionals who provide advice and support to breastfeeding mothers should have the required knowledge and skills, and that support workers are also adequately trained and receive ongoing support.

### **Prevention / reduction of overweight and obesity**

Interventions that involve physical activity must be delivered by trained staff (Bond et al, 2009; Bond et al, 2010) to ensure intervention efficacy; untrained staff may be considered to be a barrier to effective implementation. Appropriate training to deliver interventions in the area of preventing paediatric overweight and obesity is essential (Hoelscher et al, 2013), particularly for interventions involving age-appropriate physical activity (Bond et al, 2009; Bond et al, 2010; also Hesketh and Campbell, 2010). The review by Bond et al (2009) suggested that unequal gains from interventions within participant groups may, in some instances, have been due to differences in delivery caused by training quality (Bond et al, 2009). The most successful initiative to reduce BMI identified by the review (the Hip Hop Jnr. project) included effective training for staff.

NICE (2009b) guidelines on promoting physical activity recommend that organisations should offer Continued Professional Development (CPD) programmes for intervention providers, and enable staff to: give children/ young people advice that accounts for their specific needs; motivate to children/ young people be active by giving them confidence in their abilities; and understand barriers to families/children taking part in physical activities.

NICE (2013) recommends that health professionals (including health visitors) are trained in how to make referrals to a lifestyle weight management programme (see earlier caveat about effectiveness for children aged under six years). This should ensure that they: understand why some children may have difficulty managing their weight; are aware of cultural issues; can accurately measure and record height and weight and determine BMI centile; can raise the issue of weight management confidently and sensitively; are familiar with the local obesity care or weight management pathway; can assess whether referral to a lifestyle weight management



service is appropriate; can identify suitable lifestyle weight management programmes; and can provide children and families with information and ongoing support.

NICE (2013) also recommends that staff who provide lifestyle weight management programmes (see earlier caveat about effectiveness for children aged under six years) are trained to deliver the specific programme commissioned and are experienced in working with children, young people and their families. Relevant workforce skills to enable the delivery of nutrition/child weight interventions include:

- knowledge in the areas of managing child obesity, diet, physical activity, parenting, and food preparation
- ability to deliver knowledge to parents, children, and young people
- ability to empathise and communicate effectively with families
- work collaboratively with families
- ability to tailor interventions based on individual needs
- ability to lead group work and set an appropriate pace
- ability to judge changes in behaviour, and when these have been embedded
- provide constructive feedback
- ability to help families identify reasons for relapse and address these with problem solving techniques

NICE (2013) recommends that any gaps or lack of confidence in staff knowledge or skills are addressed through appropriate training.

## **Additional primary studies**

This section summarises the results of a search for primary studies that have evaluated the effectiveness of interventions aimed at preventing obesity in children aged 0-3 years and that were published between 2009 and 2014 and have not been summarised in existing reviews presented earlier in this chapter.

A total of 11 studies that included children in this age group (included as part of a wider age range) were identified, one of which (Taveras et al, 2011) was a non-randomised trial and therefore not further described here (but included in Appendix C). The results for the 10 RCTs have been organised below according to the focus of the intervention in terms of timing (ie antenatal or postnatal) and content (ie media-based initiatives; home visiting programmes; group-based programmes; multi-component programmes; and anticipatory guidance).

## **Media-based initiatives**

The intervention in the Kids and Adults Now-Defeat Obesity! (KAN-DO) study focused on postpartum mothers who had multiple children and who were overweight prior to the birth of their newborn child. It aimed to impact on the weight of their child (aged 2-5

years) through the use of information packs with details about the importance of meal routines, home environments and role modelling. Ostbye et al (2012) conducted an RCT in the US involving 400 mother- preschool child dyads in order to evaluate the intervention. The results showed no effect of the intervention for child weight or dietary outcomes. Only two of 18 maternal outcomes showed significant effect: the intervention led to reduced levels of mothers using food as a reward, and lower levels of snacks eaten in front of the television, when compared to the control condition.

## **Home visiting programmes**

Three studies evaluated the effectiveness of interventions focused on educating parents about the risks of a poor diet and the importance of a healthy lifestyle using home visiting (Barlow et al, 2012; McGowan et al, 2013; Wen et al, 2011; 2012).

The EMPOWER intervention was targeted at obese mothers and their infants and comprised a home-based partnership model of working with families to improve family lifestyle and prevent obesity. The intervention consisted of between six and eight parent-led home visits by a trained health visitor, each lasting approximately an hour, within the first 16 months of life. A feasibility RCT in the UK involving 62 mother-infant dyads found no intervention impact on infant weight z-scores or mother-child feeding behaviour during mealtimes. While the intervention was liked by participants, and of the 277 goals set most were rated as highly or partially successful (250 by the health visitor, 231 by parents), the authors concluded that it is unlikely to affect weight change for mothers or infants and should be adapted using a more structured format that focuses on key behaviour changes (Barlow et al, 2012).

The Healthy Beginnings one year home visiting programme (Wen et al, 2007) aims to provide parents with improved information about infant feeding practices, eating habits, and active play, and to reduce TV viewing time, as well as improve family behavioural risk factors for childhood obesity. The intervention aims to reinforce the key messages recommended in Australian national guidelines: Breast is best; No solids until six months; Only water in my cup; I eat a variety of fruit and vegetable every day; I am part of an active family; TV away; and Let's go play. An RCT involving 667 participants in socially and economically disadvantaged areas of Sydney, Australia, was conducted by Wen et al (2011; 2012) to measure its success. Wen et al (2011) assessed outcome immediately post intervention – the women in the intervention group showed increased duration of breastfeeding, later introduction of solid foods for their infants, and both a lowered age of resting infants on their stomachs and increased daily practice when compared to the control group. At one-year follow-up, Wen et al (2012), found that this intervention was effective in changing parental behaviour with regard to the use of food as a reward, severing the links between snacking and good behaviour. The study also found that the intervention increased the likelihood of solid foods being introduced after six months of age (reduction of 12%).

McGowan et al (2013) evaluated the effectiveness of a universal home visiting programme (four visits over eight weeks) aimed at educating parents to provide a healthy diet and to adopt three healthy feeding habits: offering fruit/vegetables, serving healthy snacks, and serving healthy drinks. The results of a UK-based RCT with 126 parents recruited through children's centres in one London borough with children aged 2-6 years showed significant improvements in children's intake of vegetables, healthy snacks, and water.

## **Group-based programmes**

Campbell et al (2013) examined the effectiveness of a group-based intervention targeting first time parents with very young infants attending pre-existing social groups, combining maternal education with peer support in order to facilitate parents to openly discuss healthy eating and exercise. The intervention was evaluated as part of a cluster RCT in Australia with 542 mother/infant pairs that involved the use of food diaries, accelerometers and records of television viewing time (to measure reduction in sedentary behaviour). The study found that the intervention reduced sweet snack intake and resulted in the children watching fewer daily minutes of television. A second paper on this study (Cameron et al, 2014) assessed moderators of intervention efficacy and showed improved vegetable and water intake in children of mothers aged under 32 years, increased consumption of vegetables and lower consumption of sweet snacks for children of mothers with higher education levels, and improved levels of water intake for children of mothers with lower education levels. A third paper reporting the findings of this study (Walsh et al, 2014) found no intervention effect on diet, physical activity, or amount of time spent watching television for fathers who participated in this study.

Daniels et al (2013) assessed a group-based education intervention aimed at changing mothers' feeding practices, with an RCT comprising 698 first-time mothers. The intervention promoted responsive feeding where mothers responded to the desires of their child with regard to feeding. The interactive group sessions lasted between 1 and 1.5 hours over a 12-week period, providing anticipatory guidance intended to develop infant healthy food preferences and maternal responsive feeding. While the intervention did not demonstrate an effect on children's weight or height at two years of age, significant improvements were identified for maternal feeding practices (such as less controlling feeding practices or use of food to make children feel better) and maternal responses to child food refusal, such as accepting children's satiation cues.

## **Multi-component interventions**

Haines et al (2013) evaluated the effectiveness of a multi-component intervention aimed at helping low-income or racial/ethnic minority parents to develop regular routines in relation to sleep patterns, sedentary behaviour time and eating together.

The authors used an RCT design involving 121 Boston (US) families with children aged 2-5 years. The intervention was delivered using individualised motivational interviewing (home visits and telephone), mailed materials or text messages. The results showed evidence of increased child sleep duration, a decrease in child TV viewing (weekend days) and a decrease in child BMI for the intervention group when compared with control participants.

Alkon et al (2014) assessed the impact of a multi-component intervention based within child care centres in the US to improve BMI for children aged 3-5 years. Eighteen child care centres serving predominantly low-income families were matched based on size and the proportion of children deemed eligible for income subsidies, and randomised. The intervention was implemented in nine centres: five one-hour workshops were held for child care and service provider staff to improve knowledge of childhood obesity, healthy eating, physical activity, promoting wellness, and working with families to promote healthy behaviours. Seven centres additionally provided a parent workshop. Centres also improved the nutritional quality of food and drinks provided and increased the quality and time dedicated to physical activity. When controlling for US state, level of parent education and family poverty, there was a significant intervention effect on child zBMI improvement. There were no significant changes in child care centre nutrition or physical activity practices. The authors concluded that more health professionals specifically trained in a nutrition and physical activity intervention in child care are needed to help reverse the obesity epidemic in the US.

## **Anticipatory guidance**

A cluster RCT evaluation (French et al, 2012) of three anticipatory guidance interventions aimed at reducing maternal obesogenic infant feeding behaviours found intervention impacts on some maternal feeding and child eating behaviours, but no significant effect on infant weight/height z-scores. Three paediatric primary care clinics in the US were randomised to receive either the Bright Futures intervention (a pocket guide on nutrition; participants n=99); the Maternal-focused intervention (MOMS, participants n=98) focusing on the influence of maternal eating on child behaviours; or the Ounce of Prevention (OP, participants n=95) intervention, providing information on serving sizes or introduction of other foods. There was not a no-treatment control group. All anticipatory guidance leaflets were provided to mothers at routine child-health visits at two, four, six, nine and 12 months. The results showed that women in the MOMS and OP conditions gave children less juice than women in the BF condition, and women in the MOMS condition gave their children more servings of vegetables than women in the BF condition (all statistically significant).

## Summary

These 10 more recently published RCT studies all included infants and toddlers (ie children in the 0-3 years age range, although some started at 3 years), and mostly focused on improving parental understanding about diet and lifestyle. A range of techniques and approaches were used, ranging from simple media-based strategies through brief group-based interventions to more intensive home visiting programmes. Most of the approaches utilised appear to have produced some improvement in health behaviours (eg family nutritional practices, child food intake and child sedentary behaviour / television viewing), but there was limited evidence in terms of the prevention of obesity in young children as measured by BMI (often not assessed).

# 11. Oral health

Dental caries are caused by the metabolism of dietary sugars by bacteria (plaque) on the teeth. This process produces acid, which dissolves the tooth surface, producing cavities (dental caries). Despite being preventable, tooth decay is the most common oral health disease for children and young people in England, experienced by over a quarter of five-year-old children (28%), and the most common reason for admission to hospital for children aged five to nine in 2012 to 2013 (PHE, 2014a). Early childhood caries (ECC), defined as any dental decay in infants and preschool children (Kilpatrick et al, 2008), is associated with pain and tooth loss, as well as impaired growth, decreased weight gain, and negative effects on speech, appearance, self-esteem, school performance, and quality of life (Chou et al, 2013a). Risk factors for dental caries include frequent exposure to dietary sugar, giving sugar-sweetened drinks in feeding bottles, lack of parental knowledge regarding oral health, and maternal risk factors, including caries, high levels of cariogenic bacteria, or poor maternal oral hygiene (Chou et al, 2013a).

A major determinant of inequality in oral health is socio-economic status (Bazian Ltd., 2014; PHE, 2014a), and increased risk is associated with individuals with disabilities and children under the age of five (Bazian Ltd., 2014). In this chapter, 'at risk' is defined as those within the subpopulation of children aged 0-5 years with higher-than-typical risk of dental decay for this group. Poor oral health outcomes in childhood are associated with poor adult dental health – for example, ECC is associated with caries in later life (Chou et al, 2013a).

This chapter reviews antenatal and postnatal interventions for (a) all families with young children, and (b) families with young children at risk of poor dental health outcomes. It also draws out key messages from reviews about identifying families in need of additional support, implementation issues, and workforce skills and training. Reviews that focused on particular dental products or forms of dental treatment were excluded.

In total, eight reviews were identified, including one review of reviews. Two of the main reviews identified and used throughout this chapter are the Bazian Ltd. (2014) review which underpinned Oral Health: Approaches for Local Authorities and their Partners to Improve the Oral Health of their Communities (NICE, 2014e) and the PHE (2014a) review which underpinned Delivering Better Oral Health (PHE, 2014b). Bazian Ltd. (2014), in a systematic review of community-based oral health programmes to prevent or reduce oral diseases and promote oral health, identified 58 studies, 15 of which were relevant to children aged 0-5 years. These included six RCTs, three interrupted time series studies, three pre/post evaluations and two cohort studies. The PHE (2014a) report contained a review of reviews (Chapter 3), including 29 systematic or narrative

reviews of population-based interventions to improve knowledge, behaviour, or oral health status.

In this chapter, attention is mainly given to interventions that could be implemented within or work in combination with the Healthy Child Programme (HCP) for 0-5 year-olds. The chapter does not, therefore, address the fluoridation of public water supplies; however, this is considered as a population-based oral health improvement intervention within the recent PHE review of reviews (evidence examined in PHE 2014a). It also does not address interventions to improve maternal oral health as a means to improve the oral health of children (evidence reviewed in Kilpatrick et al, 2008; Twetman, 2008; Rogers, 2011), as it is not referred to in the NICE guidance or Delivering Better Oral Health. The provision of fluoridated milk in school/nursery settings – evidence reviewed in PHE (2014a) and Bazian Ltd. (2014) – is also not considered, as there are few schemes in England and it is not recommended by NICE (2014e) or PHE (2014b). Interventions delivered in schools are also not covered (eg Cooper et al, 2013), while tooth-brushing in childhood settings (eg preschool) is included. Interventions that aim to promote breastfeeding and healthy diet, which will also improve oral health, are not included in this chapter as they are covered elsewhere in the review (see Chapter 10). Interventions that would require implementation outside of the HCP are discussed briefly if they are deemed to provide a supportive context for community-and home-based interventions that are practiced at an individual level.

Before summarising the evidence it is important to state briefly what Delivering Better Oral Health (PHE 2014b: 6-7) recommends as evidence-based advice and dental interventions for the 0-5 years age group.

For all children aged 0-3 years the guidance for primary care teams states that advice should be given as follows:<sup>33</sup>

- breastfeeding provides the best nutrition for babies (I)
- from six months of age infants should be introduced to drinking from a free-flow cup, and from the age of one, feeding from a bottle should be discouraged (III)
- sugar should not be added to weaning foods or drinks (V)
- parents/carers should brush or supervise tooth-brushing (I)
- as soon as teeth erupt in the mouth brush them twice daily with a fluoridated toothpaste (I)
- brush last thing at night and on one other occasion (III)

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<sup>33</sup> The numbers in brackets refer to the strength of supporting evidence: (I) Strong evidence from at least one systematic review of multiple well-designed randomised control trial/s; (II) Strong evidence from at least one properly designed randomised controlled trial of appropriate size; (III) Evidence from well-designed trials without randomisation, single group pre-post, cohort, time series of matched case-control studies; (IV) Evidence from well-designed non-experimental studies from more than one centre or research group; (V) Opinions of respected authorities, based on clinical evidence, descriptive studies or reports of expert committees; (GP) Good practice – specific evidence for statement is not available but it makes practical sense. References to studies supporting each of these statements are provided in *Delivering Better Oral Health* (PHE 2014b: 79-84).



- use fluoridated toothpaste containing no less than 1,000ppm fluoride (I)
- it is good practice to use only a smear of toothpaste (GP)
- the frequency and amount of sugary food and drinks should be reduced (III, I)
- sugar-free medicines should be recommended (III)

For all children aged 3-6 years, the guidance states that the following advice should be given:

- brush at least twice daily, with a fluoridated toothpaste (I)
- brush last thing at night and at least on one other occasion (III)
- brushing should be supervised by a parent/carer (I)
- use fluoridated toothpaste containing more than 1,000 ppm fluoride (I)
- it is good practice to use only a pea size amount (GP)
- spit out after brushing and do not rinse, to maintain fluoride concentration levels
- the frequency and amount of sugary food and drinks should be reduced (III, I)
- sugar-free medicines should be recommended(III)

In addition, professional intervention is recommended as follows:

- apply fluoride varnish to teeth two times a year (2.2% NaF-)

For children aged 0-6 years giving concern (eg those likely to develop caries, those with special needs) it is recommended that, in addition to the advice given above, the following advice be given:

- use fluoridated toothpaste containing 1,350-1,500ppm fluoride (I)
- it is good practice to use only a smear (0-3 years) or pea size (3-6years) amount (GP)
- where medication is given frequently or long term request that it is sugar free, or used to minimise cariogenic effects (GP)

In addition, it is recommended that professional intervention include the following:

- apply fluoride varnish to teeth two or more times a year (2.2% NaF-) (I)
- reduce recall interval (V)
- investigate diet and assist the adoption of good dietary practice in line with the eatwell plate<sup>34</sup> (I)
- where medication is given frequently or long term, liaise with medical practitioner to request it is sugar free, or used to minimise cariogenic effects (GP)

The remainder of this chapter looks at the evidence for interventions that are a vehicle for implementing these recommendations.

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<sup>34</sup> The 'eatwell plate' defines the government's recommendations on a healthy diet. It shows the types and proportions of the main food groups that should be eaten as part of a healthy, balanced diet, including: plenty of fruit and vegetables; plenty of starchy foods, such as bread, rice, potatoes and pasta; some milk and dairy foods; some meat, fish, beans and other sources of non-dairy protein. Food and drinks high in fat, sugar and/or salt should be consumed infrequently and in small amounts (see PHE 2014b: 34-36).



## Antenatal

No systematic reviews were identified that evaluated interventions delivered during pregnancy only.

## Postnatal (includes some perinatal)

### Access to fluoride

Fluoride is effective in reducing tooth decay by making the enamel less soluble in the acid that is produced when sugar is eaten.<sup>35</sup> It can be administered in several different ways to children aged 0-5 years. Current recommendations for 0-3 year-old children indicate that children's teeth should be brushed twice per day with toothpaste containing at least 1,000ppm fluoride as soon as teeth erupt (PHE, 2014b). Excessive consumption of fluoride (when tooth-brushing for young children is unsupervised or large amounts are consumed), particularly when the crowns of anterior teeth are mineralising, may cause fluorosis. This risk must be balanced with the preventative benefits of fluoride. This is important up to the age of three years when the crowns of the maxillary incisors will have completed their mineralisation. The fluoride dose given will be determined by both the concentration and the amount given. While efficacy is affected by the concentration of fluoride in toothpaste, it is little influenced by amount, whereas the risk of fluorosis from ingesting too much fluoride is linked much more to the amount rather than the concentration of toothpaste that is used. It is therefore recommended that a very small amount of a higher concentration toothpaste is used for this age group (ie a smear of 1450ppm) (PHE, 2014b).

#### *Provision of toothbrushes and fluoride toothpaste*

Based on the evidence summarised in Rogers (2011), PHE (2014a) recommends the targeted and timely provision of toothbrushes and fluoride toothpaste (ie postal or through health visitors). Examples include health visitors handing out toothbrushes and toothpaste at regular child development checks as part of the 'Brushing for Life' programme, or posting toothbrushes and toothpaste to children in targeted areas. PHE (2014a) stated that the timely provision of oral health resources encourages parents to adopt good oral health practices and start tooth-brushing as soon as the first teeth erupt, and that because postal delivery is likely to minimise uptake issues the impact on inequalities should be more favourable. It also noted that one-off provision has limited benefit, so sustainability is important, and commented that in order to

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<sup>35</sup> Fluoride works both systemically and topically. Systemic effect of fluoride: Where a child consumes sufficient fluoride whilst tooth enamel is forming, it can make that enamel more resistant to acid attack. Topical effects of fluoride: Low levels of fluoride in saliva and tooth plaque improve the strength of tooth enamel. Additionally, fluoride reduces the ability of plaque bacteria to produce acid.

ensure consistency of messages and support for the intervention it is important to engage with health visitors.

Rogers (2011) identified nine publications examining interventions that provide oral health aids such as toothbrushes or fluoride toothpaste to young children and families at high-risk of poor oral health (including one RCT, three QED studies, one review paper, and three other publications, such as a cost-effectiveness assessment). Delivery mechanisms included targeted mailing, the use of health centre visits and mailing, providing oral health aids and integrating oral health advice into well-child visits and community centre visits. Two studies are of particular interest given the focus of this report on the Healthy Child Programme. The first was a five-step approach in non-fluoridated Manchester in an area with high decay rates. Health visitors gave a gift bag of trainer cup and leaflet to parents bringing their babies for their eight-month development check and/or 12-15-month vaccination visit. Fluoride toothpaste (1,450 ppm), brushes and leaflets were mailed to families when their child was 20, 26 and 32 months. An RCT (Davies et al, 2005) showed that the parents who received this multi-stage intervention were more likely to report the adoption of three positive oral health behaviours (using a trainer cup from one year of age, using safe drinks and brushing twice daily with a fluoride toothpaste), and that while the programme failed to reduce the prevalence of ECC in the community, the prevalence of ECC and general caries experience among the children who participated was less than among children in the control group. Second, the 'Brushing for Life' programme in England involved health visitors providing packs containing toothpaste, a toothbrush and a health education pamphlet at the eight, 18 and 23 month development checks, plus offering oral health advice. The programme targeted children at higher risk of tooth decay. Although a sound theoretical rationale exists, at the time of the Rogers (2011) review the impact on oral health had not been reported. Overall, Rogers (2011) concluded that: the targeted provision of fluoride toothpaste and toothbrushes reduces tooth decay; targeted three-monthly mailing of fluoride toothpaste, brushes and oral health education material to parents of high-risk young children can be a cost-effective way of reducing tooth decay; and targeted provision of free toothbrushes and fluoride toothpaste (during health centre visits and mailed) to parents of young children reduces tooth decay.

Bazian Ltd. (2014) identified three RCTs that assessed the impact of providing oral health aids to families of children under five via postal services on clinical oral health outcomes, the accessing of dental services, or the use of topical fluoride. The first, a postal study based in the US and for low-income children aged 12-36 months, compared two versions of the intervention (posting one postcard with information on dental services, and three postings with information on services and additional dental health information) with a control group (Cruz et al, 2012). A second trial based in areas of the UK with high levels of dental caries, provided health education literature and fluoride toothpaste (containing either 440ppm or 1450ppm fluoride) every three months and a toothbrush once a year from age of 1 to 5.5 years (Ellwood et al, 2004).

The third RCT, based in Australia, provided anticipatory guidance prenatally and at six and 12 months of child age (Plutzer and Spencer, 2008). Women received printed information during pregnancy and at specified intervals after birth to coincide with the specific oral health needs of the child.

Within their narrative review, Bazian Ltd. (2014) concluded that evidence of impact is inconsistent. Cruz et al (2012) found that the intervention did not increase dental service use or improve the use of topical fluoride. Ellwood et al (2004) found inconsistent results in terms of oral health outcomes. For example, at 5-6 years, the postal provision of educational literature plus high fluoride toothpaste was associated with reduced caries prevalence in both the most and least deprived areas, while low fluoride content toothpaste was associated with reduced prevalence in only the most deprived areas. Plutzer and Spencer (2007, 2012) found that providing first-time mothers with written information on the oral healthcare of newborns may decrease the incidence of severe early childhood caries at 20 months of age (also reviewed by Rogers 2011, who noted that mailed information was preferred to phone calls), but may not have lasting benefits on dental decay of children at age 6-7 years. Bazian Ltd. (2014) concluded that there is inconsistent evidence regarding the effect of oral health promotion and education materials and supplies delivered via post on the tooth decay of young children; effectiveness may vary according to deprivation status and the provision of fluoride toothpaste. Postal reminders of eligibility for dental services and the benefits of fluoride varnish programme may have no effect on dental registration or the use of fluoride among low-income children.

#### *Fluoride varnish programmes*

On the basis of the evidence, PHE (2014b) recommends targeted community-based fluoride varnish programmes, starting at the age of three years. There is high-quality evidence from a number of systematic reviews that it is effective in preventing caries. As well as being practical and safe, its application is simple and requires minimal training. Dental nurses can be trained to apply fluoride varnish to the prescription of a dentist.

PHE (2014a) identified three reviews that assessed the efficacy of fluoride varnish programmes for children at risk of poor dental outcomes delivered by dental staff outside of dental settings (Marinho et al, 2013; National Health and Medical Research Council, 2007; Rogers, 2011). These reviews focused on children and adolescents and are not specific to 0-5 year-olds. The authors recommends the use of targeted fluoride varnish programmes given the strong evidence of effectiveness and the encouraging impact on inequalities, although this necessitates the successful targeting of high-risk populations. Similarly, there are uncertainties related to cost/resource considerations, with the suggestion that targeted fluoride varnish programmes are costly to implement given the need for clinical staff. However, recent changes by the General Dental Council regarding the scope of practice allow fluoride varnish to be applied in the UK by

a range of dental care professionals, including dental nurses, within both clinical and community settings, which will positively impact on cost.

Chou et al (2013a, 2013b) examined 13 studies, eight of which were RCTs. All were specific to under-fives, and nine assessed the impact of fluoridated varnish programmes in underserved communities, including aboriginal populations in Canada and Australia and primarily Hispanic or Chinese children in the US. The programmes were implemented in childcare settings, dental clinics and other health centres. Applications of varnish varied from two applications of fluoride varnish separated by four or six months to four applications over two years. Fluoride varnish was found to be effective at reducing the incidence of caries for children aged under five years. No clear differences in impact were identified between the application of fluoride yearly or twice yearly.

Rogers (2011) identified three RCT studies that evaluated the impact of fluoride varnish programmes targeted at high-risk young children within childcare settings (Lawrence et al, 2008; Slade et al, 2011; Weintraub et al, 2006). They involved varied populations, including aboriginal populations in Canada and Australia and Hispanic or Chinese children in the US (as reported within Chou et al, 2013a; 2013b). Within their narrative review, the authors concluded that the use of fluoride varnish programmes within childcare settings can successfully reduce tooth decay. Twetman (2008) also reviewed the Weintraub et al (2006) RCT, noting, importantly, that the ECC incidence was significantly higher for the group with 'counselling only' compared with 'counselling + F-varnish twice/year'.

NICE guidance on oral health (NICE 2014e, guideline P55) recommends considering fluoride varnish programmes for nurseries in areas where children are at high risk of poor oral health.<sup>36</sup> If a supervised tooth-brushing scheme is not feasible, local authorities and health and wellbeing commissioning partners should consider commissioning a community-based fluoride varnish programme for nurseries as part of early years services for children aged three years and older. The programme should provide at least two applications of fluoride varnish a year.

#### *Oral health education/promotion*

These interventions typically involve educating parents and/or children about oral/dental health, although the education may be delivered to healthcare or other professionals.

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<sup>36</sup> The NICE guidance also makes recommendations about primary schools (relevant to 4-5 year-olds) on this and other subjects concerning children's oral health but they are not referred to in this chapter, which focuses more on early years settings.

### *Person-centred counselling*

PHE (2014a) identified three reviews that assessed the impact of person-centred counselling based on motivational interviewing that takes place outside of dental settings (Gao et al, 2013; Rogers, 2011; Yevlahova and Satur, 2009). These entail one-to-one counselling that explores barriers to change and supports individual behaviour change. An example would be a motivational interviewing programme to prevent early childhood caries in which new mothers are invited to a 30-minute individual session with a trained counsellor plus two follow-up phone calls from the counsellor in a six-month period. Person-centred counselling was classified by PHE (2014a) as being of limited value, for various reasons: the intervention is intensive and costly; it can be difficult to deliver (requires significant specialised training); it requires considerable compliance (therefore a questionable effect on inequalities); and studies yield inconclusive evidence of impact on child oral health outcomes.

### *One-off dental health education*

PHE (2014a) identified four reviews evaluating one-off dental health education by dental staff in the general population (Kay and Locker, 1996; Rogers, 2011; Sprod et al, 1996; Watt and Marinho, 2005). Examples include the direct provision of oral health education to new mothers (by the dental workforce), or an annual visit to school by a dentist. Commissioning one-off dental health education was discouraged by PHE (2014a) for various reasons, including: the limited effects on clinical outcomes/evidence of ineffectiveness; the concern that short-term changes in health literacy and/or behaviours are unlikely to be sustained; and the intervention is costly to implement due to dental staff time.

### *Oral health training for the wider professional workforce*

PHE (2014a) identified two reviews that evaluated the impact of providing training to health, education and social care professionals (including health visitors) to support their capacity to deliver oral health interventions as part of their daily professional role (Rogers, 2011; Sprod et al, 1996). This type of intervention involves increasing professionals' knowledge and skills and requires ensuring oral health messages are appropriate and consistent across the board. As such, it is important to follow the Delivering Better Oral Health guidance cited in the introduction to this chapter (eg promoting breastfeeding, brushing with fluoride toothpaste as soon as first teeth erupt, giving healthy sugar-free snacks and drinks). PHE (2014a) classified this as a recommended intervention: while there is only some evidence of effectiveness (given a lack of RCTs in this area), there are positive implications for cost when training existing professionals rather than creating new services to deliver education.

Rogers (2011) identified nine studies (including RCT and QED designs) of interventions that involve integrating oral health promotion into existing child health provision, such as well-child visits. Intervention content included oral health education, the provision of oral health aids, and screening for decay. In non-fluoridated rural Victoria, Australia, for

example, maternal child health nurses were trained to provide oral health advice, to identify early signs of dental decay by 'lifting the lip' of children attending for their regular health checks, and to refer those at risk to dental services. Five key messages were promoted via various media and dental health starter kits were provided to the mothers of infants aged 12-24 months. A controlled trial (Kilpatrick et al 2009) found mixed evidence of impact on nurses' practice (eg increased dental checks, but no appreciable change in the frequency and time spent giving oral health advice). After two years, the proportion of children affected by tooth decay was significantly lower in the intervention than in the control group, and while at three years this was no longer evident, the control group children showed a higher level of severe decay. The researchers suggested that this might be because initial intensive activity was not sustained and therefore advocated greater continuity of provision as children get older.

Rogers (2011) also cited studies of interventions in Israel, Canada and Thailand (Harrison, 2003; Sgan Cohen and Vered, 2003, 2005; Vachirarojpisan et al, 2005) to support the conclusion that the integration of oral health promotion into existing provision is more successful at improving the regularity of mothers brushing infants' teeth than at improving diet. For example, the study from Thailand, a QED, assessed the impact of dental health education provided in small groups by healthcare staff in combination with provision of toothbrushes and fluoride. It found improvements in maternal tooth-brushing behaviour but no effect on ECC (Vachirarojpisan et al, 2005). The study in Israel, an RCT/QED, evaluated a community health intervention that emphasised the importance of tooth-brushing in combination with the provision of toothbrushes and fluoridated toothpaste. It found no significant effect on ECC in a cross-section of intervention/control group children analysed at the age of 2.5 years (Livny and Sgan-Cohen, 2007). It is argued that higher than child-strength fluoride toothpaste should be used, and that more diet modification and other preventive activity is required among high-risk groups, especially where there is no water fluoridation (ie emphasising tooth-brushing is likely to be insufficient to prevent ECC). Twetman (2008) also reviewed the Thailand and Israel studies.

It is important to reiterate here that the effectiveness of dental education will depend to a large extent on the nature of the education provided. It is therefore important that the recommendations contained in Delivering Better Oral Health (PHE 2014b) are followed.

NICE (2014e) recommends that frontline health and social care staff are able to give parents, carers and other family members advice on the importance of oral health and how to promote it (eg promoting breastfeeding, health food/drink, the use of fluoride toothpaste).

#### *Community-based education*

Bazian Ltd. (2014) identified two oral health promotion/education interventions for low-income parents of young children within the community. The first, a cohort study in rural

US counties, evaluated an intervention that provided women with educational materials promoting dental visits for offspring in the second year of life, home visits or counselling sessions at the local Women, Infants, and Children (WIC) programme centre, and assignment to a dental managed care programme (Milgrom et al, 2010). The second study, in Sweden, provided parents with a five-session education programme over one year, combined with toothbrushes and discounted fluoride toothpaste at a community outreach facility (Wennhall et al, 2005). Bazian Ltd. (2014) concluded that there is evidence that oral health promotion/education programmes for low-income parents may be associated with improved oral health and hygiene of three-year-old children, including the percentage of children who are free of dental caries, reduced average decay levels, and improved parental tooth-brushing activity.

### *Home visiting*

Bazian Ltd. (2014) identified three evaluations of dental health promotion/education including information about healthy feeding for babies and toothbrushes and fluoride toothpaste delivered via home visiting programmes. One RCT evaluation assessed the impact of two home visits (when children were eight and 20 months respectively) for low-income parents in the UK by a health visitor associated with a local dental health clinic, providing advice and dental health information based on Health Education Authority recommendations (Whittle et al, 2008). A toothbrush, low fluoride toothpaste and 'Giving Teeth a Good Start' leaflet covering diet and tooth brushing advice were provided at both visits. There were no statistically significant differences between groups at three or five years on oral health outcomes. However, the review authors noted that the control group received an established standard care health promotion programme delivered by health visitors, which included advice about registering with a dentist, oral hygiene practices and avoiding cariogenic drinks, foods and medicines.

The other two studies focus on dental registration rates (not dental outcomes). One QED assessed the impact of a two-year health visiting programme (three visits – seven weeks, eight months, 18 months) in deprived wards in and around Belfast, Northern Ireland, including dental health education, toothbrushes and fluoride toothpaste, and information and a voucher regarding registering at local dental practices (Yuan et al, 2007). Comparisons of the proportion of 0-2 and 3-5 year-olds registered with a dental practice showed no differences during the programme but did find a difference five months post-programme for 0-2 year-olds (26% vs. 22%). A cohort study assessed the impact of an intensive home visiting programme in Scotland delivered by health professionals and lay health workers addressing home safety, play and parenting skills (Shute and Judge, 2005). The intervention started with families of newborn children. Children were more likely to be registered with a dental practice at six months than children in comparison communities (45% vs. 26%). Concerns about the methods used in both studies are noted.

Bazian Ltd. (2014) concluded that moderate evidence suggests that oral health promotion and education programmes delivered by health visitors during home visits in early life are no more effective than standard health visits at improving the oral health of children under the age of five, but may be associated with improvements in dental registration rates in deprived areas.

Twetman (2008) identified three RCTs of interventions that provide dental health education during home visits. The first was for low-income mothers in Brazil, who received advice on breastfeeding and weaning (Feldens et al, 2007). The second was for women living in low socio-economic areas of Leeds and was provided by trained practitioners (not dentists) (Kowash et al, 2000). The third (Weinstein et al, 2004, 2006) compared a motivational interviewing (MI) visit with traditional health education to mothers of young children at risk of developing caries. Twetman (2008) concluded that significantly reduced incidences of caries were found in all three studies, though cautioned that Feldens et al (2007) had high attrition levels. The Weinstein et al study suggested that the beneficial effect of MI was due to a higher compliance with the recommended fluoride varnish treatments in the families that received MI.

Kilpatrick et al (2008) identified three RCT studies (all three of which were reviewed by Twetman, 2008) of dental health education intended to prevent or reduce ECC and provided to mothers of infants within high-risk populations. These included: the provision of educational material combined with motivational interviewing for Punjabi families in Canada (Weinstein et al, 2006); home visits providing education to improve breastfeeding rates for low-income mothers in Brazil (Feldens et al, 2007); and dental health education focused on diet, oral health instruction or a combination of diet and oral health instruction for mothers living in low socio-economic areas of Leeds (Kowash et al, 2000). The reviews stated that all studies identified fewer caries in children in the intervention groups than the control group; additionally, the UK trial of dental health education identified significant improvements for maternal oral health outcomes, including levels of gingivitis and plaque. Kilpatrick et al (2008) concluded that the evidence supports using one-to-one educational programmes and support, particularly when it involves home visiting. Rogers (2011) also identified the RCT study of Punjabi families in Canada, concluding that motivational interviewing for parents can be effective in preventing tooth decay in very young children.

Rogers (2011) identified three studies (reviewed above) that evaluated the impact of targeted home visiting on oral health outcomes for high-risk young children and their families (Feldens et al, 2007; Kowash et al, 2000; Whittle et al, 2008) and one follow-up paper, namely a three-year follow-up of the Brazilian home visiting intervention (Feldens et al, 2010), which found that at age four, children in the intervention group had significantly fewer caries than children in the control group. Rogers (2011) stated that the impact in this study is likely to have been the result of a higher proportion of children who were exclusively breast fed, and who had decreased and delayed



consumption of sugary meals and snacks. As previously described, intervention content for these three evaluations included dental education and the provision of toothbrushes and fluoride toothpaste. Significantly reduced incidences of ECC were found in all studies. In the Kowash et al (2000) study there were significant improvements in feeding practices, reduction in consumption of high sugar food and drink, higher tooth-brushing frequency and less decay after three years. Visits commenced at eight months. Annual visits were found to be as effective as more frequent visits. Rogers noted that in the case of the Whittle et al 2008 study, referred to in Bazian Ltd. (2014) above, (a) the group with the specialist oral health promoter had lower decay rates than the control group but they were not statistically significant, and (b) each group had lower decay rates at age three and five years compared with other children living in the area). Rogers concluded from this that home visits using primary health workers who integrate oral health promotion into their general work may be as effective as employing specialised oral health promoters. An additional QED study (Hamilton et al, 1999) within the Rogers (2011) review found an improvement in maternal reports of oral health knowledge and behaviours after receiving toothbrushes and fluoride toothpaste and advice from health visitors during standard child development checks; however, the impact on clinical outcomes was not assessed. Rogers (2011) concluded that targeted home visiting for this population has a positive impact on levels of tooth decay.

PHE (2014a) classified the integration of oral health advice into home visits by health and social care workers targeted at families at higher risk of oral disease as a recommended intervention given the sufficient evidence of effectiveness, with an encouraging impact on inequalities, and good cost/resources considerations given that using existing services would suggest lower costs than implementing a new service. It requires building the capacity of health and social care workers to provide such support and providing regular update training. The recommendation is based on the review by Rogers (2011) – see above.

## **Supervised tooth-brushing**

Based on the evidence, PHE (2014a) recommends supervised tooth-brushing (with fluoride toothpaste) in targeted childhood settings (based on two-year programmes) given the established evidence of its effectiveness for reducing tooth decay. PHE (2014a) identified four reviews that assessed supervised tooth-brushing programmes within targeted childhood settings (eg preschools) (Marinho et al, 2003; NHMRC, 2007; Rogers, 2011; and Sprod et al, 1996). PHE (2014a) stated that targeting is important; programmes are more effective in areas with high rates of tooth decay and less effective when children are already brushing their teeth twice a day with fluoride toothpaste. In terms of implementation, it noted that: the intervention requires supervision by a teacher or childcare staff, which can be time-consuming (an alternative is using parent supervisors); staff will require ongoing support (eg in terms of

training); and links to the home environment may increase the chances of sustained impacts.

Rogers (2011) identified three studies of supervised tooth-brushing in childcare settings. All were in Chinese preschool settings, and two were RCTs. Although the frequency and duration of these programmes was not described in the review, the author noted that these studies were all in non-fluoridated areas, where children were unlikely to be brushing their teeth twice daily before implementation of the intervention. Rogers (2011) concluded that supervised tooth-brushing in childcare settings can reduce tooth decay.

Bazian Ltd. (2014) also identified an interrupted time series evaluation of a supervised tooth-brushing programme (MacPherson et al, 2013). It concluded that a national daily supervised tooth-brushing programme in nurseries that includes the provision of fluoride toothpaste for home use is associated with significant improvements in the oral health of five-year-old children at a population level (reduction in mean d3mft indicator) over the 12 years following programme implementation. Significant reductions in dental caries were seen among the most and least deprived communities.

NICE (2014e) recommends that local authorities and health and wellbeing commissioning partners should consider commissioning supervised tooth-brushing schemes for early years settings in areas where children are at high risk of poor oral health.

## **Healthy food and drink policies in childhood settings**

PHE (2014a) classified healthy food and drink policies in childcare settings as a recommended 'supporting environment' intervention, given the encouraging impact on inequalities by creating a more health-promoting environment as well as the potential for wider public health benefits in addition to oral health. Examples of interventions include: nutritional standards for meals provided on-site; policies on snack, celebration and reward foods; and providing drinking water.

The PHE (2014a) review identified one review that evaluated the impact of healthy food and drink policies in childcare settings (Rogers, 2011). Rogers (2011) identified one longitudinal cohort study of three-year-old children from low socio-economic backgrounds attending nursery in Brazil, a subset of whom attended nurseries that had a healthy food and drink policy in place (Rodrigues and Sheilham, 2000). Attending a nursery with dietary guidelines was associated with lower rates of dental decay. The authors also identified three Australian intervention programmes based on dietary guidelines in early childcare settings, although evaluations of clinical outcomes had not been published at the time of the review. Rogers (2011) concluded there is some

evidence that healthy food and drinks policies in childcare settings can reduce tooth decay.

### **Community-based multi-strategy intervention**

Rogers (2011) identified one interrupted time-series evaluation of a community-based multi-strategy intervention implemented in disadvantaged areas of non-fluoridated Glasgow (Blair et al, 2004, 2006). Extensive discussion took place with community leaders and groups to raise awareness of the impact of preschool tooth decay and to encourage people to take ownership of the problem. Strategies included: nutrition projects in schools and nurseries (eg breakfast clubs, school fruit, snack and meal policies in nurseries); tooth-brushing schemes in nurseries, breakfast clubs and after-school care schemes; distribution of free fluoride toothpaste and brushes; the promotion of sugar-free medicine; health education by health visitors at surveillance checks, baby clubs and other community settings; and opportunistic interventions at community fairs and primary care settings. The results showed a significant reduction of tooth decay for 3-5 year-old children when compared with matched communities. Specifically, the intervention reduced tooth decay increment by 37-46% in 3-5 year-olds compared with matched communities (it is not possible to isolate the contribution of specific strategies). Bazian Ltd. (2014) also identified the Blair et al (2004) study and a subsequent interrupted time series evaluation assessing the impact of this programme when delivered by Oral Health Action Teams comprising multiple oral health, social care and education professionals and volunteers (Blair et al, 2006). The authors concluded that there is moderate evidence that oral health promotion campaigns delivered through multiple venues and targeting several aspects of oral health may be associated with a reduced risk of dental decay in children under the age of five living in deprived communities. However, it notes that there was no impact on the use of dental services.

### **Identifying families with additional needs**

The information in this section is taken from SIGN (2014). A variety of factors are needed to be taken account of when assessing the caries risk of preschool children. These include, diet; oral hygiene; bacterial exposure; socio-economic status; factors relating to breast and bottle feeding; fluoride exposure; previous caries experience; and parental smoking. Infants living in high deprivation areas for example, are known to have significantly more caries than children living in more affluent areas. Cohort studies have shown that children with previous caries experience are at an increased risk of future caries. SIGN (2014) stated that children are most at risk of decay if they acquire mutans streptococci at a young age, although factors such as good oral hygiene and a non-cariogenic diet may compensate for this. Thus, the following factors should be considered when assessing caries risk: clinical evidence of previous disease; dietary habits, especially frequency of sugary food and drink consumption; social history,

especially socioeconomic status; use of fluoride; plaque control; saliva (protective but in some children may be low salivary control, for example due to medical treatments); and medical history.

SIGN (2014) argued that the 'Childsmile' programme that operates in Scotland is likely to lead to the early identification of most young children at highest risk of caries. It contacts children within Scotland from the age of three months after being introduced to the family by the public health nurse or health visitor (Macpherson et al, 2010). The aim is to encourage dental attendance from the age of six months and provide additional support to children and families in most need.

There are also caries risk assessment tools, although SIGN (2014) found no evidence that the use of a caries risk assessment tool results on those at increased caries risk receiving enhanced caries prevention. Also, while there are several tools available, there is no consensus in the evidence as to which is the most effective. One example cited is the Dundee Caries Risk Assessment Model (DCRAM). This was informed by data collected annually over four years for over 1,500 children born in one calendar year in Dundee. The two most significant risk indicators at age one year for the child having at least three carious teeth at age four years were (i) living in council housing and (ii) the health visitor's opinion that the child was at risk of caries (MacRitchie et al, 2012). SIGN (2014) cited another study, which shows that healthcare workers' subjective assessment is an important factor in the assessment of caries risk in young children (Disney et al, 1992). SIGN (2014) stated that this risk model is appropriate for use by both dental and non-dental personnel and is applicable in a primary care setting.

SIGN (2014) recommends that specialist child healthcare professionals should consider carrying out a dental caries risk assessment of children in their first year as part of the child's overall health assessment, and that children whose families live in a deprived area should be considered as at increased risk of early childhood caries when developing preventive programmes.

## **Implementation issues**

Rogers (2011) identified the following as common elements in successful programmes for pregnant women, babies and young children:

- integrating oral health into general health programmes, for example tooth-brushing in breakfast clubs, anticipatory guidance and motivational interviewing in maternal child health visits) and include an oral health component in home visits for high-risk families
- targeting high-risk populations and recognise that tooth decay follows a social gradient

- tailoring approaches based on active participation and addressing social, cultural and personal norms and values
- having surveillance and referral systems in place
- using multiple interventions

A review of reviews (PHE, 2014a) prepared to support local authority commissioning for dental health interventions provided several messages relevant to implementation. First, supervised tooth-brushing interventions with fluoride toothpaste need to be appropriately targeted to ensure effectiveness. These programmes are more effective for areas with high decay rates, and less effective in areas where children brush their teeth at least twice per day using fluoride toothpaste. Second, for implementation to be successful, good engagement with parents, and schools/early years settings is needed. Similarly, Kilpatrick et al (2008) recommends that all oral health interventions should be preceded by comprehensive needs assessments that involve community groups. Third, PHE (2014a) highlighted that good links between dental practices and settings implementing interventions to increase access to fluoride are required.

Chou et al (2013a; 2013b) and Twetman (2008) cautioned that the early childhood intake of fluoride is associated with risk of enamel fluorosis. However, both reviews concluded that considerations of risk should be balanced with the demonstrated effectiveness of fluoride-based interventions.

Bazian Ltd. (2013) assessed 26 qualitative studies of community-based oral health interventions, including multi-component oral health education, supervised tooth-brushing with fluoride toothpaste, and health education, in order to identify barriers and facilitators to implementing oral health interventions for staff and service users. This review was commissioned to underpin the development of the NICE (2014e) guidance related to oral health. Qualitative findings were synthesised using a 'best fit' framework. While most of the studies identified were based within the UK or the US, some findings on funding may not be relevant to the UK, as several of these studies were based in countries with different dental health funding models than the UK. The authors identified six categories of barriers and facilitators. While no findings were specific to children under five, most barriers and facilitators identified referenced children or young children.

Six areas were covered (further detail in Appendix B):

1. Community factors: Barriers include the way that university funding/rewards and dental payment contracts can create a lack of financial incentive to participate in community interventions. By contrast, including oral health checks in a standardised health record can guide professional practice and act as a facilitator.

2. Provider characteristics: Barriers include the reluctance of staff to provide oral health advice: low self-efficacy can reduce provider confidence, and ambiguity in the professional role (even when staff are trained to deliver) can prove a barrier to implementation. By contrast, high self-efficacy and self-proficiency facilitates intervention by improving provider confidence.
3. Programme/intervention characteristics: Barriers include incompatibility between programme aims and the target population, whereas facilitators include home visits, conceptual fit with existing services, and intervention staff minimising disruption to nursery/school staff.
4. Organisational capacity: Barriers include the poor integration of the intervention with existing services, and a lack of shared vision. Facilitators include the successful integration of the intervention with existing services, and collaborating with organisations with shared visions.
5. Prevention support system: Barriers include a lack of training and ongoing support. Facilitators include good training for nursery staff, and increased self-efficacy after training.
6. Service user views on acceptability: Barriers include the stigma associated with home visits from a service provider. Facilitators include the friendliness of intervention staff, home visits, and ease of participation.

Bazian Ltd. (2013) noted that the perceived need or benefit from the perspective of the provider may not be a sufficient facilitator – adopting a flexible approach may overcome the barrier of service user lack of perceived need. Additionally, efforts to boost consent should be flexible, adaptable and involve children as well as parents. Bazian Ltd. (2013) concluded that all categories within the framework have the potential to act as a barrier or a facilitator. When applying to the implementation of a service, the authors recommended systematically examining how each category may relate to local factors.

## **Workforce skills and training**

PHE (2014a) noted that commissioners should consider the costs and training needs required to effectively deliver interventions; for example, interventions requiring dental staff are costly.

Rogers (2011) recommended a selection of resources to support practitioners and policy makers to implement evidence-based interventions, and provided a framework and guidance for integrated health promotion within services in the state of Victoria, Australia.

NICE (2014e) guidance recommends that health and social care staff working with children at high risk of poor oral health should receive training on a range of issues, including how good oral health contributes to people's overall health and well-being, the consequences of poor oral health, how to prevent tooth decay, techniques for

maintaining good oral hygiene (eg the use of fluoride toothpaste), and what advice to give carers.

It further recommends that that local authorities and health and wellbeing commissioning partners should:

- ensure all contract specifications for early years services include a requirement to promote oral health and train staff in oral health promotion. This includes services delivered by: midwives and health visiting teams; early years services, children's centres and nurseries; child care services (including child-minding services); and frontline health and social care practitioners working with families who may be at high-risk of poor oral health
- ensure all frontline staff in early years services, including education and health, receive training at their induction and at regular intervals, so they can understand and apply the principles and practices that promote oral health
- ensure all early years services include advice about oral health in information provided on health, wellbeing, diet, nutrition and parenting. This should be in line with the 'advice for patients' in *Delivering Better Oral Health*
- ensure all frontline staff can help parents, carers and other family members understand how good oral health contributes to children's overall health, wellbeing and development



## 12. Promotion of child development, including speech, language and communication

Strong speech, language, and communication skills are associated with school readiness, and positive social and academic outcomes throughout childhood. A recent report by the Department for Education (2014) showed that 60% of children are making good progress against the early years foundation stage profile (EYFSP) of child development. The same report indicates that this figure drops to 53% in deprived areas. Although both genetic and environmental factors affect early child development, including the risk of problems such as language delay, the environment – especially the parent-child relationship – is particularly important during the preschool years. Positive emotional development during infancy and early childhood is also associated with school readiness and positive emotional adjustment in later life. Delays to development during this period show a significant socio-economic gradient, with disadvantaged children being significantly more likely to show signs of cognitive and language delays. The preschool years therefore represent a prime opportunity to promote the language and communication of all children, but particularly those who may need additional input.

This chapter reviews universal and targeted strategies for promoting children's speech, language and communication, and universal and targeted strategies for promoting children's social and emotional development. The chapter concludes by reviewing how best interventions may be implemented.

### **Antenatal**

No reviews were found of antenatal interventions.

### **Postnatal**

#### **Speech, language and communication**

The studies reviewed examined interventions focused on improving the speech, language and communication of children in the 0-5 years age-range, and include a range of forms of intervention in the home or preschool education environments (Burger, 2010; Camilli et al, 2010; Law et al, 2010; Marulis and Neuman, 2010, Miller et al, 2012; Morgan and Vogel, 2010; Pickstone et al, 2009; Roberts and Kaiser, 2011).



### *Centre-based early education*

Camilli et al (2010) focused on the effectiveness of centre-based early education interventions in terms of cognitive and social development. Home-based interventions were excluded. A total of 123 comparison group studies (including RCTs) were included, all of interventions in the US. Based on a series of meta-analyses, the authors concluded that speech and language interventions that take place in preschool settings have a significant effect on mainly cognitive outcomes, but also social skills and progress within school. The authors did not reach any conclusions with regard to the different aspects of speech and language (such as the impact on receptive or expressive language). Teacher-directed instruction and small-group discussion were specific aspects of interventions that correlated positively with gains. The review noted, however, that further research is needed with regard to interventions with multiple components.

Burger (2010) examined early childhood education and care programmes, specifically those aimed at promoting the cognitive development of children aged 3-6 years. All of the interventions focused to some degree on children from socially disadvantaged backgrounds and took place in early childhood settings, including preschool, nursery and (in the US) Head Start centres. Some interventions also included home visits. Thirty-two studies concerning 23 programmes were included, all of which were QEDs with the exception of one RCT. The review found a mostly positive link between preschool and cognitive outcomes or school attainment in 22 of 32 studies. The extent to which preschool is capable of reducing grade retention and special education rates was more difficult to determine, however, owing to a smaller number of studies measuring those outcomes and mixed results. The author concluded that the vast majority of early education and care programmes had considerable positive short-term effects and somewhat smaller long-term effects on cognitive development. While children from socio-economically disadvantaged families made as much or slightly more progress than their more advantaged peers, the review also concluded that early childhood education and care cannot compensate completely for developmental deficits that are due to children's socio-economic background.

### *Vocabulary instruction*

Marulis and Neuman (2010) evaluated interventions specifically aimed at improving vocabulary through instruction. The interventions sought to increase both receptive and expressive vocabulary, and were delivered through teachers, experimenters or parents. The authors evaluated 67 studies in total (11 RCTs and 56 QEDs). Children were in pre-K or kindergarten (ages 3-6 years). The interventions ranged from one week to 42 days, and varied in terms of number and length of sessions. Storybook reading and dialogical reading were the most common interventions, although there were others as well. Results indicated a large effect on vocabulary measures. The most effective interventions were those delivered by the experimenters or teachers, rather than parents or carers. The authors found vocabulary interventions to be most beneficial to

middle and upper income at-risk children compared to those who were poor (authors' term) and at-risk. They concluded that although vocabulary interventions might improve oral language skills, they are not sufficiently powerful to close the achievement gap – even in the preschool and kindergarten years.

#### *Parent-implemented language interventions*

Roberts and Kaiser (2011) evaluated the effectiveness of parent-implemented language interventions for children with language impairments aged 18-60 months. These interventions involve training parents to carry out specific instructions, and seek to develop children's language skills, specifically receptive and expressive language skills. They last 10-52 weeks, and entail 13-36 hours of training. Eighteen studies were included (15 RCTs and three with a non-randomised comparison group) and included parents of children with language impairment (11 studies), autism (3 studies) and developmental delay (4 studies). The parents were mainly middle class. A meta-analysis showed that, when compared with a control group, parent-implemented language intervention had positive and statistically significant effects on children's receptive and expressive language skills, receptive and expressive vocabulary, expressive morphosyntax, and rate of communication. An intervention effect was also observed for one parent measure – parent responsiveness – but there was no impact on parent rate of communication or use of language models. When parent-implemented intervention was compared to a therapist-implemented intervention, effect sizes were smaller and mostly non-significant. The authors concluded that parent-implemented language interventions are effective for young children with language impairments from middle-class families whose parents agree to participate in research studies, and that even a small amount of parent training can have substantial effects on children's language development. The largest effects were for expressive morphosyntax, meaning that children whose parents receive training use more complex language than children whose parents do not receive such training. The effect on children's language appears to result from parents learning to use specific language intervention strategies, although the exact mechanisms of change were not examined.

#### *Speech and language therapy*

Law et al (2010) evaluated the effectiveness of speech and language therapy (SLT) interventions aimed at children with primary speech or language delay or disorder. The types of intervention included therapy, parent-administered interventions, clinic-administered interventions and one play programme. Thirty-six papers were included, reporting on 33 trials (all RCTs). In most studies children were in the 1-5 years age range, although a few studies included younger and older children. A meta-analysis involving 25 trials found that SLT is effective for children with phonological difficulties and children with vocabulary difficulties, but there is less evidence of efficacy (no statistically significant effect) for receptive difficulties. Findings for the impact on expressive syntax were mixed. There were no differences between clinical interventions and those implemented by trained parents, or between group and

individual interventions. Using normal language peers in therapy was shown to have a positive effect on therapy outcome. The authors concluded that, overall, SLT interventions have a positive effect for children with expressive phonological (production of speech sounds) and expressive vocabulary (production of words) difficulties. The evidence for expressive syntax (production of sentences and grammar) difficulties is more mixed, and there is a need for further research to investigate interventions for receptive language difficulties (understanding speech sounds, words, sentences and grammar).

### *Environment-focused interventions*

Pickstone et al (2009) undertook a systematic narrative review on the effectiveness of studies that have evaluated environment-focused interventions to improve children's speech and language. This type of intervention focuses on the people (adult input) and resources (eg toys, TV, radio) around the child and the way that they interact with the child (ie the opportunities, language models and feedback they provide). The study included 17 papers (11 RCTs; one QED; two comparison studies; two follow-up studies; and one multiple base line study). The review covered children up to the age of 66 months (5.5 years). The aim was to measure outcomes focusing on speech, language and interaction outcomes. Outcomes focusing on parents' behavioural change were reported if the study also reported the speech, language, and interaction of the children. The authors concluded that, on the whole, the findings of the included studies were not universally valid due to methodological limitations in the studies but these types of interventions may be beneficial for some children. The authors maintained that parent-child interaction appears to have an impact on the children's environment, and that when children receive intervention from speech and language therapists, parents should be present in order to learn the techniques used in therapy.

## **Social, emotional and cognitive development**

Six reviews focused on improving the social, emotional and cognitive development of children, covering home visiting, self-control programmes, early years care and education, and programmes that teach parents techniques to improve their relationship with their baby or child (Case-Smith, 2013; Frolek Clark and Schlabach, 2013; Miller et al 2012; a review of reviews for NICE, 2012; Piquero et al, 2010).

### *Interventions to promote self-control*

Piquero et al (2010) reviewed studies of interventions that focus on improving self-control in children under age 10. The average age was 6.23 years, with 17 of the 34 studies including children somewhere in the 2-5 years age-range. The interventions were delivered mainly in preschool, nursery or kindergarten settings. Overall, the review found that self-control improvement programmes, including training programmes, group counselling, multi-component interventions including cognitive and behavioural strategies, and conflict resolution, are effective for improving self-control

and reducing delinquency and problem behaviours. Although the review was not limited to studies of targeted interventions, two-thirds of the studies drew samples from high-risk or low-income populations.

### *Home-based interventions*

Miller et al (2012) examined the effectiveness of home-based interventions that target improving developmental outcomes for children from socially disadvantaged families (perinatal to school entry – aged 4-7 years depending on country). The review identified seven small RCTs, the most recent of which was published in 1993. Four studies were deemed to have a high risk of bias and three had an unclear risk of bias. Interventions included in the review focused on providing parents with knowledge and skills, and were delivered by trained lay or professional family visitors. The intensity of the interventions varied from 12 weeks to two years, with visits occurring twice a week or monthly. The timing also varied, with interventions taking place from the perinatal period to the beginning of school. A meta-analysis of four RCTs found no significant improvement in children's cognitive development. The data for socio-emotional outcomes was insufficient to conduct a meta-analysis and draw any conclusion. The authors concluded that there is no evidence of the effectiveness of home-based interventions that are specifically targeted at improving developmental outcomes for preschool children from socially disadvantaged families. The authors did not report on speech and language outcomes.

### *Home visiting*

NICE guidance on social and emotional wellbeing in the early years (NICE 2012, PH40) is based on three reviews of the evidence (including one of systematic review level evidence, one of UK evidence and one of risk and protective factors) and three expert reports. The focus was interventions that aim to support the social and emotional wellbeing of vulnerable children aged 0-5, including home-based interventions, childcare, and early educational programmes. The review of reviews found moderate evidence from six review papers that postpartum home visiting interventions may be effective for improving parental outcomes in at-risk families, with one paper suggesting that nurse-delivered interventions may be more effective than those delivered by paraprofessionals or lay persons. One paper was reported to find insufficient evidence for the effectiveness of postpartum home visits for women with an alcohol or drug problem. The study also found seven reviews that showed evidence for the effectiveness of home visiting interventions for at-risk families. Benefits were found for improved maternal sensitivity and the home environment, with moderate effects on parent-child interaction and family wellness, and small effects on attachment security, cognitive development, socio-emotional development, potential abuse, parenting behaviour, parenting attitudes, and maternal life course education. Drawing on this evidence, the NICE (2012) guidance recommends that health visitors or midwives should offer a series of intensive home visits by an appropriately trained nurse to parents assessed to be in need of additional support. It states that activities should be

based on a set curriculum and cover issues such as maternal sensitivity, home learning and parenting skills.

#### *Educational or daycare settings*

The review of reviews underpinning NICE (2012) identified four reviews of interventions delivered in educational or daycare centre settings. It found moderate evidence for improvements in various outcomes, including cognitive development, mental health, school readiness, behaviour and educational attainment. However, the effectiveness of early educational programmes varied, with one review reporting that 53% of programmes demonstrated no effect. Two meta-analyses of longer-term outcomes following early development prevention programmes were deemed to provide good evidence of lasting impact in adolescence, particularly on cognitive outcomes.

NICE (2012) recommends that children's services (including health visitors) should ensure that all vulnerable children can benefit from high-quality childcare outside the home on a part- or full-time basis and can take up their entitlement to early childhood education, where appropriate. It states that services should aim to enhance children's social and emotional wellbeing and build their capacity to learn.

#### *Interventions for children with or at risk of disability*

Case-Smith (2013) evaluated interventions aimed at promoting social and emotional development in children aged 0-5 with or at-risk for disability, mainly through touch, developing the parent-child relationship and instructive/educational interventions. Based on 23 studies using varying methodologies (including seven RCTs) the review found moderate benefits. Touch-based interventions such as baby massage were noted as being beneficial, particular for young babies before bedtime. Massage for older infants was found to have no significant benefits. The review found that there are a number of good interventions that can be used by a range of practitioners such as occupational therapists, including RDI (Relationship Development Intervention), an interactive instructive intervention, which resulted in more socially, engaged children. Other instructive-based interventions such as Joint Attention and peer-to-peer interventions were reported as being beneficial. The author highlighted the need for a comprehensive review of interventions for use by occupational therapists.

#### *Other interventions*

Frolek Clark and Schlabach (2013) evaluated the effectiveness of interventions within the scope of occupational therapists to improve cognitive development in children aged from birth to five years. Thirteen studies (mostly RCTs) were included of interventions that took place in various settings, including neonatal intensive care units, the home, child-care centres and preschools. Developmental interventions were found to result in gains in early cognitive development (infant and preschool age), with inconclusive evidence for gains through school age. Educating parents of preterm infants to be more

sensitive to their child's needs and more responsive in interactions was found to increase cognitive outcomes and joint attention.<sup>37</sup>

## **Identifying families with additional needs**

### **Speech, language, and communication**

Marulis and Neuman (2010) suggested that children from low-income groups may be conceptualised as needing additional language and communication support in the early years: children from low-income backgrounds tend to build their vocabulary more slowly than children from high-income backgrounds.

Pickstone et al (2009) classified children aged 0-5.5 years as being at risk of language impairment due to poverty, level of maternal education, low birthweight, and parental substance misuse.

### **Social, emotional, and cognitive development**

Frolek Clark and Schlabach (2013) argued that all premature infants could be conceptualised as at risk for poor cognitive development, and consequently should receive additional intervention services.

NICE (2012) guidelines on the social and emotional wellbeing of young children provide indicators to identify children in the early years (specifically those aged 0-5) who are likely to be vulnerable and need additional social and emotional wellbeing support, including:

- speech, language and communication difficulties
- physical disabilities
- parental substance misuse
- parental criminality
- familial domestic violence or intimate partner violence
- familial mental health problems
- parents aged under 18
- single parent families
- low levels of familial education
- looked-after children

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<sup>37</sup> This refers to 'the ability to orient to or attend to other people, including sharing attention on an object, shifting eye gaze, and getting others' attention. Attention is a component of cognitive development and is critical for ongoing learning.' (Frolek Clark and Schlabach, 2013: 428).

NICE (2012) recommends that health professionals in antenatal and postnatal services should identify factors that may pose a risk to a child's social and emotional wellbeing (including factors that could affect the parents' capacity to provide a loving and nurturing environment). They should discuss with the parents any problems they may have in relation to the father or mother's mental health, substance or alcohol misuse, family relationships or circumstances and networks of support. The guidance recommends that health visitors should use the assessment processes from the 'Early Years Foundation Stage' to identify infants and young children who need additional emotional or social support. Risk factors for infants include being withdrawn or unresponsive, demonstrating behavioural problems, and poor or delayed speech and language skills (NICE, 2012).

NICE (2012) further recommends that health and early years practitioners are systematic and persistent in their efforts to encourage vulnerable parents to use early years services. Specifically, relevant professionals (who provide services to address socio-emotional difficulties for infants and young children) should engage in outreach activities to identify vulnerable families, such as:

- engaging other professionals (eg key workers or home visitors)
- targeted publicity campaigns
- home visits by family support workers
- sending families repeat invitations
- using local community venues
- supporting current service users to encourage other vulnerable families to engage
- addressing concerns surrounding stigma and discrimination

## **Implementation issues**

### **Speech, language, and communication**

Several reviews called for closer relationships between SLTs (Speech and Language Therapists), teachers and parents, on the basis that if all support the intervention then it has more chance of being successful. However, messages with regards to how interventions should be implemented were limited. No specific barriers or facilitators to implementation for speech, language, or communication interventions were identified.

### **Social, emotional, and cognitive development**

NICE (2012) guidance on social and emotional wellbeing in the early years identifies several barriers to the effective implementation of interventions intended to address the social, emotional and cognitive development of young children (aged 0-5). Barriers for parental involvement include:

- worries about the cleanliness of venues
- concern that staff will pry into parent's personal lives

- lack of parental knowledge about the content and potential benefits of services
- lack of programme flexibility

Specific barriers to home visiting programmes to improve the socio-emotional and cognitive development of infants identified by NICE (2012) include:

- the high level of parental commitment required
- requiring home visits too frequently
- arranging visits at inconvenient times.

NICE (2012) guidelines recommend that in order to ensure ongoing parental commitment, home visitors should:

- be flexible to parental needs in terms of delivery
- tailor programme content based on parental needs
- regularly assess parental involvement
- ensure both parents can participate in the programme
- where necessary, offer the family a break from participation rather than withdrawal (if parents choose to take a break, home visitors should stay in regular contact)

Camilli et al (2010) argued that early education programmes for cognitive and social development should be implemented using standardised protocols.

## **Workforce skills and training**

A consistent message was that speech, language and communication interventions need to be implemented by individuals who have accessed appropriate training (eg Marulis and Neuman, 2010), and that professionals should be aware of how evidence-based strategies and wider research influence their practice.

In relation to social and emotional development, and specifically home visiting programmes, NICE (2012) stated that the more structured and intensive interventions (with a focus on child-mother interaction) delivered by specifically trained nurses during the first 18 months appear to be more effective in terms of impact on vulnerable children's social and emotional wellbeing than lower intensity and less structured interventions involving lay providers.

NICE (2012) also noted evidence from 11 papers suggesting that issues relating to professional roles and working practices have an effect on service delivery and performance, such as staff perceptions of the work being rewarding, the need for skilled staff, clarity about professional roles, and inter-agency team working. Concerns relating to high stress and complex workloads were also highlighted, as well as the need for training and support.



## **Additional primary studies**

This section presents the results of a search for primary studies of interventions aimed at improving speech, language and communication outcomes for children aged 0-5 years, and that were not published in reviews summarised earlier in this chapter. The search identified 14 RCTs and four QED studies (Nievar et al, 2011; Johnson et al, 2012; and Gonzalez et al, 2011 – these are not reported further here but see Appendix C). In what follows, results from these studies have been classified in terms of the focus of the respective intervention: universal (baby signing, and shared book-reading); and targeted (parent-child interaction, reading-focused, teacher education/curriculum interventions, language/literacy interventions, and other interventions). All were delivered in the postnatal period. The first two are universal and the remainder are targeted.

### **Baby signing**

Kirk et al (2013) evaluated the effectiveness of encouraging symbolic gesture (or ‘baby sign’) in improving infant language outcomes. The intervention was applied at a universal level. Members of the research team taught parents (all mothers) either symbolic gesture baby signing (based on standard baby signing classes and products) or British Sign Language (BSL). These were delivered via two home visits (when the child was eight and 12 months respectively). There were also telephone calls and additional visits but these appear to have been for research purposes rather than part of the intervention. The two intervention groups were compared with a verbal training group and a non-intervention control group. The results of an RCT involving 40 mother-infant dyads (10 per condition) found no positive benefits of either gesture intervention (baby signing or BSL) on language outcomes. The authors concluded that the results do not support previous claims that encouraging gesturing with infants accelerates linguistic development – at least for healthy developing infants who are being raised in an environment with good linguist input.

### **Book sharing**

An RCT evaluating the effectiveness of Bookstart+ in Northern Ireland with 462 families (235 intervention group, 227 control), found that a universal shared reading intervention providing book packs and materials to parents improved parental attitudes to books and child reading (O'Hare and Connolly, 2010). Child outcomes were not evaluated, however. The sample was drawn from the client lists of health visitors in four geographic areas of the north east of Northern Ireland, and the effects were similar across all subgroups (including families with different socio-economic backgrounds).

## Parent-child interaction

There are four studies of three programmes that aimed to improve parent-child interaction with the ultimate goal of improving speech, language and communication (Ford et al, 2009; Gridley et al, 2014; Sheridan et al, 2011, 2014). The specific focus of these interventions was the development of the parental role to improve the parent-child bond.

Gridley et al (2014) noted that parental language is associated with children's later language development, and postulated that since parenting interventions promote responsive parenting, they have the potential to improve children's language. However, it was noted that currently there is limited evidence to show that parenting interventions can improve parental language and therefore improve their child's language. The study evaluated the Incredible Years Parent-Toddler (IYPTP) programme in an RCT involving 89 participants in socio-economically deprived areas in Wales. The intervention aimed to coach parents in group sessions to support their child's development. The study found a positive impact in terms of fewer child-led language interactions (interpreted positively by the authors because it indicated less passive parent interaction). However, there were no statistically significant effects on parent-led language interactions, quantity and variety of language and use of critical language by parents.

The Getting Ready intervention targets children aged 0-5 years from low socio-economic backgrounds, particularly if they experience a variety of risk factors including maternal/paternal depression. Trained teachers use collaborative consultation and triadic strategies in a series of home visits and in all interactions with parents in order to promote parental engagement in caregiving and guidance (ie warmth and sensitivity, encouragement of autonomy, and support for learning and literacy). The authors theorised that this would increase sensitivity between parent and child. In an RCT involving 21 schools, Sheridan et al (2011) found that preschool children in the Getting Ready intervention demonstrated significantly enhanced gains in teacher-rated oral language use, reading, and writing over time compared with the control group. Several moderator effects favouring the intervention were identified, for example when a developmental concern was evident upon entry to preschool. Sheridan et al (2014) evaluated Getting Ready in an RCT involving 204 children, their parents and 29 Head Start teachers. The study found improvements for some learning-related social skills, such as activity levels (that is, reduced fidgeting or difficulty staying still), but not for others, notably verbalizations (the amount of utterances during an observation) – the exception being if mothers were depressed.

The Let's Play in Tandem intervention uses interaction through educational games focusing on school readiness in terms of children's knowledge (name, address, colours), numeracy, listening and communication. It is targeted at three-year-olds from socio-economically disadvantaged backgrounds and in the study was delivered through

Sure Start centres in the UK. Each family is assigned a project worker who conducts weekly home visits over a year. An RCT with 60 child participants in the final sample (30 per group) showed statistically significant improvements in children's knowledge, pre-reading skills and numerical skills (Ford et al, 2009).

## **Reading-focused interventions**

One study evaluated an intervention that used reading as the main tool to improve speech, language and communication outcomes. Goldfeld et al (2011) found that the Let's Read intervention aimed at increasing parent-child shared reading promoted by guidance messages delivered through home visiting was not effective in the short term. The intervention involved modelling by trained nurses during regular 'well-child' checks and the distribution of book packs with the aim of increasing expressive vocabulary and communication. The results of an RCT in Australia involving 552 families from relatively disadvantaged communities, 324 of whom received the intervention, found no evidence of effectiveness in terms of vocabulary and limited evidence of effectiveness for phonological awareness. Combining dialogical reading interventions with others (eg letter knowledge training) produced no additional benefits.

## **Teacher education/curriculum**

Six studies involved interventions that aim to improve children's speech, language and communication using teacher education or improvements to the preschool curriculum involving personal development or additional teacher training aimed at improving interactions between teachers and children (Cabell et al, 2011; Cabell and Downer, 2011; Hindman et al, 2012; Landry et al, 2014; Lonigan et al, 2011; Piasta et al, 2012). All were aimed at low-income families or children from socio-economically disadvantaged areas.

Cabell et al (2011) and Piasta et al (2012), reporting on the same US RCT involving 330 preschool children (age range 40-60 months, mean 52 months), found that intensive training for teachers, which focused on teacher-child interaction and ways to enrich conversation, resulted in positive benefits for children's linguistic productivity and complexity. Twenty-five teachers (from 19 preschool or Head Start centres) delivered the intervention to 168 children, while 24 teachers from 19 centres served as controls. This study found improvements in children's language use, including an overall increase in total utterances, number of different words used, and the mean length of the utterance (Piasta et al, 2012). Cabell et al (2011) also found improvements in children's expressive vocabulary.

Cabell and Downer (2011) explored this type of teaching further in a US RCT evaluating the effectiveness of MyTeachingPartner (MTP) involving 161 teachers in preschools. MTP is a web-based system that teachers can log into in order to access

training, observations and consultation. Teachers were randomly assigned to a control group, a low support intervention group that provided access to MTP only, or a high support intervention group which provided access to MTP in combination with individual expert consultation. A narrative summary of the data suggested improvement in children's language and literacy; although there was no statistically significant difference in improvements between conditions, the authors suggested that (a) students of teachers in the high support group benefited the most, and (b) a treatment effect was observed for classrooms in which the only language spoken was English.

Hindman et al (2012) evaluated the ExCELL (Exceptional Coaching for Early Language and Literacy) programme, which trained teachers within Head Start centres to give better instruction to their pupils, and specifically to use language-rich instruction and to gradually increase language complexity while providing struggling learners with additional support. The intervention was evaluated in an RCT involving 358 US preschoolers, which found that the intervention was associated with a positive impact on children's vocabulary (and most effective for those children with the lowest initial skills).

Landry et al (2014) and Lonigan et al (2011) evaluated interventions that sought to change early childhood curricula. Landry et al (2014), in a US RCT involving 65 preschool classrooms in Texas, explored the efficacy of the Responsive Early Childhood Curriculum (RECC), which aimed to improve childcare teachers' behaviours and a wide-range of child outcomes (eg social, emotional, behavioural, early literacy, language, and math outcomes). Classrooms were randomised to the RECC training, RECC+ (including an extra social curriculum) or a control condition. There were no statistically significant differences for children's academic performances across groups (including language, vocabulary, early literacy, complex language, or mathematics outcomes). There were, however, positive effects in areas of children's social and emotional development and aspects of teaching practice (including the use of cognitively stimulating activities, such as shared book reading).

Lonigan et al. (2011) evaluated the effectiveness of the Literacy Express Preschool Curriculum (LEPC), which focused on developing literacy skills through group working using a specifically designed curriculum. An RCT involving 808 US preschool children randomised 15 preschool centres to implement the LEPC with professional development for teachers through workshops, 15 preschools to implement the LEPC with both professional development workshops and weekly in-class mentoring visits, and 18 preschools to a business as usual control condition. When comparing the two intervention groups with the control, the study found moderate intervention effects for children's oral language, phonological awareness and print knowledge skills. The added value of mentoring was not substantial, with a statistically significant improvement over professional development solely delivered via workshops on only one measure (print knowledge).

## Language/literacy programmes

Three studies were identified that examined the effectiveness of language/literacy interventions. Unlike interventions which aimed to revise or change existing curricula, these programmes worked alongside existing systems rather than making changes to the system (Fricke et al, 2013; Hirst et al, 2010; Wake et al, 2013).

Fricke et al (2013) evaluated an oral language programme in the UK using an RCT involving 180 children, half of whom received the intervention. Participating children were selected on the basis of having low mean scores on verbal, language and literacy tests relative to their classmates. The intervention was delivered in nursery schools in one English county (no details about socio-economic status) and used group sessions to develop multisensory techniques, including vocabulary teaching, letter sounds and phonological awareness and narrative within a standardised curriculum. The authors reported that the intervention was successful in increasing children's vocabulary, particularly in the later stages of the intervention, and improved letter sound teaching during weeks 21-30. Although there was no impact on children's literacy, the intervention had an effect on children's language skills, narrative skills and phoneme awareness.

Wake et al (2013) evaluated Language for Learning, which focuses on supporting parents in the home to administer language learning with the help of teaching assistants. It is targeted at children aged four years who have displayed delayed language development. The results of an RCT in Australia involving 200 children, 99 of whom received the intervention, found no statistically significant improvements in language skills. There were, however, benefits with regards to phonological awareness skills and letter knowledge, both of which are important predictors of subsequent literacy. Research is ongoing to see if these gains lead to better literacy and expressive language. The study was conducted in eight of the 31 local government areas in Greater Melbourne, including six from the most disadvantaged 33%. There is no subgroup analysis.

Hirst et al (2010) evaluated the effectiveness of REAL (Raising Early Achievement in Literacy), which is delivered primarily through home visits and is targeted at parents of three-year-olds in socio-economically deprived areas. It involves providing literacy resources and seeks to help parents to provide their children with opportunities for and recognition of engaging in literacy-based activities. The results of a small RCT in the UK involving 16 bilingual Pakistani-origin children showed evidence of improved reading scores compared with the control group.

## Other

Schmitt et al (2014) evaluated the effectiveness of an intervention aimed at improving the self-regulation skills (eg memory, flexibility, control) of preschool children in Head Start classrooms in the US (meaning that they are in socio-economically disadvantaged areas). The intervention used musical group exercises to help develop working memory, attentional memory and inhibitory control. The results of an RCT with 14 classrooms, seven of which received the intervention, found improved self-regulation as measured through Heads Toes Knees Shoulder Task and Card sorting task, but no impact on any other outcomes (including early vocabulary skills).

## Summary

The majority of recent RCTs evaluated the effectiveness of interventions aimed at improving speech, language and communication by improving parent-child interaction, providing reading focused support, providing additional training for preschool teachers to encourage them to interact more effectively with children, or delivering language and literacy programmes aimed at supplementing the curriculum with additional support to parents and children. The results are consistent with the reviews included in this chapter and suggest that the most promising interventions are reading and language/literacy focused, or are aimed at supporting teachers to work more effectively. The interventions are mostly targeted, either at socio-economically disadvantaged children or at children with signs of difficulties in the areas of speech, language or literacy; indeed, of the two universal interventions examined, studies found that one (baby-signing) had no impact while the other (Bookstart+) had an impact on parental attitudes to books and child reading but the impact on child outcomes was not measured. Most of the interventions evaluated in these primary studies are delivered by teachers or language specialists, but some – notably some of the home-based ones – could arguably be delivered by health visitors.

## 13. Implementation issues

Efforts to support the implementation of the evidence-based methods of working have often been characterised as ‘letting it happen’ – leaving it to policy makers and practitioners to use research findings on their own – or ‘helping it happen’ – for instance, through website and manuals. ‘Making it happen’ involves the use of implementation teams in which experts use evidence-based implementation strategies to actively support implementation. This has been estimated to produce higher rates of implementation success (80%) than in cases where they are not used (14%) (Metz et al, 2013).

Although there is currently limited evidence available, there are a number of useful summaries from the rapidly developing field of ‘implementation science’ (see Halle et al, 2013). This research suggests the need for changes to what have been described as inner contextual factors (eg provider characteristics, organisational resources and climate/culture, leadership, fidelity monitoring and supervision), and outer contextual factors (eg training and use of technologies to support intervention use), to promote intervention sustainment and also improve outcomes for children and families (Novins et al, 2013). Messages from the research with regard to identifying families in need of additional support, implementation, and training and workforce issues have been identified throughout this report in relation to specific topic areas. This chapter seeks to take a broader view. It outlines important cross-cutting issues in terms of: the identification of families with additional needs; matching needs and services; reaching the ‘hard-to-reach’; working with families, and family readiness to change; practitioner motivation and readiness to change; programme fidelity; and workforce development.

### Key themes

Key implementation messages are as follows:

#### *Working with families*

- parental understanding, attitudes, and behaviours are key to supporting good health and development in very young children
- working collaboratively/in partnership with parents is a prerequisite to supporting them to learn, adapt to the parenting role, and change their behaviours where necessary
- continuity of relationships between practitioners and families is important, particularly with families experiencing problems
- providing information alone is rarely effective in changing behaviours
- motivational interviewing can help to produce behaviour change but requires skilful implementation to be effective



### *Delivery of interventions*

- interventions need to be implemented with fidelity, both in terms of clinical/professional and organisational levels
- implementation guidance and proactive monitoring of fidelity to the model being used should be built into all aspects of HCP delivery. This includes supportive policies, procedures and managerial as well as practitioner accountability

### *Identification*

- all contacts with families should be used to promote wellbeing, and to identify families in need of additional support
- good assessments are ongoing and should include the use of validated tools and objective measures alongside professional judgement
- education, training and supervision
- education, training and supervision should focus on skill development and coaching to promote consistency of approach. Core skills for health visitors should include: promotional interviews and partnership working; motivational interviewing; and videofeedback
- infrastructure
- managerial and system expectations and processes need to align with practice methods and expected approaches
- areas for further work
- more work is needed to develop integrated care pathways that enable core groups of practitioners such as midwives and health visitors to promote a range of outcomes (eg nutrition, attachment, learning)
- more fully developed resources are needed to support understanding and ongoing assessment of the quality of partnership working
- further work is necessary to explore the quality of professional relationships necessary for effective HCP work and the impact of corporate caseloads
- further development is needed of supervision models or other mechanisms for monitoring and coaching in terms of the recommended approaches within the HCP
- a greater emphasis is needed on the requirements for appropriate managerial/organisational/system congruence with expected practice methods

## **Identifying families with additional needs**

The identification of families with additional needs requires an ability to identify the risks and strengths that are present. Early identification will take place over a period of time as the child develops and the parent builds trust in the practitioner, and as the practitioner is able to assess and analyse the information from an ecological perspective.

There is also a need for the following:



- good population data and an information system for assessing and monitoring population level needs and risk in order to support practitioner and service planning
- practitioners who can balance knowledge about risk with professional judgement and who recognise that the assessment of risk is a dynamic process over time because a child develops rapidly at this age, families change, parents disclose as trust builds (they need more than one assessment)
- good assessment processes involving the synthesis of information from multiple sources often in reflection with others; the need for adapting oneself and the activity to the family as part of a continual process; methods to promote engagement (because non-engagement means no change)

The implementation of a successful strategy for identifying families with additional needs involves the following:

- The use of universal assessment points/standard health reviews as an opportunity to promote wellbeing, as well as to identify risk and additional need, including the:
  - booking-in visit at 12 weeks
  - promotional interview 28 weeks
  - new baby review 14 days postnatal
  - promotional interview, eight weeks postnatal, and comprehensive health review
  - review at three months
  - one-year health review
  - two-and-a-half-year review

For example, midwives can be supported to use the booking-in visit to (a) promote wellbeing and (b) identify families in need of additional services. Similarly, promotional interviews at 28 weeks antenatal and eight weeks postnatal can enable health visitors to promote wellbeing and identify families in need of additional support. Standardised tools (see point 3 below) can be used to supplement clinician skills in terms of identifying additional need. The standard health reviews that are also recommended by the HCP (eg new baby review, three months, one year and two-and-a-half year reviews) can also be used to promote wellbeing and identify additional need.

- The use of a model of partnership working, such as the Family Partnership Model (Davis and Day, 2010), provides training to facilitate this.
- Training of the workforce to ensure that all health visitors, for example, have the skills to undertake promotional interviews (see the Centre for Parent and Child Support – [www.cpcs.org.uk](http://www.cpcs.org.uk)) and that staff have the skills to use a range of standardised assessment tools alongside their professional skills to facilitate the assessment of issues such as:

- parental mental health, for example using the EPDS and Generalised Anxiety Disorder Assessment – GAD-7 (Spitzer et al, 2006)
  - parent-infant interaction, for example using the Parent-Infant Interaction Observation Scale (PIIOS), which uses independent observation (Svanberg et al, 2013), and the Ages and Stages Questionnaire (ASQ), which uses parent report
  - social support, for instance using the Social Support Scale (Zimet et al, 1988);
  - child development, including growth and measurement – for example, using the ASQ, Peds-QL and UK-WHO growth charts
- Infrastructure arrangements to enable reviews to take place. These entail management communication about the importance of these checks, staff having permission and time to conduct them, and multi-agency working to enable them to be successful (eg to inform the 28-week antenatal review health visitors, who need information on pregnant women from midwives).

## Matching needs and services

The evidence suggests improved outcomes where there is matching of need with services (Fixsen et al, 2005). Families experience a range of contextual factors that influence their capacity to benefit from early intervention. Factors range from highly individual, including their own early life experiences, attachment patterns, mental health problems, social support and willingness to engage, through to wider economic factors, such as income, housing and the neighbourhood environment. Each parent and child brings a unique configuration of factors. In addition, the evidence suggests that not all families are able to benefit from services being provided. For example, infant massage programmes are beneficial for disadvantaged mothers and those who are experiencing postnatal depression but they are not sufficiently intensive on their own to support women experiencing more diverse problems (Underdown et al, 2013).

## Reaching the ‘hard to reach’

Although a family’s level of need may have been matched with a particular service, additional key mechanisms will need to be present to promote uptake, continued attendance and overall change, particularly in families whose willingness to engage and readiness to change are low (Barlow et al, 2005). Difficulties in engaging families, including both recruitment and retention, are one of the main reasons for interventions failing. Although parents facing severe problems are least likely to engage with programmes, the problem of so-called hard-to-reach families may also be a problem of hard-to-access services.

There is evidence from the evaluation of parenting and child mental health programmes – including interventions for young children (eg parenting intervention in preschool, or

home visiting for first-time mothers) but mainly concerned with older children and adolescents – to suggest that brief, intensive engagement interventions that target both practical (eg schedules, transportation) and psychological (eg family members' resistance, beliefs about the treatment process) barriers at the point of entry to treatment, can be effective in improving engagement in early sessions (Ingoldsby, 2010). In terms of longer-term engagement and retention, the limited available evidence points to the benefits of 'integrating motivational interviewing, family systems, and enhanced family stress and coping support strategies at multiple points throughout treatment' (Ingoldsby, 2010: 629).

Recent research on what works to engage parents in parenting programmes has also highlighted the potential benefit of the following strategies (Axford et al, 2012):

- a clear recruitment process with understanding and commitment from those involved at the beginning of this process
- active and creative outreach work to recruit families
- investment in building relationships with parents by skilled practitioners who build trust and adapt their approach to match family and programme priorities (such practitioners are also ideally resilient, quick to see client strengths, slow to interpret rejection personally, and able to judge readiness to change and connect with client motivations)
- ongoing practical and emotional support to enable families to stay involved. The latter includes the provision of transport, childcare and food, as well as reminders by phone or text about the next session. Incentives for providers to boost recruitment and retention can help to promote continuation.

## **Working with families, and family readiness to change**

One of the key factors in facilitating behaviour change is the relationship that programme staff are able to establish with the participating families. Such relationships need to be based on a partnership model of working – that is, they need to be supportive, guiding, motivating, strengths-based, and consistent. A number of interventions have been developed to promote parent engagement with programmes by providing practitioners with core sets of skills to enable partnership and collaborative working. For example, the Getting Ready programme is used as an adjunct training and service to augment existing curricula and services and is aimed at promoting family and child school-readiness by explicitly focusing on the relationships between practitioner, parent and child (Knoche et al, 2012). It involves a range of collaborative and partnership-based strategies to help the practitioner to develop the parent-professional relationship in ways that will promote the parent-child relationship. The Family Partnership Model (Davis and Day, 2010) is a similar approach based on an 'explicit model of the helping process that demonstrates how specific helper qualities and skills, when used in partnership, enable parents and families to overcome their difficulties, build strengths and resilience and fulfil their goals more effectively'.

Similarly, the Family Nurse Partnership (FNP) programme provides family nurses with extensive training to promote the development of the necessary skills and knowledge to be able to build deep, trusting relationships that help clients to change how they care for themselves and their child.<sup>38</sup>

In addition to partnership working, there is consensus regarding the importance of continuity in terms of the extent to which pregnant women and new mothers/parents are provided with the opportunity to establish a small number of key relationships. Ideally, women would be allocated: one midwife who stays with them from booking to delivery; one health visitor (or a nurse if the woman has been enrolled in FNP) who oversees the HCP for that child and establishes contact at 28 weeks antenatal and continues through three years; programme facilitators who deliver entire programmes; and, where necessary, just one social worker and one family support worker.

Where there are a number of services available, families should be involved in the decision-making process about which ones they use. For example, some adults (ie with an avoidant attachment style) may be more able to benefit from a programme such as video-feedback, which is focused on the 'here and now', than from a programme such as parent-infant psychotherapy, which may involve them thinking about the past.

## **Practitioner motivation and readiness to change**

A range of factors can affect a practitioner's readiness to take on board the practices involved with the delivery of new ways of working and new services, including cultural beliefs/attitudes, social systems and relationships, current and persistent stressors, and personal characteristics including motivation, qualities and skills (Metz et al 2013). Several practices can help ensure that programmes and services are delivered optimally: selecting staff with the right attitudes and qualities (this is a significant predictor of programme success); once staff are in post assessing their readiness to change using standardised tools designed for this purpose; delivering 'preparation for change' training to increase readiness, motivation and confidence; and providing coaching and supervision for those who are ready to change.

It is also important to understand and respond to the motivations of practitioners. These are likely to vary between individuals and potentially across professions, but Davis et al (2012) found evidence that they include the desires to: improve child outcomes, and see the difference made by intervening; have the time to build relationships with children and families; exercise professional autonomy and discretion; have professional and learning opportunities; have intellectual challenge and the opportunity to master new skills; and have adequate support and resources, including supportive supervision, opportunity for reflective practice and being part of a team. Davis et al (2012)

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<sup>38</sup> <http://www.fnp.nhs.uk/about>

recommends taking these points into account when designing and introducing evidence-based methods of working, and gave several examples as follows. Thus, the guidance accompanying an evidence-based programme should clarify the processes required for cultural adaptation and the degree of flexibility and autonomy that is permissible: fidelity to the design is important (see section below on 'Fidelity'), so any adaptation should preserve core intervention components and be done in close collaboration with the programme developer. Such programmes might be introduced as an opportunity for staff wanting to develop their skills, with information about how implementers can become accredited. It should be emphasised that some programmes (eg home visiting, parenting groups) create an opportunity to spend quality time with families. The programme should be adequately supported in terms of learning materials, technical assistance, internal quality assurance capability, and supervision. Lastly, continuous 'live' feedback to practitioners can help practitioners to track the differences their intervention is making.

## **Fidelity**

Programme fidelity involves ensuring that evidence-based interventions are replicated as closely as possible to the design in order to avoid dilution and unintentional 'programme drift'. It has four main components: adherence (ie was a component delivered?), quality (ie how well was it delivered?), dose (ie was the right amount delivered?) and engagement (ie did recipients engage with the programme?).

The 'zone of tolerable adaptation' refers to the extent to which a programme can be adapted to meet local needs before the associated treatment effects are diminished. Some local adaptation or co-construction to ensure that a programme is delivered in a culturally sensitive way can result in the most effective delivery. However, adaptation that involves core programme components being delivered sub-optimally, or not at all, is likely to diminish the impact. Any adaptation should be undertaken in consultation with the programme developer.

Various strategies are recommended to help strengthen implementation fidelity, including training and coaching (Fixsen et al 2005). Monitoring fidelity also increases the likelihood of faithful implementation and therefore that the delivery of evidence-based programmes will achieve the desired change. Measures should capture the different elements of fidelity referred to above and data can be collected in various ways, including self-rating checklists and direct observation by, for instance, trainers, coaches or supervisors. Training should be given to all staff involved in the rating/assessment of fidelity in order to promote reliability across raters. A feedback system is required to ensure that fidelity data is used.

## **Workforce development**

Good recruitment, training and supervision are all core to the effective delivery of interventions. Good staff recruitment ensures that people who are appointed to deliver services and programmes not only have the necessary technical skills and expertise, but also the type of personal qualities that are associated with effective working (eg humility, honesty, being non-judgmental) (Davis and Day, 2010). Such staff should also show a willingness to engage in ongoing training and development as part of the delivery of new methods of working.

Further training will be required for many of the evidence-based ways of working that have been identified in this review. Training of the workforce on an ongoing basis should therefore be a major part of investment plans for NHS Trusts, in addition to a good skill-mix. For example, while not everyone needs the skills to deliver video-feedback, key members within each health visiting and social work team should arguably have such skills. Trusts should identify the core training skills for each group of practitioners and the optional or additional skills. For example, all health visitors should have partnership working and Promotional Interviewing skills (see [CPCS.org.uk](http://CPCS.org.uk)). Additional training might include infant massage and/or video-feedback. Trusts should also ensure that sufficient numbers of key staff have training such as Level 5 Diplomas in Leadership for Children's Care and Development (both Advanced Practice; and Management).

Supervision is also key to the effective delivery of interventions. 'Restorative supervision' has been identified as being an effective method of supporting health visitors, family nurses and other staff working with vulnerable families (Wallbank, 2012).

## 14. Economic analysis

There is a pressing need for information on the economic case for investing in early intervention, specifically the financial and other gains that potentially derive over a child's lifetime from improving outcomes when they are aged 0-5 years. However, trials of interventions typically only measure outcomes in the short term (ie within a year or two of the completion of the intervention). For trials of interventions in the early years, this means that the long-term effects of the intervention are not directly measured. However, these long-term outcomes are more likely to have economic implications for the children, their families, and society.

In the case of universal programmes, these short-term effects are applied to the general population, meaning that the probability of problems occurring in the population without intervention are low in general, so the amount of change from base rates that can be expected is low, but interventions are also likely to be less intensive and cost less to implement. Targeted preventive interventions are delivered to children and families where there is a greater likelihood of future problems, or early signs of problems already. Therefore, these interventions may need to be more intense and thus more expensive, but they could have a large impact as they are delivered to those most likely to have the problems they address. Early intervention at the universal or targeted levels is important to address problems before they begin or before they worsen. Cost-benefit analysis can provide more information about the best investments at all levels by combining information about the costs of interventions and the risk of poor outcomes for different populations over the life course.

The following analysis identifies some of the key links between short- and long-term outcomes and, for a selection of discrete interventions in the 0-5 years age range, shows how these translate into long-term economic benefits. The first section provides a summary of a review of the systematic reviews conducted by the Washington State Institute for Public Policy that analyse the effects of short-term outcomes in the 0-5 years age range on longer-term outcomes. These are used to illustrate the relationship between these outcomes, with details provided from a selection of the studies in these reviews to illustrate how these relationships would look in real terms. The second section provides details of cost-benefit analyses conducted by the Social Research Unit at Dartington (SRU) for interventions that focus on 0-5 year-olds<sup>39</sup>, including a summary of how effects on particular short-term outcomes result in monetary benefits from change in longer-term outcomes (eg the impact on child behaviour leading to reductions in the costs from crime).

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<sup>39</sup> See [www.investinginchildren.eu](http://www.investinginchildren.eu).



## The effects of short-term outcomes on longer-term outcomes

The Washington State Institute for Public Policy (WSIPP) conducts systematic reviews of longitudinal research to establish causal links between short-term outcomes that are measured in trials and longer-term outcomes that have economic implications (Washington State Institute for Public Policy, 2014). As these reviews are ultimately used to create forecasts of the benefits of investment in interventions for real-world decision-making, WSIPP uses very strict criteria to determine which studies can be included. In particular, there needs to be sufficient confidence that the study is establishing causality between the short-term outcome and the longer-term outcome that it measures. This requires the study to clearly establish temporal ordering (one outcome, such as conduct problems, should precede another outcome, such as crime) and account for other factors that could also influence the outcome (such as family income). There also has to be sufficient confidence in the measurement and reporting of both outcomes and the relevance of the population in the study to those receiving the interventions, and the study must include a comparison group in order to establish an effect size. The analyses to date have identified significant causal links between several early predictors and long-term outcomes, key examples of which are presented in Table 14.1.

**Table 14.1 Causal links between early predictors and long-term outcomes**

Predictor	Long-term outcome	Number of studies	Effect Size	Standard Error
Child abuse and neglect	School completion	5	-0.40	0.10
	Special education	1	0.39	0.04
	Standardised test scores	3	-0.25	0.05
	Alcohol problems	5	0.16	0.03
	Illicit drug abuse	5	0.28	0.06
	Depression	7	0.26	0.05
	Crime	12	0.51	0.07
Child externalising problems	Crime	12	0.33	0.05
	School completion	17	-0.34	0.03
Attention-deficit hyperactivity disorder	Standardised test scores	3	-0.38	0.10

It is important to note that WSIPP's work does not focus specifically on children aged 0-5, and the predictors in most studies included in their review either focus on older children or cover a wider age range, including later years. Thus, out of 147 papers reviewed by WSIPP, only three studies focused specifically on predictors measured before the age of five (Lansford et al, 2002, 2007; Murray et al, 2010). The cost-benefit model includes all 147 studies in its calculation of the effect of interventions on linked long-term outcomes.



Two of these studies (Lansford et al, 2002, 2007) report findings from The Child Development Project, based in the US states of Indiana and Tennessee, which first assesses children at age five and follows them into adulthood. They provide information about how child physical abuse predicts long-term outcomes, including many that have economic implications, such as school completion, crime, and standardised test scores of maths and language. When the effects identified by these studies are isolated from the larger meta-analyses, the only significant effect of child maltreatment was on the rate of school completion ( $ES=-0.85$ ,  $SE=0.17$ ), which has implications for future economic outcomes such as further education, employment and earnings (Lansford et al, 2007).

The third of the three studies used data from the 1970 British Cohort Study to examine early predictors of criminal convictions in adulthood (Murray et al, 2010). It indicated a significant effect of: conduct problems from an early age on later crime ( $ES=0.36$ ,  $SE=0.05$ ); maternal smoking during pregnancy on future crime in adulthood ( $ES=0.29$ ,  $SE=0.04$ ); and low cognitive stimulation by parents (ie not reading to the child) on future crime in boys ( $ES=0.25$ ,  $SE=0.06$ ).

## **Monetary benefits deriving from short-term outcomes**

The aforementioned links from short-term outcomes in trials to longer-term outcomes form the foundation for estimates of many of the monetary benefits of interventions over the life course for a wide range of areas. In addition, some outcomes can be directly monetised by modelling the persistence of problems over the life course alongside data on how these outcomes predict factors such as service use patterns and earnings.

The SRU uses methods developed by WSIPP to make these estimates. These methods use real data as much as possible and are driven by the measurements of effects of the interventions on outcomes in trials of the interventions. The size of the effect is used to estimate the unit change in each long-term outcome that can be expected. The value of that unit change is then estimated in monetary terms. The overall aim is to estimate how much a change in outcomes (eg reduction in early conduct problems) is worth to the public sector, children receiving the intervention, and others in society respectively. The cost-benefit methods follow these steps (elaborated in Little et al, 2013):

1. A review of the research literature and calculation of the size of the impact of each intervention on outcomes for children. The size of this effect is reduced where there are methodological weaknesses or other sources of bias that would indicate that a smaller effect would be expected in a real-world implementation of the intervention.

2. The size of the link between short-term outcomes and longer-term monetisable outcomes is estimated.
3. These two types of effect sizes are used to estimate of how much change in an outcome can realistically be achieved for each intervention when it is provided to children or families in the UK, given the base rates of outcomes over the life course in the populations targeted by each intervention.
4. The monetary value of the change is estimated in a range of areas that can be causally linked to the outcomes. For example, a reduction in ADHD can be linked to savings in healthcare costs, education costs, criminal justice system costs, and increased earnings and taxes paid. This value is estimated for the projected lifetime of the child, discounted to compute a net present value. The model uses a range of real discount rates to compute net present values. The discount rates are applied to all annual benefit and cost cash flows and economic impacts arising in future years are converted to present values. The model uses low (2%), modal (3.5%), and high (5%) discount rates in computation.
5. The costs of each intervention per child per year are estimated.
6. An analysis of the uncertainty in each of the steps in the cost-benefit analysis is carried out to test of the likelihood of a net gain or loss from investment in each intervention. To do this, estimated ranges of uncertainty around key inputs in the model are included and then varied in Monte Carlo simulations. The inputs that are varied in the model include: programme effect sizes, linked effect sizes, discount rates, programme costs, criminal justice and victimisation costs, value of a statistical life, and labour market earnings from improvements in educational outcomes.

The SRU has developed a UK version of the WSIPP cost-benefit model to conduct analyses in British pounds for the UK context (Little et al, 2013). Many of the interventions for which the Social Research Unit has conducted cost-benefit analysis are delivered in the early years. For those interventions, information about how effects on particular short-term outcomes were predicted to produce monetary benefits on average over the participant's lifetime is presented in Table 14.2. In most cases (with the exception of Abecedarian, Curiosity Corner, High Scope Preschool/Perry Preschool, and Success for All) the effect sizes come from analyses conducted by WSIPP (Lee et al, 2012).

For example, in the case of Family Nurse Partnership (FNP; programme 4 in Table 14.2), three trials measured its effect on recurrence of abuse or neglect, among several other outcomes, compared to a control group. The results were combined in a meta-analysis of this outcome, and the weighted mean effect size on that outcome was -0.88 (SE=0.22), indicating a large effect. This effect size was then reduced using an empirically derived system of discounts to form a more realistic estimate of the likely effect of delivery of FNP in the real world (-0.22) rather than in a research setting. Using

the results from the analyses linking short- and long-term outcomes, the model can calculate how much change in crime reduction, increased earnings, reduced need for social work services, reduced need for special education, and reduced healthcare costs can be expected given that effect size, compared with what would be expected without the intervention. It then places a net present value on that change in terms of the benefits FNP is likely to yield per child over his or her lifetime.

The programmes in Table 14.2 are provided for children aged five and under and their families, although in some cases provision extends to later years as well. The outcomes presented here are those that are relevant to the UK and that can be monetised in terms of future benefits using the SRU cost-benefit model. These programmes may have positive impacts in other areas, but this work is limited to the outcomes that have been measured in trials and that can be linked to monetary benefits in studies meeting the inclusion criteria and using the methodology outlined above.

The monetary benefits presented are a combination of those that would go to the participants themselves, those that would go to the public purse, and those that would apply to the wider society (such as potential victims of crime). The taxpayer benefits primarily consist of the marginal costs saved by reduced demand on public services. For example, in the case of crime, the costs are derived from changes in costs to police, courts, youth justice and criminal justice systems due to changes in the volume of criminal convictions. The website [www.investinginchildren.eu](http://www.investinginchildren.eu) provides a more detailed breakdown of these benefits for each programme.

**Table 14.2 Short-term outcomes and lifetime monetary benefits by programme**

### 1. Abecedarian

An early education programme for children from disadvantaged backgrounds that has two core components: a preschool or childcare educational programme is provided from infancy until the children enter school (0-5); a school-age programme is provided in the first three years of school (5-8) to increase family support and the child's learning.

Short-term outcome	Effect Size	Standard Error	Long-term outcome	Benefit
Crime	-0.27	0.41	Crime	£956
High school graduation	0.08	0.26	Earnings	£2,288
Special education	-0.62	0.27	Special education	£1,309
Test scores	0.38	0.14	Earnings (including taxes)	£13,574
<b>Benefits Minus Costs</b>	<b>-£38,704</b>			
<b>Cost-benefit Ratio</b>	<b>0.32</b>			

### 2. Curiosity Corner

A preschool programme designed for children (aged 3-4) who are at risk of school failure due to poverty. Curiosity Corner helps teachers increase language ability in children and develop high quality learning environments through the use of materials, parent involvement and professional development.

Short-term outcome	Effect Size	Standard Error	Long-term outcome	Benefit
Test scores	0.21	0.01	Earnings (including taxes)	£5,466
<b>Benefits Minus Costs</b>	<b>£5,388</b>			
<b>Cost-benefit Ratio</b>	<b>70.08</b>			

### 3. Families and Schools Together (FAST)

A two-year programme designed to prevent school failure, aggression, delinquency and substance use in at-risk school children aged 5-10. Groups of 8-12 families meet for eight consecutive weeks after school. Meetings are facilitated by a team of trained facilitators, including, for example, parents (ideally a FAST graduate), mental health specialists, and school and community agency representatives.

Short-term outcome	Effect Size	Standard Error	Long-term outcome	Benefit
Test scores	0.10	0.13	Earnings (including taxes)	£665
Externalising behaviour symptoms	-0.30	0.12	Crime	£15
			Healthcare	£17
<b>Benefits Minus Costs</b>	<b>£467</b>			
<b>Cost-benefit Ratio</b>	<b>3.03</b>			

### 4. Family Nurse Partnership

A programme that provides intensive visitation by nurses during a woman's pregnancy and the first two years after birth. The goal is to promote the child's development and provide support and instructive parenting skills to the parents. The programme is designed to serve low-income, at-risk pregnant women bearing their first child.

Short-term outcome	Effect Size	Standard Error	Long-term outcome	Benefit
Child abuse and neglect	-0.88	0.22	Social services	£434
Crime	-0.70	0.21	Crime	£639
Disruptive behaviour symptoms	-0.22	0.09	Healthcare	£4
			Education costs	£46
			CAMHS costs	£5
High school graduation	0.04	0.16	Earnings (including taxes)	£261
Special education	0.29	0.16	Special education	-£473
Test scores	0.13	0.06	Earnings (including taxes)	£3,197
Crime (mother)	-0.26	0.37	Crime (mother)	£324
High school graduation (mother)	0.10	0.09	Earnings (mother)	£10,256
<b>Benefits Minus Costs</b>	<b>£7,132</b>			
<b>Cost-benefit Ratio</b>	<b>1.94</b>			

### 5. High Scope Preschool/Perry Preschool

An early childhood education programme for children from birth to 5 years with or without special needs and from diverse socio-economic backgrounds and ethnicities. The programme aims to enhance children's cognitive, socio-emotional, and physical development.

Short-term outcome	Effect Size	Standard Error	Long-term outcome	Benefit
Crime	-0.42	0.28	Crime	£1411
Test scores	0.41	0.08	Earnings (including taxes)	£18,793
Special education	-0.67	0.27	Special education	£1393
<b>Benefits Minus Costs</b>	<b>£8,205</b>			
<b>Cost-benefit Ratio</b>	<b>1.61</b>			

### 6. Parent Child Home Programme

This programme aims to improve child literacy and school readiness for children aged 2-3 whose parents have limited education. It involves twice weekly half-hour visits from trained paraprofessionals over a period of two years. Each week, the visitor brings a new toy or book, which is used to demonstrate verbal interaction techniques and encourage learning through play.

Short-term outcome	Effect Size	Standard Error	Long-term outcome	Benefit
Test scores	0.21	0.16	Earnings (including taxes)	£2,750
Special education	-0.63	0.27	Special education	£190
<b>Benefits Minus Costs</b>	<b>-£1,767</b>			
<b>Cost-benefit Ratio</b>	<b>0.62</b>			

## 7. Parent Involvement Programmes

A group of programmes that incorporate parenting, communicating, volunteering, support for learning at home, participating in decision making, and collaborating with the community. An important element is increasing parent involvement and requires changing the behaviour of both parents and school staff. Parenting, volunteering, and supporting home learning result primarily from the efforts of parents; but communicating, participating in decision making, and collaborating with the community also require commitment and effort from schools.

Short-term outcome	Effect Size	Standard Error	Long-term outcome	Benefit
Test scores	0.13	0.05	Earnings (including taxes)	£1,918
<b>Benefits Minus Costs</b>	<b>£1,233</b>			
<b>Cost-benefit Ratio</b>	<b>2.80</b>			

## 8. Parents as First Teachers

A home visiting programme for parents and children. PAT develops curricula that support a parent's role in promoting school readiness and healthy development of children. Parents are visited monthly by parent educators (who typically have some form of higher education). Visits typically begin during the mother's pregnancy and may continue until the child enters school (aged 4-5).

Short-term outcome	Effect Size	Standard Error	Long-term outcome	Benefit
Child abuse and neglect	-0.38	0.54	Crime	£88
			Social Services	£428
			Special Education	£29
			Healthcare	£26
Test scores	0.11	0.08	Earnings (including taxes)	£1,991
High school graduation (mother)	-0.02	0.19	Crime (mother)	-£6
<b>Benefits Minus Costs</b>	<b>-£982</b>			
<b>Cost-benefit Ratio</b>	<b>0.72</b>			

## 9. SafeCare

A parent training programme for parents who are at-risk or have been reported for child maltreatment. Trained professionals work with parents in their homes to improve skills such as planning and implementing activities with their children, responding appropriately to child behaviours, improving home safety, and addressing health and safety issues.

Short-term outcome	Effect Size	Standard Error	Long-term outcome	Benefit
Child abuse and neglect	-0.11	0.06	Crime	£35
			Earnings (including taxes)	£177
			Social services	£335
			Special education	£20
			Healthcare	£11
<b>Benefits Minus Costs</b>	<b>£291</b>			
<b>Cost-benefit Ratio</b>	<b>2.02</b>			

## 10. Success for All

A whole-school reform model that also has components that can be used as a standalone curriculum. It is delivered by teachers and takes up 90 minutes each day. The programme is designed to ensure that every child will read at grade level or above. It emphasises prevention and early intervention to respond to and solve any child's learning problems.

Short-term outcome	Effect Size	Standard Error	Long-term outcome	Benefit
Test scores	0.25	0.02	Earnings (including taxes)	£2,678
<b>Benefits Minus Costs</b>	<b>£2,488</b>			
<b>Cost-benefit Ratio</b>	<b>14.09</b>			

### 11. Triple P Positive Parenting Programme (All Levels)

A behavioural parenting intervention that comprises five levels including: a universal media-based communications strategy (Level 1); seminars for parents interested in promoting their child's development or individual consultations for those with specific concerns about their child's behaviour (Level 2); parenting guidance and support delivered in primary care (Level 3); and group-based or individual sessions for parents of children with identified behaviour problems (Levels 4 and 5).

Short-term outcome	Effect Size	Standard Error	Long-term outcome	Benefit
Child abuse and neglect	-0.14	0.00	Crime	£25
			Earnings (including taxes)	£147
			Social services	£99
			Special education	£11
			Healthcare	£9
Out-of-home placement	-0.31	0.00	Out-of-home placement	£306
<b>Benefits Minus Costs</b>	<b>£478</b>			
<b>Cost-benefit Ratio</b>	<b>5.05</b>			

These results show how, in many cases, improvement in one early outcome can yield future benefits in many different areas in a child's life. In addition, some outcomes lead to benefits via multiple other intermediate steps. For example, a reduction in child abuse and neglect can lead to savings for social services but also increased earnings via subsequent improved test scores, attainment of higher levels of education, or reduced depression. Similarly, multiple early outcomes can contribute in combination to the same benefit, such as reductions in disruptive behaviour and improved educational outcomes leading to children's increased projected earnings as adults.

The length of time between the early effects of an intervention and the accumulation of monetary benefits varies. In some cases, these benefits are relatively immediate, as in the case of a reduction in the need for special education services or out-of-home placements. In other cases, a long time passes before a particular benefit is realised, such as increased future lifetime earnings due to a reduction in mental health problems in early childhood.

There is clearly a wide variation in the cost-benefit ratios across programmes. This can be due to a mismatch between the intensity and therefore cost of a programme and the risk of poor outcomes in the target population, or simply due to the small effect sizes found in trials of the intervention. It can also be due to the fact that some outcomes are not yet monetisable in this model, so some interventions may be making important changes for children but they cannot be accounted for in terms of monetary benefits. When commissioning these types of interventions, the information about costs and benefits must always be considered alongside the wider evidence for their impact on the wellbeing of children and families.

# References

The references are in six sections:

- Systematic reviews included
- NICE Guidance referred to
- Primary studies reviewed for Chapter 7 on attachment
- Primary studies reviewed for Chapter 8 on parenting support
- Primary studies reviewed for Chapter 10 on obesity prevention for 0-3s
- Primary studies reviewed for Chapter 12 on speech, language and communication interventions

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## **NICE guidance referred to (\* indicates item is in Appendix B)**

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- i. Authors Goodwin to Wilkinson are listed alphabetically by surname.
  - ii. Promotional Guides are used for this purpose. Two-day training for all health visitors in an area can be provided by the Centre for Parent and Child Support: [www.cpcs.org.uk](http://www.cpcs.org.uk).
  - iii. <http://agesandstages.com/>
  - iv. [http://www.pedsql.org/about\\_pedsql.html](http://www.pedsql.org/about_pedsql.html)
  - v. <http://www.rcpch.ac.uk/child-health/research-projects/uk-who-growth-charts/uk-who-growth-chart-resources-0-4-years/uk-who-0>
  - vi. <http://www.cpcs.org.uk/index.php?page=about-family-partnership-model>