WHAT WORKS TO ENHANCE THE EFFECTIVENESS OF THE HEALTHY CHILD PROGRAMME: AN EVIDENCE UPDATE

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Summary

The Healthy Child Programme 0–5

The Healthy Child Programme 0–5 (HCP 0–5) is an evidence-based framework for the delivery of public health services to families with a child between conception and age 5. This is a universal prevention and early intervention programme and forms an integral part of Public Health England's priority to ensure:

- every woman experiences a healthy pregnancy
- every child is ready to learn by the age of 2
- every child is ready for school by the age of 5
- a reduction in child obesity and inequalities in oral health.

The HCP 0–5 comprises child health promotion, child health surveillance, screening, immunisations, child development reviews, prevention and early intervention to improve outcomes for children and reduce inequalities. The universal reach of HCP 0–5 ensures that all children are offered five mandated health reviews by the health visiting service, which provides an invaluable opportunity to both support all families to give their children the best start, and identify children and families who are most at risk of poor outcomes. The health visiting service supports parents to identify the most appropriate level of support for their individual needs. Health visitors provide leadership for delivery of the HCP 0–5 and work with partners to deliver a comprehensive programme of support.

Over the past five years the health visiting service has undergone rapid growth and transformation, setting out the 4-5-6 model for health visiting[1,2] which identifies **4** levels of health visiting support, coordinated through **5** universal health visiting reviews, which emphasise **6** high impact areas (see figure S1).

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1   PHE (2016). *Best start in life and beyond: Improving public health outcomes for children, young people and families*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/554499/Service_specification_0-19_commissioning_guide_1.pdf

2   PHE (2014). Supporting public health: children, young people and families. Available at: https://www.gov.uk/government/publications/commissioning-of-public-health-services-for-children

FIGURE S1: THE 4-5-6 MODEL OF HEALTH VISITING SUPPORT
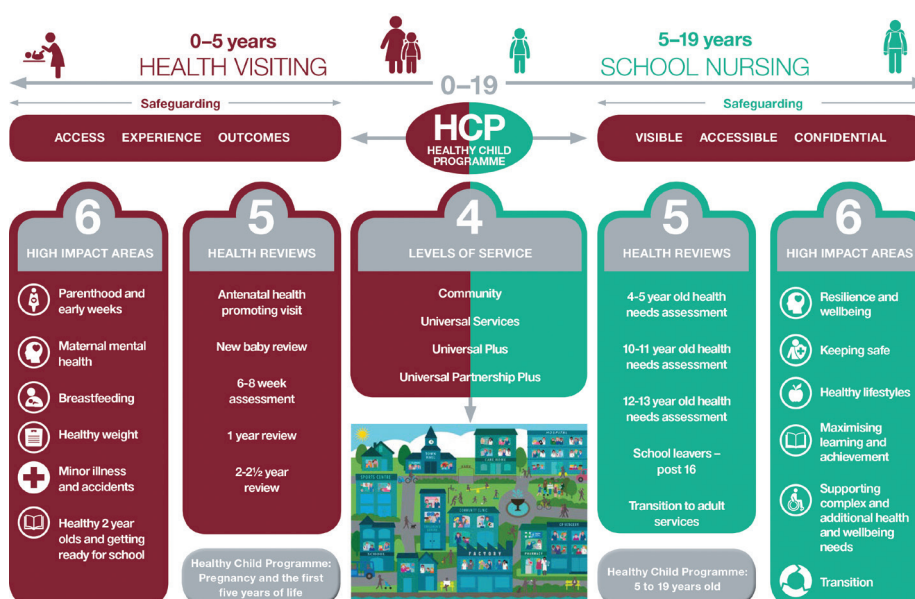
Source: PHE

An evidence update

When HCP 0–5 was first introduced in 2009[3] it was based on the best available evidence summarised in the fourth edition of *Health for All Children*[4] and supplemented with guidance from the National Institute for Health and Clinical Excellence. This report refreshes the 2009 evidence by consolidating key messages from two recently completed evidence reviews:

- **The Rapid Review to Update Evidence for the Healthy Child Programme 0–5,** which summarised key evidence from systematic literature reviews conducted between 2008 and 2014 involving activities aimed at supporting young children's health and development in the early years.[5]

- **Foundations for Life: What works to support parent–child interaction in the early years**, which assessed the strength of evidence underpinning 75 interventions developed to support children's attachment security, behavioural self-regulation and cognitive development between conception and the age of 5.[6]

The most robust messages from both reviews have been further updated with a systematic review of evidence published since 2014.

Findings from the two reviews and current update are prioritised in terms of activities identified as having **good evidence** of improving child and parent outcomes.

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3   Shribman, S., & Billingham, K. (2009). *Healthy Child Programme: Pregnancy and the first five years of life*. Department of Health.

4   Hall, D. M., & Elliman, D. (2006). *Health for all children: revised fourth edition*. Oxford University Press.

5   Axford, N., Barlow, J., Coad, J., Schrader-McMillan, A., Bjornstad, G., Berry, V., Wrigley, Z., Goodwin, A., Ohlson, C., Sonthalia, S., Toft, A., Whybra, L. & Wilkinson, T. (2015) *Rapid Review to Update Evidence for the Healthy Child Programme 0–5*. London: Public Health England. https://www.gov.uk/government/publications/healthy-child-programme-rapid-review-to-update-evidence

6   Asmussen, K., Feinstein, L., Martin, J., & Chowdry, H. (2016). *Foundations for life: What works to support parent child interaction in the early years*. Early Intervention Foundation. Available at: http://www.eif.org.uk/publication/foundations-for-life-what-works-to-support-parent-child-interaction-in-the-early-years/

This means that the intervention or activity has evidence from at least one rigorously conducted impact evaluation which permits an attribution of causality, in keeping with the Early Intervention Foundation's level 3 and 4 evidence criteria.[7] Although this methodology prioritises evidence from manualised interventions over other common health visiting practices, we believe this information is nevertheless useful for informing health visiting and midwifery more generally.

We additionally describe interventions which have been found through robust evaluation to not provide benefits for parents or children. In these instances, we describe the intervention as having **no effect**.

Activities which have not been robustly evaluated are described as having **weak evidence**.

Key messages are organised in terms of children's age and family need within the following priority areas:

Conception to birth
- transition to parenthood
- smoking cessation
- maternal mental health and harmful drug and alcohol use
- intimate partner violence.

Birth to 12 months
- low-birthweight infants
- breastfeeding
- exposure to secondhand smoke
- Sudden Infant Death Syndrome (SIDS)
- sleep training
- attachment security
- early language
- maternal mental health
- preventing unintentional injury
- child abuse and neglect.

We also describe interventions in terms of the following four levels of need.[8]

- **Universal:** Services/interventions which can be made available to all families, including immunisations, developmental reviews and antenatal care.
- **Targeted selective:** Services that target or 'select' families with characteristics that place them at greater risk of experiencing problems. These characteristics include economic hardship, single parenthood, young parents and ethnic minorities. Examples of targeted selective support include advice provided to teenage mothers or childcare that is available to families living in disadvantaged circumstances.
- **Targeted indicated:** Services/interventions for families with a child or parent with a pre-identified issue or diagnosed problem requiring more intensive support. Examples of services/interventions falling into this category include support for antenatal depression and parenting advice for families with a pre-identfied issue with their child's development.

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7   For more on EIF's standards of evidence, see the annex to this report, or: http://guidebook.eif.org.uk/eif-evidence-standards

8   Hardiker, P., Exton, K., & Barker, M. (1991). The social policy contexts of prevention in child care. *British Journal of Social Work*, 341–359.

- **Specialist:** Refers to interventions developed for high-need families, where there is an ongoing problem (such as ongoing illness or special needs) or serious child protection concerns.

Findings: conception to birth

Antenatal development is a natural, but complex process. Mothers support this process by eating nutritious food, maintaining a healthy weight and abstaining from nicotine, alcohol and drugs. Mothers also support their unborn child's development by avoiding high levels of stress. The primary aim of most antenatal interventions is to therefore help mothers take care of themselves and prepare for the transition to parenthood.

Transition to parenthood

Managing the transition to parenthood is an early years high impact area for the Healthy Child Programme. Interventions that aim to support this process typically include activities which give parents information about the childbirth experience, promote breastfeeding and provide strategies for managing the weeks following childbirth.

The extent to which childbirth preparation classes improve birth-related outcomes (reduced pain, fewer birth complications) remains unknown, as few programmes have been rigorously evaluated. However, **there is good evidence showing that the Family Foundations programme reduces parental stress and child attachment-related behaviours when offered to couples expecting their first child.** Family Foundations is a 10-week universal intervention which teaches couples strategies for supporting the parental relationship during the transition to parenthood and establishing positive family routines. Family Foundations has evidence from two randomised controlled trials demonstrating reductions in couple conflict during the child's first year, improved child attachment behaviours at age 1, improved behaviour at age 3 and improved behaviour at school at age 7.

Smoking cessation

Smoking during pregnancy introduces a variety of toxins to the intrauterine environment that are consistently associated with adverse birth outcomes. It is estimated that 10.5% of all women smoke throughout pregnancy, potentially exposing their infants to harmful levels of these toxins. Harmful levels of cigarette toxins in the womb are strongly associated with a variety of adverse child outcomes, including low birthweight and miscarriage.

The aim of most smoking interventions is to help mothers stop their consumption of cigarette smoke and nicotine. There is now good evidence to suggest that various forms of counselling significantly reduce the number of cigarettes smoked per day, although **incentive-based programmes have the strongest evidence of encouraging smoking abstinence during pregnancy.** Incentives are typically offered in the form of vouchers which mothers can use to purchase retail goods. While financial incentives are often more expensive than smoking advice or counselling, economic studies conducted in the UK suggest that reductions in low-birthweight babies and other adverse child outcomes substantially offset their upfront costs.

Maternal mental health and harmful drug and alcohol use

Maternal mental health problems are consistently linked to higher levels of cortisol in the womb and an increased risk of poor birth outcomes. Mothers experience mental health problems at rates comparable to general female population, ranging from 15 to 25%.

Interventions aimed at preventing the onset of mental health problems during pregnancy and the postnatal period have been found to have no effect. However, several recent systematic reviews have confirmed that **universal screening for mental health problems during pregnancy is associated with reduced symptoms of depression and anxiety in expectant mothers**. In particular, studies show that universal mental health screening reduces symptoms of depression in mothers who are not clinically depressed in the absence of any further provision, as well as in clinically depressed mothers when leading to additional effective treatment.

There is good evidence showing that mental health screening is beneficial to mothers diagnosed with mental health problems when combined with evidence-based treatments. Examples of evidence-based treatments include cognitive behavioural therapy (CBT) for the treatment of depression and anxiety, and pharmaceuticals shown to pose minimal harm to the unborn infant for the treatment of severe post-traumatic stress disorder (PTSD), borderline-personality disorder (BPD) and various psychoses, including schizophrenia.

The strength of evidence underpinning various treatments for harmful levels of drug and alcohol use during pregnancy is weak. Commonly used treatments found not to be effective in the general population include brief interventions providing advice to adults engaging in harmful drinking or drug use. However, the efficacy of these interventions during pregnancy has not been explicitly tested.

There is good evidence to suggest that methadone treatment programmes improve birth outcomes among children born to mothers with a heroin addiction. Recent studies have also found that buprenorphine is a safe alternative to methadone for managing opioid addictions during pregnancy.

Intimate partner violence

Pregnancy is a period of particular risk for intimate partner violence (IPV), occurring in approximately one-sixth of all pregnancies. IPV substantially increases mothers' experiences of stress and trauma, resulting in increased levels of cortisol in the womb which may contribute to a variety of adverse childbirth outcomes, including maternal and infant death.

There is now good evidence to support the use of a variety of screening practices for the identification of IPV during the perinatal period. This review has identified two activities with good evidence of reducing IPV in pregnant mothers:

- The Family Nurse Partnership (FNP) programme provides home visiting support for first-time teenage mothers, starting during the mother's pregnancy and lasting until the child's second birthday. FNP has good evidence of reducing maternal reports of IPV, as well as a variety of other important mother and child outcomes. While a recently completed UK trial did not replicate these findings, **FNP remains an evidence-based option for reducing IPV among first-time teenage mothers.**

- Psychosocial support integrated into routine antenatal care has evidence of reducing revictimisation rates among women reporting IPV during their pregnancies. This support provides mothers with information about partner behaviours considered to be abusive, as well as strategies for developing a safety plan. Mothers are also taught CBT techniques for managing symptoms of trauma and depression and are offered smoking cessation support when necessary. Psychosocial support integrated into routine antenatal care has good evidence from one randomised controlled trial (RCT) observing significant reductions in repeat victimisations, symptoms of depression, rates of smoking, and adverse birth outcomes among mothers receiving the intervention in comparison to those who did not.

Findings: birth to 12 months

Infants develop at a remarkable pace during the first 12 months of life. Parents support this process by meeting their infant's physical needs of food and warmth and by creating an environment that is safe and predictable. While the majority of parents do this naturally, a significant minority of parents struggle to understand their infant's needs and respond appropriately. Circumstances which negatively impact parenting behaviours include ongoing economic hardship, high levels of parental conflict, parental mental health problems and harmful drug and alcohol use. Interventions offered during the child's first year therefore often target these vulnerabilities specifically.

Low-birthweight infants

Approximately 7% of babies born each year are considered to have a low birthweight (that is, less than 5.5 pounds or 2.5 kilograms). Causes of low birthweight include multiple births, a preterm birth, smoking and birth-related complications. Low birthweight is also associated with a variety of adverse outcomes throughout children's development, including poor physical health and cognitive delays.

Low-birthweight infants often require time in an incubator to support the development of their vital organs. However, incubators are inadequate for recreating all aspects of the mother's womb, including the sensory and auditory input necessary for early neurological development. Incubators also restrict the amount of time parents spend with their infant, placing stress on the parent–infant relationship. Interventions therefore often aim to improve the quality of physical contact parents have with their infants, as well as increase their understanding and sensitivity towards their infant's cues.

The following interventions have good evidence of improving the negative outcomes frequently associated with low birthweight:

- Kangaroo Mother Care (KMC), increases the skin-to-skin contact between the mother and infant as a way of replicating aspects of the womb environment. KMC involves placing the premature baby upright on his or her mother's chest for at least six hours per day. **Kangaroo Mother Care has good evidence of increasing breastfeeding rates, as well as improving parental sensitivity and increasing children's attachment-related behaviours.** Much of this evidence comes from developing countries, however, meaning it may not be applicable to the UK.

- **Infant massage has good evidence of improving physical outcomes in low-birthweight babies, as well as decreasing parental stress and increasing sensitivity. It is important to note, however, that these benefits have not been replicated with healthy, normal-weight infants.**

- There is good evidence to support the use of 'cue-based' training which aims to help parents understand their infant's feeding cues and maintain a quiet and alert state. Much of cue-based training takes place while the infant is still receiving incubator care in the hospital. **The H-HOPE (Hospital to Home Transition-Optimizing Premature Infant's Environment) and the Mother Infant Transaction Programme (MITP) are both examples of cue-based training programmes with good evidence of improving parental sensitivity and physical outcomes in low-birthweight infants.**

Breastfeeding

There is now good evidence showing that breast milk protects infants from a wide variety of infectious diseases and reduces the risk of breast and ovarian cancer in mothers. There is also good evidence to suggest that the likelihood of these benefits increases with the duration and exclusivity of breastfeeding. The World Health Organization (WHO) therefore recommends that infants be exclusively breastfed for the first six months of life and continue to be breastfed alongside solid food until the child's second birthday.

Rates of breastfeeding in the UK are low in comparison to other developed countries. While rates of initiation after childbirth are high (around 80%), they drop off considerably during the weeks that follow. Recent UK statistics suggest that only 43.2% of all mothers are still nursing at eight weeks following their infants' birth. The majority of breastfeeding promotion activities therefore aim to increase the exclusivity and duration of breastfeeding during the child's first year.

Individual breastfeeding advice, provided to mothers over the phone and in person in the weeks before and after childbirth has the best evidence of increasing breastfeeding initiation and duration rates. Less is known about the extent to which such activities also improve exclusivity, however.

Preventing infant exposure to secondhand smoke

Exposure to secondhand smoke (SHS) during infancy is significantly associated with a variety of negative child health outcomes, including Sudden Infant Death Syndrome (SIDS), increased respiratory tract infections and asthma. Infants and children can also be negatively affected by 'thirdhand' smoke, which is present in the toxic residue from cigarette smoke that exists on furniture and floors.

It is estimated that at least 18% of all infants are exposed to secondhand smoke by the time they are three months old. The majority of these children live in economically disadvantaged households, where family members are more likely to smoke and smoke heavily. Interventions developed to reduce infants' exposure to secondhand smoke include strategies to prevent smoking relapse among low-income mothers who abstained from smoking during their pregnancies, as well as activities aimed at reducing levels of secondhand smoke in homes with young children.

While there is some evidence to support the use of telephone counselling to prevent smoking relapse, studies show that such interventions are not particularly effective when offered to mothers in the weeks and months following childbirth. However, **there is good evidence to support the use of interventions which make use of household air quality measurements to help heavy smokers reduce the amount of secondhand smoke present in their homes.**

Sudden Infant Death Syndrome

Sudden Infant Death Syndrome (SIDS) is the sudden, unexplained death of an infant (12 months or younger) during sleep. While the reasons for SIDS remain unknown, there is good evidence to suggest it is associated with prone sleeping positions. Other risks associated with SIDS include low birthweight, exposure to cigarette smoke, increased heating and bed clothing due to winter weather, and co-sleeping with the caregiver on a bed or sofa. Current estimates suggest that SIDS-related infant deaths occur at a rate of 0.3 per 1,000 live births. **There is good evidence to support the advice currently provided to new parents on placing children on their backs when putting them to sleep.**

Sleep training

Sleep difficulties during infancy have been linked to a wide range of child problems, including behavioural difficulties and an increased risk of child physical illness. Parents also report higher levels of stress and depression when their infants are not able to sleep through the night.

Sleep advice provided during the first year is commonly referred to as 'behavioural sleep training.' Such advice is typically provided by a health professional or through a pamphlet. This advice may include information about one or more of the following strategies for helping infants fall and stay asleep:

- **Graduated extinction** – also known as 'controlled crying'. Parents check in with the infant to let him/her know they are there, but otherwise do not respond to the crying or soothe the child to sleep.
- **Bedtime fading/positive routines** – examples include 'bath, book and bed' which help children settle down, so they fall asleep on their own when it is time to go to bed.

There is good evidence to support the use of graduated extinction and bedtime fading advice with parents who are having sleep difficulties with an infant who is four months or older. Parents acting on this advice report significant reductions in the time required for their infant to fall asleep, fewer night wakings and increases in the amount of time infants sleep. Parents also report less stress and fewer symptoms of depression once infants sleep through the night. Studies also find that extinction practices do not increase the likelihood of any adverse consequences, including reductions in breastfeeding and attachment security or increases in SIDS-related deaths.

Attachment security

Attachment security refers to the positive expectations young children develop about themselves and others. Attachment security develops as a result of positive and predictable interactions with the caregiver occurring on a regular basis during the child's first year. A secure attachment during infancy is significantly associated with positive social and emotional development throughout the life-course, whereas an insecure attachment increases the risk of later mental health problems.

Parents foster an infant's attachment security by responding sensitively to their child's needs. The majority of parents are able to do this naturally, without any additional support or training from others. Studies suggest that between two-thirds and three-quarters of all infants are securely attached to their parents by the age of 1.

A significant minority of parents struggle to respond sensitively to their child's needs, however, contributing to an insecure or disorganised attachment relationship. A disorganised attachment is consistently associated with insensitive and inappropriate parenting, including child maltreatment. Circumstances that limit parents' ability to engage sensitively and positively with their child include high levels of ongoing stress, mental health difficulties and attachment insecurity in their own childhoods. Attachment-based interventions therefore typically target parents experiencing difficulties which may limit their ability to care for their children in an appropriate and sensitive way.

A variety of interventions have good evidence of improving the sensitivity of highly vulnerable parents. These include various forms of video-feedback and short-term sensitivity training. However, relatively few attachment-based interventions have specific evidence of improving any child outcomes.

Attachment-based interventions identified as having good evidence of improving child outcomes include:

- **The Family Nurse Partnership programme:** FNP is a two-and-a-half-year home visiting programme offered to first-time single mothers. It has good evidence from studies conducted in the United States of improving attachment security amongst infants who are at risk of child maltreatment. It should be noted, however, that these benefits have not been replicated in a recent UK RCT.

- **Infant–Parent Psychotherapy (IPP; Lieberman model):** A psychodynamic therapeutic intervention aimed at helping mothers address issues in their past which may be interfering with their ability to respond sensitively to their child. IPP has good evidence of improving infant attachment security and rates of child maltreatment. IPP also has evidence of reducing symptoms of trauma in mothers and children who have experienced domestic abuse.

- **Child First:** A year-long home visiting intervention offered to highly vulnerable families where there is a serious risk of attachment-related problems. Families receive IPP for a period of 12 months alongside ongoing keyworker support and increased community engagement. Child First has evidence of supporting children's language development and reducing referrals to child protection services.

Early language

Most children can say one or two words by the time of their first birthday. This is a result of a natural but complex process which permits infants to discriminate sounds, understand them as having specific meaning, and then replicate them to communicate ideas and feelings with others. Parents support this process through daily language 'scaffolding' in the form of highly exaggerated infant-directed speech that is responsive to infant cues. The quality of this speech is highly associated with the child's mother's education and income. Although income-related differences in children's language development have not been observed during the child's first year, they are already evident by 18 months. For this reason, interventions addressing children's early language learning often target low-income families.

There is good evidence that intensive home visiting interventions support children's language development in the early years. These programmes include Family Nurse Partnership, which has UK evidence of improving child language outcomes, as well as Child First and Parents as First Teachers.

Maternal mental health

Supporting maternal mental health is an early years high impact area. There is good evidence to suggest that depressive symptoms are more prevalent during the weeks following childbirth than at any other point in women's lives. Some studies suggest that maternal mental health problems have the potential to interfere with mothers' ability to respond sensitively to their child's needs. There is therefore a strong need for ongoing maternal mental health screening throughout children's early development.

While there is consistent evidence to suggest that maternal mental health problems are difficult to prevent, there is good evidence that mental health problems can be successfully treated once identified.

Interventions known to improve mental health outcomes in adults include:

- antidepressants and other pharmacological treatments
- CBT
- interpersonal therapy
- psychodynamic therapy
- non-directive counselling.

Of these approaches, **CBT and psychodynamic therapy have the strongest evidence of reducing symptoms of depression and anxiety during the postpartum period.** However, the extent to which CBT and other interventions also improve child outcomes as not been explicitly tested.

Preventing unintentional injuries

Injuries are a primary reason for emergency department visits for children under the age of 4 and a leading cause of preventable death in infancy. The majority of injuries occurring in infancy take place in the home and are preventable. Factors contributing to unintentional injuries include inadequate supervision and increased exposure to various household risks.

Interventions aimed at reducing unintentional and preventable injuries typically provide parents with advice on how to improve supervision and safety within the home. **There is good evidence showing that home safety equipment schemes increase parents' knowledge of home safety**, but the extent to which they prevent child injuries from occurring in the first place has not been explicitly tested.

Reducing the risk of child maltreatment

In 2015/2016, 4,020 unborn children and 11,860 infants were identified as being in need because of concerns involving child abuse and neglect. An additional 1,020 unborn children and 5,080 infants were subject to a child protection plan. Studies have also found that infants are more likely to die as a result of child maltreatment, representing a disproportionate number (40% or more) of serious case reviews.

Studies additionally show that over half of child protection cases involving an unborn child or infant are based on concerns related to child neglect. Neglect in infancy often occurs as a result of harmful maternal drug or alcohol use, which can contribute to children becoming unnecessarily ill, not developing as expected, experiencing increased prevalence of unintentional injuries, or dying because of unsafe sleeping arrangements. The next most prevalent category of child maltreatment during pregnancy and infancy is physical abuse, involving approximately 12% of all cases. Physical abuse in infancy often involves parents deliberately harming their infant by hitting or shaking them.

Studies consistently show that children are at a greater risk of maltreatment when:

- one or both parents have a mental health problem
- there is ongoing interparental violence in the home
- one or both parents misuse drugs or alcohol.

Other factors known to increase the likelihood of child maltreatment include high levels of economic disadvantage, a low birthweight or premature birth, higher numbers of children per household, low levels of social support or single parenthood and a history of parental maltreatment in childhood. Interventions aimed at preventing or reducing child maltreatment therefore typically target families experiencing one or more of these adversities.

Several recently completed systematic reviews have confirmed that **home visiting in highly vulnerable families has the best evidence of reducing child maltreatment during infancy**. Interventions with specific evidence of preventing or reducing child maltreatment include:

- Family Nurse Partnership, which has consistent evidence of preventing child maltreatment in the United States and the Netherlands, although such reductions have not been confirmed in the UK
- Child First
- Infant–Parent Psychotherapy.

Child First and Infant–Parent Psychotherapy additionally have evidence of reducing child maltreatment when one or both parents have a mental health problem or there are issues involving intimate partner violence. However, less is known about the effectiveness of interventions targeting harmful levels of alcohol and drug use. While motivational interviewing, Family Drug and Alcohol Courts, and the Parents Under Pressure programme all show promise in improving parent outcomes, the extent to which children also benefit has not yet been rigorously tested.

Activities found not to work

This review also identified a number of common practices which have been found not to be effective through rigorously conducted evaluations or systematic reviews. These activities include:

- **Infant massage, when offered universally to mothers and healthy, full-term infants, has been found through systematic reviews to have no effect.** While mothers often enjoy attending infant massage classes, improvements in maternal sensitivity and other child benefits have not been consistently observed. In addition, there is evidence to suggest that infant massage may result in adverse child outcomes when offered to women at risk of maltreating their children.

- **Parent management training (PMT) offered during the child's first year has been found to have no effect.** While there is good evidence showing that PMT is highly effective when made available to parents experiencing difficulties in the behaviour of a child over the age of 2, there is no evidence to suggest that it effectively prevents behavioural problems from occurring when offered during infancy or pregnancy.

- **Book gifting and other light-touch interventions aimed at supporting children's language development have been found to have no effect in improving children's language or changing parental behaviours.**

- **Activities aimed at preventing maternal mental health problems**, including depression.

- **Brief interventions aimed at reducing harmful drinking and drug misuse have been found to have no effect in changing the drinking behaviours in adults in the general population.** While such interventions originally showed promise with substance misusing adults, several recent trials have observed few lasting benefits, including relapse prevention. The efficacy of such programmes with pregnant mothers has not been explicitly tested, however.

A summary of the interventions and activities found to work and not work is provided in table S1.

TABLE S1: WHAT WORKS AND WHAT DOES NOT – EVIDENCE-BASED ACTIVITIES AND INTERVENTIONS FOR PARENTS AND CHILDREN DURING THE EARLY YEARS

Programmes in **green** are evidence-based; activities in **red** have strong evidence suggesting no effect. Interventions are only included if there is robust evidence (at least EIF level 3) supporting their effectiveness or lack thereof.

	Conception to birth	0 to 12 months
Screening	Smoking Maternal mental health Drug and alcohol misuse IPV	Continued maternal mental health screening
Universal	Couple support embedded in preparation for childbirth (**Family Foundations**)	Specialist-led lactation advice Advice on infant sleeping positions (birth) **Infant massage** **Parent training aimed at preventing child behavioural problems** **Book gifting**
Targeted selective	Home visiting for first-time teen mothers (**Family Nurse Partnership**) **Interventions that aim to prevent maternal mental health problems from occurring**	Home visiting support to promote children's learning in socially disadvantaged families (**Family Nurse Partnership; Parents as First Teachers**) The installation of gates and other safety equipment for economically disadvantaged families
Targeted indicated	Incentive-based smoking interventions Empowerment-based counselling for women experiencing IPV CBT for mothers experiencing depression or anxiety	Kangaroo Mother Care for preterm infants Cue recognition training for preterm infants Infant massage for preterm infants Behavioural sleep training advice (8 weeks) Multicomponent interventions to reduce children's exposure to secondhand smoke Antidepressants, cognitive behavioural therapy and other talking therapies for mothers identified with maternal depression **Infant–Parent Psychotherapy (Lieberman model)** for infant/mother dyads at risk of child maltreatment, including concerns involving maternal mental health and intimate partner violence **Child First** for at-risk families living in socially disadvantaged circumstances, where there are concerns involving child maltreatment, intimate partner violence or maternal mental health issues
Specialist	**Brief interventions for suspected drug and alcohol misuse** Detoxification	**Brief interventions for suspected drug and alcohol misuse** Detoxification

Source: EIF

Summary of conclusions and implications for practice

1: The evidence base is growing

Knowledge of what does and does not work continues to grow at a rapid pace. Our update to the Foundations for Life and HCP Rapid Review confirmed that there is good evidence underpinning many of the activities already delivered through the Healthy Child Programme. For example, studies have now verified that a variety of common screening activities have good evidence of accurately identifying parental mental health problems and effectively monitoring progress. These screening activities also have good evidence of improving parent and child outcomes when evidence-based services are offered as a result.

Our review has also identified a variety of evidence-based interventions that can be offered at the universal, targeted selective and targeted indicated level to meet a wide range of family needs. While notable gaps in the evidence base remain, there are several areas of practice that could clearly be enhanced by evidence-based activities.

Our knowledge of what does not work is increasing, as well. For example, there is now consistent evidence to suggest that parent management training offered at the universal level during infancy does not measurably improve parent or child outcomes in the short run, nor prevent behavioural problems from occurring as children grow older. While there is good evidence to support the use of parent management training interventions for children over the age of 2, their impact for parents and babies appears to be minimal.

2: Not all problems are preventable

Prevention of modifiable risks and promotion of positive protective factors is a vital role of health visiting universal services. However, not all problems are preventable through maternity and health visiting services. For example, postnatal depression is a condition that is difficult to prevent, although there are a variety of interventions with good evidence of treating symptoms of depression once they occur. Resources should therefore target effective interventions to identify, assess and mitigate problems as well as new research to determine the efficacy of new interventions.

3: There are few magic bullets or quick wins

The majority of effective interventions identified in this review are relatively intensive – that is, taking place for three months or longer through multiple family visits. This is because studies consistently suggest that time is often necessary for families to develop a positive relationship with professionals, to appreciate that aspects of their circumstances may need to change and to develop skills to make that change happen. For example, many of the smoking cessation interventions identified in this review are more intensive than the advice traditionally made available. While these interventions are typically more expensive than care as usual, their costs need to be considered against increased benefits for parents and children. In the case of smoking cessation, these benefits include improved birth outcomes, reduced respiratory problems, and reduced rates of adult and child mortality.

It is worth noting, however, that this report did identify a number 'quick wins': relatively short interventions with evidence of improving child and parent outcomes in the short and long term for large sections of the general population.

These interventions include:

- advice about infant sleeping positions that have dramatically reduced SIDS-related deaths over the past 20 years
- parental support offered to couples expecting their first child also appears to measurably improve parents' ability to establish positive family routines and reduce conflict around childcare issues
- sleep training interventions offered to families experiencing problems with their infant's sleep at four months or older
- individualised lactation support offered to mothers in the weeks just before and after child birth.

4: The Healthy Child Programme is a good delivery mechanism for many of the interventions described in this report

The vast majority of interventions and practices identified in this report were developed specifically to be delivered or coordinated by health professionals, including midwives, nurses and health visitors. With minimal additional training in the programme delivery models, it is highly likely that the majority of interventions could be successfully delivered as part of the Healthy Child Programme. This includes all of the screening activities described in this report, as well as many of the universal and targeted selective interventions. A wide variety of targeted indicated interventions could also be delivered by qualified midwives, nurses and health visitors.

5: Good systems are required to identify need and refer families on to additional support as and when needed

While a wide variety of the interventions described in this report can be successfully delivered through routine midwifery and health visiting care, some require delivery by specialist teams. These teams might include lactation specialists, smoking cessation teams and health visiting teams trained and supervised to provide intensive home visiting to highly vulnerable families. This means that some interventions may require the set-up and supervision of new specialist teams in order to maximise their effectiveness. Good referral systems may also be required to coordinate services across specialist teams.

Some of the more intensive interventions also require good referral systems between midwifery, health visiting, adult mental health and social work teams in order to be successful. This is particularly true of interventions targeting highly vulnerable families, including those where mental health problems, intimate partner violence and substance misuse are clearly an issue.

6: Evidence of effectiveness is not a replacement for ongoing evaluation

The fact that an intervention has evidence from a rigorous evaluation conducted at one time and place does not mean that it will be effective again. While the evidence underpinning the interventions identified in this report increases the likelihood of improved child and parent outcomes, it is not a guarantee. The evidence described in this report is therefore not a replacement for good monitoring and evaluation systems as interventions are set up and delivered.

7: Evidence that an intervention is effective for parents does not necessarily mean that children will also benefit

Many of the interventions and activities identified in this report have evidence of improving outcomes for parents, but not their children. In some cases, this is

because child outcomes have not been measured and in other cases, rigorous studies have failed to verify child improvements. It is therefore not sufficient to assume that children will automatically benefit from interventions that only have evidence of meeting parents' needs.

While evidence of improved parent outcomes is a good starting point, given the aims of HCP 0–5 further testing is required to verify child benefits. This caveat is particularly true of interventions targeting maternal mental health. It is now clear that a wide range of interventions have good evidence of reducing symptoms of depression and anxiety in the general population, as well as in mothers during the postnatal period. The extent to which their children also benefit remains unknown, however. We view this to be a significant gap in the evidence base, especially given the significant impact maternal mental health has on children's development and wellbeing.

8: There is a lack of evidence about when and how to intervene when parents misuse drugs and alcohol

Parental drug and alcohol misuse and dependency significantly impairs parents' ability to understand their young child's needs and provide appropriate levels of supervision. It is highly associated with a variety of negative child outcomes and is a primary reason for child protection referrals during the antenatal period and first 12 months of life. Parental substance misuse is also difficult to detect and can be resistant to treatment.

The Rapid Review and this current update failed to identify any interventions with robust evidence of improving outcomes for drug and alcohol misusing parents and their infants. This is because good-quality studies are generally lacking and those that exist have failed to verify meaningful benefits for the parent or child.[9,10] Although a number of effective drug and alcohol treatments exist for the general adult population, improvement is often gradual and relapse is common. In addition, the extent to which these interventions improve parenting behaviours remains largely unknown.

We believe that the lack of evidence involving interventions for parents who misuse drugs and alcohol represents a serious gap in the evidence base. More high-quality research is therefore urgently required to understand the extent to which substance misuse interventions improve parenting behaviours and child outcomes.

9   Brandon, A. R. (2014). Psychosocial interventions for substance use during pregnancy. *The Journal of Perinatal & Neonatal Nursing*, *28*(3), 169–177.

10   Lui, S., Terplan, M., & Smith, E. J. (2008). Psychosocial interventions for women enrolled in alcohol treatment during pregnancy. *The Cochrane Library*.

1. The Healthy Child Programme 0–5: Giving every child the best start in life

The first five years of life represent a significant period in human development. During this time, a helpless infant matures into an individual who can walk, talk and express an opinion. This dramatic transformation is facilitated by a highly malleable brain that rapidly matures as a result of neurological processes that are influenced by the quality of the child's environment. The majority of parents are able to support this process with little or no additional help than what is available through universal services. However, a minority of parents struggle. This may be because they are isolated from their family or community, or are coping with vulnerabilities, such as mental health problems or economic hardships, which may interfere with their ability to parent. In these circumstances, it is crucial that parents can access additional support that is of high quality and well matched to their individual needs.

The Healthy Child Programme 0–5 (HCP 0–5) is an evidence-based framework for the delivery of public health services to families with a child between conception and age 5. This is a universal prevention and early intervention programme and forms an integral part of Public Health England's priority to ensure:

- every woman experiences a healthy pregnancy
- every child is ready to learn by the age of 2
- every child is ready for school by the age of 5
- a reduction in child obesity and inequalities in oral health.

The HCP 0–5 comprises child health promotion, child health surveillance, screening, immunisations, child development reviews, prevention and early intervention to improve outcomes for children and reduce inequalities. The universal reach of HCP 0–5 ensures that all children are offered five mandated health reviews by the health visiting service, which provides an invaluable opportunity to both support all families to give their children the best start, and identify children and families who are most at risk of poor outcomes. The health visiting service supports parents to identify the most appropriate level of support for their individual needs. Health visitors provide leadership for delivery of the HCP 0–5 and work with partners to deliver a comprehensive programme of support.

Over the past five years the health visiting service has undergone rapid growth and transformation, setting out the 4-5-6 model for health visiting which identifies **4** levels of health visiting support, coordinated through **5** universal health visiting reviews, which emphasise **6** high impact areas (see figure 1.1).[11,12]

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11   PHE (2016). *Best start in life and beyond: Improving public health outcomes for children, young people and families*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/554499/Service_specification_0-19_commissioning_guide_1.pdf

12   PHE (2014). Supporting public health: children, young people and families. Available at: https://www.gov.uk/government/publications/commissioning-of-public-health-services-for-children

FIGURE 1.1: THE 4-5-6 MODEL OF HEALTH VISITING SUPPORT
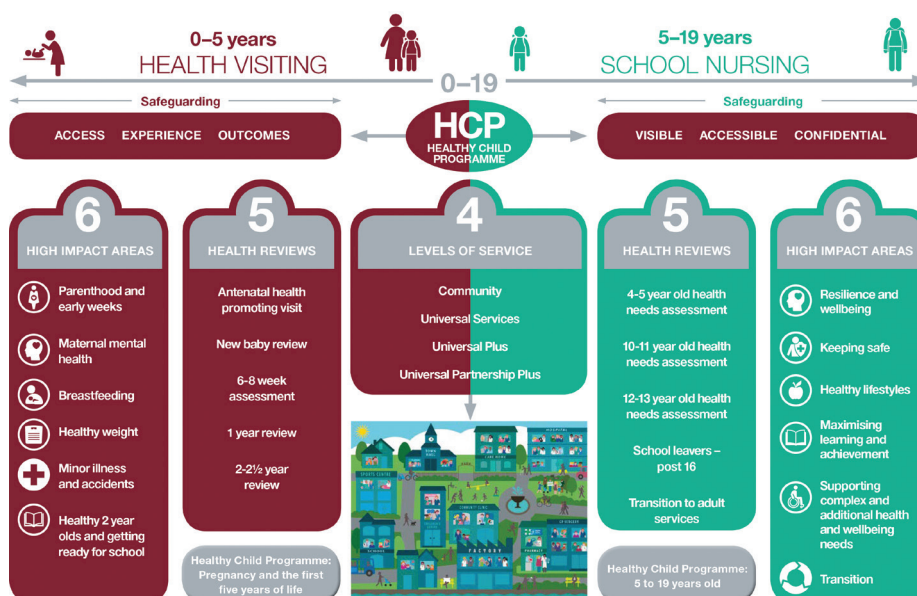
Source: PHE

The four levels of health visiting offer quality and standardisation for service delivery while enabling the scope for local adaptability to support families in need and children at risk of poor outcomes.

Family needs are assessed at five mandated universal health reviews which take place during the antenatal period and the child's first two years. During these visits, health visitors provide families with age-specific information associated with the six high impact areas and work with them to determine whether additional support (such as additional health visits and evidence-based programmes) is required. Figure 1.2 summarises the nature and content of the five universal health visits.

FIGURE 1.2: THE HEALTHY CHILD PROGRAMME 0–5

Source: PHE

An evidence-based approach

The activities identified by the HCP 0–5 standard are informed by the most rigorous evidence available to date. When implemented properly, it is assumed that HCP 0–5 activities will lead to:

- strong parent–child attachment and positive parenting, resulting in better social and emotional wellbeing among children
- care that helps to keep children healthy and safe
- healthy eating and increased activity, leading to a reduction in obesity
- prevention of serious and communicable diseases
- increased rates of breastfeeding
- readiness for school and improved learning
- early recognition of growth disorders and risk factors for obesity
- early detection of – and action to address – developmental delay, abnormalities and ill health, and concerns about safety
- identification of factors that could influence health and wellbeing in families
- better short- and long-term outcomes for children who are at risk of social exclusion.

The primary aim of this review is to summarise the most recent evidence involving activities which aim to improve the above outcomes in families during the perinatal period – that is, families who are expecting a new baby or have an infant who is 12 months or younger. This report accomplishes this by updating the evidence described in two recently published reviews:

- **The Rapid Review to Update Evidence for the Healthy Child Programme 0 to 5** (March 2015), which summarises the evidence underpinning interventions and activities developed to support young children's health and development.[13]
- **Foundations for Life** (July 2016), which assesses the strength of evidence under-pinning 75 interventions developed to support children's attachment security, self-regulatory behaviour and cognitive development between conception and age 5.[14]

This current review also provides information about interventions and activities identified as having good evidence in studies and systematic reviews published since Foundations for Life and the Rapid Review. This information was identified through a third systematic search making use of citation forward methodologies from 2014 to the present, as described in the annex to this report.

Programmes and practices described in this report as having **good evidence** include those with evidence of improving an important child outcome from at least one evaluation study that was conducted with sufficient rigour to permit an attribution of causality to the programme model, which is consistent with the EIF level 3 standard.[15] We additionally describe interventions which have been found through robust evaluation to not provide benefits for parents or children as having **no effect**. Activities which have not been robustly evaluated are described as having **weak evidence** or as not having been explicitly tested.

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13   Axford, N., Barlow, J., Coad, J., Schrader-McMillan, A., Bjornstad, G., Berry, V., Wrigley, Z., Goodwin, A., Ohlson, C., Sonthalia, S., Toft, A., Whybra, L. & Wilkinson, T. (2015) *Rapid Review to Update Evidence for the Healthy Child Programme 0–5*. London: Public Health England. Available at: https://www.gov.uk/government/publications/healthy-child-programme-rapid-review-to-update-evidence

14   Asmussen, K., Feinstein, L., Martin, J., & Chowdry, H. (2016). *Foundations for life: What works to support parent child interaction in the early years*. Early Intervention Foundation. Available at: http://www.eif.org.uk/publication/foundations-for-life-what-works-to-support-parent-child-interaction-in-the-early-years/

15   For more on EIF's standards of evidence, see the annex to this report, or: http://guidebook.eif.org.uk/eif-evidence-standards

Messages are organised within two chapters covering the antenatal period and the child's first year. Each chapter begins with an overview of key developmental processes. This is followed by a summary of what is known about the evidence base for each age period. Information about specific evidence-based interventions is included for programmes identified as having level 3 or higher evidence to illustrate key points. Each chapter concludes with a summary of recommendations for service delivery at the universal, targeted selective, targeted indicated and specialist level, as defined in figure 1.3.

FIGURE 1.3: LEVELS OF NEED

Specialist

Targeted indicated

Targeted selective

Universal

Source: Based on Hardiker, Exton, & Barker (1991)[16]

Level of need is distinguished by the following four levels.

- **Universal**: Practices/interventions which are available to all families, including immunisations, developmental reviews and antenatal care.

- **Targeted selective**: Practices or interventions that target or 'select' families with characteristics that place them at greater risk of experiencing problems. These characteristics include economic hardship, single parenthood, young parents and ethnic minorities. Examples of targeted selective support include advice provided to teenage mothers or childcare that is available to families living in disadvantaged circumstances.

- **Targeted indicated**: Practices/interventions for families with a child or parent with a pre-identified issue or diagnosed problem requiring more intensive support. Examples of services/interventions falling into this category include support for antenatal depression and parenting advice for families with a pre-identified issue with their child's development.

- **Specialist**: Refers to interventions developed for high-need families, where there is an ongoing problem (such as illness or special needs) or serious child protection concerns.

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16   Hardiker, P., Exton, K., & Barker, M. (1991). The social policy contexts of prevention in child care. *The British Journal of Social Work*, 341–359.

The report concludes with a final chapter providing a set of recommendations for how evidence-based interventions and activities could be implemented through the HCP 0–5 programme. This concluding chapter includes a table of evidence-based activities organised by children's age and family level of need.

2. Findings: conception to birth

Overview

This chapter reviews the evidence underpinning interventions and practices targeting the antenatal period, beginning with conception and ending with the child's birth. The primary outcome of the antenatal period is a healthy baby. A healthy baby, identified through a healthy birthweight, is one of the six high impact areas prioritised by HCP 0–5.

Healthy development in the womb is a natural but complex process. During pregnancy, a single fertilised cell is transformed into a fully developed baby, who can breathe, feed and communicate through reflexive functions such as crying by the time it is born. Mothers nurture this process by providing a sufficiently enriching intrauterine environment through proper nutrition and the avoidance of toxic substances, such as tobacco, alcohol and illicit drugs. Positive economic circumstances and supportive relationships also facilitate mothers' ability to care for themselves and their unborn child.[17,18]

Complications can arise during pregnancy, however, when mothers experience higher than average levels of stress.[19] Stress creates problems for the unborn child by reducing the mother's ability to adequately care for herself, and by potentially increasing cortisol and other hormones in the womb to levels that are known to be harmful to the unborn child. Common sources of elevated maternal stress include financial hardship, relationship problems, mental health difficulties (including alcohol and drug misuse), single parenthood and an undesired pregnancy.[20]

Activities which aim to improve pregnant mothers' ability to care for themselves and reduce their levels of stress include:

- regularly scheduled antenatal visits to support mothers' physical health and nutrition throughout pregnancy
- advice on how to stop smoking and eliminate alcohol
- mental health screening and access to evidence-based therapies when the need arises
- support that prepares both parents for the birth of the new baby and transition to parenthood.

Preparation for parenthood

It is not uncommon for parents to experience some stress and anxiety when anticipating the birth of a child, especially when it is for the first time. Information about how to manage childbirth and what to expect when the baby arrives may therefore alleviate some of the anxiety parents may experience. This is why

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17 Roy-Matten, N., Moutquin, J. M., Brown, C., Carrier, N., and Bell, L. (2011). The impact of perceived maternal stress and other psychosocial risk factors on pregnancy complications, *Journal of Obstetrics and Gynaecology of Canada, 33*, 344–352.

18 National Scientific Council on the Developing Child [NSCD] (2008). The Environment and Experiences of Pregnant Mothers Affect Foetal Brain Development. Available at: http://www.developingchild.net

19 NSCD (2006). Early exposure to toxic substances damages brain architecture. Available at: http://www.developingchild.net

20 NSCD (2006). The Effects of Toxic Stress During Pregnancy. Available at: http://www.developingchild.net

managing the transition to parenthood is identified as one of the six HCP 0–5 high impact areas.

The Rapid Review considered the evidence underpinning preparation for parenthood programmes and observed that while there is some evidence to suggest that group-based advice improves maternal health-related behaviours (such as healthy diet, reduced smoking), the extent to which general antenatal education improves birth-related outcomes, such as reduced labour pain or increased breastfeeding, remains unknown.[21] However, **there is good evidence to support the use of preparation for parenthood courses for couples expecting their first child.** This evidence comes from two systematic reviews which observed reductions in parental reports of stress and increased couple satisfaction at the time of the child's birth.[22,23]

The **Family Foundations** programme provides a good example of the kinds of benefits preparation for parenthood courses can achieve when offered to low risk (that is, no risk of domestic violence or drug or alcohol misuse) couples anticipating the birth of their first child. During the second half of the mothers' pregnancy, parents attend five group sessions embedded in a standard childbirth class offered through maternity services. During these sessions, parents receive information about what to expect during childbirth and early infancy and learn strategies for improving communication and reducing conflict around childcare issues. The course pauses at the time of the baby's birth and then reconvenes for an additional four sessions when the baby is approximately four months old. At these final sessions, parents receive information about how to establish positive sleeping and eating routines and learn strategies for reducing conflict around childcare issues.

Family Foundations was assessed as having level 4 level evidence on the basis of two randomised controlled trials (RCTs) which observed reductions in maternal depression, inter-parental conflict and the use of physical punishment in couples attending the programme. Family Foundations children were also better able to sooth themselves at 10 months, and were rated as having improved behaviour at 3.5 and 7 years by their parents and teachers respectively. A RCT has since replicated these findings and has also confirmed reduced adverse birth outcomes in mothers reporting higher levels of stress, depression and anxiety during pregnancy.[24,25,26,27,28]

21   Schrader-McMillan, A., Barlow, J. and Redshaw, M. (2009). Birth and beyond: A review of evidence about antenatal education. Department of Health.

22   Petch, J., & Halford, W. K. (2008). Psycho-education to enhance couples' transition to parenthood. *Clinical Psychology Review*, *28*(7), 1125–1137.

23   Pinquart, M., & Teubert, D. (2010). A meta-analytic study of couple interventions during the transition to parenthood. *Family Relations*, *59*(3), 221–231.

24   Feinberg, M. E., & Kan, M. L. (2008). Establishing family foundations: intervention effects on coparenting, parent/infant well-being, and parent-child relations. *Journal of Family Psychology*, *22*(2), 253.

25   Feinberg, M. E., Kan, M. L., & Goslin, M. C. (2009). Enhancing coparenting, parenting, and child self-regulation: Effects of family foundations 1 year after birth. *Prevention Science*, *10*(3), 276–285.

26   Feinberg, M. E., Jones, D. E., Kan, M. L., & Goslin, M. C. (2010). Effects of family foundations on parents and children: 3.5 years after baseline. *Journal of Family Psychology*, *24*(5), 532.

27   Feinberg, M. E., Jones, D. E., Roettger, M. E., Solmeyer, A., & Hostetler, M. L. (2014). Long-term follow-up of a randomized trial of family foundations: Effects on children's emotional, behavioral, and school adjustment. *Journal of Family Psychology*, *28*(6), 821.

28   Feinberg, M. E., Jones, D. E., Hostetler, M. L., Roettger, M. E., Paul, I. M., & Ehrenthal, D. B. (2016). Couple-focused prevention at the transition to parenthood, a randomized trial: effects on coparenting, parenting, family violence, and parent and child adjustment. *Prevention Science*, *17*(6), 751–764.

Smoking cessation

Recent UK statistics suggest that 10.5% of women smoke at the time of delivery.[29] Smoking during pregnancy is significantly associated with a wide variety of negative birth outcomes, including low birthweight, heart defects, diabetes and asthma.[30] These negative outcomes are likely due to the toxins present in cigarette smoke, including nicotine and carbon monoxide – which reduce the flow of oxygen to the unborn child.[31,32] Studies show that these toxins negatively affect the placenta and birth canal which, in turn, increases the risk of a premature birth or miscarriage. Although the risk of adverse outcomes increases with the number of cigarettes smoked per day, negative birth outcomes are still observed among mothers who smoke less than one cigarette per day.[33] HCP 0–5 therefore recommends that all mothers abstain from smoking entirely during their pregnancies.

The Rapid Review, and a subsequent Cochrane update[34] have both concluded that there is good evidence to support the use of psychosocial interventions for helping mothers reduce or quit smoking during pregnancy. Examples of psycho-social interventions include activities such as counselling, cognitive behavioural therapy (CBT) and incentive-based programmes offering rewards for smoking cessation.[35] Of these models, incentive-based programmes have the strongest and most consistent evidence, demonstrating higher levels of total abstinence and greatly improved childbirth outcomes.[36,37] In this respect, studies have found that such interventions are particularly effective when higher monetary values are offered to socially disadvantaged mothers.[38]

While incentive-based interventions are typically more expensive than the majority of psychosocial interventions, a NICE-commissioned economic analysis observed that such costs could readily be offset through reductions in birth complications related to smoking.[39] The NICE analysis therefore concluded that **incentive-based programmes should be made available at the targeted indicated level to socially**

29 See: http://bit.ly/nhs-smoking-status-at-time-of-delivery

30 Mund, M., Louwen, F., Klingelhoefer, D., & Gerber, A. (2013). Smoking and pregnancy—a review on the first major environmental risk factor of the unborn. *International Journal of Environmental Research and Public Health*, *10*(12), 6485–6499.

31 Walsh, R. A. (1994). Effects of maternal smoking on adverse pregnancy outcomes: examination of the criteria of causation. *Human Biology*, 1059–1092.

32 Wickstrom, R. (2007). Effects of nicotine during pregnancy: human and experimental evidence. *Current Neuropharmacology*, *5*(3), 213–222.

33 Tong, V. T., England, L. J., Rockhill, K. M., & D'Angelo, D. V. (2017). Risks of Preterm Delivery and Small for Gestational Age Infants: Effects of Nondaily and Low-Intensity Daily Smoking During Pregnancy. *Paediatric and Perinatal Epidemiology*, *31*(2), 144–148.

34 ibid Chamberlain et al. (2017)

35 Chamberlain, C., O'Mara-Eves, A., Porter, J., Coleman, T., Perlen, S. M., Thomas, J., & McKenzie, J. E. (2017). Psychosocial interventions for supporting women to stop smoking in pregnancy. *The Cochrane Library*.

36 Tappin, D., Bauld, L., Purves, D., Boyd, K., Sinclair, L., MacAskill, S., ... & Tannahill, C. (2015). Financial incentives for smoking cessation in pregnancy: randomised controlled trial. *British Medical Journal*, *350*, h134.

37 Ierfino, D., Mantzari, E., Hirst, J., Jones, T., Aveyard, P., & Marteau, T. M. (2015). Financial incentives for smoking cessation in pregnancy: a single-arm intervention study assessing cessation and gaming. *Addiction*, *110*(4), 680–688.

38 Higgins, S. T., Washio, Y., Heil, S. H., Solomon, L. J., Gaalema, D. E., Higgins, T. M., & Bernstein, I. M. (2012). Financial incentives for smoking cessation among pregnant and newly postpartum women. *Preventive Medicine*, *55*, S33–S40.

39 Taylor, M. (2009). Economic analysis of interventions for smoking cessation aimed at pregnant women. *Supplementary Report. York Health Economics Consortium*.

disadvantaged mothers who smoke.[40] Pregnant women who smoke can be readily identified through carbon monoxide (CO) monitoring involving carbon monoxide breath tests. NICE (2010a) therefore recommends that all maternity services carry out routine CO monitoring and refer those with elevated levels for specialist stop smoking support.

It is worth noting that there is only weak evidence that nicotine replacement therapy (NRT) is effective in supporting smoking cessation during pregnancy. While several early studies observed significant decreases in the number of cigarettes smoked per day by pregnant mothers receiving NRT, more recent and more rigorous studies have not been able to replicate these findings.[41,42] Despite this, NRT is prescribed for women who smoke during pregnancy in the UK following changes to NRT licensing by the Medicines and Healthcare Products Regulatory Agency (MHRA) in 2005.[43] These changes recognised that there were no circumstances in which it is safer to smoking than to use NRT. MHRA approved an indication which removed restrictions on the use of NRT for pregnant and breastfeeding women and other groups including patients with heart disease and children aged 12–18 years who smoke. Following this update, NICE guidance on smoking cessation in pregnancy recommends the use of NRT for women who struggle to stop smoking without it (PH26).

There is limited evidence regarding why NRT is not effective in pregnancy, but trials suggest that this may be related both to dose – that is, when just a single product is provided (as nicotine is metabolised more rapidly in pregnancy) – and to adherence, as pregnant women are reluctant to use NRT. New research[44] is now under way to trial higher dose (combination therapy) NRT in pregnancy led by Professor Tim Coleman at the University of Nottingham.

Maternal mental health

Maternal mental health problems during pregnancy substantially increase the risk of adverse child birth outcomes through the introduction of harmful levels of cortisol and other hormones into the womb.[45,46] Maternal mental health problems are also unfortunately common – occurring in between 15 and 25% of all pregnancies.[47,48] Examples of commonly occurring disorders include various forms of depression and anxiety. Less common, but highly debilitating, disorders

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40 Higgins, S. T., & Solomon, L. J. (2016). Some recent developments on financial incentives for smoking cessation among pregnant and newly postpartum women. *Current Addiction Reports*, *3*(1), 9–18.

41 Berlin, I., Grangé, G., Jacob, N., & Tanguy, M. L. (2014). Nicotine patches in pregnant smokers: randomised, placebo controlled, multicentre trial of efficacy. *British Medical Journal*, *348*, g1622.

42 Coleman, T., Chamberlain, C., Davey, M. A., Cooper, S. E., & Leonardi-Bee, J. (2015). Pharmacological interventions for promoting smoking cessation during pregnancy. *The Cochrane Library*.

43 See: https://www.gov.uk/drug-safety-update/nicotine-replacement-therapy-and-harm-reduction

44 See: https://www.nihr.ac.uk/research-and-impact/research/nihr-studies/programme-grants-for-applied-research.htm

45 Glover, V. (2015). Prenatal stress and its effects on the fetus and the child: possible underlying biological mechanisms. In *Perinatal programming of neurodevelopment* (pp. 269–283). Springer New York.

46 Kinsella, M. T., & Monk, C. (2009). Impact of maternal stress, depression & anxiety on fetal neurobehavioral development. *Clinical Obstetrics and Gynecology*, *52*(3), 425.

47 Gavin, N. I., Gaynes B. N., Lohr K. N., et al. (2005) Perinatal depression: a systematic review of prevalence and incidence. *Obstet Gynecol 106*,1071–1083.

48 Vesga-López, O., Blanco, C., Keyes, K., Olfson, M., Grant, B. F., & Hasin, D. S. (2008). Psychiatric disorders in pregnant and postpartum women in the United States. *Archives of General Psychiatry*, *65*(7), 805–815.

include bipolar disorder and various forms of psychosis. Dependent drug and alcohol misuse are also described here as mental health problems.

Table 2.1 provides an overview of common maternal mental health problems and their prevalence during pregnancy and the postpartum period.[49] It is worth noting that these rates (taken from recent large-scale studies conducted in developed countries) are comparable to those occurring for women of childbearing age more generally.[50,51,52,53,54] In addition, many mental health disorders are comorbid, meaning that individuals frequently experience symptoms of more than one disorder at the same time. For example, studies consistently report that symptoms of depression are present in at least 50% of all individuals diagnosed with an anxiety disorder.[55,56]

It is worth noting that the prevalence of all mental health disorders remains relatively constant throughout the perinatal period, except for depression, which has been found to increase by between 1 to 2 percentage points during the postpartum period.[57,58] Risks which predict the onset of antenatal mental health problems include a previous history of poor mental health, social isolation (including single parenthood) and economic hardship.[59] Negative outcomes associated with maternal mental health problems include an increased risk of childbirth complications and further social, cognitive and behavioural problems when children are older.[60,61,62]

49   Paschetta, E., Berrisford, G., Coccia, F., Whitmore, J., Wood, A. G., Pretlove, S., & Ismail, K. M. (2014). Perinatal psychiatric disorders: an overview. *American Journal of Obstetrics and Gynecology*, *210*(6), 501–509.

50   Cardwell, M. S. (2013). Eating disorders during pregnancy. *Obstetrical & Gynecological Survey*, *68*(4), 312–323

51   Russell, E. J., Fawcett, J. M., & Mazmanian, D. (2013). Risk of obsessive-compulsive disorder in pregnant and postpartum women: a meta-analysis. *The Journal of Clinical Psychiatry*, *74*(4), 377–385.

52   Sharma, V. (2012). Pregnancy and bipolar disorder: A systematic review. *Journal of Clinical Psychiatry*, *73*, 1447–1445.

53   VanderKruik, R., Barreix, M., Chou, D., Allen, T., Say, L., & Cohen, L. S. (2017). The global prevalence of postpartum psychosis: a systematic review. *BMC Psychiatry*, *17*(1), 272.

54   Ward, V. B. (2008). Pregnancy plus: Eating disorders in pregnancy. *British Medical Journal*, *336*(7635), 93.

55   Kircanski, K., LeMoult, J., Ordaz, S., & Gotlib, I. H. (2016). Investigating the nature of co-occurring depression and anxiety: Comparing diagnostic and dimensional research approaches. *Journal of Affective Disorders*.

56   Field, T., Diego, M., Hernandez-Reif, M., Figueiredo, B., Deeds, O., Ascencio, A., Schanberg, S., & Kuhn, C. (2010) Comorbid depression and anxiety effects on pregnancy and neonatal outcome. *Infant Behavior and Development*, *33*(1), 23–29.

57   Vesga-López, O., Blanco, C., Keyes, K., Olfson, M., Grant, B. F., & Hasin, D. S. (2008). Psychiatric disorders in pregnant and postpartum women in the United States. *Archives of General Psychiatry*, *65*(7), 805–815.

58   Glasheen, C., Colpe, L., Hoffman, V., & Warren, L. K. (2015). Prevalence of serious psychological distress and mental health treatment in a national sample of pregnant and postpartum women. *Maternal and child health journal*, *19*(1), 204–216.

59   Witt, W. P., DeLeire, T., Hagen, E. W., Wichmann, M. A., Wisk, L. E., Spear, H. A., ... & Hampton, J. (2010). The prevalence and determinants of antepartum mental health problems among women in the USA: a nationally representative population-based study. *Archives of Women's Mental Health*, *13*(5), 425–437.

60   Männistö, T., Mendola, P., Kiely, M., O'Loughlin, J., Werder, E., Chen, Z., Ehrenthal, D. B., & Grantz, K. L. (2016). Maternal psychiatric disorders and risk of preterm birth. *Annals of Epidemiology*, *26*(1), 14–20.

61   Howard, L. M., Goss, C., Leese, M., & Thornicroft, G. (2003). Medical outcome of pregnancy in women with psychotic disorders and their infants in the first year after birth. *The British Journal of Psychiatry*, *182*(1), 63–67.

62   Gentile, S. (2017). Untreated depression during pregnancy: Short-and long-term effects in offspring. A systematic review. *Neuroscience*, *342*, 154–166.

Maternal mental health problems during pregnancy also increase the likelihood of continued mental health problems after the child is born. Severe mental health problems often greatly reduce the mother's capacity to care for her child and are a leading cause of maternal death (most often through suicide) during the first 12 months following child birth.[63] Less severe mental health problems also often substantially reduce a mother's ability to understand and respond sensitively to her child's needs. Insensitive parenting, in turn, is associated with a variety of social, emotional and self-regulatory problems as children develop, including an insecure attachment and behavioural problems once children enter school.[64,65,66]

The level of prevalence, combined with the considerable negative impact on child development, suggests that maternal mental health is an extremely important public health concern. A recent economic study estimated that the total human costs per annual birth cohort amount to £8.1 billion.[67] Nearly three quarters of these costs result from the adverse impact of maternal mental health on children's cognitive and behavioural development. Over 20% are assumed by public sector services, particularly in the areas of health and children's social care.

There is good evidence to suggest that at least half of all mental health problems occurring in pregnancy and the postpartum period remain unrecognised or untreated.[68] Thus, a significant amount of economic burden could be reduced through the increased use of evidence-based methods to identify and treat maternal mental health problems during pregnancy and early childhood. Evidence-based interventions would not only reduce the debilitating symptoms associated with maternal mental health problems, but also potentially improve parenting skills and child outcomes. We provide here a brief overview of evidence underpinning the prevalence, risks, screening instruments and treatments for each of these disorders – except for puerperal psychosis, which only occurs after childbirth, and so is discussed in the following chapter.

63   Khalifeh, H., Hunt, I. M., Appleby, L., & Howard, L. M. (2016). Suicide in perinatal and non-perinatal women in contact with psychiatric services: 15 year findings from a UK national inquiry. *The Lancet Psychiatry*, *3*(3), 233–242.

64   Norhayati, M. N., Hazlina, N. N., Asrenee, A. R., & Emilin, W. W. (2015). Magnitude and risk factors for postpartum symptoms: a literature review. *Journal of Affective Disorders*, *175*, 34–52.

65   O'Connor, T. G., Monk, C., & Fitelson, E. M. (2014). Practitioner review: maternal mood in pregnancy and child development – implications for child psychology and psychiatry. *Journal of Child Psychology and Psychiatry*, *55*(2), 99–111.

66   Stein, A., Pearson, R. M., Goodman, S. H., Rapa, E., Rahman, A., McCallum, M., ... & Pariante, C. M. (2014). Effects of perinatal mental disorders on the fetus and child. *The Lancet*, *384*(9956), 1800–1819.

67   Bauer, A., Parsonage, M., Knapp, M., Iemmi, V., & Adelaja, B. (2014). Costs of perinatal mental health problems. Centre for Mental Health and London School of Economics.

68   Gavin, N. I., Meltzer-Brody, S., Glover, V., & Gaynes, B. N. (2015). Is Population-Based Identification of Perinatal Depression and Anxiety Desirable?. *Identifying Perinatal Depression and Anxiety: Evidence-Based Practice in Screening, Psychosocial Assessment, and Management*, 11–31.

TABLE 2.1: MATERNAL MENTAL HEALTH PROBLEMS OCCURRING IN PREGNANCY AND THE POSTPARTUM PERIOD

	Characteristics (DSM-5 classification)	Prevalence: pregnancy	Prevalence: postpartum	Validated assessment tools	Evidence-based treatments
Eating disorders	Eating behaviours which prohibit a woman from attaining a weight higher than 85% of what is recommended for her age and height	5–7.5%[1,2]	>12%[3]	Physical signs; Eating Disorder Diagnostic Scale; EPDS	
Anorexia nervosa	Deliberate and chronic under-eating	0.5%[2]	not reported		Psychotherapy
Bulimia	Binge eating, followed by purging, through induced vomiting, laxatives or excessive exercise	1%[2]	not reported		Cognitive behavioural therapy (CBT); interpersonal therapy
Binge eating disorders	Binge eating on a regular basis	1.8[2]	not reported		
Pica	The eating of non-nutritional foods such as clay, ashes and paint		not reported		Information about nutrition; advice
Mood disorders		13.3%[4]	15.2%[4]		
Depression	A low and incapacitating mood that persists for two weeks or longer and remains constant across situations and activities	9–15%[4,5]	9.3[4]	EPDS; Beck Depression Inventory, Hamilton Depression Rating Scales	CBT; Interpersonal therapy
Bipolar disorder	Recurrent bouts of severe depression and mania	2.8%[4]	2.9[4]	Structure clinical interview	Stepped-down use of medication

	Characteristics (DSM-5 classification)	Prevalence: pregnancy	Prevalence: postpartum	Validated assessment tools	Evidence-based treatments
Anxiety disorders		13–19%[4,6]	12–16%[4]	GAD; GHQ; STAI; HADS; PASS	CBT
Obsessive-compulsive disorder	The ongoing reoccurrence of obsessive thoughts and compulsive behaviours	2%[7,8]	2–3%[9]	Items from the EPDS; PASS	CBT
Post-traumatic stress disorder	Intense and reoccurring fears which take place after exposure to an event which posed a real or perceived threat to the individual's safety	4.6%[10] to 19% in high risk samples[7]	4% in community samples and 18.5% in high risk samples[10]	PTSD Checklist-civilian (PCL-C)1; PTSD screening tool (PTSD-ST)2	CBT
Generalised anxiety disorder	Chronic and uncontrollable worries about a wide range of issues, lasting for six months or longer	1.8%[4]	1.5[4]	GAD-7	Relaxation techniques; Benzodiazepine in non-pregnant women
Panic disorder	The reoccurrence of panic attacks, involving extreme shortness of breath, heart palpitations and fears of losing complete control	2.2–7.5%[4,13]	2.5%[4]	See above	CBT
Specific phobias	The intense and often debilitating fear of an object, place, situation or animal	10%[4]	8.7[4]		CBT
Social phobias	An intense fear of social situations and interacting with others	1.3%[4]	1.0[4]		CBT
Tokophobia (fear of childbirth)	An intense fear of childbirth	11%[14,15]	n.a.	Wijma Delivery Expectancy Questionnaire (W-DEQ-A)	Psychoeducational treatments providing mothers with relaxation techniques and information about the childbirth experience

	Characteristics (DSM-5 classification)	Prevalence: pregnancy	Prevalence: postpartum	Validated assessment tools	Evidence-based treatments
Psychotic disorders	A constellation of highly debilitating psychiatric conditions characterised by abnormal behaviour and the inability to distinguish between what is and is not real	0.3%[4]	0.5%[4]	Structured psychiatric assessment	Psycho-pharmaceutical and clinical management
Puerperal psychoses	Extreme depression; hallucinations and other symptoms similar to bipolar disorder	n.a.	2–3 per 1,000 live births	Structured psychiatric assessment	Psycho-pharmaceutical and clinical management
Personality disorders	Ten patterns of maladaptive behaviours involving high levels of emotional instability, poor impulse control, and recurrent suicidal behaviours	6.4%[16]	5.9%[16]	Structured psychiatric assessment	
Drug and alcohol misuse			14.5%[17]		
Alcohol		1–11%	9.28%[17]	AUDIT	
Opioids and other illicit drug use		4.5%[18]	3.61%[17]	DUDIT	Methadone treatment programmes for improving child outcomes and reducing symptoms of NAS in infants after childbirth

Source: EIF

Notes to table 2.1:

1. Watson, H. J., Torgersen, L., Zerwas, S., Reichborn-Kjennerud, T., Knoph, C., Stoltenberg, C., ... & Ferguson, E. H. (2014). Eating disorders, pregnancy, and the postpartum period: Findings from the Norwegian Mother and Child Cohort Study (MoBa). *Norsk epidemiologi / Norwegian Journal of Epidemiology*, *24*(1–2), 51.

2. Easter, A., Bye, A., Taborelli, E., Corfield, F., Schmidt, U., Treasure, J., & Micali, N. (2013). Recognising the symptoms: how common are eating disorders in pregnancy?. *European Eating Disorders Review*, *21*(4), 340–344.

3. Pettersson, C. B., Zandian, M., & Clinton, D. (2016). Eating disorder symptoms pre-and postpartum. *Archives of Women's Mental Health*, *19*(4), 675–680.

4. Vesga-López, O., Blanco, C., Keyes, K., Olfson, M., Grant, B. F., & Hasin, D. S. (2008). Psychiatric disorders in pregnant and postpartum women in the United States. *Archives of General Psychiatry*, *65*(7), 805–815.

5. Hoertel, N., López, S., Peyre, H., Wall, M. M., González-Pinto, A., Limosin, F., & Blanco, C. (2015). Are symptom features of depression during pregnancy, the postpartum period and outside the peripartum period distinct? Results from a nationally representative sample using item response theory (IRT). *Depression and Anxiety*, *32*(2), 129–140.

6. Uguz, F., Gezginc, K., Kayhan, F., Sarı, S., & Büyüköz, D. (2010). Is pregnancy associated with mood and anxiety disorders? A cross-sectional study. *General Hospital Psychiatry*, *32*(2), 213–215.

7. Goodman, J. H., Chenausky, K. L., & Freeman, M. P. (2014). Anxiety disorders during pregnancy: a systematic review. *The Journal of Clinical Psychiatry*, *75*(10), e1153–1184.

8. Leach, L. S., Poyser, C., & Fairweather-Schmidt, K. (2017). Maternal perinatal anxiety: A review of prevalence and correlates. *Clinical Psychologist*, *21*(1), 4–19.

9. Russell, E. J., Fawcett, J. M., & Mazmanian, D. (2013). Risk of obsessive-compulsive disorder in pregnant and postpartum women: a meta-analysis. *The Journal of Clinical Psychiatry*, *74*(4), 377–385.

10. Yildiz, P. D., Ayers, S., & Phillips, L. (2017). The prevalence of posttraumatic stress disorder in pregnancy and after birth: A systematic review and meta-analysis. *Journal of Affective Disorders*, *208*, 634–645.

11. Gelaye, B., Zheng, Y., Medina-Mora, M. E., Rondon, M. B., Sanchez, S. E., & Williams, M. A. (2017). Validity of the posttraumatic stress disorders (PTSD) checklist in pregnant women. *BMC Psychiatry, 17*, 179.

12. Wenz-Gross, M., Weinreb, L., & Upshur, C. (2016). Screening for post-traumatic stress disorder in prenatal care: prevalence and characteristics in a low-income population. *Maternal and child health journal*, *20*(10), 1995–2002.

13. Marchesi, C., Ampollini, Pl, Paraggio, C., Giaracuni, G., Ossola, P., De Panfilis, C., ... Viviani, D. (2014). Risk factors for panic disorders in pregnancy: A cohort study. *Journal for Affective Disorders, 156,* 134–138.

14. Saisto, T., & Halmesmäki, E. (2003). Fear of childbirth: a neglected dilemma. *Acta obstetricia et gynecologica Scandinavica*, *82*(3), 201–208.

15. Lukasse, M., Schei, B., Ryding, E. L., & Bidens Study Group. (2014). Prevalence and associated factors of fear of childbirth in six European countries. *Sexual & Reproductive Healthcare*, *5*(3), 99–106.

16. Börjesson, K., Ruppert, S., & Bågedahl-Strindlund, M. (2005). A longitudinal study of psychiatric symptoms in primiparous women: relation to personality disorders and sociodemographic factors. *Archives of Women's Mental Health, 8*(4), 232–242.

17. Manning, V. (2011). Estimates of the numbers of infants (under the age of one year) living with substance misusing parents. London: National Addiction Centre.

18. National Institute for Clincial Excellence (2010). *Guidance on Pregnancy and Complex Social Factors*, CG110. Available at: https://www.nice.org.uk/guidance/cg110

Eating disorders

Eating disorders have been traditionally defined as behaviours which prohibt a woman from attaining a weight higher than 85% of what is recommended for her age and height.[69] Examples of traditionally recognised eating disorders include anorexia nervosa, which involves a pattern of deliberate and chronic undereating, and bulimia nervosa, which is characterised by alternating episodes of binge eating and purging (through induced vomiting, laxatives or excessive exercise). More recently, binge eating disorder (BED), which is marked by overeating on a regular basis in the absence of purging or exercise, has also been recognised as a

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[69]   Smink FR, van Hoeken D, Hoek HW. (2012). Epidemiology of eating disorders: incidence, prevalence and mortality rates. *Current Psychiatry Reports*, *14,* 406–14.

debilitating eating disorder.[70,71] A fourth example is pica, which involves the eating of non-nutritional foods such as clay, ashes and paint. It occurs most commonly among individuals with a psychosis, such as schizophrenia, but can also develop in pregnant women with no other discernable mental health problems.[72]

There is good evidence to suggest that eating disorders during pregnancy are more common than once assumed.[73,74,75] Although eating disorders have been found to prohibit pregnancy by increasing the likelihood of infertility, studies now show that rates of eating disorders among pregnant women are comparable to those among non-pregnant women. For example, a recent study at King's College Hospital in London observed that 7.5% of pregnant mothers met the diagnostic criteria of an eating disorder in comparison to 9.2% in the six to 12 months prior to pregnancy.[76]

Studies observe that eating disorders are associated with an increased risk of an unplanned pregnancy and multiple adverse birth outcomes.[77,78] These outcomes include low birthweight and a premature birth for women with anorexia nervosa and a greater likelihood of an excessive weight for infants born to mothers who regularly engage in binge eating.[79,80] Eating disorders are also associated with an increased risk of maternal health problems during pregnancy, such as anaemia and hypertension. In extreme cases, eating disorders can also lead to maternal death.[81]

Eating disorders can be difficult to detect during pregnancy, as many women have weight issues related to morning sickness, particularly in the early stages of pregnancy. Women also often go to great lengths to conceal eating disorders, so are not likely to disclose them during routine antenatal visits. Hence, a range

70 Smink, F., van Hoeken, D., & Hoek, H. W. (2013). Epidemiology, course, and outcome of eating disorders. *Current Opinion in Psychiatry*, 6, 543–548.

71 Stice, E., Marti, C. N., & Rohde, P. (2013). Prevalence, incidence, impairment, and course of the proposed DSM-5 eating disorder diagnoses in an 8-year prospective community study of young women. *Journal of Abnormal Psychology*, *122*(2), 445.

72 Mikkelsen T. M., Andersen A. N., & Olsen S.F. (2006). Pica in pregnancy in a privileged population: myth or reality? *Acta Obstet Gynecol Scand., 85,* 1265–1266.

73 Cardwell, M. S. (2013). Eating disorders during pregnancy. *Obstetrical & Gynecological Survey*, *68*(4), 312–323

74 Watson, H. J., Von Holle, A., Hamer, R. M., Berg, C. K., Torgersen, L., Magnus, P., ... & Bulik, C. M. (2013). Remission, continuation and incidence of eating disorders during early pregnancy: a validation study in a population-based birth cohort. *Psychological Medicine*, *43*(8), 1723–1734.

75 Bulik, C. M., Von Holle, A., Hamer, R., Berg, C. K., Torgersen, L., Magnus, P., ... & Reichborn-Kjennerud, T. (2007). Patterns of remission, continuation and incidence of broadly defined eating disorders during early pregnancy in the Norwegian Mother and Child Cohort Study (MoBa). *Psychological Medicine*, *37*(8), 1109–1118.

76 Easter, A., Treasure, J., & Micali, N. (2011). Fertility and prenatal attitudes towards pregnancy in women with eating disorders: results from the Avon Longitudinal Study of Parents and Children. *BJOG: An International Journal of Obstetrics & Gynaecology*, *118*(12), 1491-1498.

77 Easter, A., Bye, A., Taborelli, E., Corfield, F., Schmidt, U., Treasure, J., & Micali, N. (2013). Recognising the symptoms: how common are eating disorders in pregnancy?. *European Eating Disorders Review*, *21*(4), 340–344.

78 Bulik, C. M., Hoffman, E. R., Von Holle, A., Torgersen, L., Stoltenberg, C., & Reichborn-Kjennerud, T. (2010). Unplanned pregnancy in anorexia nervosa. *Obstetrics and Gynecology*, *116*(5), 1136.

79 Easter, A., Treasure, J., & Micali, N. (2011). Fertility and prenatal attitudes towards pregnancy in women with eating disorders: results from the Avon Longitudinal Study of Parents and Children. *BJOG: An International Journal of Obstetrics & Gynaecology*, *118*(12), 1491–1498.

80 Perrin, E. M., Von Holle, A., Zerwas, S., Skinner, A. C., Reba-Harrelson, L., Hamer, R. M., ... & Bulik, C. M. (2015). Weight-for-length trajectories in the first year of life in children of mothers with eating disorders in a large Norwegian cohort. *International Journal of Eating Disorders*, *48*(4), 406–414.

81 Linna, M. S., Raevuori, A., Haukka, J., Suvisaari, J. M., Suokas, J. T., & Gissler, M. (2014). Pregnancy, obstetric, and perinatal health outcomes in eating disorders. *American Journal of Obstetrics and Gynecology*, *211*(4), 392-e1.

of physical symptoms should be taken into account when eating disorders are suspected.[82] Psychological screening methods include the Eating Disorder Diagnostic Scale, although its diagnostic validity during pregnancy has not yet been reported.[83] A recent study in Iceland observed that the Edinburgh Postnatal Depression Scale (EPDS – see below) may have sufficient sensitivity to detect eating disorders in the second trimester of pregnancy.[84] The NICE recommendations for the assessment of eating disorders during pregnancy are the same as they are for the general population (NG69: 1.2).

Psychotherapy-based therapies have historically been the treatment of choice for women with anorexia nervosa, resulting in improved eating behaviours in the short term and reduced relapse in the long term.[85] Treatments with evidence of improving eating behaviours in bulimic women include enhanced CBT and interpersonal therapy.[86,87] The extent to which any of these interventions have evidence for improving the eating behaviours of pregnant women has yet to be tested, however.[88,89,90] The NICE guidelines for treating anorexia nervosa, bulimia nervosa and binge eating during pregnancy are similar to those recommended for women who are not pregnant (see NICE Clinical Guideline CG192: 1.8.11).

Mood disorders

Depression

Depression is by far the most common mental health disorder during adulthood, with a lifetime prevalence of 40%.[91] While all individuals experience periodic fluctuations in mood, depressed individuals experience a low mood that persists for two weeks or longer and remains constant across situations and activities.[92] Symptoms of depression among pregnant women are no different than those experienced by the rest of the population, involving pervasive feelings of sadness, helplessness, and the

82   Ward, V. B. (2008). Pregnancy plus: Eating disorders in pregnancy. *British Medical Journal*, *336*(7635), 93.

83   Stice, E., Fisher, M., & Martinez, E. (2004). Eating disorder diagnostic scale: additional evidence of reliability and validity. *Psychological Assessment*, *16*(1), 60.

84   Lydsdottir, L. B, Howard, L. M., Olafsdottir, H., et al. (2014). The mental health characteristics of pregnant women with depressive symptoms identified by the Edinburgh Postnatal Depression Scale. *Journal of Clinical Psychiatry*, *75*, 393–398.

85   Zipfel, S., Giel, K. E., Bulik, C. M., Hay, P., & Schmidt, U. (2015). Anorexia nervosa: aetiology, assessment, and treatment. *The Lancet Psychiatry*, *2*(12), 1099–1111.

86   Fairburn, C. G., Bailey-Straebler, S., Basden, S., Doll, H. A., Jones, R., Murphy, R., ... & Cooper, Z. (2015). A transdiagnostic comparison of enhanced cognitive behaviour therapy (CBT-E) and interpersonal psychotherapy in the treatment of eating disorders. *Behaviour Research and Therapy*, *70*, 64–71.

87   Poulsen, S., Lunn, S., Daniel, S. I. F., Folke, S., Bork Mathiesen, B., Katznelson, H., & Fairburn. C. G. (2014). A randomized controlled trial of psychoanalytic psychotherapy or cognitive-behavioral therapy for bulimia nervosa. *American Journal of Psychiatry, 17,* 1109–1116.

88   Wilson, G. T., Grilo, C. M., & Vitousek, K. M. (2007). Psychological treatment of eating disorders. *American Psychologist*, *62*(3), 199.

89   Brownley, K. A., Berkman, N. D., Sedway, J. A., Lohr, K. N., & Bulik, C. M. (2007). Binge eating disorder treatment: a systematic review of randomized controlled trials. *International Journal of Eating Disorders*, *40*(4), 337-348.

90   Shapiro, J. R., Berkman, N. D., Brownley, K. A., Sedway, J. A., Lohr, K. N., & Bulik, C. M. (2007). Bulimia nervosa treatment: a systematic review of randomized controlled trials. *International Journal of Eating Disorders*, *40*(4), 321–336.

91   World Health Organization. (2009). International statistical classification of diseases and related health problems.

92   American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

inability to find pleasure in activities previously found enjoyable. More severe forms of depression include false beliefs and hallucinations.[93,94]

The majority of studies observe that the rate of depression during pregnancy is the same as it is for non-pregnant women during the childbearing years.[95,96] However, some studies have found that mental health problems are actually less prevalent, indicating that pregnancy may provide a protective effect for some women.[97,98,99] Rates of depression also vary dramatically, depending on the characteristics of the population and the methods used to collect the data. Studies involving highly vulnerable samples report rates as high as 33%, whereas others involving more affluent samples observe rates as low as 5%.[100,101,102,103] However, the majority of studies involving western populations report prevalence rates between 9 and 15% for pregnant women.[104,105] Factors consistently associated with depression during pregnancy include adverse life events, economic hardship, single parenthood, relationship problems (including domestic violence), young age and an unplanned pregnancy.[106,107]

93 O'Connor, E., Rossom, R. C., Henninger, M., Groom, H. C., & Burda, B. U. (2016). Primary care screening for and treatment of depression in pregnant and postpartum women: evidence report and systematic review for the US Preventive Services Task Force. *Jama*, *315*(4), 388–406.

94 Hoertel, N., López, S., Peyre, H., Wall, M. M., González-Pinto, A., Limosin, F., & Blanco, C. (2015). Are symptom features of depression during pregnancy, the postpartum period and outside the peripartum period distinct? Results from a nationally representative sample using item response theory (IRT). *Depression and Anxiety*, *32*(2), 129–140.

95 de Couto, T. C., Cardoso, M. N., Brancaglion, M. M., Faria, G. C., Garcia, F. D., Nicolato, R., ... & Corrêa, H. (2016). Antenatal depression: prevalence and risk factor patterns across the gestational period. *Journal of Affective Disorders*, *192*, 70–75.

96 Woody, C. A., Ferrari, A. J., Siskind, D. J., Whiteford, H. A., & Harris, M. G. (2017). A systematic review and meta-regression of the prevalence and incidence of perinatal depression. *Journal of Affective Disorders*.

97 Vesga-López, O., Blanco, C., Keyes, K., Olfson, M., Grant, B. F., & Hasin, D. S. (2008). Psychiatric disorders in pregnant and postpartum women in the United States. *Archives of General Psychiatry*, *65*(7), 805–815.

98 Ban, L., Gibson, J. E., West, J., Fiaschi, L., Oates, M. R., & Tata, L. J. (2012). Impact of socioeconomic deprivation on maternal perinatal mental illnesses presenting to UK general practice. *British Journal of General Practice*, *62*(603), e671–e678.

99 Glasheen, C., Colpe, L., Hoffman, V., & Warren, L. K. (2015). Prevalence of serious psychological distress and mental health treatment in a national sample of pregnant and postpartum women. *Maternal and Child Health Journal*, *19*(1), 204–216.

100 O'Hara, M. W., & Wisner, K. L. (2014). Perinatal mental illness: definition, description and aetiology. *Best Practice & Research Clinical Obstetrics & Gynaecology*, *28*(1), 3–12.

101 Evans, J., Heron, J., Francomb, H., Oke, S., & Golding, J. (2001). Cohort study of depressed mood during pregnancy and after childbirth. *British Medical Journal*, *323*(7307), 257–260.

102 Paschetta, E., Berrisford, G., Coccia, F., Whitmore, J., Wood, A. G., Pretlove, S., & Ismail, K. M. (2014). Perinatal psychiatric disorders: an overview. *American Journal of Obstetrics and Gynecology*, *210*(6), 501–509.

103 Cook, C. A. L., Flick, L. H., Homan, S. M., Campbell, C., McSweeney, M., & Gallagher, M. E. (2010). Psychiatric disorders and treatment in low-income pregnant women. *Journal of Women's Health*, *19*(7), 1251–1262.

104 Hoertel, N., López, S., Peyre, H., Wall, M. M., González-Pinto, A., Limosin, F., & Blanco, C. (2015). Are symptom features of depression during pregnancy, the postpartum period and outside the peripartum period distinct? Results from a nationally representative sample using item response theory (IRT). *Depression and Anxiety*, *32*(2), 129–140.

105 Paschetta, E., Berrisford, G., Coccia, F., Whitmore, J., Wood, A. G., Pretlove, S., & Ismail, K. M. (2014). Perinatal psychiatric disorders: an overview. *American Journal of Obstetrics and Gynecology*, *210*(6), 501–509.

106 Melville, J. L., Gavin, A., Guo, Y., Fan, M. Y., & Katon, W. J. (2010). Depressive disorders during pregnancy: prevalence and risk factors in a large urban sample. *Obstetrics and Gynecology*, *116*(5), 1064.

107 Ban, L., Gibson, J. E., West, J., Fiaschi, L., Oates, M. R., & Tata, L. J. (2012). Impact of socioeconomic deprivation on maternal perinatal mental illnesses presenting to UK general practice. *British Journal of General Practice*, *62*(603), e671–e678.

A previous history of depression is also a strong predictor of depression during pregnancy and the postpartum period.[108]

Studies have linked antenatal depression to an increased risk of a premature birth and continued maternal mental health problems after the baby is born.[109,110,111] The high prevalence of antenatal depression and the potential harmful effects for the infant underscore the need for effective screening practices for its identification and treatment. While the Rapid Review originally reported that the evidence underpinning perinatal mental health screening was non-conclusive, the US Preventive Services Task Force (USPSTF) has since concluded that **there is good evidence to support universal screening for depression both before and after childbirth**.[112] This conclusion was based on findings from a comprehensive systematic review which considered the efficacy of screening instruments, referral systems and treatments used commonly in western countries.

Specifically, the study made the following conclusions.

- Screening processes – 'programmes to screen pregnant and postpartum women, with or without additional treatment-related supports, reduced the prevalence of depression and increased remission or treatment response' (p. 398). This finding was based on six studies which observed significant reductions in rates of depression (ranging from two to nine percentage points) in women who were screened for depression as part of their routine antenatal or postnatal care. It should be noted, however, that only one of these trials involved pregnant women.[113] While this study was not of sufficient quality to meet the EIF level 3 strength of evidence threshold, its findings suggest a higher rate of improvement in clinical symptoms of depression in mothers who receive routine antenatal screening in comparison with mothers who do not. The study's authors attribute this to improvements in the quality of routine care that mothers receive as a result of the screening process.

- The EPDS has sufficiently high levels of diagnostic specificity to identify and diagnose depression in pregnant and postpartum mothers living in western countries. This conclusion was based upon a review of 23 studies involving the predictive validity of the EPDS. One of these studies was judged to be of good (that is, EIF level 3) quality, suggesting a rate of 71.4% specificity and 91.5% sensitivity for identifying symptoms of major depression (EPDS cut-off 9/10) in a sample of pregnant mothers in Hungary.[114]

108 Witt, W. P., DeLeire, T., Hagen, E. W., Wichmann, M. A., Wisk, L. E., Spear, H. A., ... & Hampton, J. (2010). The prevalence and determinants of antepartum mental health problems among women in the USA: a nationally representative population-based study. *Archives of Women's Mental Health*, *13*(5), 425–437.

109 Grigoriadis, S., VonderPorten, E. H., Mamisashvili, L., Tomlinson, G., Dennis, C. L., Koren, G., ... & Martinovic, J. (2013). The impact of maternal depression during pregnancy on perinatal outcomes: a systematic review and meta-analysis. *Journal of Clinical Psychiatry*, *74*(4), e321–e341.

110 Grote, N. K., Bridge, J. A., Gavin, A. R., Melville, J. L., Iyengar, S., & Katon, W. J. (2010). A meta-analysis of depression during pregnancy and the risk of preterm birth, low birth weight, and intrauterine growth restriction. *Archives of General Psychiatry*, *67*(10), 1012–1024.

111 Stein, A., Pearson, R. M., Goodman, S. H., Rapa, E., Rahman, A., McCallum, M., ... & Pariante, C. M. (2014). Effects of perinatal mental disorders on the fetus and child. *The Lancet*, *384*(9956), 1800–1819.

112 O'Connor, E., Rossom, R. C., Henninger, M., Groom, H. C., & Burda, B. U. (2016). Primary care screening for and treatment of depression in pregnant and postpartum women: evidence report and systematic review for the US Preventive Services Task Force. *Jama*, *315*(4), 388–406.

113 Wickberg, B., Tjus, T., & Hwang, P. (2005). Using the EPDS in routine antenatal care in Sweden: a naturalistic study. *Journal of Reproductive and Infant Psychology*, *23*(1), 33–41.

114 Töreki, A., Andó, B., Keresztúri, A., Sikovanyecz, J., Dudas, R. B., Janka, Z., ... & Pál, A. (2013). The Edinburgh Postnatal Depression Scale: translation and antepartum validation for a Hungarian sample. *Midwifery*, *29*(4), 308–315.

- There is good evidence to support the use of cognitive behavioural therapy (CBT) as a targeted indicated intervention for mothers identified as depressed during pregnancy.[115] This conclusion was based on findings from a single, high-quality (EIF level 3) trial also conducted in Hungary, which found reductions in symptoms of depression among mothers who attended four consecutive group-based sessions starting at the 25th week gestation.[116] The sessions provided mothers with strategies based on CBT and interpersonal therapy principles for reducing negative emotions and fears and increasing social support. The methods and evidence underpinning these two therapies are described in more detail in chapter 3.

- There is some evidence to suggest that some antidepressants may cause harm to the unborn child when offered during pregnancy. Adverse outcomes associated with antidepressants include pre-eclampsia, low birthweight, a preterm birth and miscarriage. The USPSTF therefore recommends that CBT and other effective therapies be offered as an alternative to antidepressants during pregnancy.

The USPSTF recommendations are broadly consistent with the most recent NICE guidelines, which recommend that all pregnant women be asked the following two questions – also known as the Whooley Questions (CG192: 1.5.3–1.5.5) at her first antenatal visit:

- 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?

If the woman responds positively to either of these two questions, she should complete the EPDS or Patient Health Questionnaire to determine if depression is an issue and further treatment is required. NICE further recommends that women identified with mild to severe depression be offered antidepressants, with the full disclosure of the risks involved in taking them. A high-intensity psychotherapy, such as CBT or interpersonal therapy might also be offered in conjunction with, or as an alternative to antidepressant treatment (CG192: 1.8.1–1.8.6).

It is worth noting that the USPSTF and NICE recommendations are specific to high-intensity, targeted indicated interventions for mothers identified with clinically elevated symptoms of depression with the EPDS or other comparable instruments. However, interventions have also been developed to prevent the onset of depression among those who may be at risk of depression, but are not yet showing any symptoms. Risks commonly targeted include single parenthood and economic hardship.

To date, there is little evidence to suggest that these preventive efforts are particularly effective.[117] Examples of preventive efforts include listening visits, such as those used as part of the Social Baby Programme, which was identified in the Foundations for Life review as providing no benefits to mothers or infants when offered to at-risk mothers during the antenatal and postnatal periods. Specifically, a rigorously conducted RCT observed no reductions in postnatal depression or

115 van Ravesteyn, L. M., Lambregtse-van den Berg, M. P., Hoogendijk, W. J., & Kamperman, A. M. (2017). Interventions to treat mental disorders during pregnancy: A systematic review and multiple treatment meta-analysis. *PloS One*, *12*(3), e0173397.

116 Kozinszky, Z., Dudas, R. B., Devosa, I., Csatordai, S., Tóth, É., Szabó, D., ... & Pál, A. (2012). Can a brief antepartum preventive group intervention help reduce postpartum depressive symptomatology?. *Psychotherapy and Psychosomatics*, *81*(2), 98–107.

117 Howard, L. M., Molyneaux, E., Dennis, C. L., Rochat, T., Stein, A., & Milgrom, J. (2014). Non-psychotic mental disorders in the perinatal period. *The Lancet*, *384*(9956), 1775–1788.

improvements in any child outcome at two assessments occurring when the child was 8 and 18 months. The programme developers therefore concluded that the programme was not sufficient for reducing symptoms of depression in at-risk mothers and recommended the use of more intensive psychotherapeutic support for mothers experiencing more severe and persistent symptoms of depression.[118]

Bipolar disorder

Bipolar disorder (BPD) is characterised by recurrent bouts of severe depression and mania, which frequently include elevated levels of overactivity and elation.[119] It is understood to be a lifelong condition that can be successfully managed but not cured, affecting between 1 and 2% of all women.[120,121] These rates are constant across ethnicities and socioeconomic groups, with studies identifying heritability as a primary risk factor.[122]

Although the prevalence of bipolar disorder is the same for men and women, women are more likely to experience more frequent and intensive depressive episodes in comparison to periods of elation or mania.[123] These episodes are often highly debilitating, frequently reducing the woman's quality of life and increasing her risk of suicide. Some studies indicate that the prevalence of BPD in pregnancy is lower, suggesting that pregnancy may have a protective effect.[124] Childbirth, however, is believed to be a trigger, with studies reporting a 50% likelihood of a reoccurrence among women with a previous diagnosis of BPD.[125] BPD is also associated with the onset of puerperal psychosis within the first two weeks after childbirth, which occurs at a rate of 1 to 2 per 1,000 births.[126]

It is not uncommon for bipolar disorder to be initially misdiagnosed as depression in women, as depressive symptoms often predominate. This may especially be true for women whose first onset occurs in pregnancy. A diagnosis of BPD is often best made through a structured interview carried out by a suitably trained and qualified professional to determine the length of the depressed episode and the extent to which manic episodes may have followed or proceeded it.[127,128] In fact, only 20%

118 Cooper, P. J., De Pascalis, L., Woolgar, M., Romaniuk, H., & Murray, L. (2015). Attempting to prevent postnatal depression by targeting the mother–infant relationship: a randomised controlled trial. *Primary health care research & development*, *16*(04), 383–397.

119 Sharma, V., & Pope, C. J. (2012). Pregnancy and bipolar disorder: a systematic review. *The Journal of Clinical Psychiatry*, *73*(11), 1447–1455.

120 Goodwin, G. M., Haddad, P. M., Ferrier, I. N., Aronson, J. K., Barnes, T. R. H., Cipriani, A., ... & Holmes, E. A. (2016). Evidence-based guidelines for treating bipolar disorder: revised third edition recommendations from the British Association for Psychopharmacology. *Journal of Psychopharmacology*, *30*(6), 495–553.

121 Merikangas, K. R., Jin, R., He, J. P., Kessler, R. C., Lee, S., Sampson, N. A., ... & Ladea, M. (2011). Prevalence and correlates of bipolar spectrum disorder in the world mental health survey initiative. *Archives of General Psychiatry*, *68*(3), 241–251.

122 Grande, I., Berk, M., Birmaher, B., & Vieta, E. (2016). Bipolar disorder. *The Lancet*, *387*(10027), 1561–1572.

123 Parial, S. (2015). Bipolar disorder in women. *Indian Journal of Psychiatry*, *57*(Suppl 2), S252.

124 Sharma, V., & Pope, C. J. (2012). Pregnancy and bipolar disorder: a systematic review. *The Journal of Clinical Psychiatry*, *73*(11), 1447–1455.

125 Di Florio, A., Forty, L., Gordon-Smith, K., Heron, J., Jones, L., Craddock, N., & Jones, I. (2013). Perinatal episodes across the mood disorder spectrum. *JAMA Psychiatry*, *70*(2), 168–175.

126 Kendell, R. E., Chalmers, J. C., & Platz, C. (1987). Epidemiology of puerperal psychoses. *The British Journal of Psychiatry*, *150*(5), 662–673.

127 Goodwin, G. M., Haddad, P. M., Ferrier, I. N., Aronson, J. K., Barnes, T. R. H., Cipriani, A., ... & Holmes, E. A. (2016). Evidence-based guidelines for treating bipolar disorder: revised third edition recommendations from the British Association for Psychopharmacology. *Journal of Psychopharmacology*, *30*(6), 495–553.

128 Grande, I., Berk, M., Birmaher, B., & Vieta, E. (2016). Bipolar disorder. *The Lancet*, *387*(10027), 1561–1572.

of patients with BPD are correctly diagnosed within a year of seeking treatment,[129] with the majority of clients experiencing a five to 10-year delay before a diagnosis of BPD is made.[130] The serious risk puerperal psychosis or a recurrence of BPD underscores the need for antenatal screening processes that enable the risk of BPD to be considered.

NICE recommends that all women be asked about their individual or close family members' history with severe mental health problems during their first contact with pregnancy services (CG 192: 1.5.9–1.5.12). Women with a personal or family history should then be monitored closely for possible symptoms of psychosis and referred to a secondary mental health service should symptoms occur. Women with a previous history should also be monitored carefully during the first two weeks after the child's birth.

BPD is primarily managed through pharmaceutical treatments. Evidence-based guidelines issued by the British Association for Psychopharmacology recommend that pharmaceutical treatments be informed by the nature and severity of episodes, the extent to which the patient is experiencing other psychiatric symptoms and the characteristics of the patient, including her physical health and willingness to be treated.[131] Hence, the first step of any treatment is to determine the type and dose of medicine that is most effective in helping the client manage her symptoms. Once this has been determined, adherence to the treatment is often essential for minimising the recurrence of manic and depressive episodes.

The drugs most commonly prescribed for treating BPD include anticonvulsants (such as valproate. carbamazepine and lamotrigine), antipsychotics, antidepressants (such as selective serotonin reuptake inhibitors SSRIs) and mood stabilisers (such as lithium).[132] Anticonvulsants and mood stabilisers are particularly associated with an increased risk of adverse birth and child outcomes.[133] NICE therefore recommends that the use of anticonvulsants and mood stabilisers be stopped during pregnancy. However, in many instances, the primary risk occurs during the first two months of pregnancy at a time when many mothers may not be aware that they are pregnant, especially if the pregnancy is unplanned.[134]

It is also worth noting that the occurrence of a manic or depressive episode during pregnancy poses its own risks to the mother and child. For example, rapid withdrawal from psychotropic treatments is highly associated with the recurrence of BPD episodes, which also pose risks to the unborn infant.[135] Thus, it is widely recommended that an individualised stepped-down withdrawal take place before

129 Goldberg, J. F., Harrow, M., & Whiteside, J. E. (2001). Risk for bipolar illness in patients initially hospitalized for unipolar depression. *American Journal of Psychiatry*, *158*(8), 1265–1270.

130 Berk, M., Dodd, S., Callaly, P., Berk, L., Fitzgerald, P., De Castella, A. R., ... & Kelin, K. (2007). History of illness prior to a diagnosis of bipolar disorder or schizoaffective disorder. *Journal of Affective Disorders*, *103*(1), 181–186.

131 Goodwin, G. M., Haddad, P. M., Ferrier, I. N., Aronson, J. K., Barnes, T. R. H., Cipriani, A., ... & Holmes, E. A. (2016). Evidence-based guidelines for treating bipolar disorder: revised third edition recommendations from the British Association for Psychopharmacology. *Journal of Psychopharmacology*, *30*(6), 495–553.

132 Grande, I., Berk, M., Birmaher, B., & Vieta, E. (2016). Bipolar disorder. *The Lancet*, *387*(10027), 1561–1572.

133 Rusner, M., Berg, M., & Begley, C. (2016). Bipolar disorder in pregnancy and childbirth: a systematic review. *BMC Pregnancy and Childbirth*, *16*(1), 331.

134 Goodwin, G. M., Haddad, P. M., Ferrier, I. N., Aronson, J. K., Barnes, T. R. H., Cipriani, A., ... & Holmes, E. A. (2016). Evidence-based guidelines for treating bipolar disorder: revised third edition recommendations from the British Association for Psychopharmacology. *Journal of Psychopharmacology*, *30*(6), 495–553.

135 Larsen, E. R., & Saric, K. (2016). Pregnancy and bipolar disorder: the risk of recurrence when discontinuing treatment with mood stabilisers: a systematic review. *Acta Neuropsychiatrica*, 1–8.

the mother becomes pregnant, with the hope that the pregnancy itself will offer some protection from a reoccurrence.[136] In the case of an unplanned pregnancy, a slower form of withdrawal should be considered, with evidence suggesting that antipsychotic medications and antidepressants pose a lower risk to the unborn child than mood stabilisers.[137] Regardless, the mother should be encouraged to resume pharmaceutical treatment after the baby is born. Various antipsychotic medications used in the treatment of BPD are considered safe for breastfeeding, but mood stabilisers and anticonvulsants are not.[138]

The NICE guidelines for the treatment of bipolar disorder during pregnancy are consistent with this evidence, recommending that pregnant women be offered psychotherapeutic treatments such as CBT or antipsychotic medications should symptoms of mania occur (CG192: 1.8.16–1.8.20). Lithium should only be considered in cases of severe mania that are not responsive to other treatments (CG192: 1.4.33–1.4.37).

Anxiety disorders

Anxiety disorders are characterised by intense fears and worries that interfere with an individual's ability to engage in normal day-to-day activities. Estimates for anxiety disorders during pregnancy vary, with some studies reporting rates as high as 39% and others providing more modest figures of between 1 and 3% for specific anxieties.[139,140] However, rigorous studies involving western populations place the prevalence at between 13 and 19%.[141,142] The extent to which these rates increase during pregnancy remains unknown, however, with studies observing contradictory findings.[143]

Anxiety disorders that commonly occur during pregnancy and the postpartum period include obsessive compulsive disorder (OCD), post-traumatic stress disorder (PTSD), generalised anxiety disorder (GAD), panic disorders and specific phobias.[144] The extent to which anxiety disorders are associated with a common set of risk factors remains unclear, however, and risks likely differ depending on the specific disorder. For example, several recent studies have concluded that obsessive-compulsive disorder may have a neurobiological basis, whereas post-traumatic stress disorder is highly associated with a previous history of trauma

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136 Goodwin, G. M., Haddad, P. M., Ferrier, I. N., Aronson, J. K., Barnes, T. R. H., Cipriani, A., ... & Holmes, E. A. (2016). Evidence-based guidelines for treating bipolar disorder: revised third edition recommendations from the British Association for Psychopharmacology. *Journal of Psychopharmacology*, *30*(6), 495–553.

137 Jones, I., Chandra, P. S., Dazzan, P., & Howard, L. M. (2014). Bipolar disorder, affective psychosis, and schizophrenia in pregnancy and the post-partum period. *The Lancet*, *384*(9956), 1789–1799.

138 McAllister-Williams, R. H., Baldwin, D. S., Cantwell, R., Easter, A., Gilvarry, E., Glover, V., ... & Khalifeh, H. (2017). British Association for Psychopharmacology consensus guidance on the use of psychotropic medication preconception, in pregnancy and postpartum 2017. *Journal of Psychopharmacology*, *31*(5), 519–552.

139 Goodman, J. H., Chenausky, K. L., & Freeman, M. P. (2014). Anxiety disorders during pregnancy: a systematic review. *The Journal of Clinical Psychiatry*, *75*(10), e1153–84.

140 Leach, L. S., Poyser, C., & Fairweather-Schmidt, K. (2017). Maternal perinatal anxiety: A review of prevalence and correlates. *Clinical Psychologist*, *21*(1), 4–19.

141 Uguz, F., Gezginc, K., Kayhan, F., Sarı, S., & Büyüköz, D. (2010). Is pregnancy associated with mood and anxiety disorders? A cross-sectional study. *General Hospital Psychiatry*, *32*(2), 213–215.

142 Vesga-López, O., Blanco, C., Keyes, K., Olfson, M., Grant, B. F., & Hasin, D. S. (2008). Psychiatric disorders in pregnant and postpartum women in the United States. *Archives of General Psychiatry*, *65*(7), 805–815.

143 Goodman, J. H., Chenausky, K. L., & Freeman, M. P. (2014). Anxiety disorders during pregnancy: a systematic review. *The Journal of Clinical Psychiatry*, *75*(10), e1153–84.

144 Paschetta, E., Berrisford, G., Coccia, F., Whitmore, J., Wood, A. G., Pretlove, S., & Ismail, K. M. (2014). Perinatal psychiatric disorders: an overview. *American Journal of Obstetrics and Gynecology*, *210*(6), 501–509.

and abuse. Risk factors common across all disorders include a first pregnancy, single parenthood, low socioeconomic status (SES) and a previous history of anxiety disorders.[145]

Studies consistently suggest that anxiety disorders are associated with an increased risk of low birthweight and a preterm birth, although not all studies have confirmed this.[146] However, there is strong and consistent evidence showing that anxiety disorders often co-occur with other mental health problems, particularly depression.[147] Anxiety disorders during pregnancy are also associated with an increased risk of continued maternal mental health problems after the child is born, as well as an increased risk of behavioural problems throughout children's development.[148,149,150,151,152]

Some have argued that symptoms of anxiety can be screened for with the EPDS,[153,154] although studies have observed that many anxious women score below the clinical range for any symptom and therefore may be easily missed.[155] Self-report measures validated to detect anxiety symptoms during pregnancy include the General Health Questionnaire (GHQ), the State Trait Anxiety Inventory (STAI) and the Hospital Anxiety and Depression Scales (HADS).[156] Cognitive behavioural therapy has the strongest evidence for reducing symptoms of anxiety during pregnancy, particularly in the treatment of obsessive-compulsive disorder, panic disorder and specific phobias.[157,158]

145 Leach, L. S., Poyser, C., & Fairweather-Schmidt, K. (2017). Maternal perinatal anxiety: A review of prevalence and correlates. *Clinical Psychologist*, *21*(1), 4–19

146 Ding, X. X., Wu, Y. L., Xu, S. J., Zhu, R. P., Jia, X. M., Zhang, S. F., ... & Tao, F. B. (2014). Maternal anxiety during pregnancy and adverse birth outcomes: a systematic review and meta-analysis of prospective cohort studies. *Journal of Affective Disorders*, *159*, 103–110.

147 Sutter-Dallay, A. L., Giaconne-Marcesche, V., Glatigny-Dallay, E., & Verdoux, H. (2004). Women with anxiety disorders during pregnancy are at increased risk of intense postnatal depressive symptoms: a prospective survey of the MATQUID cohort. *European Psychiatry*, *19*(8), 459–463.

148 Heron, J., O'Connor, T. G., Evans, J., Golding, J., Glover, V., & ALSPAC Study Team. (2004). The course of anxiety and depression through pregnancy and the postpartum in a community sample. *Journal of Affective Disorders*, *80*(1), 65–73.

149 Sutter-Dallay, A. L., Giaconne-Marcesche, V., Glatigny-Dallay, E., & Verdoux, H. (2004). Women with anxiety disorders during pregnancy are at increased risk of intense postnatal depressive symptoms: a prospective survey of the MATQUID cohort. *European Psychiatry*, *19*(8), 459–463.

150 O'Connor, T. G., Heron, J., Golding, J., & Glover, V. (2003). Maternal antenatal anxiety and behavioural/emotional problems in children: a test of a programming hypothesis. *Journal of child Psychology and Psychiatry*, *44*(7), 1025–1036.

151 O'Connor, T. G., Heron, J., Golding, J., Beveridge, M., & Glover, V. (2002). Maternal antenatal anxiety and children's behavioural/emotional problems at 4 years. *The British Journal of Psychiatry*, *180*(6), 502–508.

152 O'Connor, T. G., Ben-Shlomo, Y., Heron, J., Golding, J., Adams, D., & Glover, V. (2005). Prenatal anxiety predicts individual differences in cortisol in pre-adolescent children. *Biological psychiatry*, *58*(3), 211–217.

153 Matthey, S. (2008). Using the Edinburgh Postnatal Depression Scale to screen for anxiety disorders. *Depression and Anxiety*, *25*(11), 926–931.

154 Jomeen, J., & Martin, C. R. (2005). Confirmation of an occluded anxiety component within the Edinburgh Postnatal Depression Scale (EPDS) during early pregnancy. *Journal of Reproductive and Infant Psychology*, *23*(2), 143–154.

155 Meades, R., & Ayers, S. (2011). Anxiety measures validated in perinatal populations: a systematic review. *Journal of Affective Disorders*, *133*(1), 1–15.

156 Meades, R., & Ayers, S. (2011). Anxiety measures validated in perinatal populations: a systematic review. *Journal of Affective Disorders*, *133*(1), 1–15.

157 Marchesi, C., Ossola, P., Amerio, A., Daniel, B.D., Tonna, M., and De Panfilis, C. (2016). Clinical management of perinatal anxiety disorders: A systematic review. *Journal of Affective Disorders, 190*, 543–550.

158 Newman, L., Judd, F., & Komiti, A. (2017). Developmental implications of maternal antenatal anxiety mechanisms and approaches to intervention. *Translational Developmental Psychiatry, 5*(1), 1309879.

The NICE guidelines for identifying and treating anxiety disorders (CG192: 1.5.4–1.5.8) include asking the following two questions from the Generalised Anxiety Assessment (GAD-7) during a mother's pregnancy:

- Over the last 2 weeks, how often have you been bothered by feeling nervous, anxious or on edge?
- Over the last 2 weeks, how often have you been bothered by not being able to stop or control worrying?

The NICE recommendations for treating anxiety disorders (CG192: 1.8.7–1.8.10) include the use of antidepressants (when absolutely necessary; see below for PTSD) combined with CBT and other appropriate therapies.

Obsessive-compulsive disorder

Obsessive-compulsive disorder (OCD) involves the reoccurrence of obsessive thoughts and compulsive behaviours. Obsessive thoughts are often disturbing and intrusive, meaning that the individual feels as though he or she has little control over them.[159] Compulsions are repetitive and ritualistic behaviours (such as hand-washing) done to reduce the anxiety created by obsessions. The lifetime prevalence of OCD is estimated at between 1–2% of the population, with recent studies suggesting a slightly elevated risk during pregnancy.[160] No specific risk factors are associated with OCD, with studies suggesting that it is a primarily neurobiological-based disorder.[161] It is not uncommon for OCD to involve incapacitating fears of intentionally or accidently harming the baby, although such fears are not uncommon among depressed mothers and new parents without a psychological disorder.[162,163]

Methods for screening for OCD include using the EPDS in combination with other risk questions and sending those who screen positive for further psychiatric assessment.[164] The question 'It's not uncommon for new mothers to experience intrusive, unwanted thoughts and repetitive acts as a result of concerns of causing harm to their baby. Have any such thoughts or acts occurred to you?' is also recommended as effective for initially screening for symptoms of OCD.[165] Other instruments validated for screening for OCD include the Perinatal Anxiety Screening Scale.[166]

159   American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

160   Russell, E. J., Fawcett, J. M., & Mazmanian, D. (2013). Risk of obsessive-compulsive disorder in pregnant and postpartum women: a meta-analysis. *The Journal of Clinical Psychiatry*, *74*(4), 377–385.

161   Brander, G., Pérez-Vigil, A., Larsson, H., & Mataix-Cols, D. (2016). Systematic review of environmental risk factors for Obsessive-Compulsive Disorder: a proposed roadmap from association to causation. *Neuroscience & Biobehavioral Reviews*, *65*, 36–62.

162   Williams, K. E., & Koran, L. M. (1997). Obsessive-compulsive disorder in pregnancy, the puerperium, and the premenstruum. *The Journal of Clinical Psychiatry*, *58*(7), 330–4.

163   Leckman, J. F., Mayes, L. C., Feldman, R., Evans, D. W., King, R. A., & Cohen, D. J. (1999). Early parental preoccupations and behaviors and their possible relationship to the symptoms of obsessive-compulsive disorder. *Acta Psychiatrica Scandinavica*, *100*(S396), 1–26.

164   Vythilingum B. (2008). Anxiety disorders in pregnancy. *Current Psychiatry Reports, 10*(4), 331–5.

165   Brandes M., Soares C.N., and Cohen L.S. (2004). *Postpartum onset obsessive-compulsive disorder: diagnosis and management. Arch Womens Ment Health,* 7(2), 99–110.

166   Somerville S, Dedman K, Hagan R, et al. (2014). The Perinatal Anxiety Screening Scale: development and preliminary validation. *Archive of Women's Mental Health*.

Studies have recently confirmed the efficacy of cognitive behavioural therapy for reducing symptoms of OCD in pregnant women, although its impact on child outcomes have yet to be tested.[167,168]

Post-traumatic stress disorder (PTSD)

Post-traumatic stress disorder (PTSD) involves intense and reoccurring fears which take place after exposure to an event which posed a real or perceived threat to the individual's safety.[169] Symptoms of PTSD often involve intrusive and recurrent recollections of the event, including distressing dreams. Individuals experiencing PTSD can also have difficulty sleeping or concentrating and may go to great lengths to avoid activities they may associate with the traumatic event.

Studies suggest that the prevalence of PTSD during pregnancy occurs at a rate of 2 to 40%, depending on the characteristics of the sample and the methods used to collect the data.[170,171] The average prevalence during pregnancy is 4.6%, which is slightly higher than an average rate of 3.3% observed within community samples of non-pregnant women.[172] The prevalence among high-risk samples is considerably higher, however, with an average of 19%. Increased rates of PTSD during pregnancy are associated with high levels of nausea and vomiting, a diagnosis of a foetal anomaly, or a previous history of child maltreatment or domestic abuse.[173] PTSD also frequently occurs alongside depression and other anxiety disorders.[174]

PTSD has been found to quadruple the risk of a preterm birth[175] and substantially increase the likelihood of further mental health problems after the baby is born.[176] The PTSD Checklist-Civilian (PCL-C) and the PTSD Screening Tool (PTSD-ST) are both viewed as valid screening instruments for PTSD, although likely not adequate for diagnoses.[177,178] NICE recommends that the assessment of PTSD is the same as for anxiety disorders more generally (CG192: 1.5.4–1.5.8).

167 Challacombe, F., Salkovskis, P., Woolgar, M., Wilkinson, E. L., Read, J., & Acheson, R. (2017). A pilot randomized controlled trial of time-intensive Cognitive Behaviour Therapy for postpartum OCD: effects on maternal symptoms, mother-infant interactions and attachment. *Psychological Medicine*, *47*(8), 1478–1488.

168 Marchesi, C., Ossola, P., Amerio, A., Daniel, B. D., Tonna, M., & De Panfilis, C. (2016). Clinical management of perinatal anxiety disorders: A systematic review. *Journal of Affective Disorders*, *190*, 543–550.

169 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

170 Cook, C. A. L., Flick, L. H., Homan, S. M., Campbell, C., McSweeney, M., & Gallagher, M. E. (2004). Posttraumatic stress disorder in pregnancy: prevalence, risk factors, and treatment. *Obstetrics & Gynecology*, *103*(4), 710–717.

171 Ross, L. E., McLean, L. M., & Psych, C. (2006). Anxiety disorders during pregnancy and the postpartum period: a systematic review. *depression*, *6*(9), 1–14.

172 Yildiz, P. D., Ayers, S., & Phillips, L. (2017). The prevalence of posttraumatic stress disorder in pregnancy and after birth: A systematic review and meta-analysis. *Journal of Affective Disorders*, *208*, 634–645.

173 Seng, J. S., Low, L. M. K., Sperlich, M., Ronis, D. L., & Liberzon, I. (2009). Prevalence, trauma history, and risk for posttraumatic stress disorder among nulliparous women in maternity care. *Obstetrics and Gynecology*, *114*(4), 839.

174 Goodman, J. H., Chenausky, K. L., & Freeman, M. P. (2014). Anxiety disorders during pregnancy: a systematic review. *The Journal of Clinical Psychiatry*, *75*(10), e1153–84.

175 Yonkers, K. A., Smith, M. V., Forray, A., Epperson, C. N., Costello, D., Lin, H., & Belanger, K. (2014). Pregnant women with posttraumatic stress disorder and risk of preterm birth. *Jama Psychiatry*, *71*(8), 897–904.

176 Yonkers, K. A., Smith, M. V., Forray, A., Epperson, C. N., Costello, D., Lin, H., & Belanger, K. (2014). Pregnant women with posttraumatic stress disorder and risk of preterm birth. *Jama Psychiatry*, *71*(8), 897–904.

177 Gelaye, B., Zheng, Y., Medina-Mora, M.E., Rondon, M.B., Sanchez, S.E. and Williams, M.A. (2017). Validity of the posttraumatic stress disorders (PTSD) checklist in pregnant women. *BMC Psychiatry, 17*, 179.

178 Wenz-Gross, M., Weinreb, L., & Upshur, C. (2016). Screening for post-traumatic stress disorder in prenatal care: prevalence and characteristics in a low-income population. *Maternal and child health journal*, *20*(10), 1995–2002.

Trauma-focused CBT has good evidence for reducing symptoms of PTSD in the general population, although its effectiveness during pregnancy has not been specifically studied.[179] Antidepressants have also been found to be effective in treating symptoms of PTSD, although, as mentioned previously, they may cause harm to the unborn infant. However, studies suggest that the risks associated with antidepressants may be less than the risk of a preterm birth, so should be considered when PTSD symptoms are severe.[180,181] NICE guidelines currently state that only high-intensity psychological interventions are recommended for PTSD (CG192: 1.8.9).

Generalised anxiety disorder (GAD)

Generalised anxiety disorder (GAD) is a chronic condition whereby individuals have uncontrollable worries about a wide range of issues. Symptoms include an ongoing feeling of anxiety, muscle tension, difficulty concentrating and frequent sleeplessness.[182] These symptoms must be present for six months or longer for a diagnosis of GAD to be made. This means that a diagnosis of new-onset GAD is less likely during pregnancy. In addition, it can be difficult to differentiate GAD symptoms from many of the common concerns that occur during pregnancy, which include worries about childbirth and the unborn child's wellbeing. While relatively few studies have investigated the prevalence of GAD during pregnancy, those that have observe rates ranging from 1.8%[183] for those with a diagnosis of GAD, to 9.5% or pregnant mothers experiencing episodes of anxiety lasting one month or longer.[184] Studies further suggest that GAD is more prevalent among mothers with low levels of social support, a previous history of child maltreatment or a previous history of anxiety disorders.[185]

The Generalised Anxiety Disorder Assessment (GAD-7) is the most commonly used instrument for diagnosing the severity of generalised anxiety disorder symptoms. Methods used to manage GAD often include a combination of relaxation techniques and muscle relaxants (benzodiazepines). Benzodiazepine is commonly used to reduce symptoms of anxiety in non-pregnant women. However, its use during the first trimester of pregnancy is associated with a variety of birth defects, so is not recommended during pregnancy.[186] NICE guidelines for the treatment of GAD are the same as for other anxiety disorders (CG192: 1.8.7–1.8.10).

179 Hofmann, S. G., Asnaani, A., Vonk, I. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research*, *36*(5), 427–440.

180 Baldwin, D. S., Anderson, I. M., Nutt, D. J., Allgulander, C., Bandelow, B., den Boer, J. A., ... & Malizia, A. (2014). Evidence-based pharmacological treatment of anxiety disorders, post-traumatic stress disorder and obsessive-compulsive disorder: a revision of the 2005 guidelines from the British Association for Psychopharmacology. *Journal of Psychopharmacology*, *28*(5), 403–439.

181 Yonkers, K. A., Smith, M. V., Forray, A., Epperson, C. N., Costello, D., Lin, H., & Belanger, K. (2014). Pregnant women with posttraumatic stress disorder and risk of preterm birth. *Jama Psychiatry*, *71*(8), 897–904.

182 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

183 Vesga-López, O., Blanco, C., Keyes, K., Olfson, M., Grant, B. F., & Hasin, D. S. (2008). Psychiatric disorders in pregnant and postpartum women in the United States. *Archives of General Psychiatry*, *65*(7), 805–815.

184 Buist, A., Gotman, N., & Yonkers, K. A. (2011). Generalized anxiety disorder: course and risk factors in pregnancy. *Journal of Affective Disorders*, *131*(1), 277–283.

185 Buist, A., Gotman, N., & Yonkers, K. A. (2011). Generalized anxiety disorder: course and risk factors in pregnancy. *Journal of Affective Disorders*, *131*(1), 277–283.

186 Tak, C. R., Job, K. M., Schoen-Gentry, K., Campbell, S. C., Carroll, P., Costantine, M., ... & Sherwin, C. M. (2017). The impact of exposure to antidepressant medications during pregnancy on neonatal outcomes: a review of retrospective database cohort studies. *European Journal of Clinical Pharmacology*, 1–15.

Panic disorders

Panic disorders are characterised by the sudden and unpredictable occurrence of panic attacks. Symptoms include extreme shortness of breath, chest pain, heart palpitations, and a fear of losing control. Frequent and intense worries about future attacks are also not uncommon.[187] The extent to which panic disorders occur more or less frequently during pregnancy remains unclear. A major US study published in 2008 observed panic disorders occurring at a rate of 2.2% for pregnant women in comparison to 3% for non-pregnant women.[188] However, a more recent systematic review observed that findings across studies are contradictory, making it difficult to determine the extent to which pregnancy increases or decreases the likelihood of panic attacks occurring.[189] The identification and treatment for panic disorders is similar to that of GAD.

Specific phobias, including fear of childbirth

Phobias are the intense and often debilitating fear of an object, place, situation or animal.[190] Symptoms include intense anxiety and a panic attack when in the presence or thinking about their feared object/situation. Their impact may vary, depending on their complexity and severity of the fears. Simple phobias involve fears about a specific situation or object, such as heights or spiders. They may be highly debilitating when the individual is in the presence of the situation or object, but such object/fears can also be avoided. Complex phobias tend to affect a range of situations and activities that often restrict an individual's day-to-day functioning. Agoraphobia is an example of a complex phobia involving the fear of open spaces. Intense agoraphobia may limit an individual's ability to leave home. Social phobias (such as severe shyness) can also severely limit individual's day-to-day activities with others.

Few studies have compared rates of phobias between pregnant and non-pregnant women and those that have observed no specific differences. For example, Vesga-López and colleagues observed that 9.2% of pregnant women experienced a specific phobia during their pregnancy in comparison to 10.2% in non-pregnant women of childbearing age.[191] Similarly, social phobia occurs at a rate of 1.3% among pregnant women in comparison to 1.8% for non-pregnant women.

An intense fear of childbirth (tokophobia) is an example of a simple phobia specific to pregnancy, which can be highly debilitating for some women.[192] While fears about childbirth are not uncommon during pregnancy (especially for first-time mothers), between 6 and 11% experience intense fears which place them in a permanent state of anxiety.[193,194,195]

187 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

188 Vesga-López, O., Blanco, C., Keyes, K., Olfson, M., Grant, B. F., & Hasin, D. S. (2008). Psychiatric disorders in pregnant and postpartum women in the United States. *Archives of General Psychiatry*, *65*(7), 805–815.

189 Goodman, J. H., Chenausky, K. L., & Freeman, M. P. (2014). Anxiety disorders during pregnancy: a systematic review. *The Journal of Clinical Psychiatry*, *75*(10), e1153–84.

190 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

191 Vesga-López, O., Blanco, C., Keyes, K., Olfson, M., Grant, B. F., & Hasin, D. S. (2008). Psychiatric disorders in pregnant and postpartum women in the United States. *Archives of General Psychiatry*, *65*(7), 805–815

192 Spice, K., Jones, S. L., Hadjistavropoulos, H. D., Kowalyk, K., & Stewart, S. H. (2009). Prenatal fear of childbirth and anxiety sensitivity. *Journal of Psychosomatic Obstetrics & Gynecology*, *30*(3), 168–174.

193 Toohill, J., Fenwick, J., Gamble, J., & Creedy, D. K. (2014). Prevalence of childbirth fear in an Australian sample of pregnant women. *BMC Pregnancy and Childbirth*, *14*(1), 275.

194 Saisto, T., & Halmesmäki, E. (2003). Fear of childbirth: a neglected dilemma. *Acta Obstetricia et Gynecologica Scandinavica*, *82*(3), 201–208.

195 Lukasse, M., Schei, B., Ryding, E. L., & Bidens Study Group. (2014). Prevalence and associated factors of fear of childbirth in six European countries. *Sexual & Reproductive Healthcare*, *5*(3), 99–106.

These fears are based on concerns that childbirth will be unbearably painful. For some women, these fears are rooted in previous negative childbirth experiences, whereas other women will have developed a dread of childbirth already in adolescence.[196] A fear of childbirth often results in mothers requesting caesarean birth when it is not otherwise necessary.[197] Subjective experiences of intense pain during childbirth have also been linked to a greater likelihood of childbirth-related PTSD after the baby is born.[198]

The Wijma Delivery Expectancy Questionnaire (WDEQ-A Revised) has proven to be useful for identifying women with intense fears related to childbirth.[199] Several recently developed psychoeducational therapies now also have good evidence for reducing anxieties around childbirth and the need for caesarean sections. Characteristics shared by these therapies include information about the childbirth experience and relaxation techniques to help expectant mothers manage their fears.[200,201,202]

NICE recommends that practitioners offer women expressing an extreme fear of childbirth the opportunity to discuss their fears with a healthcare professional with expertise in perinatal mental health. These discussions should include information about the risks and benefits associated with caesarean sections (CG192: 1.8.7).

Psychotic disorders

Schizophrenia and affective psychosis are chronic and highly debilitating psychiatric conditions characterised by abnormal behaviour and the inability to distinguish between what is and is not real. Symptoms include false beliefs, delusions, hallucinations and inconsistent and confused thinking.[203] However, there is a high degree of variation in terms of the range and severity of symptoms experienced.[204] While the risks for schizophrenia may be fundamentally biological, there is good evidence to suggest that it is exacerbated by environmental factors, including social isolation and economic deprivation.[205]

196 Hofberg, K., & Brockington, I. F. (2000). Tokophobia: an unreasoning dread of childbirth: a series of 26 cases. *The British Journal of Psychiatry*, *176*(1), 83–85.

197 Johnson R, Slade P. (2002) Does fear of childbirth during pregnancy predict emergency caesarean section? *BJOG, 109*(11):1213–1221.

198 Garthus-Niegel, S., von Soest, T., Vollrath, M. E., & Eberhard-Gran, M. (2013). The impact of subjective birth experiences on post-traumatic stress symptoms: a longitudinal study. *Archives of Women's Mental Health*, *16*(1), 1–10.

199 Pallant, J. F., Haines, H. M., Green, P., Toohill, J., Gamble, J., Creedy, D. K., & Fenwick, J. (2016). Assessment of the dimensionality of the Wijma delivery expectancy/experience questionnaire using factor analysis and Rasch analysis. *BMC Pregnancy and Childbirth*, *16*(1), 361.

200 Rouhe, H., Salmela-Aro, K., Toivanen, R., Tokola, M., Halmesmäki, E., & Saisto, T. (2013). Obstetric outcome after intervention for severe fear of childbirth in nulliparous women–randomised trial. *BJOG: An International Journal of Obstetrics & Gynaecology*, *120*(1), 75–84.

201 Toohill, J., Fenwick, J., Gamble, J., Creedy, D. K., Buist, A., Turkstra, E., & Ryding, E. L. (2014). A Randomized Controlled Trial of a Psycho-Education Intervention by Midwives in Reducing Childbirth Fear in Pregnant Women. *Birth*, *41*(4), 384–394.

202 Fenwick, J., Toohill, J., Gamble, J., Creedy, D. K., Buist, A., Turkstra, E., ... & Ryding, E. L. (2015). Effects of a midwife psycho-education intervention to reduce childbirth fear on women's birth outcomes and postpartum psychological wellbeing. *BMC Pregnancy and Childbirth*, *15*(1), 284.

203 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

204 Vigod, S. N., & Ross, L. E. (2010). Epidemiology of psychotic symptoms during pregnancy and postpartum in women with schizophrenia. *Current Women's Health Reviews*, *6*(1), 17–21.

205 Howes, O. D., & Murray, R. M. (2014). Schizophrenia: an integrated sociodevelopmental-cognitive model. *The Lancet*, *383*(9929), 1677–1687.

Psychotic disorders are less common in pregnancy, partially because psychoses often negatively impact fertility.[206] There is also some evidence to suggest that pregnancy may reduce the likelihood of a psychotic episode, although very few studies have investigated this issue explicitly.[207] The most robust epidemiological study to date observed psychotic disorders occurring at a rate of 0.4% in pregnant women and 0.3% in non-pregnant women.[208]

Pregnancies of women with psychotic disorders are uniformly considered to be high risk.[209] There is a greater likelihood that pregnancies are unplanned and mothers are often less able to seek and receive antenatal care.[210] Schizophrenia and other psychotic disorders also frequently occur alongside harmful drug and alcohol use, tobacco use and obesity, which often additionally cause harm to the unborn child.[211,212] Childbirth complications, such as congenital malformation, low birthweight, premature birth and stillbirth, are also consistently associated with psychotic disorders during pregnancy.[213,214,215]

Psychotic disorders can significantly diminish mothers' ability to care for their children after the baby is born.[216] Studies suggest that the risk of a psychotic episode increases substantially during the first three months after childbirth, particularly when mothers do not resume their medication.[217,218,219] Studies have consistently linked schizophrenia during pregnancy and the postnatal period to a variety of adverse child outcomes, including an increased risk of child

206 Jones, I., Chandra, P. S., Dazzan, P., & Howard, L. M. (2014). Bipolar disorder, affective psychosis, and schizophrenia in pregnancy and the post-partum period. *The Lancet*, *384*(9956), 1789–1799.

207 Munk-Olsen, T., Laursen, T. M., Pedersen, C. B., Mors, O., & Mortensen, P. B. (2006). New parents and mental disorders: a population-based register study. *Jama*, *296*(21), 2582–2589.

208 Vesga-López, O., Blanco, C., Keyes, K., Olfson, M., Grant, B. F., & Hasin, D. S. (2008). Psychiatric disorders in pregnant and postpartum women in the United States. *Archives of General Psychiatry*, *65*(7), 805–815

209 Howard, L. M. (2005). Fertility and pregnancy in women with psychotic disorders. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *119*(1), 3–10.

210 Goodman, S. H., & Emory, E. K. (1992). Perinatal complications in births to low socioeconomic status schizophrenic and depressed women. *Journal of Abnormal Psychology*, *101*(2), 225.

211 Menezes, P. R., Johnson, S., Thornicroft, G., Marshall, J., Prosser, D., Bebbington, P., & Kuipers, E. (1996). Drug and alcohol problems among individuals with severe mental illness in south London. *The British Journal of Psychiatry*, *168*(5), 612–619.

212 Toftdahl, N. G., Nordentoft, M., & Hjorthøj, C. (2016). Prevalence of substance use disorders in psychiatric patients: a nationwide Danish population-based study. *Social Psychiatry and Psychiatric Epidemiology*, *51*(1), 129–140.

213 Matevosyan, N. R. (2011). Pregnancy and postpartum specifics in women with schizophrenia: a meta-study. *Archives of Gynecology and Obstetrics*, *283*(2), 141–147.

214 Bennedson, B. E., Mortensen, P. B., Olesen, A. V., & Henriksen, T. B. (2001). Congenital malformations, stillbirths, and infant deaths among children of women with schizophrenia, *Archives of General Psychiatry, 58*, 674–79.

215 Nilsson, E., Lichtenstein, P., Cnattingius, S., Murray, R. M., & Hultman, C. M. (2002). Women with schizophrenia: pregnancy outcome and infant death among their offspring. *Schizophrenia Research*, *58*(2), 221–229.

216 Wan, M. W., Warren, K., Salmon, M. P., & Abel, K. M. (2008). Patterns of maternal responding in postpartum mothers with schizophrenia. *Infant Behavior and Development*, *31*(3), 532–538.

217 Howard, L. M., Goss, C., Leese, M., Appleby, L., & Thornicroft, G. (2004). The psychosocial outcome of pregnancy in women with psychotic disorders. *Schizophrenia Research*, *71*(1), 49–60.

218 Davies, A., McIvor, R. J., & Kumar, R. C. (1995). Impact of childbirth on a series of schizophrenic mothers: a comment on the possible influence of oestrogen on schizophrenia. *Schizophrenia Research*, *16*(1), 25–31.

219 McNeil, T. F. (1988). A prospective study of postpartum psychoses in a high-risk group. *Acta Psychiatrica Scandinavica*, *77*(6), 645–653.

maltreatment, delayed cognitive development and child behavioural difficulties in later childhood and adolescence.[220,221,222]

Antipsychotics are the primary treatment for schizophrenia and other psychoses. Recent studies suggest that the most commonly used drugs pose relatively little risk to the infant, especially in comparison to the risk posed by psychotic episodes.[223] It is therefore recommended that practitioners weigh the risks of antipsychotic medications on a case by case basis. It is also recommended that mothers be encouraged to resume antipsychotic treatment after the baby is born, if it was suspended during pregnancy.[224] NICE guidelines cover the use of antipsychotic medications during pregnancy (CG192: 1.4.20–1.4.26).

Once the baby is born, practitioners must carefully assess the mother's capacity to care for herself and her child to determine whether support from social services is required.[225] Hospitalisation in mother and baby units is a traditional option for mothers experiencing severe psychotic episodes, but evidence underpinning this form of treatment, as well as other parenting interventions targeting mothers with schizophrenia is lacking.[226] NICE recommends that antipsychotics may be considered in cases where pregnant mothers are experiencing psychotic symptoms (CG192: 1.8.17). CBT and other therapies recommended in the treatment of psychoses should also be offered to women with psychotic disorders during pregnancy (CG192: 1.8.18–1.8.19; CG178: 1.3.7).

Personality disorders

Personality disorders encompass 10 patterns of maladaptive behaviours that frequently limit individuals' ability to function productively on a day-to-day basis.[227] Symptoms include high levels of emotional instability, poor impulse control and recurrent suicidal behaviours. Personality disorders are also linked to an increased likelihood of antisocial behaviour. Personality disorders have been found to occur in 9–15% of western populations,[228] although very few studies have considered their prevalence in pregnant mothers.[229]

220 Eack, S. M., Mermon, D. E., Montrose, D. M., Miewald, J., Gur, R. E., Gur, R. C., ... & Keshavan, M. S. (2009). Social cognition deficits among individuals at familial high risk for schizophrenia. *Schizophrenia Bulletin*, *36*(6), 1081–1088.

221 Yoshida, K., Marks, M. N., Craggs, M., Smith, B., & Kumar, R. (1999). Sensorimotor and cognitive development of infants of mothers with schizophrenia. *The British Journal of Psychiatry*, *175*(4), 380–387.

222 Abel, K. M., Webb, R. T., Salmon, M. P., Wan, M. W., & Appleby, L. (2005). Prevalence and predictors of parenting outcomes in a cohort of mothers with schizophrenia admitted for joint mother and baby psychiatric care in England. *Journal of Clinical Psychiatry*, *66*(6), 781–789.

223 Sutter-Dallay, A. L., & Riecher-Rössler, A. (2016). Psychotropic drugs and the perinatal period. In *Joint Care of Parents and Infants in Perinatal Psychiatry* (pp. 79-92). Springer International Publishing.

224 McAllister-Williams, R. H., Baldwin, D. S., Cantwell, R., Easter, A., Gilvarry, E., Glover, V., ... & Khalifeh, H. (2017). British Association for Psychopharmacology consensus guidance on the use of psychotropic medication preconception, in pregnancy and postpartum 2017. *Journal of Psychopharmacology*, *31*(5), 519–552.

225 Howard, L. M. (2005). Fertility and pregnancy in women with psychotic disorders. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *119*(1), 3–10.

226 Gearing, R., Alonzo, D., & Marinelli, C. (2012). Maternal schizophrenia: psychosocial treatment for mothers and their children. *Clinical Schizophrenia & Related Psychoses*, *6*(1), 27–33B.

227 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

228 Quirk, S. E., Berk, M., Chanen, A. M., Koivumaa-Honkanen, H., Brennan-Olsen, S. L., Pasco, J. A., & Williams, L. J. (2016). Population prevalence of personality disorder and associations with physical health comorbidities and health care service utilization: A review. *Personality Disorders: Theory, Research, and Treatment, 7*(2), 136–146.

229 Howard, L. M., Molyneaux, E., Dennis, C. L., Rochat, T., Stein, A., & Milgrom, J. (2014). Non-psychotic mental disorders in the perinatal period. *The Lancet*, *384*(9956), 1775–1788.

One Swedish study observed a rate of 6.4% in a non-random sample of pregnant mothers, which then dropped to 5.9% to three months postpartum.[230] This study further observed that personality disorders were more prevalent among mothers with lower education levels, higher levels of unemployment and a previous history of mental health problems.

Personality disorders commonly co-occur with depression, anxiety and drug and alcohol misuse problems and thus similarly reduce parents' ability to appropriately respond to their child's needs.[231] Borderline personality disorder, in particular, is associated with an increased risk of attachment insecurity in infants and conduct disorders in adolescence.[232,233,234]

Mothers reporting frequent and dramatic mood swings and self-harming and other risk behaviours should be referred for further psychiatric assessment. Interventions for treating personality disorders include CBT, mentalisation-based therapy and schema-focused therapy.[235] There is also some evidence to suggest that psychotherapy and dialectical behavioural therapy are effective in reducing symptoms in individuals with borderline personality disorder.[236] However, the efficacy of these interventions during pregnancy and the postpartum period remains largely unknown. NICE provides no specific recommendations for treating personality disorders in pregnancy, but guidance does cover the identification and treatment of adults more generally (NICE Guidance: Personality disorders).

Drug and alcohol misuse

Within England, substance dependency is primarily understood through the criteria put forth by the Tenth Revision of the International Classification of Diseases and Health Problems (ICD-10), which differentiates between acute intoxication, harmful use and dependence syndrome.[237]

- **Acute intoxication** is defined as 'a transient condition following the administration of alcohol or other psychoactive substance, resulting in disturbances in level of consciousness, cognition, perception, affect or behaviour, or other psychophysiological functions and responses. This should be a main diagnosis only in cases where intoxication occurs without more persistent alcohol- or drug-related problems being concomitantly present.'

230 Börjesson, K., Ruppert, S., & Bågedahl-Strindlund, M. (2005). A longitudinal study of psychiatric symptoms in primiparous women: relation to personality disorders and sociodemographic factors. *Archives of Women's Mental Health, 8*(4), 232–242.

231 Stepp, S. D., Whalen, D. J., Pilkonis, P. A., Hipwill, A. E. and Levine, M. D. (2011). Children of moethers with borderline personality disorder: identifying parenting behaviours as potential targets for intervention. *Personality Disorders, 3*, 76–91.

232 Levy, K. N. (2005). The implications of attachment theory and research for understanding borderline personality disorder. *Development and Psychopathology*, *17*(4), 959–986.

233 Dozier, M., Stovall-McClough, K. C., & Albus, K. E. (2008). Attachment and psychopathology in adulthood. In J. Cassidy & P. R. Shaver (eds.), *Handbook of attachment: Theory, research, and clinical applications*. Guilford Press, 718–744.

234 Hobson, R. P., Patrick, M. P., Hobson, J. A., Crandell, L., Bronfman, E., & Lyons-Ruth, K. (2009). How mothers with borderline personality disorder relate to their year-old infants. *The British Journal of Psychiatry*, *195*(4), 325–330.

235 Stoffers, J. M., Voellm, B. A., Rücker, G., Timmer, A., Huband, N., & Lieb, K. (2012). Psychological therapies for people with borderline personality disorder. *The Cochrane Library*.

236 Cristea, I. A., Gentili, C., Cotet, C. D., Palomba, D., Barbui, C., & Cuijpers, P. (2017). Efficacy of Psychotherapies for Borderline Personality Disorder: A Systematic Review and Meta-analysis. *Jama Psychiatry*, *74*(4), 319–328.

237 World Health Organization. (2004). International statistical classification of diseases and related health problems (Vol. 1).

- **Harmful use** is understood as 'a pattern of psychoactive substance use that is causing damage to health. The damage may be physical (as in cases of hepatitis from the self-administration of injected drugs) or mental (e.g. episodes of depressive disorder secondary to heavy consumption of alcohol).'

- **Dependence syndrome** is the desire (often strong, sometimes overpowering) to take psychoactive drugs (which may or may not have been medically prescribed), alcohol or tobacco. There may be evidence that return to substance use after a period of abstinence leads to a more rapid reappearance of other features of the syndrome than occurs with nondependent individuals.

The DSM-5 definition of substance misuse disorders, which is frequently used in research involving substance misuse interventions, covers the harmful use of nine categories of substances (including alcohol, opioids and other illicit drugs) that result in consistent impaired thinking and behaviours. These behaviours include impaired control, relationship difficulties, risky use and physical addiction.[238] The DSM-5 considers drug and alcohol misuse disorders on a continuum from mild to severe determined by the extent to which the 11 diagnostic criteria are met. The DSM-5 criteria consider severity in terms of the individual's level of physical addiction and impairment.

Alcohol consumption during pregnancy

The prevalence of harmful or dependent alcohol use during pregnancy is often difficult to determine because many women report some use during pregnancy, but are unlikely to disclose harmful levels.[239] For example, a large-scale prevalence study conducted in the United States observed that 59% of all women report drinking some alcohol while pregnant. Although this rate is significantly less than the rate reported by non-pregnant women (at 68.5%), it nevertheless represents a high percentage of the pregnant population. Similar figures have been reported in the UK, with a recent study in Leeds observing that over 75% of all pregnant mothers report drinking at least one alcoholic beverage per week, 53% drinking more than two, and 11% engaging in risky drinking behaviours during the first trimester.[240] Risky drinking behaviours then appear to drop to between 2 and 3% of mothers in the second and third trimesters of their pregnancy.

High levels of alcohol consumption during pregnancy are consistently associated with a greater likelihood of birth complications, including neurodevelopmental difficulties related to foetal alcohol spectrum disorders (FASDs) and foetal alcohol syndrome (FAS).[241] In European countries, it is estimated that FASDs occur at a rate of 19.8 per 1,000 births[242] and FAS occurs at a rate of one out of 250 live births.[243] Less is known about the effect of moderate levels of consumption on the unborn child, although a recent study in Leeds observed that adverse childbirth outcomes were more likely

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238 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

239 Garg, M., Garrison, L., Leeman, L., Hamidovic, A., Borrego, M., Rayburn, W. F., & Bakhireva, L. (2016). Validity of self-reported drug use information among pregnant women. *Maternal and Child Health Journal*, *20*(1), 41–47.

240 Nykjaer, C., Alwan, N. A., Greenwood, D. C., Simpson, N. A., Hay, A. W., White, K. L., & Cade, J. E. (2014). Maternal alcohol intake prior to and during pregnancy and risk of adverse birth outcomes: evidence from a British cohort. *Journal of Epidemiology and Community Health*, *68*(6), 542–549.

241 Forray, A. (2016). Substance use during pregnancy. *F1000Research*, *5*.

242 Lange, S., Probst, C., Gmel, G., Rehm, J., Burd, L., & Popova, S. (2017). Global prevalence of fetal alcohol spectrum disorder among children and youth: a systematic review and meta-analysis. *Jama Pediatrics*, *171*(10), 948–956.

243 Popova, S., Lange, S., Probst, C., Gmel, G., & Rehm, J. (2017). Estimation of national, regional, and global prevalence of alcohol use during pregnancy and fetal alcohol syndrome: a systematic review and meta-analysis. *The Lancet Global Health*, *5*(3), e290–e299.

among women who drank more than two units per week during the first trimester and in the four weeks prior to conceiving.[244,245] The Chief Medical Officer currently recommends that pregnant women be advised that it is safest to abstain from drinking alcohol entirely throughout the duration of their pregnancies.[246]

Children exposed to harmful levels of alcohol in the womb remain at risk of cognitive and behavioural problems throughout the remainder of their development.[247] Mothers who engage in harmful levels of drinking during pregnancy are also more likely to continue to do so after the child is born. Alcohol misuse during the postpartum period is consistently linked to a variety of negative child outcomes, including an increased risk of sudden infant death syndrome and higher rates of child abuse and neglect.[248,249,250]

Methods for assessing harmful levels of alcohol use during pregnancy include the use of the Alcohol Use Disorders Identification Test (AUDIT).[251] This involves the care provider asking a series of questions regarding the nature of the alcohol misuse, followed by referral to a specialist substance misuse service for a fuller specialist assessment if appropriate.

Recent systematic reviews have observed that many commonly used brief interventions for treating alcohol dependence in the general adult population have been found not to be effective for improving access to effective interventions or reducing alcohol consumption.[252,253,254] However, the extent to which they provide meaningful or lasting benefits to pregnant mothers and their children has not been explicitly tested.[255,256]

244 Mamluk, L., Edwards, H., Savović, J., Leach, V., Jones, T., Moore, T., Ijaz, S., Lewis, S., Donovan, J., Lawlor, D., Smith, G. D, Fraser, A., & Zuccolo, L., (2017). Low alcohol consumption and pregnancy and childhood outcomes: time to change guidelines indicating apparently 'safe' levels of alcohol during pregnancy? A systematic review and meta-analyses'. *BMJ Open*.

245 Nykjaer, C., Alwan, N. A., Greenwood, D. C., Simpson, N. A., Hay, A. W., White, K. L., & Cade, J. E. (2014). Maternal alcohol intake prior to and during pregnancy and risk of adverse birth outcomes: evidence from a British cohort. *Journal of Epidemiology and Community Health*, *68*(6), 542–549.

246 Chief Medical Officer (2016). *UK Chief Medical Officers' Low Risk Drinking Guidelines*. Available at: https://www.gov.uk/government/publications/alcohol-consumption-advice-on-low-risk-drinking

247 Ruisch, I. H., Dietrich, A., Glennon, J. C., Buitelaar, J. K., & Hoekstra, P. J. (2017). Maternal substance use during pregnancy and offspring conduct problems: a meta-analysis. *Neuroscience & Biobehavioral Reviews*.

248 Ammerman, R. T., Kolko, D. J., Kirisci, L., Blackson, T. C., & Dawes, M. A. (1999). Child abuse potential in parents with histories of substance use disorder. *Child abuse & neglect*, *23*(12), 1225–1238.

249 O'Leary, C. M., Jacoby, P. J., Bartu, A., D'Antoine, H., & Bower, C. (2013). Maternal alcohol use and sudden infant death syndrome and infant mortality excluding SIDS. *Pediatrics*, *131*(3), e770–e778.

250 Wolf, J. P., & Freisthler, B. (2016). Understanding the roles of context, frequency, and quantity of alcohol consumption in child physical abuse: risks for mothers and fathers. *Journal of Family Violence*, *31*(5), 539–548.

251 Saunders, J. B., Aasland, O. G., Babor, T. F., De la Fuente, J. R., & Grant, M. (1993). Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*, *88*(6), 791–804.

252 Glass, J. E., Hamilton, A. M., Powell, B. J., Perron, B. E., Brown, R. T., & Ilgen, M. A. (2015). Specialty substance use disorder services following brief alcohol intervention: a meta-analysis of randomized controlled trials. *Addiction*, *110*(9), 1404–1415.

253 Saitz, R. (2015). 'SBIRT' is the answer? Probably not. *Addiction*, *110*(9), 1416–1417.

254 McCambridge, J. and Saitz, R. (2017). Rethnking brief interventions for alcohol in general practice. *British Medical Journal*, 356.

255 Lui, S., Terplan, M., & Smith, E. J. (2008). Psychosocial interventions for women enrolled in alcohol treatment during pregnancy. *The Cochrane Library*.

256 Terplan, M., Ramanadhan, S., Locke, A., Longinaker, N., & Lui, S. (2015). Psychosocial interventions for pregnant women in outpatient illicit drug treatment programs compared to other interventions. *The Cochrane Library*.

Studies additionally suggest that it is not uncommon for mothers to relapse into harmful alcohol misuse behaviours after the baby is born.[257,258]

Current NICE guidelines advise that if harmful or dependent drug or alcohol misuse is identified in pregnancy or the postnatal period, a woman should be referred to a specialist substance misuse service for advice and treatment (CG192: 1.8.13; CG110: 1.2). NICE further recommends that assisted alcohol withdrawal in collaboration with specialist mental health and alcohol services (preferably in an inpatient setting) be offered to pregnant women who are dependent on alcohol (CG192: 1.8.13–1.8.15). Work should be done with a woman who does not want assisted alcohol withdrawal to help her reduce her alcohol intake.

Opioids and other illicit drugs

Opioid, cocaine and other illicit drug use during pregnancy are associated with a wide variety of negative pregnancy outcomes.[259] Opioid use, in particular, is associated with neonatal abstinence syndrome (NAS), which is characterised by potentially life threatening withdrawal symptoms after birth, when the infant is no longer exposed to the opioid.[260] Complications associated with NAS include seizures, breathing difficulties and death.[261] It is currently estimated that just under 5% of all pregnant mothers are opioid users.[262] Maternal opioid use during pregnancy is also linked to an increased risk of SIDS during infancy and ongoing neuro-behavioural problems as children develop.[263]

A number of international task forces now recommend that all women be universally screened for harmful drug use throughout the duration of their pregnancies.[264] This recommendation is based on evidence suggesting that universal screening practices reduce the amount of alcohol and harmful substances consumed by pregnant mothers, even in the absence of any treatment.[265,266] Effective screening practices include the use of validated instruments or biological testing to determine the level of risk and offered treatment accordingly.[267]

257 Foray, A. Merry, B. Lin, H. et al. (2015). Pernatal substance use: a prospective evaluation of abstinence and relapse. *Drug and Alcohol Dependency, 150*,.147–155.

258 Yonkers, K. A., Forray, A., Howell, H. B., Gotman, N., Kershaw, T., Rounsaville, B. J., & Carroll, K. M. (2012). Motivational enhancement therapy coupled with cognitive behavioral therapy versus brief advice: a randomized trial for treatment of hazardous substance use in pregnancy and after delivery. *General hospital psychiatry*, *34*(5), 439–449.

259 Forray, A. (2016). Substance use during pregnancy. *F1000Research*, *5*.

260 Wendell, A. D. (2013). Overview and epidemiology of substance abuse in pregnancy. *Clinical Obstetrics and Gynecology*, *56*(1), 91–96.

261 Hudak, M. L., & Tan, R. C. (2012). Neonatal drug withdrawal. *Pediatrics*, *129*(2), e540–e560.

262 PHE (2017). Drug misuse and dependence UK guidelines on clinical management.

263 Minozzi, S., Amato, L., Vecchi, S., & Davoli, M. (2008). Maintenance agonist treatments for opiate dependent pregnant women. *Cochrane Database of Systematic Reviews*, *2*.

264 Bishop, D., Borkowski, L., Couillard, M., Allina, A., Baruch, S., & Wood, S. (2017). Bridging the Divide White Paper: Pregnant Women and Substance Use: Overview of Research & Policy in the United States.

265 Chang, G., McNamara, T. K., Orav, E. J., Koby, D., Lavigne, A., Ludman, B., ... & Wilkins-Haug, L. (2005). Brief intervention for prenatal alcohol use: a randomized trial. *Obstetrics and Gynecology*, *105*(5 Pt 1), 991.

266 O'Connor, M. J., & Whaley, S. E. (2007). Brief intervention for alcohol use by pregnant women. *American Journal of Public Health*, *97*(2), 252–258.

267 Wright, T. E., Terplan, M., Ondersma, S. J., Boyce, C., Yonkers, K., Chang, G., & Creanga, A. A. (2016). The role of screening, brief intervention, and referral to treatment in the perinatal period. *American Journal of Obstetrics and Gynecology*, *215*(5), 539–547.

Opioid dependency during pregnancy is typically managed through controlled doses of methadone or buprenorphine given to the mother at regular intervals. There is good evidence to suggest that these treatments reduce mothers' involvement in illicit drug use, improve maternal compliance with obstetric care and reduce the risk of NAS-related birth complications.[268,269] The Rapid Review observed that such interventions may be more effective when integrated into other forms of antenatal support, although the quality of the studies included in these reviews was not particularly robust.[270,271,272] There is now good evidence to support the use of buprenorphine as a safe alternative to methadone for supporting child birth outcomes.[273,274]

NICE recommends that detoxification in collaboration with specialist mental health and substance misuse services be offered to pregnant women who are dependent on opioids. Mothers should then be monitored closely after completion of detoxification. Practitioners should also be aware of the increased risk of accidental overdose in women who stop or reduce drug misuse in pregnancy but start misusing again after childbirth (CG192: 1.8.15).

Intimate partner violence (IPV)

Intimate partner violence (IPV) – also referred to as domestic violence, domestic abuse or family violence – encompasses acts of physical, emotional, psychological, sexual and financial abuse between partners in an intimate couple relationship. The UK definition of IPV includes female genital mutilation (FGM), forced marriage and other acts of 'honour'-based violence. Risk factors associated with IPV include a history of mental illness, the misuse of drugs and alcohol, maternal age and social disadvantage.[275] Although IPV entails violence by men and women, men are overwhelmingly more likely to be the perpetrators of IPV and women more likely to be the victims.[276]

268 Welle-Strand, G. K., Skurtveit, S., Jones, H. E., Waal, H., Bakstad, B., Bjarkø, L., & Ravndal, E. (2013). Neonatal outcomes following in utero exposure to methadone or buprenorphine: a National Cohort Study of opioid-agonist treatment of Pregnant Women in Norway from 1996 to 2009. *Drug and alcohol dependence*, *127*(1), 200–206.

269 Minozzi, S., Amato, L., Bellisario, C., et al. (2013). Maintenance agonist treatments for opiate-dependent pregnant women. *Cochrane Database of Systematic Reviews*.

270 Milligan, K., Niccols, A., Sword, W., Thabane, L., Henderson, J., Smith, A., & Liu, J. (2010). Maternal substance use and integrated treatment programs for women with substance abuse issues and their children: a meta-analysis. *Substance abuse treatment, prevention, and policy*, *5*(1), 21.

271 Milligan, K., Niccols, A., Sword, W., Thabane, L., Henderson, J., & Smith, A. (2011). Birth outcomes for infants born to women participating in integrated substance abuse treatment programs: A meta-analytic review. *Addiction Research & Theory*, *19*(6), 542–555.

272 Niccols, A., Milligan, K., Smith, A., Sword, W., Thabane, L., & Henderson, J. (2012). Integrated programs for mothers with substance abuse issues and their children: a systematic review of studies reporting on child outcomes. *Child abuse & neglect*, *36*(4), 308–322.

273 Jones, H. E., Heil, S. H., Baewert, A., Arria, A. M., Kaltenbach, K., Martin, P. R., ... & Fischer, G. (2012). Buprenorphine treatment of opioid-dependent pregnant women: a comprehensive review. *Addiction*, *107*(S1), 5–27.

274 Krans, E. E., Bogen, D., Richardson, G., Young Park, S., Dunn, S. L., & Day, N. (2016). Factors associated with buprenorphine versus methadone use in pregnancy. *Substance Abuse*, *37*(4) 550–557.

275 Bailey, B. A. (2010). Partner violence during pregnancy: prevalence, effects, screening, and management. *International Journal of Women's Health*, *2*, 183–97.

276 World Health Organization. (2013). *Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence.*

Studies suggest that pregnancy can heighten the risk of IPV, with one-third of all women experiencing domestic violence reporting that it occurred for the first time when they were pregnant.[277,278] UK studies report prevalence rates for IPV of around 17%.[279] There is no question that IPV poses a serious threat to the wellbeing of the mother and to her unborn child, significantly increasing the likelihood of a low birthweight, a preterm pregnancy or miscarriage.[280,281] IPV is also a leading cause of maternal death during pregnancy. During the period of 2011 to 2013, 26 maternal deaths in the UK during the period of conception to the child's first year were associated with IPV, representing an incident of 0.97 per 100,000 maternities in the UK. This figure is significantly higher than the 0.70 rate in the general population of women aged 16–49.[282]

Maternal exposure to domestic violence is strongly associated with a variety of adverse child and maternal outcomes, including reduced participation in antenatal care, low birthweight, preterm birth and foetal injury.[283,284] IPV is also a major contributor to symptoms of maternal stress, depression, anxiety and symptoms of PTSD.[285,286] Increases in maternal stress due to IPV can also negatively impact children before and after birth.[287]

Screening for IPV

Pregnancy provides an ideal time to screen for IPV, as mothers are typically in increased contact with health services and are motivated to improve their circumstances for their unborn child. However, the Rapid Review concluded that there is still insufficient evidence to justify the universal screening of IPV in healthcare settings.[288]

277   Confidential enquiry into maternal and child health for England and Wales (2004). Why Mothers Die 2000-2002 – Report on confidential enquiries into maternal deaths in the United Kingdom (CEMACH).

278   Johnson, J. K., Haider, F., Ellis, K., Hay, D. M., & Lindow, S. W. (2003). The prevalence of domestic violence in pregnant women. *BJOG: An International Journal of Obstetrics & Gynaecology*, *110*(3), 272–275.

279   Johnson, J. K., Haider, F., Ellis, K., Hay, D. M. and Lindow, S.W. (2003). The prevalence of domestic violence in pregnant women. *BJOG: An International Journal of Obstetrics & Gynaecology*, *110*, 272–275.

280   Donovan, B. M., Spracklen, C. N., Schweizer, M. L., Ryckman, K. K., & Saftlas, A. F. (2016). Intimate partner violence during pregnancy and the risk for adverse infant outcomes: a systematic review and meta-analysis. *BJOG: An International Journal of Obstetrics & Gynaecology*.

281   Alhusen, J. L., Ray, E., Sharps, P., & Bullock, L. (2015). Intimate partner violence during pregnancy: maternal and neonatal outcomes. *Journal of Women's Health*, *24*(1), 100–106.

282   MBRRACE-UK (2015). Saving lives: Maternal death rates 2011–2014. Lessons on homicides and domestic violence. Available at: https://www.npeu.ox.ac.uk/mbrrace-uk/presentations/saving-lives-improving-mothers-care?highlight=YTozOntpOjA7czo4OiJkb21lc3RpYyI7aToxO3M6ODoidmlvbGVuY2UiO2k6Mjtz0jE3OiJkb21lc3RpYyB2aW9sZW5jZSI7fQ

283   Coker, A. L., Sanderson, M., & Dong, B. (2004). Partner violence during pregnancy and risk of adverse pregnancy outcomes. *Paediatric and Perinatal Epidemiology*, *18*(4), 260–269.

284   Jasinski, J. L. (2004). Pregnancy and domestic violence A review of the literature. *Trauma, Violence, & Abuse*, *5*(1), 47–64.

285   Seng, J. S., Low, L. K., Sperlich, M., Ronis, D. L., & Liberzon, I. (2011). Post-traumatic stress disorder, child abuse history, birthweight and gestational age: a prospective cohort study. *BJOG: An International Journal of Obstetrics & Gynaecology*, *118*(11), 1329–1339.

286   Flach, C., Leese, M., Heron, J., Evans, J., Feder, G., Sharp, D., & Howard, L. M. (2011). Antenatal domestic violence, maternal mental health and subsequent child behaviour: a cohort study. *BJOG: An International Journal of Obstetrics & Gynaecology*, *118*(11), 1383–1391.

287   Letourneau, N. L., Fedick, C. B., & Willms, J. D. (2007). Mothering and domestic violence: A longitudinal analysis. *Journal of Family Violence*, *22*(8), 649–659.

288   O'Doherty, L., Hegarty, K., Ramsay, J., Davidson, L. L., Feder, G., & Taft, A. (2015). Screening women for intimate partner violence in healthcare settings. *The Cochrane Library*.

There are several reasons for this.

- Mothers are reluctant to report abuse if directly asked, and are more likely to disclose it through self-administered screening tools, or within the context of a supportive, non-judgmental relationship with a practitioner.

- While screening tools can effectively identify women who have experienced IPV, the rate of detection is much lower than the actual number of women attending hospitals and accident and emergency units as a result of an IPV incident.

- Screening tools are not always successfully integrated into effective referral systems.

- The studies investigating the efficacy of the screening tools frequently involved small samples or the lack of a comparison group. Very few studies were of long enough duration to determine if the identification of IPV resulted in improved outcomes for parents or children.

- The few studies that did investigate longer-term outcomes after screening observed no reductions in levels of abuse over time. Hence, an effective screening tool on its own is never sufficient for preventing IPV if it does not lead to effective support.

Despite these caveats, there is a strong interest within the literature and among providers for integrating screening for IPV into standard maternity care, especially if combined with evidence-based interventions known to reduce incidents of domestic violence.[289,290,291] For example, the Australian National Antenatal Care Guidelines recommend IPV screening at the first antenatal check. Screening should then continue at the beginning of each subsequent trimester for women identified as being at risk.[292]

Interventions for reducing IPV

The Rapid Review considered the evidence underpinning interventions for reducing the frequency of IPV, observing that the majority of studies are non-conclusive. However, there appears to be good evidence to support interventions that combine non-judgmental emotional support with advice about safety within relationships, advocacy and increased access to community services. The evidence is particularly strong for intensive home visiting interventions which start during pregnancy and last for a period of 12 months or longer.[293,294] These interventions include the **Family Nurse Partnership (FNP)**, which was assessed as having level 4+ evidence through the EIF assessment process.

FNP is best classified as a targeted selective programme, since it is offered to first-time teenage mothers, regardless of whether IPV has ever taken place. FNP

289 Warren-Gash, C., Bartley, A., Bayly, J., Dutey-Magni, P., Edwards, S., Madge, S., ... & Swarbrick, H. (2016). Outcomes of domestic violence screening at an acute London trust: are there missed opportunities for intervention?. *BMJ open*, *6*(1), e009069.

290 Ellsberg, M., Arango, D. J., Morton, M., Gennari, F., Kiplesund, S., Contreras, M., & Watts, C. (2015). Prevention of violence against women and girls: what does the evidence say?. *The Lancet*, *385*(9977), 1555–1566.

291 Nelson, H. D., Bougatsos, C., & Blazina, I. (2012). Screening women for intimate partner violence: a systematic review to update the US Preventive Services Task Force recommendation. *Annals of internal medicine*, *156*(11), 796–808.

292 See: http://www.health.gov.au/internet/main/publishing.nsf/ Content/6E83884557AB0AF5CA258110001BC9F9/$File/ANC_Guidelines_Mod1_v32.pdf (also many states/territories have mandatory reporting and include screening as part of routine contact for under-5s).

293 Jahanfar, S., Janssen, P. A., Howard, L. M., & Dowswell, T. (2013). Interventions for preventing or reducing domestic violence against pregnant women. *Cochrane Database of Systematic Reviews*, *2*.

294 Van Parys, A. S., Verhamme, A., Temmerman, M., & Verstraelen, H. (2014). Intimate partner violence and pregnancy: A systematic review of interventions. *PloS One*, *9*(1), e85084.

mothers enrol in the programme early in their pregnancy, and receive visits from a highly trained and supervised family nurse on a weekly basis during the antenatal period and the first six weeks after the child is born. Visits then continue fortnightly until three months before the child's second birthday when visits become monthly in preparation for the programme ending. A total of 64 visits are scheduled. During these visits, mothers are supported through a strong and purposeful relationship to adopt healthy behaviours and develop positive care-giving behaviours and make positive changes and plan for their own and their babies' future.

FNP's benefits include reductions in smoking at the time of the baby's birth, increased maternal confidence and satisfaction, increased maternal employment, reduced child maltreatment and improved school achievement as children grow older.[295,296,297,298] Two of these studies (in the USA and Holland) also observed reductions in mothers' reports of IPV.[299,300] Such positive findings have resulted in economic evaluations of the programme suggesting a potential 6% return on investment if the programme is implemented correctly.[301,302]

It is worth noting that the majority of FNP's benefits have not been replicated in the UK. In a recent randomised controlled trial, only five positive mother and child outcomes were observed out of a total of 175 measured. These outcomes included mother's increased intention to breastfeed, improved maternal mastery at 12 months and improved child cognitive and language development at 24 months.[303]

Those delivering FNP attribute the disappointing UK findings to difficulties in reaching the most vulnerable mothers, and believe that the programme is capable of providing measurable benefits when properly targeted. The FNP national unit is therefore optimistic that the programme will result in improved child outcomes once these targeting and implementation issues have been resolved.[304]

295 Olds, D. L., Henderson, C. R., Chamberlin, R., and Tatelbaum, R. (1986). Preventing child abuse and neglect: A randomized trial of nurse home visitation. *Pediatrics, 78*, 65–78.

296 Olds, D. L., Henderson, C. R., Tatelbaum, R., and Chamberlin, R. (1986). Improving the delivery of prenatal care and outcomes of pregnancy: A randomized trial of nurse home visitation. *Pediatrics, 77*, 16–28.

297 Eckenrode, J., Campa, M., Luckey, D. W., Henderson, C. R., Cole, R., Kitzman, H., Anson, E., Sidora-Arcoleo, Powe, J., and Olds, D. (2010). Long-term effects of prenatal and infancy nurse home visitation on the life course of youths: 19-year follow-up of a randomized trial. *Archives of Pediatrics & Adolescent Medicine,* 164, 9–15.

298 Olds, D. L., Eckenrode, J., Henderson, C. R., Kitzman, H., Powers, J., Cole, R., Sidora, K., Morris, P., Pettitt, L. M., and Luckey, D. (1997). Long-term effects of home visitation on maternal life course and child abuse and neglect: Fifteen-year follow-up of a randomized trial. *Journal of the American Medical Association* 278, 637–643.

299 Olds, David L., Robinson, JoAnn, O'Brien, Ruth, Luckey, Dennis W., Pettitt, Lisa M., Henderson, Charles R., Ng, Rosanna K., Sheff, Karen L., Korfmacher, Jon, Hiatt, Susan, and Talmi, Ayelet. 2002. Home visiting by paraprofessionals and by nurses: A randomized, controlled trial. *Pediatrics, 110,* 486–496.

300 Mejdoubi, J., van den Heijkant, S. C. C. M., van Leerdam, F. K. M., Heymans, M. W., Hirasing, R. A., & Crijnen, A. A. M. (2013). Effect of nurse home visits vs. usual care on reducing intimate partner violence in young high-risk pregnant women: A randomized controlled trial. *PLOS One*.

301 Olds, D., Henderson Jr, C. R., Cole, R., Eckenrode, J., Kitzman, H., Luckey, D., Pettitt, L., Sidora, K., Morris, P., and Powers, J. (1998). Long-term effects of nurse home visitation on children's criminal and antisocial behaviour: 15-year follow-up of a randomized controlled trial. *Journal of the American Medical Association*, 280, 1238–1244.

302 Karoly, L. A., Kilburn, M. R., & Cannon, J. S. (2005). Proven benefits of early childhood interventions.

303 Robling, M., Bekkers, M. J., Bell, K., Butler, C. C., Cannings-John, R., Channon, S., ... & Kenkre, J. (2016). Effectiveness of a nurse-led intensive home-visitation programme for first-time teenage mothers (Building Blocks): a pragmatic randomised controlled trial. *The Lancet, 387*(10014), 146–155.

304 Swarbuck, A. (2016). *Programme provider reflection on 'Foundations for life: What works to support parent-child interaction in the early years'. The Evidence Journey*. Early Intervention Foundation. Available at: http://www.eif.org.uk/the-evidence-journey-case-studies-and-testimonials/

The Rapid Review also found evidence for the use of clinic-based psychosocial support for decreasing the risk of IPV and further adverse consequences. One particularly promising programme, based on the Dutton empowerment model, integrates counselling sessions into the standard antenatal care provided to at-risk mothers.[305,306] These sessions are delivered by master's-level psychologists who are trained and supervised to deliver the intervention. The programme provides information about behaviours that constitute abuse and violence, as well as strategies for assessing the mother's level of risk and developing a safety plan. Participants also receive smoking cessation advice and support for reducing symptoms of depression.

Findings from a rigorously conducted RCT observed that programme participants experiencing mild forms of IPV were significantly less likely to report further episodes of IPV during their pregnancy or after their child was born. Participants experiencing severe IPV were also significantly less likely to report IPV during the postpartum period. Additional benefits include a reduced likelihood of a preterm birth, reductions in maternal reports of smoking and reductions in symptoms of depression.

Interventions for reducing IPV behaviours among male perpetrators

The Rapid Review considered the efficacy of interventions for reducing IPV behaviours among male perpetrators. Such interventions include the use of CBT techniques aimed at helping perpetrators manage their feelings and programmes offered through the criminal justice system which are based on the Duluth model. Neither the Rapid Review nor NICE identified any specific intervention or model underpinned by consistent evidence for reducing IPV among male perpetrators.

Summary of key messages

This chapter considered the evidence underpinning a variety of programmes and practices that aim to improve childbirth outcomes by targeting various psychosocial risks occurring in pregnancy. This evidence is an update of two reviews published in 2015 and 2016: the PHE-commissioned Rapid Review to update the evidence underpinning the Healthy Child Programme, and the recently completed Foundations for Life review which assessed the evidence of 75 programmes targeting parent–child interaction during the first five years. A range of evidence-based interventions and practices were identified, as described below.

Universal

This review has concluded that there is good evidence to support the following universal screening practices. Specifically:

- There is good evidence to suggest that the universal mental health screening involving the use of validated tools and appropriate treatment protocols can reduce the prevalence of depression at the population level and reduce symptoms of depression in women diagnosed as being depressed, when offered in combination with effective treatment.

- There is also good evidence to support the use of CO monitoring for identifying and monitoring tobacco intake.

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305 Kiely, M., El-Mohandes, A. A., El-Khorazaty, M. N., & Gantz, M. G. (2010). An integrated intervention to reduce intimate partner violence in pregnancy: a randomized trial. *Obstetrics and gynecology*, *115*(2 Pt 1), 273.

306 Dutton, M. A. (2000). *Empowering and healing the battered woman: A model for assessment and intervention*. Springer Publishing Company.

- There is also strong consensus within the literature that pregnancy is a good time to screen for IPV and that IPV screening tools should continue to be developed and tested. IPV screening can also lead to reductions in the reoccurrence of IPV when leading to effective treatment.

While evidence underpinning the effectiveness of preparation for parenting programmes is weak, **there is good evidence for programmes targeting low-risk couples expecting their first child.** The evidence is particularly strong for the **Family Foundations** programme, which is underpinned by two RCTs observing improved childbirth outcomes, reduced symptoms of stress and depression, reduced inter-parental conflict, improved attachment-related behaviours and increased pro-social behaviours when children are older. Family Foundations is implemented by trained and supervised health professionals operating through or alongside maternity services. Family Foundations was developed and evaluated in the United States, but is running in several sites in South London.

Targeted selective

Targeted selective interventions aimed at *preventing* symptoms of depression during pregnancy have been found through robust evaluation to provide no consistent benefits for parents or children.

There is, however, good international evidence to support the use of the Family Nurse Partnership programme as a targeted selective intervention for first-time teenage mothers. Positive outcomes associated with the programme include reductions in smoking, improved maternal confidence and efficacy, reduced child maltreatment and reduced intimate partner violence. While few of these benefits have been replicated in the UK, the programme is well integrated within many local authorities and the family nurses delivering it feel that the programme is making a positive difference.[307] It is possible that with further targeting on the basis of disadvantage, the programme could demonstrate improved outcomes. For these reasons, **FNP remains a viable targeted selective option for single teenage mothers.**

Targeted indicated

There is good UK evidence to suggest that incentive-based smoking cessation programmes are an effective and cost-effective method for reducing rates of smoking cessation among disadvantaged mothers.

There is good evidence to support the use of counselling integrated into standard prenatal care for preventing and reducing the reoccurrence of IPV in mothers where there is a pre-identified risk. Intervention benefits include reductions in IPV, as well as reductions in depression in mothers who are at risk.

There is good evidence to support the use of CBT and a variety of other psychotherapies in pregnant mothers diagnosed with mental health problems, in the manner recommended in the current NICE guidelines. These guidelines recommend the use of CBT therapies for mothers reporting moderate levels of depression or anxiety, and more intensive forms of support for mothers with severe mental illness. This support should be delivered by mental health practitioners who have been trained to deliver CBT therapies.

There is now good evidence to suggest that antidepressants and various other psycho-tropic medications are associated with negative child outcomes, so should only be offered if these risks are less than those posed by the maternal mental illness.

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307 Barnes, J. (2009). Nurse-family partnership programme. Second year pilot sites implementation in England – The infancy period. Available at: http://www.iscfsi.bbk.ac.uk/projects/files/Second_year.pdf

Specialist

If harmful or dependent use is identified, mothers must be referred to a specialist substance misuse service for more intensive advice, assessment and treatment. This support may include detoxification and more intensive psychosocial and key worker support.

3. Findings: birth to 12 months

Overview

Children develop at a remarkable pace during the first 12 months of life. At birth, infants can eat, sleep and cry, but are otherwise limited in their ability to engage with others. By the time of their first birthday, however, most children are mobile, can say a few words and will have developed an emotional bond with their caregivers.

Parents facilitate this process by meeting their infant's physical needs of food and warmth and by creating an environment that is safe and predictable. The majority of parents do this naturally, with little extra support from public services. However, some parents struggle, often because of personal circumstances which restrict their ability to understand and meet their infant's needs. This chapter considers the evidence underpinning the advice and support offered to parents during their child's first 12 months and the extent to which it is effective for the families who most need it.

Premature and low-birthweight infants

At the time of birth, the majority of babies will have reached a healthy weight and have developed organs that are sufficient for survival outside of the mother's womb. A normal pregnancy ranges between 38 to 42 weeks; babies born before the 37th week of pregnancy are considered premature.[308] In 2015, 698,000 babies were born in England and Wales, of which 92% were born to term.[309] There were an additional 3,148 stillbirths, representing 4.5 out of 1,000 pregnancies. This is the lowest rate since 1992.[310]

A healthy birthweight of a full-term baby is between 2.7 and 4.1kg (6–9lbs), with an average weight of 3.5kg (7.7lbs). A baby who weighs less than 2.5kg (5.5lbs) is considered to have a low birthweight.[311] In 2015, 7% of babies were considered to have a low birthweight. Causes of low birthweight include multiple births (such as twins or triplets), a preterm birth and birth-related complications. Sixteen out of every 1,000 women giving birth had a multiple birth in 2015.[312]

As described in chapter 2, a variety of maternal factors, such as age, smoking, substance misuse and stress increase the likelihood of a low-birthweight baby.[313]

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308 NHS (2015). Premature labor and birth. Available at: http://www.nhs.uk/conditions/pregnancy-and-baby/pages/premature-early-labour.aspx

309 ONS (2016). Birth summary tables England and Wales. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/datasets/birthsummarytables

310 ONS (2016). Stillbirths. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/stillbirths

311 World Health Organization (2004). Low birthweight: Country, regional and global estimates. The World Health Organization and Unicef. Available at: http://www.who.int/reproductivehealth/publications/monitoring/9280638327/en/

312 ONS (2016): Birth characteristics in England and Wales. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/bulletins/birthcharacteristicsinenglandandwales/2015

313 Roy-Matten, N., Moutquin, J.M., Brown, C., Carrier, N., and Bell, L. (2011). The impact of perceived maternal stress and other psychosocial risk factors on pregnancy complications, *Journal of Obstetrics and Gynaecology of Canada, 33*, 344–352.

Birthweight also varies by ethnicity, with children of Asian descent having a greater likelihood of a low birthweight in comparison with other ethnic groups.[314]

Low birthweight, irrespective of gestational age, is a risk throughout childhood.[315] Complications associated with a low birthweight include breathing difficulties, high blood pressure, heart disease, diabetes and a greater risk of infection and death. Preterm babies are also at greater risk for cognitive, behavioural and psychological difficulties as they grow older.[316,317] Preterm infants born at earlier points during pregnancy (for example 22 to 29 weeks) are at greater risk of developmental difficulties than are preterm infants born at later points.[318]

Preterm infants often require time in an incubator to reduce the impact of preterm birth complications and support development of the infant's premature respiratory, digestive and immune systems. While incubators are effective for supporting the maturation of these vital systems, they are inadequate for recreating all aspects of the intrauterine environment, including the sensory and auditory input necessary for early neurological development.[319,320] Incubators also restrict the amount of time parents can spend with their infant, placing stress on the parent–infant relationship.

Interventions for families with a low-birthweight infant

A variety of practices exist to support the parent–infant relationship and facilitate physical contact. These include Kangaroo Mother Care (KMC), infant massage, parent education and home visiting programmes, all of which aim to increase physical contact and help mothers better understand their preterm infant's behavioural cues.

Kangaroo Mother Care

Kangaroo Mother Care (KMC) was developed specifically to address the physiological and behavioural risks associated with a preterm birth and incubation care.[321,322] The primary aim of KMC is to increase the skin-to-skin contact (SSC) between the mother and infant as a way of regulating the baby's temperature and replicating other aspects of the womb environment. Ideally, the premature baby is placed upright on his or her mother's chest to enable as much skin-to-skin contact as possible and ensure that breathing airways are not blocked. SSC is provided for

314 World Health Organization (2004). Low birthweight: Country, regional and global estimates. The World Health Organization and Unicef. Available at: http://www.who.int/reproductivehealth/publications/monitoring/9280638327/en/

315 Barker, D. J. (1995). The fetal and infant origins of disease. *European Journal of Clinical Investigation*, *25*(7), 457–463.

316 Linsell, L., Malouf, R., Johnson, S., Morris, J., Kurinczuk, J. J., & Marlow, N. (2016). Prognostic Factors for Behavioral Problems and Psychiatric Disorders in Children Born Very Preterm or Very Low Birth Weight: A Systematic Review. *Journal of Developmental & Behavioral Pediatrics*, *37*(1), 88–102.

317 Schieve, L. A., Tian, L. H., Rankin, K., Kogan, M. D., Yeargin-Allsopp, M., Visser, S., & Rosenberg, D. (2016). Population impact of preterm birth and low birth weight on developmental disabilities in US children. *Annals of epidemiology*, *26*(4), 267–274.

318 Borrell-Porta, M., Cooper, K., Costa Font, J., Orsini, C., Ozcan, B. and Platt, L. (2017). Children's wellbeing and development outcomes for ages 5, 7 and 11 and their predictors. The London School for Economics (Department of Social Policy and LSE Enterprise).

319 Field, T., Diego, M., & Hernandez-Reif, M. (2010). Preterm infant massage therapy research: a review. *Infant Behavior and Development*, *33*(2), 115–124.

320 Field, T., Hernandez-Reif, M., Diego, M., Feijo, L., Vera, Y., & Gil, K. (2004). Massage therapy by parents improves early growth and development. *Infant Behavior and Development*, *27*(4), 435–442.

321 Conde-Agudelo, A., & Díaz-Rossello, J. L. (2005). Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. *The Cochrane Library*.

322 Moore, E. R., Anderson, G. C., Bergman, N., & Dowswell, T. (2012). Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews*, *5*(3).

at least six hours per day in not more than four sittings. SSC can be provided by the father or other close family members, although the majority of SSC should be provided by the mother to facilitate breastfeeding.

The Rapid Review summarised findings from several systematic reviews linking KMC to improved rates of breastfeeding, increases in parental sensitivity and increases in child attachment behaviours in preterm infants.[323,324,325] A more recent Cochrane review also reported increases in the weight and size in KMC babies as compared to non-KMC infants, as well as some benefit for the parent–infant attachment relationship.[326] However, the Cochrane review authors cautioned that the findings were observed primarily in developing countries and the extent to which they could be generalised to western samples remains unclear.

Infant massage

Infant massage has traditionally been used in Russia and other non-European countries to promote infant sleep and aid digestion. The practice was introduced to the US and UK approximately 30 years ago in neonatal wards to increase the amount of sensory stimulation preterm infants received and to support the parent–infant relationship.[327] Parents are taught infant massage methods that can be used when holding the infant or when the infant is in the incubator. **Multiple systematic reviews have linked infant massage to a variety of physical benefits for preterm infants** (such as increased weight, vasal activity, gastric activity and serum insulin levels) and psychological benefits for their parents.[328,329,330] However, these benefits have not been replicated with healthy, full-term infants (see section on attachment).

Parent education programmes

A preterm or low-birthweight birth increases the risk of parent–infant relationship difficulties. These difficulties may stem from the reduced contact between the mother and infant necessitated by incubator care, as well as feelings of disappointment, depression and anxiety that are common among parents recovering from a preterm birth. Preterm infants are also often less alert and responsive than full-term infants, making it difficult for parents to understand their behaviours and respond appropriately to their cues.[331]

323 Conde-Agudelo, A., Belizán, J. M., & Diaz-Rossello, J. (2012). Cochrane review: kangaroo mother care to reduce morbidity and mortality in low birthweight infants. *Evidence-Based Child Health: A Cochrane Review Journal*, *7*(2), 760–876.

324 Neu, M., & Robinson, J. (2010). Maternal holding of preterm infants during the early weeks after birth and dyad interaction at six months. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *39*(4), 401–414.

325 Tully, K. P., Holditch-Davis, D., White-Traut, R. C., David, R., O'shea, T. M., & Geraldo, V. (2016). A Test of Kangaroo Care on Preterm Infant Breastfeeding. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *45*(1), 45–61.

326 Conde-Agudelo, A., & Díaz-Rossello, J. (2016). Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. *The Cochrane Database of Systematic Reviews*, *8*, CD002771

327 Field, T., Diego, M., & Hernandez-Reif, M. (2010). Preterm infant massage therapy research: a review. *Infant Behavior and Development*, *33*(2), 115–124.

328 Álvarez, M. J., Fernández, D., Gómez-Salgado, J., Rodríguez-González, D., Rosón, M., & Lapeña, S. (2017). The effects of massage therapy in hospitalized preterm neonates: A systematic review. *International Journal of Nursing Studies*.

329 Field, T., Hernandez-Reif, M., Diego, M., Feijo, L., Vera, Y., & Gil, K. (2004). Massage therapy by parents improves early growth and development. *Infant Behavior and Development*, *27*(4), 435–442.

330 Field, T., Diego, M., & Hernandez-Reif, M. (2010). Preterm infant massage therapy research: a review. *Infant Behavior and Development*, *33*(2), 115–124.

331 Kelly, J. F., & Barnard, K. E. (2000). Assessment of parent-child interaction: Implications for early intervention. *Handbook of early childhood intervention*, *2*, 258–289.

Difficulties in the early parent–infant relationship are predictive of problems as infants grow older.[332,333,334] A number of interventions have therefore been developed to address parents' concerns and support their interaction with their infant. A primary aim of these interventions is to help parents better understand their preterm infant's behaviour.

The Rapid Review summarised findings from two systematic reviews considering the benefits of 26 interventions delivered in neonatal intensive care units to support parent–infant interaction. These interventions included KMC (see above), as well as programmes that educate mothers about their preterm infant's needs. Many of these interventions have good evidence of increasing maternal sensitivity, but relatively few have evidence of improving child outcomes. Two programmes identified as having consistent evidence of providing benefits to mothers and infants include **H-HOPE** (Hospital to Home Transition-Optimizing Premature Infant's Environment) and the **Mother Infant Transaction Programme** (MITP).

H-HOPE teaches mothers how to help their preterm infant maintain a quiet, alert state and encourage orally directed feeding behaviours, such as mouthing, rooting and sucking on the hand.[335,336,337,338] These behaviours typically emerge within one hour of birth in full-term infants and are a clear indication the infant is interested in feeding. Such behaviours are not always evident in preterm infants, however, making it difficult for parents to understand when their infants are ready to feed. Understanding infant feeding behaviours facilitates the establishment of feeding routines, which in turn, improves the quality of infant waking and sleeping states and also encourages positive parent–infant interaction.[339,340,341,342]

H-HOPE begins with two coaching sessions delivered to mothers while their infant is still in the hospital. During these sessions, nurse practitioners teach mothers 'ATVV' strategies for using *Auditory* (their voice), *Tactile* (massage or stroking), *Visual* (eye-to-eye gazing) and *Vestibular* (horizontal rocking) stimulation to keep

332 Beckwith, L., & Rodning, C. (1996). Dyadic processes between mothers and preterm infants: Development at ages 2 to 5 years. *Infant Mental Health Journal*, *17*(4), 322–333.

333 Forcada-Guex, M., Pierrehumbert, B., Borghini, A., Moessinger, A., & Muller-Nix, C. (2006). Early dyadic patterns of mother–infant interactions and outcomes of prematurity at 18 months. *Pediatrics*, *118*(1), e107–e114.

334 Smith, K. E., Landry, S. H., & Swank, P. R. (2006). The role of early maternal responsiveness in supporting school-aged cognitive development for children who vary in birth status. *Pediatrics*, *117*(5), 1608–1617.

335 White-Traut, R., Rankin, K. M., Pham, T., Li, Z., & Liu, L. (2014). Preterm infants' orally directed behaviors and behavioral state responses to the integrated H-HOPE intervention. *Infant Behavior and Development*, *37*(4), 583–596.

336 Cagan J. (1995). Feeding readiness behavior in preterm infants. *Neonatal Network*, *14*(2), 82.

337 White-Traut, R. C., Berbaum, M. L., Lessen, B., McFarlin, B., & Cardenas, L. (2005). Feeding readiness in preterm infants: the relationship between preterm behavioral state and feeding readiness behaviors and efficiency during transition from gavage to oral feeding. *MCN: The American Journal of Maternal/Child Nursing*, *30*(1), 52–59.

338 White-Traut, R. C., Nelson, M. N., Silvestri, J. M., Vasan, U., Patel, M., & Cardenas, L. (2002). Feeding readiness behaviors and feeding efficiency in response to ATVV intervention. *Newborn and Infant Nursing Reviews*, *2*(3), 166–173.

339 Gill, N. E., Behnke, M., Conlon, M., & Anderson, G. C. (1992). Nonnutritive sucking modulates behavioral state for preterm infants before feeding. *Scandinavian Journal of Caring Sciences*, *6*(1), 3–7.

340 White-Traut, R. C., Berbaum, M. L., Lessen, B., McFarlin, B., & Cardenas, L. (2005). Feeding readiness in preterm infants: the relationship between preterm behavioral state and feeding readiness behaviors and efficiency during transition from gavage to oral feeding. *MCN: The American Journal of Maternal/Child Nursing*, *30*(1), 52–59.

341 White-Traut, R. C., Nelson, M. N., Silvestri, J. M., & Vasan, U. (2002). Effect of auditory, tactile, visual, and vestibular intervention on length of stay, alertness, and feeding progression in preterm infants. *Developmental Medicine and Child Neurology*, *44*(2), 91.

342 Pickler, R. H., Best, A. M., Reyna, B. A., Wetzel, P. A., & Gutcher, G. R. (2005). Prediction of feeding performance in preterm infants. *Newborn and Infant Nursing Reviews*, *5*(3), 116–123.

their infant quiet and alert. These coaching sessions are then followed by two phone calls once the mother and infant are at home. H-HOPE has good evidence of improving preterm infant feeding behaviours by the time they are discharged from the hospital **reducing the length of their hospital stay, increasing their rate of growth and improving parent–infant interaction at six weeks corrected gestational age.**[343,344]

MITP also has good evidence of improving mothers' interaction with their preterm infants, as well as a variety of other positive child outcomes. MITP is a Norwegian-based programme that aims to help parents better understand their infant's cues by helping them focus on their infant's unique characteristics and temperament and responding appropriately.[345] MITP is delivered through 11 one-hour sessions: the first seven take place during the week prior to the infant's discharge from the hospital and four more visits take place in the family home.

MITP has evidence from several, rigorously conducted RCTs demonstrating increases in maternal sensitivity and improved parent–child interaction in families with preterm infants. Observed benefits include increased maternal sensitivity, improved child mood and greater synchrony in the interactions of mothers and infants 12 months after their babies left the hospital.[346] These findings have also been replicated in an enhanced version of MITP (PremieStart) exclusively targeting very young preterm infants (that is, less than 30 weeks) in a study that observed improvements in maternal responsivity, reduced infant stress, and improved mother–infant communication at a six-month follow-up.[347]

MITP's positive findings contrast sharply with those observed in a recent RCT of Baby Triple P (BTP), which similarly targets gestationally young (< 32 weeks) preterm mother and infant pairs.[348] This trial observed no differences in maternal or infant behaviours at two assessment points occurring at six-weeks and 12 months corrected gestational age, in comparison to mother–infant pairs receiving standard care. While the BTP programme also took place in the hospital before the infant was discharged, it involved only two sessions (in comparison to seven or nine) and these did not necessarily include the baby. The study's authors attribute BTP's lack of positive findings to its decreased intensity and the lack of specific cue-based training.

Home visiting for low-birthweight infants

A variety of home visiting interventions exist to support the physical, cognitive and self-regulatory development of low-birthweight infants. These interventions range from relatively short interventions lasting between eight and 12 weeks, to longer-term interventions lasting for over three years. The Rapid Review summarised

343 White-Traut, R., Rankin, K. M., Pham, T., Li, Z., & Liu, L. (2014). Preterm infants' orally directed behaviors and behavioral state responses to the integrated H-HOPE intervention. *Infant Behavior and Development*, *37*(4), 583–596.

344 White-Traut, R. C., Rankin, K. M., Yoder, J. C., Liu, L., Vasa, R., Geraldo, V., & Norr, K. F. (2015). Influence of H-HOPE intervention for premature infants on growth, feeding progression and length of stay during initial hospitalization. *Journal of Perinatology*, *35*(8), 636–641.

345 Ravn, I. H., Smith, L., Lindemann, R., Smeby, N. A., Kyno, N. M., Bunch, E. H., & Sandvik, L. (2011). Effect of early intervention on social interaction between mothers and preterm infants at 12 months of age: A randomized controlled trial. *Infant Behavior and Development*, *34*(2), 215–225.

346 Ravn, I. H., Smith, L., Lindemann, R., Smeby, N. A., Kyno, N. M., Bunch, E. H., & Sandvik, L. (2011). Effect of early intervention on social interaction between mothers and preterm infants at 12 months of age: A randomized controlled trial. *Infant Behavior and Development*, *34*(2), 215–225.

347 Milgrom, J., Newnham, C., Martin, P. R., Anderson, P. J., Doyle, L. W., Hunt, R. W., ... & Gemmill, A. W. (2013). Early communication in preterm infants following intervention in the NICU. *Early human development*, *89*(9), 755–762.

348 Evans, T., Boyd, R. N., Colditz, P., Sanders, M., & Whittingham, K. (2017). Mother-very preterm infant relationship quality: RCT of Baby Triple P. *Journal of Child and Family Studies*, *26*(1), 284–295.

findings from one systematic review involving 17 home visiting interventions developed over the last 30 years.[349] The majority of programmes were developed in the United States and were delivered through large-scale community initiatives that included home visiting within a larger package of community-based support. The systematic review concluded that there is good evidence linking home visiting to improved preterm infant outcomes during the first two years. However, outcomes tend to be more pronounced among more vulnerable families, and the extent to which they are maintained as children grew older remains unclear.

Findings from the Infant Health and Development Program (IHDP) demonstrate the strengths and limitations of home visiting interventions for families with low-birthweight infants. The IHDP was first implemented in 1985 to improve health and development outcomes of preterm infants born before 37 weeks' gestation[350]. The programme began at the time infants left the NICU and continued until the child's corrected age was 36 months. Home visiting was one of three programme components that additionally included centre-based support at an enriched child development centre and ongoing parenting groups. Regularly scheduled paediatric visits also monitored the infant's physical, cognitive and social development over time, so appropriate referrals to additional services could be made as and when needed.

The study observed consistent improvements in the early health and cognitive development in infants whose parents participated in the programme.[351] However, a detailed analysis of the findings observed that positive outcomes were more pronounced among the 'heavier' (and potentially healthier) low-birthweight infants.[352] While these benefits were maintained by the heavier low-birthweight children at age 18, the authors speculated that more intensive support may have been necessary for infants with lower birthweight.[353,354]

Breastfeeding

Human breast milk has recently been described as the 'ultimate form of personalised medicine'.[355] Not only does it provide the newborn with all of the nutrients necessary for survival and growth during the first six months of life – it also protects against a variety of life-threatening conditions, such as pneumonia and necrotising enterocolitis.[356] In this respect, multiple, large-scale epidemiological studies have confirmed a strong and consistent link between

349 Goyal, N. K., Teeters, A., & Ammerman, R. T. (2013). Home visiting and outcomes of preterm infants: a systematic review. *Pediatrics*, *132*(3), 502–516.

350 Ramey, C. T., Bryant, D. M., Wasik, B. H., Sparling, J. J., Fendt, K. H., & La Vange, L. M. (1992). Infant Health and Development Program for low birth weight, premature infants: Program elements, family participation, and child intelligence. *Pediatrics*, *89*(3), 454–465.

351 Ramey, C. T., Bryant, D. M., Wasik, B. H., Sparling, J. J., Fendt, K. H., & La Vange, L. M. (1992). Infant Health and Development Program for low birth weight, premature infants: Program elements, family participation, and child intelligence. *Pediatrics*, *89*(3), 454–465.

352 McCarton, C. M., Brooks-Gunn, J., Wallace, I. F., Bauer, C. R., Bennett, F. C., Bernbaum, J. C., ... & Tyson, J. (1997). Results at age 8 years of early intervention for low-birth-weight premature infants: The Infant Health and Development Program. *Jama*, *277*(2), 126–132.

353 McCormick, M. C., Brooks-Gunn, J., Buka, S. L., Goldman, J., Yu, J., Salganik, M., ... & Bauer, C. R. (2006). Early intervention in low birth weight premature infants: results at 18 years of age for the Infant Health and Development Program. *Pediatrics*, *117*(3), 771–780.

354 Ramey, C. T., & Ramey, S. L. (1998). Early intervention and early experience. *American Psychologist*, *53*(2), 109.

355 Victora, C. G., Bahl, R., Barros, A. J., França, G. V., Horton, S., Krasevec, J., ... & Group, T. L. B. S. (2016). Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet*, *387*(10017), 475–490.

356 Gura, T. (2014). Nature's first functional food. *Science*, *345*(6198), 747–749.

breastfeeding and reductions in infant mortality due to infectious diseases in both developed and developing countries.[357,358]

Studies have also confirmed a consistent link between infant breastfeeding and later childhood obesity. Specifically, children who have been exclusively breastfed for four months or longer are less likely to be obese when they enter school and in early adolescence.[359] Although the reasons for this association remain unclear, some speculate that that the infant dietary system is less efficient in digesting complementary foods, including formula, and this may lead to an unhealthy weight gain in early childhood.[360] There is also some evidence to suggest that breast milk contains hormones and biological agents that potentially increase the body's efficiency for metabolising food. This increased efficiency may, in turn, reduce the risk of obesity as children grow older.[361,362]

It should be noted that the link between breastfeeding in infancy and later childhood obesity is not consistently observed in all studies, particularly those conducted in developed countries.[363] In this respect, some studies have failed to confirm any link between breastfeeding in infancy and later obesity, whereas others have found that the association may be due to a variety of other family-level influences, such as race and dietary practices.[364,365,366,367] For example, a recent analysis involving the Millennium Cohort Study (MCS) sample observed that while infant breastfeeding predicted rates of obesity at age 11, the relationship was less evident once maternal education was taken into account.[368]

357 Victora, C. G., Bahl, R., Barros, A. J., França, G. V., Horton, S., Krasevec, J., ... & Group, T. L. B. S. (2016). Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet*, *387*(10017), 475–490.

358 Sankar, M. J., Sinha, B., Chowdhury, R., Bhandari, N., Taneja, S., Martines, J., & Bahl, R. (2015). Optimal breastfeeding practices and infant and child mortality: a systematic review and meta-analysis. *Acta Paediatrica*, *104*(S467), 3–13.

359 Yan, J., Liu, L., Zhu, Y., Huang, G., & Wang, P. P. (2014). The association between breastfeeding and childhood obesity: a meta-analysis. *BMC Public Health*, *14*(1), 1267.

360 Owen, C. G., Martin, R. M., Whincup, P. H., Smith, G. D., & Cook, D. G. (2006). Does breastfeeding influence risk of type 2 diabetes in later life? A quantitative analysis of published evidence. *American Journal of Clinical Nutrition*, *84*(5), 1043–54.

361 von Kries R., Koletzko B., Sauerwald T., von Mutius E., Barnert D., Grunert V., & von Voss H. (1999). Breast feeding and obesity: cross sectional study. *British Medical Journal, 319*(7203), 147–150.

362 Uwaezuoke, S. N., Eneh, C. I., & Ndu, I. K. (2017). Relationship Between Exclusive Breastfeeding and Lower Risk of Childhood Obesity: A Narrative Review of Published Evidence. *Clinical Medicine Insights: Pediatrics*, *2017*(11).

363 WHO (2014). Exclusive breastfeeding to reduce the risk of childhood overweight and obesity. Available: http://www.who.int/elena/titles/bbc/breastfeeding_childhood_obesity/en/

364 Huus, K., Ludvigsson, J. F., Enskär, K., & Ludvigsson, J. (2008). Exclusive breastfeeding of Swedish children and its possible influence on the development of obesity: a prospective cohort study. *BMC Pediatrics*, *8*(1), 42.

365 Kramer, M. S., Matush, L., Vanilovich, I., et al. (2007). Effects of prolonged and exclusive breastfeeding on child height, weight, adiposity, and blood pressure at age 6.5 y: evidence from a large randomized trial. *American Journal of Clinical Nutrition*, 86:1717–1721.

366 Kwok, M. K., Schooling, C. M, Lam, T. H., Leung, G. M. (2010). Does breastfeeding protect against childhood overweight? Hong Kong's 'Children of 1997' birth cohort. *International Journal of Epidemiology*, *39*, 297–305.

367 Uwaezuoke, S. N., Eneh, C. I., & Ndu, I. K. (2017). Relationship Between Exclusive Breastfeeding and Lower Risk of Childhood Obesity: A Narrative Review of Published Evidence. *Clinical Medicine Insights: Pediatrics*, *2017*(11).

368 Massion, S., Wickham, S., Pearce, A., Barr, B., Law, C., & Taylor-Robinson, D. (2016). Exploring the impact of early life factors on inequalities in risk of overweight in UK children: findings from the UK Millennium Cohort Study. *Archives of disease in childhood*, *101*(8), 724–730.

Studies have also observed a consistent link between breastfeeding in infancy and higher intelligence in later childhood.[369,370] It is hypothesised that fatty acids in breast milk increase the production of white matter in the infant's brain, which in turn, strengthens the dendritic growth and synaptic connections implicated in early learning.[371] It is also likely that breastfeeding increases the opportunities for positive mother–child interaction, which additionally supports children's early cognitive and language development (see following sections involving attachment security and early language learning).

The link between breastfeeding and children's intelligence is not consistently observed, however, especially after key family-level influences are taken into account.[372] For example, studies involving populations in Ireland and the UK failed to confirm an association between breastfeeding and children's intelligence when statistically-rigorous matching techniques were used to compare breastfed and non-breastfed children.[373,374] Analyses involving the Millennium Cohort study additionally observed that while breastfeeding during infancy significantly and positively predicted children's level of achievement at age 5, these effects were reduced once maternal age and education were statistically controlled for.[375] A more recent analysis, however, observed a robust correlation between breastfeeding up to six months of age and children's school achievement at ages 7 and 11.[376]

There is also consistent evidence confirming the link between breastfeeding and a variety of positive maternal outcomes, including greater loss of post-birth weight, an increased delay between births, and a decreased risk of breast and ovarian cancer.[377] Studies also indicate that these benefits increase with the amount of time mothers spend breastfeeding. For example, studies have found that rates of breast or ovarian cancer are significantly lower in mothers who breastfed their infants for six months or longer in comparison to those who breastfeed for six months or less.[378]

The multiple benefits linked to breastfeeding have led the World Health Organization (WHO) and UNICEF to recommend that mothers breastfeed their

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369 Horta, B. L., Loret de Mola, C., & Victora, C. G. (2015). Breastfeeding and intelligence: a systematic review and meta-analysis. *Acta Paediatrica*, *104*(S467), 14–19.

370 Victora, C. G., Bahl, R., Barros, A. J., França, G. V., Horton, S., Krasevec, J., ... & Group, T. L. B. S. (2016). Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet*, *387*(10017), 475–490.

371 Deoni, S. C., Dean, D. C., Piryatinsky, I., O'muircheartaigh, J., Waskiewicz, N., Lehman, K., ... & Dirks, H. (2013). Breastfeeding and early white matter development: a cross-sectional study. *Neuroimage*, *82*, 77–86.

372 Girard, L. C., Doyle, O., & Tremblay, R. E. (2017). Breastfeeding, cognitive and noncognitive development in early childhood: a population study. *Pediatrics*, e20161848.

373 von Stumm, S., & Plomin, R. (2015). Breastfeeding and IQ growth from toddlerhood through adolescence. *PloS One*, *10*(9), e0138676.

374 Girard, L. C., Doyle, O., & Tremblay, R. E. (2017). Breastfeeding, cognitive and noncognitive development in early childhood: a population study. *Pediatrics*, e20161848.

375 Heikkilä, K., Kelly, Y., Renfrew, M. J., Sacker, A., & Quigley, M. A. (2014). Breastfeeding and educational achievement at age 5. *Maternal & Child Nutrition*, *10*(1), 92–101.

376 Borrell-Porta, M., Cooper, K., Costa Font, J., Orsini, C., Ozcan, B. and Platt, L. (2017). Children's wellbeing and development outcomes for ages 5, 7 and 11 and their predictors. The London School for Economics (Department of Social Policy and LSE Enterprise).

377 Chowdhury, R., Sinha, B., Sankar, M. J., Taneja, S., Bhandari, N., Rollins, N., ... & Martines, J. (2015). Breastfeeding and maternal health outcomes: a systematic review and meta-analysis. *Acta Paediatrica*, *104*(S467), 96–113.

378 Victora, C. G., Bahl, R., Barros, A. J., França, G. V., Horton, S., Krasevec, J., ... & Group, T. L. B. S. (2016). Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet*, *387*(10017), 475–490.

infants until their children are 2 years old.[379] During the first six months of life, infants should be exclusively breastfed, as breast milk meets all of the infant's nutritional needs and also substantially reduces the risk of infectious diseases. Complementary feeding (including solids) should then be introduced from six months onwards. This second recommendation is based on evidence suggesting that breast milk is no longer sufficient for providing infants with all of their nutrients after six months, although it continues to provide some benefits until the child's second birthday.[380,381]

Rates of breastfeeding in the UK are low in comparison to other countries. While rates of initiation are high (around 80%) and comparable to other countries at the time of the infant's birth, they drop off considerably during the weeks that follow. A recent summary of breastfeeding prevalence observed that only 43.2% of all mothers were still nursing at six to eight weeks' following the infant's birth.[382] Findings from the infant feeding survey additionally show that UK breastfeeding rates drop to 34% by six months and between 1% and 10% at 12 months.[383] Increasing breastfeeding duration has therefore become a high impact priority of the Healthy Child Programme.

Studies consistently suggest that rates of breastfeeding initiation and duration are related to a variety of sociocultural and physical factors.[384] Examples of sociocultural factors include competing demands on mothers' time (such as returning to work or education) and the availability of alternative foods, such as infant formula. Examples of physical factors include the mothers' supply of milk and the presence of breast infections.

A variety of strategies have been developed to address these issues, including antenatal education aimed at increasing mothers' awareness about the importance of breastfeeding and individual support offered to mothers when physical breastfeeding problems occur. These strategies are informed by the Baby Friendly Initiative guidelines developed by UNICEF which have identified the following objectives to increase breastfeeding rates:[385]

- help pregnant women recognise the importance of breastfeeding and early relationships for the health and wellbeing of their baby
- support all mothers and babies to initiate a close relationship and feeding soon after birth
- enable mothers to get breastfeeding off to a good start
- support mothers to make informed decisions regarding the introduction of food or fluids other than breast milk
- support parents to have a close and loving relationship with their baby.

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379 World Health Organization (2009). Infant and young child feeding: Model Chapter for textbooks for medical students and allied health professionals. Available at: http://apps.who.int/iris/bitstream/10665/44117/1/9789241597494_eng.pdf

380 Kramer, M.S., Kakuma, R. (2001). The optimal duration of exclusive breastfeeding: A systematic review. The World Health Organization.

381 Kramer, M. S. & Kakuma, R. (2012). Optimal duration of exclusive breastfeeding (review). *The Cochrane Database Systematic of Reviews*, 8.

382 NHS England (2016). Breastfeeding statistics. Available at: https://www.england.nhs.uk/statistics/statistical-work-areas/maternity-and-breastfeeding/

383 McAndrew, F. (2012). Infant feeding survey consolidated report.

384 Brown, A. E., Raynor, P., Benton, D., & Lee, M. D. (2009). Indices of Multiple Deprivation predict breastfeeding duration in England and Wales. *The European Journal of Public Health*, *20*(2).

385 UNICEF (2012). Baby friendly guidance.

Evidence-based activities and interventions

The Rapid Review considered evidence supporting a variety of antenatal and postnatal activities aimed at increasing both breastfeeding initiation and duration. These activities include support groups, structured and manualised psycho-educational programmes and individualised support, offered over the phone or in person. The Rapid Review reported that the evidence was by and large inconclusive, although there was some evidence to suggest that postnatal peer-to-peer support – either through breastfeeding groups or one-to-one contact, increased breastfeeding duration in high-income countries.

Several systematic reviews conducted following the Rapid Review have additionally found that studies that consider the impact of antenatal advice on breastfeeding initiation or duration are often of low quality, and therefore non-conclusive.[386,387] However, a recently published Cochrane review, found that **there is good evidence to support a variety of activities that are offered in addition to the standard care mothers receive in the weeks just before and after the baby's birth.** These activities include opportunities for mothers to discuss their options and raise questions with health professionals during regularly scheduled antenatal and postnatal visits to address breastfeeding issues.[388]

Activities with particularly good evidence include individualised lactation support provided in the days and weeks following the baby's birth. For example, a lactation specialist-led intervention developed in Toronto was found to have good evidence of increasing maternal reports of breastfeeding duration at 12-weeks' post-birth in comparison to those receiving standard care.[389] This intervention begins within 48 hours of the baby's birth when a lactation specialist meets with the mother and father while the mother and baby are still in the hospital to discuss various methods of breastfeeding and consider ways in which fathers can support this process. Parents also receive two booklets during this visit: one covering the breastfeeding methods introduced in the discussion and the second suggesting activities which facilitate effective co-parenting behaviours. Couples also receive a DVD with examples of the behaviours summarised in the two booklets, as well as directions for accessing a website with further detailed information. This advice is then followed up by two emails and a phone call from the lactation specialist occurring at the three weeks following the baby's birth.

Increases in breastfeeding duration have also been observed in a New York study comparing the efficacy of antenatal advice with personalised lactation support and standard care for highly disadvantaged mothers.[390] Antenatal advice included practitioner-led discussions involving the mother's plans for breastfeeding during five antenatal checks taking place in the weeks prior to the baby's birth. The lactation support included two sessions with the lactation specialist at two antenatal checks, as well as a demonstration session in the hospital within

386 Balogun, O. O., O'Sullivan, E. J., McFadden, A., Ota, E., Gavine, A., Garner, C. D., … MacGillivray, S. (2016). Interventions for promoting the initiation of breastfeeding. *The Cochrane Library*.

387 Lumbiganon, P., Martis, R., Laopaiboon, M., Festin, M. R., Ho, J. J., & Hakimi, M. (2016). Antenatal breastfeeding education for increasing breastfeeding duration. *The Cochrane Library*.

388 McFadden, A., Gavine A, Renfrew, M. J., Wade, A, Buchanan, P., Taylor, J. L., Veitch, E., Rennie, A. M., Crowther, S. A., Neiman S, & MacGillivray, S. (2017). Support for healthy breastfeeding mothers with healthy breastfeeding babies (Review). *The Cochrane Library*.

389 Abbass-Dick, J., Stern, S. B., Nelson, L. E., Watson, W., & Dennis, C. L. (2015). Coparenting breastfeeding support and exclusive breastfeeding: a randomized controlled trial. *Pediatrics*, *135*(1), 102–110.

390 Bonuck, K., Stuebe, A., Barnett, J., Labbok, M. H., Fletcher, J., & Bernstein, P. S. (2014). Effect of primary care intervention on breastfeeding duration and intensity. *American Journal of Public Health*, *104*(S1), S119–S127.

48 hours of the baby's birth. These sessions were then followed by regularly scheduled phone conversations with the lactation specialist until the baby was three months old.

A rigorously conducted multi-site trial compared three versions of the programme with treatment as usual: antenatal advice only, personalised lactation postnatal support only, or a combination of antenatal advice and postnatal support. The study observed that antenatal advice on its own was not sufficient for increasing rates of breastfeeding initiation, exclusivity or duration. Lactation support on its own also did not significantly improve rates of breastfeeding initiation or duration, although it did predict higher rates of breastfeeding exclusivity at three months' post-birth. However, the combination of antenatal advice with postnatal lactation support *did* significantly improve rates of initiation, exclusivity and duration when the baby was three months.

The Foundations for Life review did not specifically consider the evidence underpinning interventions aimed at increasing breastfeeding rates. However, the Maternal Early Childhood Sustained Home Visiting (MECSH) programme has good evidence from a single, rigorously conducted RCT of increasing mothers' breastfeeding duration to 16 weeks in comparison to eight weeks among breastfeeding mothers in the comparison group.[391] The Family Nurse Partnership programme also has evidence of increasing breastfeeding duration in Holland, although this finding was not replicated in the UK trial.[392,393]

Preventing infant exposure to secondhand smoke

Exposure to secondhand smoke (SHS) is the involuntary inhalation of other people's cigarette smoke. Exposure to SHS during infancy is significantly associated with a variety of negative child health outcomes, including Sudden Infant Death Syndrome (SIDS), lower respiratory tract infections (such as pneumonia and bronchitis), middle ear infections and the development of asthma.[394,395] Studies also observe that infants and children can be negatively affected by what is known as 'thirdhand' smoke, which is present in the toxic residue from cigarette smoke that exists on furniture and floors in smoking households.[396,397]

391 Kemp, L., Harris, E., McMahon, C., Matthey, S., Vimpani, G., Anderson, T., Schmied, V., Aslam, H., & Zapart, S. (2011). Child and family outcomes of a long-term nurse home visitation programme: a randomised controlled trial. *Archives of Diseases in Childhood, 96,* 533–540

392 Mejdoubi, J., van den Heijkant, S., van Leerdam, F. J. M., Crone, M., Crijnen, A., and HiraSing, R. A. (2014). Effects of nurse home visitation on cigarette smoking, pregnancy outcomes and breastfeeding: A randomized controlled trial, *Midwifery, 30*, 688–695.

393 Robling, M., Bekkers, M., Bell, K., Butler, C. Cannings-John, R., Channon, S., Corbacho Martin, B., Gregory, J., Hood, K., Kemp, A., Kenkre, J., Montgomery, A.A., Moody, G., Owen-Jones, E., Prof Pickett, K., Richardson, G., Roberts, Z. E. S., Ronaldson, S., Sanders, J., Stamuli, E., and Torgerson, D. (2015). Effectiveness of a nurse-led intensive home-visitation programme for first-time teenage mothers (Building Blocks): A pragmatic randomised controlled trial. *The Lancet.*

394 Royal College of Physicians. Passive smoking and children. A report of the Tobacco Advisory Group of the Royal College of Physicians. Secondary passive smoking and children. A report to the Tobacco Advisory Group of the Royal College of Physicians. Available at: https://shop.rcplondon.ac.uk/products/passive-smoking-and-children?variant=6634905477

395 Farber, H. J., Groner, J., Walley, S., & Nelson, K. (2015). Protecting children from tobacco, nicotine, and tobacco smoke. *Pediatrics*, *136*(5), e1439–e1467.

396 Hang, B., Sarker, A. H., Havel, C., Saha, S., Hazra, T. K., Schick, S., ... & Sleiman, M. (2013). Thirdhand smoke causes DNA damage in human cells. *Mutagenesis*, *28*(4), 381–391.

397 Mahabee-Gittens, E. M., Merianos, A. L., & Matt, G. E. (2017). Preliminary evidence that high levels of nicotine on children's hands may contribute to overall tobacco smoke exposure. *Tobacco Control*.

Recent government statistics indicate that 17% of the adult female population smoke on a daily basis.[398] However, studies suggest that pregnancy represents a time when many women are motivated to quit smoking, with rates dropping to just over 13% smoking during pregnancy and just under 11% reporting smoking at the time of their child's birth. Between one- and two-thirds of these mothers will resume smoking within three months of their child's birth.[399,400] Studies additionally observe that smoking cessation interventions provided antenatally are generally ineffective for preventing smoking relapse after the baby is born.[401]

However, parental smoking does not necessarily mean that children will be exposed to high levels of SHS, as parents often change their habits to limit children's exposure.[402] A recent UK study involving a sample of smoking mothers in Nottingham observed that approximately 18% of their infants were exposed to SHS at three months. Factors associated with infants' exposure included the number of cigarettes mothers smoked per day (mothers who smoked 11 or more cigarettes a day were much more likely to smoke in the presence of their children than mothers who smoked fewer cigarettes), younger maternal age, parental education, socioeconomic status and non-white British ethnicity. Studies consistently observe that the highest levels of SHS exposure occur in the most socially disadvantaged households, where the prevalence of smoking is higher and family members are more likely to smoke heavily.[403]

Interventions

Activities aimed at reducing infants' SHS exposure include smoking cessation treatments for mothers who smoked throughout pregnancy and the postnatal period, strategies aimed at preventing mothers from relapsing and strategies aimed at reducing SHS in the home.[404]

Smoking cessation and relapse prevention

The Rapid Review reported findings from a 2013 Cochrane review that considered the impact of telephone counselling on rates of smoking cessation and length of abstinence.[405] Telephone counselling typically consists of one to six calls lasting between 10 and 30 minutes taking place during the antenatal or postnatal period.

The review observed that there was good evidence to support the use of phone counselling, when offered proactively, or in response to smokers contacting

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398 ONS (2017). Adult smoking habits in the UK 2015. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/adultsmokinghabitsingreatbritain/2015

399 Jones, M., Lewis, S., Parrott, S., Wormall, S., & Coleman, T. (2016). Re-starting smoking in the postpartum period after receiving a smoking cessation intervention: a systematic review. *Addiction*, *111*(6), 981–990.

400 Rockhill, K. M., Tong, V. T., Farr, S. L., Robbins, C. L., D'Angelo, D. V., & England, L. J. (2016). Postpartum smoking relapse after quitting during pregnancy: pregnancy risk assessment monitoring system, 2000–2011. *Journal of Women's Health*, *25*(5), 480–488.

401 Su, A., & Buttenheim, A. M. (2014). Maintenance of smoking cessation in the postpartum period: Which interventions work best in the long-term? *Maternal and Child Health Journal*, *18*, 714–728.

402 Orton, S., Coleman, T., Jones, L. L., Cooper, S., & Lewis, S. (2015). Smoking in the home after childbirth: prevalence and determinants in an English cohort. *BMJ Open*, *5*(9), e008856.

403 Jarvis, M. J., & Wardle, J. (2005). Social patterning of individual health behaviours: the case of cigarette smoking. In M. Marmot, R. G. Wilkinson (eds.), *Social determinants of health*. Oxford University Press.

404 Pugmire, J., Sweeting, H., & Moore, L. (2016). Environmental tobacco smoke exposure among infants, children and young people: now is no time to relax. Archives of Disease in Childhood. Available at: http://adc.bmj.com/content/102/2/117

405 Stead, L. F., Hartmann-Boyce, J., Perera, R., & Lancaster, T. (2013). Telephone counselling for smoking cessation. *The Cochrane Library*.

smoking cessation quit lines. A Cochrane Review completed in 2014 additionally observed that some of these interventions had evidence of reducing children's exposure to SHS, as measured through samples of cotinine in their urine or air quality in their home.[406] However, it should be noted that when the analysis is restricted to interventions targeting families with infants, the findings were less promising, particularly when it came to preventing relapse.[407,408,409,410] While there is some evidence to suggest that relapse prevention efforts may be effective if initiated at childbirth, studies also suggest the impact is relatively small and benefits rapidly fade over time.[411,412,413,414,415]

Reducing exposure to secondhand smoke

A number of strategies exist to help parents reduce children's exposure to SHS. These include providing information to parents about the hazards of indoor smoke and residues, advice on how to enforce bans on smoking in the home and cars, nicotine replacement therapy, biochemical feedback (such as measuring cotinine levels in children's saliva or urine), installation of air filters, and regular home air pollution monitoring and feedback.

A 2015 systematic review observed that while there is good evidence to suggest that a variety of strategies are effective in reducing children's exposure to SHS, they rarely improve the air quality to a level that would be considered safe.[416] Safe air quality was, however, observed in a recent rigorous evaluation of a multi-component intervention targeting heavy smokers living in economically disadvantaged communities in Nottingham.[417] Heavy smokers (averaging 15 cigarettes per day) with a child under the age of 5 were specifically targeted. Measurements of the household air quality were taken at the beginning of the intervention and then at 7 and 12 weeks afterwards. Families also received four

406 Baxi, R., Sharma, M., Roseby, R., Polnay, A., Priest, N., Waters, E., ... & Webster, P. (2014). Family and carer smoking control programmes for reducing children's exposure to environmental tobacco smoke. *The Cochrane Library*.

407 Stotts, A. L., DiClemente, C. C., & Dolan-Mullen, P. (2002). One-to-one: a motivational intervention for resistant pregnant smokers. *Addictive behaviors*, *27*(2), 275–292.

408 Rigotti, N. A., Park, E. R., Regan, S., Chang, Y., Perry, K., Loudin, B., & Quinn, V. (2006). Efficacy of telephone counseling for pregnant smokers: a randomized controlled trial. *Obstetrics & Gynecology*, *108*(1), 83–92.

409 McBride, C. M., Baucom, D. H., Peterson, B. L., Pollak, K. I., Palmer, C., Westman, E., & Lyna, P. (2004). Prenatal and postpartum smoking abstinence: a partner-assisted approach. *American journal of preventive medicine*, *27*(3), 232–238.

410 Lando, H. A., Valanis, B. G., Lichtenstein, E., Curry, S. J., McBride, C. M., Pirie, P. L., & Grothaus, L. C. (2001). Promoting smoking abstinence in pregnant and postpartum patients: a comparison of 2 approaches. *The American journal of managed care*, *7*(7), 685–693.

411 Ratner, P. A., Johnson, J. L., Bottorff, J. L., Dahinten, S., & Hall, W. (2000). Twelve-month follow-up of a smoking relapse prevention intervention for postpartum women. *Addictive behaviors*, *25*(1), 81–92.

412 Johnson, J. L., Ratner, P. A., Bottorff, J. L., Hall, W., & Dahinten, S. (2000). Preventing smoking relapse in postpartum women. *Nursing Research*, *49*(1), 44–52.

413 Severson, H. H., Andrews, J. A., Lichtenstein, E., Wall, M., & Akers, L. (1997). Reducing maternal smoking and relapse: long-term evaluation of a pediatric intervention. *Preventive medicine*, *26*(1), 120–130.

414 Van't Hof, S. M., Wall, M. A., Dowler, D. W., & Stark, M. J. (2000). Randomised controlled trial of a postpartum relapse prevention intervention. *Tobacco Control*, *9*(suppl 3), iii64–iii66.

415 Hannöver, W., Thyrian, J. R., Röske, K., Grempler, J., Rumpf, H. J., John, U., & Hapke, U. (2009). Smoking cessation and relapse prevention for postpartum women: Results from a randomized controlled trial at 6, 12, 18 and 24 months. *Addictive Behaviors*, *34*(1), 1–8.

416 Rosen, L. J., Myers, V., Winickoff, J. P., & Kott, J. (2015). Effectiveness of interventions to reduce tobacco smoke pollution in homes: a systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*, *12*(12), 16043–16059.

417 Ratschen, E., Thorley, R., Jones, L., Breton, M. O., Cook, J., McNeill, A., ... & Lewis, S. (2017). A randomised controlled trial of a complex intervention to reduce children's exposure to secondhand smoke in the home. *Tobacco Control*.

one-hour visits from a smoke-free home advisor, who shared findings from the air quality measurements and worked with them to develop personalised strategies to improve air quality. Motivational interviewing (see forthcoming section on harmful drug and alcohol use) and the offer of nicotine replacement therapy was additionally provided to parents who expressed an interest in quitting smoking.

By the end of the intervention, participants had reduced their levels of smoking in the home so that the air quality was measured as safe by World Health Organization standards and levels of cotinine were significantly reduced in child participants' saliva samples. There was also a threefold increase in adult participants' attempts to quit smoking, although rates of actual quitting did not differ between the intervention and comparison groups. These positive findings led the authors to conclude that **interventions targeting heavy smokers must be sufficiently intense to support the maintenance of positive smoking-related behaviours.** In particular, it is likely that the length of the intervention, the availability of personalised support, and options for quitting all contributed to the positive outcomes. The extent to which these outcomes can be maintained over time has yet to be measured, however.

Sleep

There is little question that children's early development is enhanced by optimal levels of sleep. A lack of sleep has been linked to a wide range of problems, including self-regulatory difficulties and an increased risk of illness.[418,419,420] Conversely, appropriate levels of sleep have been linked to reductions in behavioural problems, enhanced cognitive development, improved language acquisition and improved executive functioning when children reach preschool.[421,422,423] For example, increased night sleeping during infancy has been linked to improvements in cognitive functioning at age 2 and improved language development at age 5.[424,425] Studies also find that parents feel less stressed and depressed when their children sleep through the night.[426,427,428]

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418 Davis, K. F., Parker, K., & Montgomery, G. L. (2004). Sleep in infants and young children: part one: normal sleep. *Journal of Pediatric Health Care, 18*, 65–71.

419 Davis, K. F., Parker, K. P., & Montgomery, G. L. (2004). Sleep in infants and young children: part two: common sleep problems. *Journal of Pediatric Health Care*, *18*(3), 130–137.

420 Sivertsen, B., Harvey, A. G., Reichborn-Kjennerud, T., Torgersen, L., Ystrom, E., & Hysing, M. (2015). Later emotional and behavioral problems associated with sleep problems in toddlers: a longitudinal study. *JAMA Pediatrics*, *169*(6), 575–582.

421 Dearing, E., McCartney, K., Marshall, N. L., & Warner, R. M. (2001). Parental reports of children's sleep and wakefulness: Longitudinal associations with cognitive and language outcomes. *Infant Behavior and Development*, *24*(2), 151–170.

422 Buckhalt, J. A., El-Sheikh, M., Keller, P. S., & Kelly, R. J. (2009), Concurrent and Longitudinal Relations Between Children's Sleep and Cognitive Functioning: The Moderating Role of Parent Education. *Child Development, 80*, 875–892.

423 Bernier, A., Beauchamp, M. H., Bouvette-Turcot, A.-A., Carlson, S. M., & Carrier, J. (2013), Sleep and Cognition in Preschool Years: Specific Links to Executive Functioning. *Child Development, 84*, 1542–1553.

424 Bernier, A., Carlson, S. M., Bordeleau, S., & Carrier, J. (2010), Relations Between Physiological and Cognitive Regulatory Systems: Infant Sleep Regulation and Subsequent Executive Functioning. *Child Development, 81*, 1739–1752.

425 Dionne, G., Touchette, E., Forget-Dubois, N., Petit, D., Tremblay, R. E., Montplaisir, J. Y., & Boivin, M. (2011). Associations between sleep-wake consolidation and language development in early childhood: a longitudinal twin study. *Sleep*, *34*(8), 987–995.

426 Lam, P., Hiscock, H., & Wake, M. (2003). Outcomes of infant sleep problems: a longitudinal study of sleep, behavior, and maternal well-being. *Pediatrics*, *111*(3), e203–e207.

427 Dennis, C. L., & Ross, L. (2005). Relationships among infant sleep patterns, maternal fatigue, and development of depressive symptomatology. *Birth*, *32*(3), 187–193.

428 Sadeh, A., Tikotzky, L., & Scher, A. (2010). Parenting and infant sleep. *Sleep Medicine Reviews*, *14*(2), 89–96.

Sleep in early infancy

During the antenatal period, the unborn child's sleeping and waking states are determined by the mother. Essentially, the baby's heart rate increases when the mother is awake and slows down when she is asleep.[429] Sleeping and waking states are also determined by maternal hormones, particularly melatonin, which additionally influence the unborn child's sleeping and waking states.[430]

After birth, the infant begins to establish his or her own sleeping and waking patterns, which form the basis of early self-regulatory processes. Sleeping and waking states are determined by the infant's exposure to daylight, which influences the production of melatonin. Melatonin, in turn, regulates waking and sleeping circadian rhythms. Sleeping patterns are also influenced by digestive cycles involving the time it takes for the infant to eat, digest food and become hungry again. In early infancy, this results in relatively short sleeping episodes that are spaced at fairly regular intervals throughout the day.[431,432] While the length of these episodes can vary, the majority of infants sleep an average of 16 hours within a 24-hour period, interrupted by five or six waking episodes.[433,434]

Infant sleep is characterised by fluctuating periods of active and quiet sleep. Active sleep occurs at the beginning of the infant sleep cycle and is the equivalent of adult REM (rapid eye movement) sleep, marked by more rapid and irregular breathing, fluctuating eyelids, intermittent vocalisations and sighs. Quiet sleep is a deeper form of sleep which occurs at the end of the baby's sleep cycle. Quiet sleep is characterised by slower and more rhythmic breathing and relatively little movement. During quiet sleep, infants are less likely to be awakened by noise and other disturbances.[435] When quiet sleep is over, babies either re-enter active sleep or wake up. Over time, the infant's sleeping and waking episodes lengthen, with the majority of sleep consolidated to the night-time hours by the time the infant is six months old.[436,437]

Sudden Infant Death Syndrome (SIDS)

Sudden Infant Death Syndrome (SIDS) is the sudden, unexplained death of an infant (12 months or less) during sleep. While the specific causes of SIDS remain unknown, studies have linked SIDS to disruptions in young infants' sleep cycles. Specifically, all infants experience fleeting episodes of apnoea (paused breathing)

429 Mirmiran, M., Maas, Y. G., & Ariagno, R. L. (2003). Development of fetal and neonatal sleep and circadian rhythms. *Sleep Medicine Reviews*, *7*(4), 321–334.

430 Torres-Farfan, C., Rocco, V., Monso, C., Valenzuela, F. J., Campino, C., Germain, A., ... & Seron-Ferre, M. (2006). Maternal melatonin effects on clock gene expression in a nonhuman primate fetus. *Endocrinology*, *147*(10), 4618–4626.

431 Kennaway, D. J., Goble, F. C., & Stamp, G. E. (1996). Factors influencing the development of melatonin rhythmicity in humans. *The Journal of Clinical Endocrinology & Metabolism*, *81*(4), 1525–1532.

432 Sadeh, A. (1997). Sleep and melatonin in infants: a preliminary study. *Sleep*, *20*(3), 185–191.

433 James-Roberts, I., & Plewis, I. (1996). Individual differences, daily fluctuations, and developmental changes in amounts of infant waking, fussing, crying, feeding, and sleeping. *Child Development*, *67*(5), 2527–2540.

434 Iglowstein, I., Jenni, O. G., Molinari, L., & Largo, R. H. (2003). Sleep duration from infancy to adolescence: reference values and generational trends. *Pediatrics*, *111*(2), 302–307.

435 Parslow, P. M., Harding, R., Cranage, S. M., et al. (2003) Arousal responses to somatosensory and mild hypoxic stimuli are depressed during quiet sleep in healthy term infants, Sleep, 26(6), 739–744.

436 Galland, B. C., Taylor, B. J., Elder, D. E., & Herbison, P. (2012). Normal sleep patterns in infants and children: a systematic review of observational studies. *Sleep medicine reviews*, *16*(3), 213–222.

437 Weinraub, M., Bender, R. H., Friedman, S. L., Susman, E. J., Knoke, B., Bradley, R., ... & Williams, J. (2012). Patterns of developmental change in infants' nighttime sleep awakenings from 6 through 36 months of age. *Developmental Psychology*, *48*(6), 1511.

during the active phase of the sleep cycle.[438] The majority of infants wake briefly during these episodes and resume breathing. However, some infants do not. Studies have linked this failure to wake-up to neurological irregularities occurring during the active sleep cycle.[439,440]

Studies have also identified an association between SIDS and prone sleeping positions, which may increase the levels of infants' quiet sleep. In particular, studies have found that prone sleeping induces deeper states of sleep in some infants which, in turn, decreases the likelihood of waking when breathing is interrupted.[441,442] Prone sleeping has also been linked to the rebreathing of expired CO_2 gases, reducing the infant's intake of oxygen. It is thought that prone sleeping may also increase the likelihood of thermal stress due to overheating.[443]

Other explanations for SIDS include immature respiratory control and the use of pillows and bed coverings which may impede the infant's ability to regain breathing after a temporary pause. Physical vulnerabilities include male gender and a preterm birth or low birthweight, which can contribute to a lack of respiratory control. Environmental risks include exposure to cigarette smoke, increased heating and bed clothing due to winter weather, and co-sleeping with the caregiver on a bed or sofa.[444]

The association between SIDS and prone sleeping was first observed in the late 1980s, when parents were actively encouraged to place their infants on their stomachs to reduce vomiting associated with gastro-oesophageal reflux.[445] This observation resulted in widespread 'back-to-sleep' campaigns which provided parents with strategies for putting their infants to bed on their backs. These campaigns resulted in a 58% reduction of SIDS cases in the early 1990s, dropping from 1,545 cases in 1989 to 647 cases in 1991.[446]

There were 212 unexplained deaths in England and Wales in 2014.[447] This figure represents 8% of all infant deaths at a rate of 0.3 deaths per 1,000 live births; 60% of these deaths were directly linked to SIDS and 40% classified as unascertained,

438 Fleming, P. J., Blair, P. S., & Pease, A. (2015). Sudden unexpected death in infancy: aetiology, pathophysiology, epidemiology and prevention in 2015. *Archives of Disease in Childhood*d.

439 Kato, I., Franco, P., Groswasser, J., Scaillet, S., Kelmanson, I., Togari, H., & Kahn, A. (2003). Incomplete arousal processes in infants who were victims of sudden death. *American Journal of Respiratory and Critical Care Medicine*, *168*(11), 1298–1303.

440 Parslow, P. M., Harding, R., Cranage, S. M., et al. (2003) Arousal responses to somatosensory and mild hypoxic stimuli are depressed during quiet sleep in healthy term infants, *Sleep, 26*(6), 739–744.

441 Horne, R. S., Ferens, D., Watts, A. M., Vitkovic, J., Lacey, B., Andrew, S., ... & Adamson, T. M. (2001). The prone sleeping position impairs arousability in term infants. *The Journal of Pediatrics*, *138*(6), 811–816.

442 Kato, I., Scaillet, S., Groswasser, J., Montemitro, E., Togari, H., Lin, J. S., ... & Franco, P. (2006). Spontaneous arousability in prone and supine position in healthy infants. *Sleep*, *29*(6), 785–790.

443 Carroll, J. L., & Siska, E. S. (1998). SIDS: Counseling parents to reduce the risk. *American Family Physician*, *57*(7), 1566–1572.

444 Colson, E. R., Willinger, M., Rybin, D., Heeren, T., Smith, L. A., Lister, G., & Corwin, M. J. (2013). Trends and factors associated with infant bed sharing, 1993–2010: the National Infant Sleep Position Study. *JAMA Pediatrics*, *167*(11), 1032–1037.

445 Orenstein, S. R., & Whitington, P. F. (1983). Positioning for prevention of infant gastroesophageal reflux. *The Journal of Pediatrics*, *103*(4), 534–537.

446 Wigfield, R. E., Fleming, P. J., Berry, P. J., Rudd, P. T., & Golding, J. (1992). Can the fall in Avon's sudden infant death rate be explained by changes in sleeping position?. *British Medical Journal*, *304*(6822), 282–283.

447 ONS (2016). Unexplained Deaths in Infancy England and Wales: 2014. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/unexplaineddeathsininfancyenglandandwales/2014

while 55% of the deaths involved male infants. This is the lowest rate of unexplained deaths ever recorded. ONS attributes this to two factors:

- Infant exposure to cigarette smoke has steadily decreased alongside reductions in adult smoking.
- 2014 was one of the warmest winters on record, thus reducing the overuse of bed coverings and central heating which may contribute to an unsafe sleeping environment.

Activities aimed at reducing the risks associated with SIDS

The Rapid Review considered the evidence underpinning sleep advice, as well as the use of home monitoring devices for preventing SIDS-related deaths. The review concluded that **there is good evidence to link reductions in SIDS-related deaths to advice on supine sleeping positions**. The Rapid Review also concluded that there is currently little evidence to support the use of home monitoring devices for preventing SIDS, although there is also no evidence that they are ineffective. The Rapid Review concluded, however, that evidence underpinning bedsharing/co-sleeping advice remains unclear. Although multiple studies have reported an association between bedsharing and increases in infant deaths, the extent to which infant deaths are caused by SIDS as opposed to other forms of asphyxiation (such as parental overlying, bedcoverings) has yet to be fully understood.[448] In addition, some studies report benefits associated with bedsharing, including increased rates of breastfeeding and enhanced levels of active sleep.[449,450]

Despite these non-conclusive findings, the American Academy of Pediatrics has recently updated its SIDS prevention advice to recommend roomsharing without bedsharing. Specifically, bedsharing is to be avoided when the infant is less than four months old. Current NICE guidelines (CG37) recommend that parents be given advice on supine sleeping positions and be told about the risks associated with SIDS (see boxed text below). These risks include cigarette smoke, parental or carer alcohol or drug consumption, premature/low birthweight and bedsharing. However, the NICE guidance stops short of actively discouraging parents from bedsharing, as the American Academy of Pediatrics guidance does.

The Foundations for Life review did not consider the efficacy of interventions for reducing SIDS. However, it observed that **the Maternal Early Childhood Sustained Home Visiting programme (MECSH) has good evidence of increasing mother's knowledge of strategies for reducing the risks associated with SIDS**.[451] The extent to which this knowledge actually prevents sudden infant deaths remains unknown, however.

448 Mitchell, E. A., Scragg, R., Stewart, A. W., Becroft, D. M., Taylor, B. J., Ford, R. P., ... & Roberts, A. P. (1991). Results from the first year of the New Zealand cot death study. *The New Zealand Medical Journal*, *104*(906), 71–76.

449 Fleming, P., Pease, A., & Blair, P. (2015). Bed-sharing and unexpected infant deaths: what is the relationship?. *Paediatric Respiratory Reviews*, *16*(1), 62–67.

450 Mileva-Seitz, V. R., Bakermans-Kranenburg, M. J., Battaini, C., & Luijk, M. P. (2017). Parent-child bed-sharing: the good, the bad, and the burden of evidence. *Sleep Medicine Reviews*, *32*, 4–27.

451 Kemp, L., Harris, E., McMahon, C., Matthey, S., Vimpani, G., Anderson, T., Schmied, V., Aslam, H., & Zapart, S. (2011). Child and family outcomes of a long-term nurse home visitation programme: a randomised controlled trial. *Archives of Diseases in Childhood, 96,* 533–540.

NHS-RECOMMENDED SIDS PREVENTION ADVICE

Do:

- Always place your baby on their back to sleep.
- Place your baby in the 'feet to foot' position (with their feet touching the end of the cot, Moses basket or pram).
- Keep your baby's head uncovered. Their blanket should be tucked in no higher than their shoulders.
- Let your baby sleep in a cot or Moses basket in the same room as you for the first six months.
- Use a mattress that's firm, flat, waterproof and in good condition.
- Breastfeed your baby (if you can).

Don't:

- Smoke during pregnancy or let anyone smoke in the same room as your baby (both before and after birth).
- Sleep on a bed, sofa or armchair with your baby.
- Share a bed with your baby if you or your partner smoke or take drugs, or if you've been drinking alcohol.
- Let your baby get too hot or too cold. A room temperature of 16–20°C, with light bedding or a lightweight baby sleeping bag, will provide a comfortable sleeping environment for your baby.

Sleep in later infancy

In the weeks immediately following birth, the infant's sleep is spread more or less evenly across a 24-hour period, but becomes more consolidated by the time the infant reaches 10 weeks. For the majority of infants, this sleep is consolidated during the night hours, when fluctuating patterns of quiet and active sleep are also evident.[452] Quiet, or deep sleep, typically occurs during the first two hours after the infant falls asleep. This is replaced by approximately six hours of active sleep that is characterised by periodic waking episodes. Infants then fall back into a deeper sleep one to two hours before they wake up for the day.[453]

By six months, most infants experience approximately 10 hours of night sleep, accompanied by two shorter naps during the day.[454] The timing of children's night-time sleep is determined by circadian rhythms and homeostatic processes. Circadian rhythms are associated with children's exposure to daylight and the production of melatonin. Homeostatic processes help drive the body to sleep through the feeling of tiredness that accumulates during waking states. The longer children are awake, the stronger the drive to fall asleep. Homeostatic processes affect the rate at which children fall asleep, as well as the quality of their sleep.

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452 Henderson, J. M., France, K. G., & Blampied, N. M. (2011). The consolidation of infants' nocturnal sleep across the first year of life. *Sleep Medicine Reviews*, *15*(4), 211–220.

453 Davis, K. F., Parker, K., & Montgomery, G. L. (2004). Sleep in infants and young children: part one: normal sleep. *Journal of Pediatric Health Care, 18*, 65–71.

454 Galland, B. C., Taylor, B. J., Elder, D. E., & Herbison, P. (2012). Normal sleep patterns in infants and children: a systematic review of observational studies. *Sleep Medicine Reviews*, *16*(3), 213–222.

Parents influence homeostatic processes through nap and bedtime routines.[455,456] Optimal levels of sleep during the day increase the likelihood that children will fall asleep quickly and maintain smooth transitions between deep and active sleep during the night. Children who receive too little sleep may fall asleep quickly, but are more prone to disruptions during the transitions between deep and active sleep. These may cause the child to wake abruptly, or experience brief episodes of disorientated sleep, where they are not fully conscious but their sleep is nevertheless interrupted.[457] Examples of disrupted sleeping include night terrors and sleep walking, which occur more frequently in toddlers and preschoolers.

Children who receive too much sleep during the day or late naps may have difficulty settling down when it is time to go to bed. For this reason, regular nap times and bedtime routines help children fall and stay asleep.[458,459,460] This is because they support the natural drive to fall asleep and help infants self-soothe should they re-awake. Infants re-awake four to six times during their active sleep states. Children who are capable of self-soothing typically stay quiet during these episodes and are often not conscious that they are occurring. Children who are soothed to sleep by their parents or other external mechanisms (such as music or television) are more likely to become dependent on these mechanisms to fall back asleep.[461,462]

Night-waking behaviours typically become evident around the time the infant is four months old, when sleep becomes consolidated during the night-time hours and includes longer periods of active sleep.[463] Infants who fall asleep while feeding or are otherwise soothed to sleep by their parents are more likely to wake up and in the middle of the night with the expectation that their parents will soothe them back to sleep. When this does not happen, the infant becomes agitated and crying typically increases.[464,465]

455   Mindell, J. A., Telofski, L. S., Wiegand, B., & Kurtz, E. S. (2009). A nightly bedtime routine: impact on sleep in young children and maternal mood. *Sleep*, *32*(5), 599–606.

456   Iglowstein, I., Jenni, O. G., Molinari, L., & Largo, R. H. (2003). Sleep duration from infancy to adolescence: reference values and generational trends. *Pediatrics*, *111*(2), 302–307.

457   Davis, K. F., Parker, K. P., & Montgomery, G. L. (2004). Sleep in infants and young children: part two: common sleep problems. *Journal of Pediatric Health Care*, *18*(3), 130–137.

458   Jenni, O. G., & LeBourgeois, M. K. (2006). Understanding sleep–wake behavior and sleep disorders in children: the value of a model. *Current Opinion in Psychiatry*, *19*(3), 282.

459   Jenni, O. G., & Carskadon, M. A. (2007). Sleep behavior and sleep regulation from infancy through adolescence: normative aspects. *Sleep Medicine Clinics*, *2*(3), 321–329.

460   Touchette, E., Dionne, G., Forget-Dubois, N., Petit, D., Pérusse, D., Falissard, B., ... & Montplaisir, J. Y. (2013). Genetic and environmental influences on daytime and nighttime sleep duration in early childhood. *Pediatrics*, *131*(6), e1874–e1880.

461   Thompson, D. A., & Christakis, D. A. (2005). The association between television viewing and irregular sleep schedules among children less than 3 years of age. *Pediatrics*, *116*(4), 851–856.

462   Sadeh, A., Tikotzky, L., & Scher, A. (2010). Parenting and infant sleep. *Sleep Medicine Reviews*, *14*(2), 89–96.

463   Henderson, J. M., France, K. G., & Blampied, N. M. (2011). The consolidation of infants' nocturnal sleep across the first year of life. *Sleep Medicine Reviews*, *15*(4), 211–220.

464   Burnham, M. M., Goodlin-Jones, B. L., Gaylor, E. E., & Anders, T. F. (2002). Nighttime sleep-wake patterns and self-soothing from birth to one year of age: A longitudinal intervention study. *Journal of Child Psychology and Psychiatry*, *43*(6), 713–725.

465   Mindell, J. A., Meltzer, L. J., Carskadon, M. A., & Chervin, R. D. (2009). Developmental aspects of sleep hygiene: findings from the 2004 National Sleep Foundation Sleep in America Poll. *Sleep Medicine*, *10*(7), 771–779.

Behavioural sleep training

Sleep advice provided during the first year is commonly referred to as 'behavioural sleep training.'[466] This 'training' is rarely provided in the form of an intervention, but instead given through advice provided by a health professional or pamphlet. This advice may include information about one or more of the following strategies for helping infants fall and stay asleep:

- **Unmodified extinction** – also known as letting the child 'cry it out'. This requires that parents do not respond to any negative child behaviours throughout the duration of the night.

- **Graduated extinction** – also known as 'controlled crying'. Parents check-in with the infant to let him/her know they are there, but otherwise do not respond to the crying or soothe the child to sleep.

- **Bedtime fading/positive routines** – examples include 'bath, book and bed' which help children settle down, so they fall asleep on their own when it is time to go to bed.

- **Scheduled awakenings** – involve waking the child up 15 to 30 minutes before he or she typically would wake, with the understanding that they will find it easier to fall back asleep on his or her own.

There is good evidence from systematic reviews to support the use of behavioural sleep training methods with infants between four months and two years.[467,468,469,470,471] Benefits from behavioural sleep training interventions include consistent reductions in infant night wakings and the time required to fall asleep and increases in the amount of sleep time.[472,473,474] While these benefits may fade over time, studies have also confirmed that no negative consequences are associated with extinction-based sleep training practices. In other words, **behavioural sleep training interventions do not increase the risk of SIDS, reduce breastfeeding rates or place the attachment relationship at risk**.[475,476,477]

466   Mindell, J. A., Kuhn, B., Lewin, D. S., Meltzer, L. J., & Sadeh, A. (2006). Behavioral treatment of bedtime problems and night wakings in infants and young children. *Sleep: Journal of Sleep and Sleep Disorders Research*.

467   Mindell, J. A., Kuhn, B., Lewin, D. S., Meltzer, L. J., & Sadeh, A. (2006). Behavioral treatment of bedtime problems and night wakings in infants and young children. *Sleep: Journal of Sleep and Sleep Disorders Research*.

468   Mindell, J. A., Li, A. M., Sadeh, A., Kwon, R., & Goh, D. Y. (2015). Bedtime routines for young children: a dose-dependent association with sleep outcomes. *Sleep*, *38*(5), 717.

469   Kempler, L., Sharpe, L., Miller, C. B., & Bartlett, D. J. (2016). Do psychosocial sleep interventions improve infant sleep or maternal mood in the postnatal period? A systematic review and meta-analysis of randomised controlled trials. *Sleep Medicine Reviews*, *29*, 15–22.

470   Mancz, G., & Wigley, W. (2017). Long-term outcomes of techniques used to manage sleep disturbance in the under-5s. *Journal of Health Visiting*, *5*(1), 16–24.

471   Sadeh, A., & Mindell, J. A. (2016). Infant sleep interventions – Methodological and conceptual issues. *Sleep Medicine Reviews*, *29*, 123–125.

472   Meltzer, L. J., & Mindell, J. A. (2014). Systematic review and meta-analysis of behavioral interventions for pediatric insomnia. *Journal of Pediatric Psychology*, *39*(8), 932–948.

473   Price, A., Wake, M., Ukoumunne, O. C., & Hiscock H. (2012). Five-year follow-up of harms and benefits of behavioral infant sleep intervention: Randomized trial. *Pediatrics*, *130*, 643–651.

474   Price, A., Wake M., Ukoumunne, O. C., & Hiscock, H. (2012). Outcomes at six years of age for children with infant sleep problems: Longitudinal community-based study. *Sleep Medicine*, *13*, 991–998.

475   Mancz, G., & Wigley, W. (2017). Long-term outcomes of techniques used to manage sleep disturbance in the under-5s. *Journal of Health Visiting*, *5*(1), 16–24.

476   Allen, S. L., Howlett, M. D., Coulombe, J. A., & Corkum, P. V. (2016). ABCs of SLEEPING: a review of the evidence behind pediatric sleep practice recommendations. *Sleep Medicine Reviews*, *29*, 1–14.

477   Gradisar, M., Jackson, K., Spurrier, N. J., Gibson, J., Whitham, J., Williams, A. S., ... & Kennaway, D. J. (2016). Behavioral interventions for infant sleep problems: A randomized controlled trial. *Pediatrics*, e20151486.

There is now also good evidence showing that sleep training interventions offered during the first year of life are positively associated with a reduced risk of obesity as children develop.[478]

The Foundations for Life review did not explicitly consider sleep training interventions. However, the Family Foundations programme (see previous section) provides advice on behavioural sleep strategies as central to establishing positive daytime and bedtime routines. Two rigorously conducted RCTs observed improvements in Family Foundations participants' reports of their infant's sleep at six months and improvements in the child's ability to self-soothe at 12 months.[479,480]

Attachment security

Predictable and sensitive parenting behaviours help infants to regulate their behaviour and arousal states.[481] Many of these same parenting behaviours also support the development of the attachment relationship, which forms the context in which early social and emotional learning takes place. This learning can be seen during the reciprocal face 'games' that occur between parents and infants during the first several months of life. These games are most often initiated by the infant through a smile or a coo. A sensitive parent will then respond by smiling in return and saying something that matches the infant's emotional tone, for example – *look at you! Aren't you happy today!* The infant will then likely smile and gurgle back, to which the parent might respond again with another remark, or gesture. At this point, the baby may laugh or squeal, and the parent will respond again with another appropriately matched behaviour.

This back and forth game usually continues until the infant disengages, or becomes overstimulated. At either point, the sensitive parent will follow the infant's lead and stop the game when the infant sends messages that it is over. Thus, a sensitive parent follows the infant's cues, allowing the infant to maintain an optimal arousal state in which he or she is alert and content.[482] Through these sensitive and predictable interactions, infants can develop positive expectations about themselves and others which contribute to a sense of attachment security. Over time, these positive expectations turn into stable mental representations that inform children's interactions with others as they grow older.[483]

Children are less likely to develop a secure attachment if parents and other adults interact with them in ways that are neglectful, frightening or unpredictable.[484] Recent research with animals suggests that neglectful or frightening parenting behaviours may also increase stress-induced cortisol levels in infant brains.

478 Yoong, S. L., Chai, L. K., Williams, C. M., Wiggers, J., Finch, M., & Wolfenden, L. (2016). Systematic review and meta-analysis of interventions targeting sleep and their impact on child body mass index, diet, and physical activity. *Obesity*, *24*(5), 1140–1147.

479 Feinberg, M. E., Kan, M. L., & Goslin, M. C. (2009). Enhancing coparenting, parenting, and child self-regulation: Effects of family foundations 1 year after birth. *Prevention Science*, *10*(3), 276–285.

480 Feinberg, M. E., Jones, D. E., Hostetler, M. L., Roettger, M. E., Paul, I. M., & Ehrenthal, D. B. (2016). Couple-focused prevention at the transition to parenthood, a randomized trial: effects on coparenting, parenting, family violence, and parent and child adjustment. *Prevention Science*, *17*(6), 751–764.

481 Kertes, D. A., Donzella, B., Talge, N. M., Garvin, M. C., van Ryzin, M. J., & Gunnar, M. R. (2009). Inhibited temperament and parent emotional availability differentially predict young children's cortisol responses to novel social and non-social events, *Developmental Psychology, 51*, 421–532.

482 Tronick, E., Ricks, M., & Cohn, J. (1982). Maternal and infant affective exchange: Patterns of adaptation, in T. Field and A. Fogel (eds.), *Emotion and Early Interaction*, Earlbaum, 38–100.

483 Bowlby, J. (1969). *Attachment and Loss*, Basic Books.

484 Main, M., & Solomon, J. (1986). Discovery of a new, insecure-disorganized/disoriented attachment pattern, in M. Yogman and B. Brazelton (eds.), *Affective Development in Infancy*, Ablex.

These elevated levels of cortisol may, in turn, interfere with their memory and ability to concentrate.[485] Highly unpredictable or frightening parenting behaviours also increase the likelihood of children developing a 'disorganised' attachment relationship with their caregiver. Disorganised infant attachment behaviours include freezing (that is, suddenly holding still) or behaving in a frightened manner when in the presence of their parents.

A disorganised or 'D' attachment is also considered a risk for psychological and behavioural difficulties as children grow older.[486,487] Specifically, longitudinal studies have found that disorganised infants are more likely to behave in a way that is aggressive or controlling in middle childhood and to be diagnosed with a mental health problem in early adulthood.[488,489,490] Disorganised attachment behaviours are indicative of insensitive parenting behaviours that are associated with mental health problems, substance misuse and various forms of abuse and neglect.[491]

It is important to recognise that most parents are naturally sensitive to their infant's cues and are able to support attachment security in their infants. Studies also show that a secure attachment relationship occurs in at least two-thirds of the population, with some studies observing rates as high as 75% in middle- and upper-income families.[492] An insecure parent–infant attachment is more likely when parents who are continually stressed or preoccupied, as this interferes with their ability to respond appropriately to their child.[493] Relationship problems, mental health difficulties and parents' own insecure attachment history can also limit parents' ability to understand infant cues and respond appropriately.[494,495] Many attachment-based interventions therefore target parents who are at an increased risk of attachment difficulties. In these instances, parents benefit from support that targets the circumstances that potentially interfere with their ability to understand their child's needs and respond to them appropriately.[496]

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485   National Scientific Council on the Developing Child. (2005/2014). *Excessive Stress Disrupts the Architecture of the Developing Brain: Working Paper 3*. Updated Edition. Retrieved from www. developingchild.harvard.edu

486   Lyons-Ruth, K., & Jacobvitz, D. (1999). Attachment and disorganisation: Unresolved loss, relational violence, and lapses in behavioural and attentional strategies. In J. Cassidy and P. R. Shaver (eds.), *Handbook of attachment: Theory, Research and Clinical Applications.* Guildford Press, 520–554.

487   Van IJzendoorn, M. H., Schuengel, C., & Bakermans-Kranenburg, M. J. (1999). Disorganised attachment in early childhood: Meta-analysis of precursors, concomitants, and sequelae. *Development and Psychopathology, 11*, 225–249.

488   Fearon, R. P., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., Lapsley, A. M., & Roisman, G. I. (2010). The significance of insecure attachment and disorganization in the development of children's externalizing behaviour: A meta-analytic study. *Child Development, 81*, 435–456.

489   O'Connor, E., Bureau, J. F., McCartney, K., & Lyons-Ruth, K. (2011). Risks and outcomes associated with disorganized/controlling patterns of attachment at age three in the NICHD study of early child care and youth development, *Journal of Infant Mental Health, 32*, 450–472.

490   Lyons-Ruth, K., Bureau, J. F., Homes, B., Easterbrooks, A., & Hall Brooks, N. (2012). Boderline symptoms and suicidality/self-injury in late adolescence: Prospectively observed relationship correlates in infancy and childhood. *Psychiatry Research, 206*, 273–218.

491   Moss, E., Cyr, C., Bureau, J. F., Tarabulsy, G. A., & Dubois-Comtois, D., (2005). Stability of attachment during the preschool period, *Developmental Psychology, 41,* 773–783.

492   Van IJzendoorn, M. H., Schuengel, C., & Bakermans-Kranenburg, M. J. (1999). Disorganized attachment in early childhood: Meta-analysis of precursors, concomitants and sequelae. *Development and Psychopathology, 11*, 225–249.

493   Coyl, D. D., Roggman, L. A., & Newland, L. A. (2002). Stress, maternal depression, and negative mother–infant interactions in relation to infant attachment, *Infant Mental Health Journal, 23*, 145–163.

494   Murray, L., & Cooper, P. (1997). Effects of postnatal depression on infant development, *Archives of the Diseases of Childhood, 77*, 99–101.

495   Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood and adulthood: A move to the level of representation, *Monographs of the Society for Research in Child Development, 50*, 66–104.

496   Cicchetti, D., Rogosch, F.A., & Toth, S.L. (2006). Fostering secure attachment in infants in maltreating families through preventive interventions, *Development and Psychopathology, 18,* 623–649.

Interventions aiming to increase infant attachment security

The Rapid Review considered the evidence underpinning six targeted selective and targeted indicated activities aimed at improving the attachment relationship in families where there is a pre-identified risk: skin-to-skin care, infant massage, video-feedback, home visiting, sensitivity-focused therapy and various forms of parent–infant psychotherapy.

Skin to skin care

As described in the previous section, skin to skin care (SSC) is the term used to describe practices that aim to increase the amount of skin to skin contact between the mother and infant following birth. Kangaroo Mother Care (discussed previously) involves relatively high levels of daily contact (often lasting several hours), whereas other forms involve placing the infant on the mother's stomach or chest immediately after birth, but not necessarily any additional daily contact. **The Rapid Review reported relatively mixed and non-conclusive evidence on the use of SSC and KMC for improving the attachment security of full-term infants in low-risk populations.**

Infant massage

The Rapid Review considered the extent to which infant massage with low-risk families increased the likelihood of a secure attachment relationship, as well as other parenting benefits, such as increased satisfaction and a reduced likelihood of depression. In low-risk samples, infant massage is typically taught to small groups of mothers who attend weekly classes when their infant is between six and eight weeks old.

The Rapid Review observed that infant massage has no effect when practised with low-risk, full-term infants. While one study provided preliminary evidence of improving the sensitivity of depressed mothers, further scrutiny by the EIF evidence panel determined these findings to be non-conclusive. Studies have additionally observed that infant massage may cause harm when taught to mothers at risk for maltreating their children.[497]

Video-feedback

The Rapid Review reported more positive findings for interventions which make use of video-feedback, particularly when it comes to parental sensitivity. Video-feedback is a practice used within a variety of therapeutic contexts aimed at promoting self-reflection. In parenting interventions, videotape clips of parent–child interaction are used to help the parent and practitioner discuss the efficacy of various parenting behaviours and increase parental sensitivity.

The Rapid Review reported findings from two overlapping systematic reviews which observed that **video-feedback has good evidence for improving parenting behaviours in the short-term**.[498,499] Specific improvements included increases in parental sensitivity and responsivity, as well as increases in parental satisfaction. **The evidence of video-feedback interventions improving child outcomes is weak,** however. Although both systematic reviews reported significant improvements in child behaviours, these were relatively modest. Moreover, child benefits tended to disappear once studies not meeting the EIF level 3 threshold criteria were omitted from the analysis. The Foundations for Life review similarly observed a lack of

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497   Underdown A., Norwood R., & Barlow J. (2013) A Realist Evaluation of the Processes and Outcomes of Infant Massage Programs. *Infant Mental Health Journal, 34* (6), 483–495.

498   Bakermans-Kranenburg, M. J., Van Ijzendoorn, M. H., & Juffer, F. (2003). Less is more: meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin*, *129*(2), 195.

499   Fukkink, R. G. (2008). Video feedback in widescreen: A meta-analysis of family programs. *Clinical Psychology Review*, *28*(6), 904–916.

consistent child benefits from video-feedback interventions aimed at increasing parental sensitivity.

Collectively, these findings suggest that the promising child outcomes reported in earlier reviews of video-feedback interventions may be due to biases in the earlier studies, rather than any true benefit that is associated with the programme model. Nevertheless, it is possible that longer-term, unmeasured child benefits remain, especially when video-feedback is offered as part of an otherwise effective intervention model. For example, video-feedback added to the Family Check-up intervention at age 2 appeared to enhance treatment outcomes observed in children at age 5.[500]

Home visiting

The Rapid Review summarised findings from a single systematic review by Nievar and colleagues (2010) that considered the evidence underpinning 35 home visiting interventions for improving maternal sensitivity and other family outcomes.[501] Interventions included in the review involved a wide range of activities, some starting during the antenatal period and others which were not age-specific – that is, starting at any age between birth and age 3. The interventions also varied in terms of their frequency, with some involving weekly visits and others involving visits every other month. The Nievar review observed that home visiting interventions were moderately effective for improving maternal sensitivity, as well as other aspects of the home learning environment. However, these outcomes were more likely when the visits were frequent and occurred over a longer period of time (for example 12 months or longer).

A subsequent systematic review confirmed these findings, observing that home visiting interventions frequently achieved small, but statistically significant benefits for parenting behaviours (including increases in sensitivity), as well as improvements in child cognitive outcomes.[502] Moreover, this review identified specific intervention components which predicted these positive outcomes. These included:

- coaching parents on how to respond sensitively to their child's cues
- providing parents with evidence-based strategies involving age-appropriate discipline
- providing parents with strategies for solving personal problems
- providing opportunities to practise parenting skills through role play. This component was specifically correlated with increases in children's cognitive skills.

This review also observed that home visiting interventions typically did not improve child birth outcomes, children's physical health or reduced the risk of child maltreatment.[503] Interestingly, the review did not consider the child's age at which these outcomes were observed, nor did it consider the efficacy of these interventions on children's attachment security.

500 Smith, J. D., Dishion, T. J., Moore, K. J., Shaw, D. S., & Wilson, M. N. (2013). Effects of video feedback on early coercive parent–child interactions: The intervening role of caregivers' relational schemas. *Journal of Clinical Child & Adolescent Psychology*, *42*(3), 405–417.

501 Nievar, M. A., Van Egeren, L. A., & Pollard, S. (2010). A meta-analysis of home visiting programs: Moderators of improvements in maternal behavior. *Infant Mental Health Journal*, *31*(5), 499–520.

502 Filene, J. H., Kaminski, J. W., Valle, L. A., & Cachat, P. (2013). Components associated with home visiting program outcomes: A meta-analysis. *Pediatrics*, *132*(Supplement 2), S100–S109.

503 Filene, J. H., Kaminski, J. W., Valle, L. A., & Cachat, P. (2013). Components associated with home visiting program outcomes: A meta-analysis. *Pediatrics*, *132*(Supplement 2), S100–S109.

The Foundations for Life review identified two home visiting interventions with good evidence of reducing child maltreatment: FNP and Child First. FNP (described in the previous chapter) observed reductions in child maltreatment in both a US trial and a Dutch trial at a three-year follow-up. The UK trial has not yet completed a long-term follow-up, although there were no differences in the number of A&E visits among FNP and non-FNP children in the first evaluation study.

Child First has evidence of reducing child maltreatment rates from a single, rigorously conducted RCT in the United States.[504] Child First describes itself as a 'system of care' for families with a child who may be at risk of emotional problems, developmental delay and child maltreatment. It is delivered by two practitioners: a QCF level 5 practitioner who connects families to community-based services as part of their family-driven plan and a QCF level 6 (Master's) qualified psychologist who provides home visiting support on a weekly basis for a year or longer. In addition to reductions in child maltreatment, Child First has evidence of improving young children's language and behaviour, as well as decreasing parental symptoms of trauma and depression.

Surprisingly, Child First's impact on children's attachment security has not been measured, despite the fact that the programme specifically aims to improve the attachment relationship through the provision of Child–Parent Psychotherapy (CPP) (also referred to as Infant–Parent Psychotherapy or Toddler–Parent Psychotherapy, depending on the child's age). The Lieberman model of Child–Parent Psychotherapy (as described below) was assessed as having level 3 evidence of improving children's attachment security as part of the Foundations for Life review.

It is also worth noting that the Rapid Review identified **Minding the Baby** as a home visiting intervention with evidence of improving children's attachment security.[505] Minding the Baby is also based on the CPP model, but additionally incorporates activities developed for the Family Nurse Partnership programme. It is intended for first-time single mothers between the ages of 14 and 26, beginning in the last trimester and lasting two years. Minding the Baby has not undergone an EIF assessment, although the US Department for Health and Human Services has assessed it to be an evidence-based home visiting model.[506] Positive outcomes include increases in immunisation rates and decreases in subsequent pregnancies. However, Minding the Baby does not yet have evidence of reducing child maltreatment or improving children's attachment in high-risk populations.

Parent–Infant Psychotherapy (PIP)

Parent–Infant Psychotherapy (PIP) is a term used to describe a variety of therapeutic interventions aimed at increasing parental sensitivity and child attachment security. A primary aim shared by most PIP interventions is to help parents develop more positive representations of their child's behaviour, which should, in turn, enable them to respond more sensitively to their child's needs.[507] As such, mothers receive therapy alongside sensitivity coaching to address issues which may interfere with her ability to accurately interpret her child's behaviour.

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504 Lowell, D., Carter, A., Godoy, L., Paulicin, B., & Briggs-Gowan, M. (2011). A randomized controlled trial of Child FIRST: A comprehensive home-based intervention translating research into early childhood practice. *Child Development*, *82*, 193–208.

505 Sadler, L. S., Slade, A., Close, N., Webb, D. L., Simpson, T., Fennie, K., & Mayes, L. C. (2013). Minding the baby: Enhancing reflectiveness to improve early health and relationship outcomes in an interdisciplinary home-visiting program. *Infant Mental Health Journal*, *34*(5), 391–405.

506 HomeVee (2014). Minding the Baby. Available at: https://homvee.acf.hhs.gov/Model/1/Minding-the-Baby-sup---sup-/62/1

507 Lieberman, A. F. (1992). Infant-parent psychotherapy with toddlers. *Development and Psychopathology*, *4*(04), 559–574.

These issues may include the mother's experience of attachment insecurity in her own childhood.

PIP is most frequently delivered by clinical psychologists with master's-level qualifications or higher. Clinicians may have received training in PIP techniques as part of their degree programme, or have attended training in one of several manualised PIP programmes. PIP interventions are typically intensive and are offered to families at the targeted indicated or specialist level to families where there is a pre-identified risk of child maltreatment. Some models involve weekly sessions lasting for six months or less, although the majority last 12 months or longer. Despite its name, PIP is not exclusive to mothers with infants and can be offered to families with a child aged 5 and younger.

The Rapid Review summarised findings from one systematic review suggesting that PIP interventions have good evidence of improving child attachment related outcomes.[508] However, the review also observed that positive child outcomes are not shared by all PIP programmes. Similarly, the Foundations for Life review observed that several PIP programmes failed to confirm any child benefits through rigorous evaluations, despite consistent improvements in maternal sensitivity and maternal mood. These interventions included the Parent–Infant Project[509] and Circle of Security Home Visiting.[510]

The Foundations for Life review did, however, identify Child–Parent Psychotherapy (CPP) and its variations as having good (level 3) evidence of improving attachment related child outcomes. CPP was developed by Alicia Lieberman in the 1990s to specifically address the 'ghosts in the nursery' which may negatively influence the parents' ability to accurately interpret their child's mental states and respond appropriately to their child's cues. These 'ghosts' may include a history of an insecure attachment relationship with the parents' own parents, as well as previous or ongoing experiences of trauma and abuse.[511]

CPP is typically offered to families when there is a pre-identified problem placing the quality of the attachment relationship at risk. Psychologists or social workers deliver the programme through weekly hour-long sessions for a period of a year or longer. These sessions can take place in the clinic or the family home and include joint play activities with the child. During these activities, the practitioner demonstrates sensitive responding and suggests positive explanations for the child's behaviour. Practitioners also help parents reflect on the ways in which childhood issues may impact their current relationship with their child through empathic, non-didactic therapeutic methods.

Three variations of CPP have been developed for three separate periods of early child development: Infant–Parent Psychotherapy (IPP), Toddler–Parent Psychotherapy (TPP) and Child–Parent Psychotherapy (CPP). **Both IPP and CPP were assessed as having level 3 evidence for improving children's attachment security in more than one study. CPP has additional evidence of improving children's behaviour and reducing parents' symptoms of trauma. IPP also has evidence of**

508 Barlow, J., Bennett, C., Midgley, N., Larkin, S. K., & Wei, Y. (2015). Parent-infant psychotherapy for improving parental and infant mental health: a systematic review. *Cochrane Database of Systematic Reviews*, *11*(6), 1–30.

509 Fonagy, P., Sleed, M., & Baradon, T. (2016). A randomised controlled trial of parent-infant psychotherapy for parents with mental health problems and young infants. *Infant Mental Health Journal*.

510 Cassidy, J., Woodhouse, S. S., Sherman, L. J., Stupica, B., and Lejuez, C. W. (2011). Enhancing infant attachment security: An examination of treatment efficacy and differential susceptibility. *Development and Psychopathology, 23*, 131–148.

511 Lieberman, A. F. (1992). Infant-parent psychotherapy with toddlers. *Development and Psychopathology*, *4*(4), 559–574

reducing rates of child maltreatment.[512,513] The evidence for TPP is also promising, although problems with the RCT prevented it from receiving a level 3 rating.[514]

Specialist interventions

The Rapid Review additionally identified ABC (Attachment and Biobehavioural Catch-up) as a promising intervention for improving attachment related outcomes in parents who have abused their children, although the findings were non-conclusive because of quality issues involving the RCT.[515,516]

ABC targets high-risk families with a child between 6 and 24 months of age. It is delivered through 10 weekly sessions lasting one hour each. Parents and caregivers receive direct coaching in how to nurture their child, follow the child's lead and refrain from behaviours that may be frightening or overwhelming for children. Coaching takes place through immediate feedback provided during the sessions, as well as through homework and video-feedback.

Although ABC was not within the scope of the Foundations for Life review, its evidence was recently assessed by the US Department for Health and Human Services, suggesting that its evidence is not yet sufficient for meeting the EIF level 3 threshold.

Early language

As soon as babies can babble, parents support early language development through the use of infant directed speech (IDS) – an exaggerated form of baby talk typically used by parents when interacting with their infants. Scientists believe that IDS reinforces four important skills: (1) it helps the baby to better differentiate the sounds of words, (2) it associates words with emotional expressions, (3) it helps deploy the infant's attention to the meaning of specific words, and (4) it encourages the use of language for communication. Infant directed speech is not necessary for children to learn language, but a growing body of evidence suggests that it facilitates language learning in the early phases of children's development.[517]

Rates of early language learning vary greatly between infants, although the majority of children can say one or two words by their first birthday.[518] Slow language development at age 1 is considered by many to be too soon to determine if language problems will persist, although clear differences in children's acquisition are already apparent by 15 months.[519] In some instances, these delays may be linked to genetic factors, whereas the environment may play a more dominant role

512 Lieberman, A. F., Ghosh Ippen, C., & van Horn, P. (2006). Child-parent psychotherapy: 6-month follow-up of a randomized controlled trial *Journal of the American Academy of Child and Adolescent Psychiatry, 45*, 913–918.

513 Cicchetti, D., Rogosch, F. A., & Toth, S. L. (2006). Fostering secure attachment in infants in maltreating families through preventive interventions, *Development and Psychopathology, 18*, 623–649.

514 Cicchetti, D., Toth, S .L., & Rogosch, F. A. (1999). The efficacy of toddler-parent psychotherapy to increase attachment security in off-spring of depressed, mothers, *Attachment and Human Development, 1,* 34–66.

515 Bernard, K., Dozier, M., Bick, J., Lewis-Morrarty, E., Lindhiem, O., & Carlson, E. (2012). Enhancing attachment organization among maltreated children: Results of a randomized clinical trial. *Child Development*, *83*(2), 623–636.

516 Lind, T., Bernard, K., Ross, E., & Dozier, M. (2014). Intervention effects on negative affect of CPS-referred children: Results of a randomized clinical trial. *Child Abuse & Neglect*, *38*(9), 1459–1467.

517 Ma, W., Golinkoff, R. M., Houston, D., Hirsh-Pasek, A., (2011). Word Learning in Infant- and Adult-Directed Speech, *Language Learning and Development, 7*, 209–225.

518 Bates, E., Bretheron, I., & Snyder, L. (1988). *From first words to grammar: Individual differences and dissociable mechanisms*. Cambridge University Press.

519 Fernald, A., Marchman, V., & Weisleder, A. (2013). SES differences in language processing skill and vocabulary are evident at 18 months. *Developmental Science*, *16*, 234–48.

in others.[520,521] Environmental influences include both the quantity and quality of language young children are exposed to in their homes. For example, Weislander and Fernald observed a strong association between mothers' use of infant directed speech and language processing speed when toddlers were 18 months.[522]

Studies additionally show that children's language development is strongly associated with the quality of the home learning environment and families' level of income.[523,524,525] For this reason, interventions addressing children's early language learning are more frequently offered at the targeted selective level to low-income families.[526,527] While middle- and upper-income children also benefit from these programmes, their additional value – over and above what parents provide to their children on their own – is often small.[528]

Activities and interventions supporting children's early language development

The majority of language interventions target families with a child who is 12 months or older. However, the Rapid Review summarised the evidence underpinning two language-based activities typically offered to families before the child's first birthday: book gifting and 'baby sign'.

Book gifting

Book gifting involves the provision of free books to families with infants and young children with the aim of increasing children's interest in reading and facilitating language learning. While numerous systematic reviews have observed a link between shared book reading activities and improved child language, few studies have considered the specific benefits of providing families with free books during the infant's first year.

The Rapid Review did, however, consider findings from a rigorously conducted evaluation of the Let's Read programme, which involved the provision of books to families with young children living in disadvantaged communities in Australia.[529] Practice nurses visited parents in their homes and provided them with packs of free books when their infant was 4, 12, 18 and 42 months of age. The nurses also demonstrated effective shared reading strategies during these visits. Findings from a rigorously conducted RCT observed that **book gifting was found to have no**

520 Law, J., Charlton, J., & Asmussen, K. (2017). *Language as a child wellbeing indicator*. Early Intervention Foundation.

521 Law, J., Charleton, J. Dockrell, J., Gasgoine, M., McKean, C., & Theakston, A. (2017). *Early Language Development: Needs, provision, and intervention for preschool children from socio-economically disadvantage backgrounds.* The Education Endowment Foundation.

522 Weisleder, A., & Fernald, A. (2013). Talking to children matters early language experience strengthens processing and builds vocabulary. *Psychological Science*, *24*(11), 2143–2152.

523 Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children*. Paul H Brookes Publishing.

524 Rodriguez, E. T. and Tamis-LeMonda, C. S. (2011), Trajectories of the home learning environment across the first 5 years: Associations with children's vocabulary and literacy skills at prekindergarten. *Child Development, 82*, 1058–1075.

525 Magnuson, K. A., Sexton, H. R., Davis-Kean, P. E., & Huston, A. C. (2009). Increases in maternal education and young children's language skills. *Merrill-Palmer Quarterly*, *55*(3), 319–350.

526 Ramey, C. T., & Ramey, S. L. (1998). Early intervention and early experience. *American Psychologist, 53*, 109–120.

527 Duncan, G. J., & Soujourner, A. J. (2013). Can intensive early childhood intervention programs eliminate income-based cognitive and achievement gaps? *Journal of Human Resources, 48*, 945–968.

528 Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2004). The effective pre-school education (EPPE) project: Final report. A longitudinal study funded by the DfES 1997–2004.

529 Goldfeld, S., Napiza, N., Quach, J., Reilly, S., Ukoumunne, O. C., & Wake, M. (2011). Outcomes of a universal shared reading intervention by 2 years of age: the Let's Read trial. *Pediatrics*, *127*(3), 445–453.

effect in improving children's language development at ages 2 and 4, despite high levels of parental engagement. The authors attributed these disappointing findings to the low intensity of the intervention and the fact that many of the families already had enriched home literacy environments, despite living in disadvantaged circumstances.[530]

Baby sign

'Baby sign' is a generic term used to describe methods that aim to accelerate a baby's language acquisition through the use of symbolic gestures. Baby Sign programmes are underpinned by evidence involving hearing children born to deaf mothers. These studies suggest that children with deaf parents acquire both sign language and verbal language more quickly than do hearing children born to hearing adults. This evidence has led some to assume that symbolic gesturing may increase the speed in which children learn language. Some also believe that symbolic gesturing may improve maternal sensitivity and parent–child interaction.

Baby sign programmes are typically delivered to groups of mothers and infants attending weekly sessions over a period of six to 10 weeks. The majority of these programmes start when the infant is between 8 and 12 months old. Many of these interventions are delivered by mothers or other practitioners with no specific training in sign language or speech and language therapies.

Baby sign is a relatively new practice and very few studies have considered its efficacy through rigorous evaluation.[531] The Rapid Review only identified one study which made use of random assignment to test the efficacy of baby sign practices for improving children's language learning.[532] This study observed no improvements in mother–child pairs who participated in either a baby sign or British Sign Language programme in comparison to those not participating in a signing programme. However, the study's small sample size limits the ability to generalise the findings, meaning that the evidence is currently weak.

Home visiting

The Rapid Review did not explicitly consider the impact of home visiting interventions on the language acquisition of children before their first birthday. However, as mentioned in the previous section, many of the home visiting interventions developed to support parental sensitivity in the first year also have evidence of improving children's language outcomes. For example, Family Nurse Partnership and Child First both have evidence of improving child language outcomes, alongside reductions in child maltreatment and improvements in parenting behaviours.

The Foundations for Life review also identified **Parents as First Teachers (PAFT)** as a promising home visiting intervention for supporting children's early language development. Practitioners with experience in home visiting or teaching share age-appropriate information about children's development and also facilitate parent–child interaction through age-appropriate talk, play and reading activities.

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530 Goldfeld, S., Quach, J., Nicholls, R., Reilly, S., Ukoumunne, O. C., & Wake, M. (2012). Four-year-old outcomes of a universal infant-toddler shared reading intervention: The Let's Read trial. *Archives of Pediatrics & Adolescent Medicine*, *166*(11), 1045–1052.

531 Fitzpatrick, E. M., Thibert, J., Grandpierre, V., & Johnston, J. C. (2014). How HANDy are baby signs? A systematic review of the impact of gestural communication on typically developing, hearing infants under the age of 36 months. *First Language*, *34*(6), 486–509.

532 Kirk, E., Howlett, N., Pine, K. J., & Fletcher, B. C. (2013). To Sign or Not to Sign? The Impact of Encouraging Infants to Gesture on Infant Language and Maternal Mind-Mindedness. *Child Development*, *84*(2), 574–590.

The PAFT programme was assessed by EIF has having level 2+ evidence on account of inconsistent findings observed in its first two RCTs conducted in the US in the late 1990s.[533] However, the programme model has since been significantly refined and a recent study in Switzerland has since observed consistent improvements in children's language, behaviour and motivation in low-income families participating in the programme.[534,535] While the frequency and duration of PAFT visits is determined by each family's needs, families participating in the Swiss study received an average of one visit per month during the first year, and two visits per month during the second.

Child behaviour

Child conduct problems do not typically exist during the first year of life. While some parents might describe their infant as having a difficult temperament, relatively few would consider their child as wilfully naughty. Nevertheless, a number of interventions offer parenting advice during the first year of life as a means of preventing difficult child behaviour when children grow older. Much of this advice aims to help parents 'manage' their child's behaviour through operant conditioning strategies which encourage positive child behaviour and discourage negative child behaviour. Collectively, these interventions are referred to as parent management training (PMT) interventions.

Interventions aimed at improving child behaviours

The Rapid Review summarised evidence from one systematic review observing that there was some evidence to support the use of PMT interventions for children under the age of 4. However, the review acknowledged that the extent to which such programmes prevented further child behavioural problems from occurring remained unclear.[536] Moreover, the review was not able to comment on the suitability of such programmes for families with an infant child.

The Foundations for Life review did assess the evidence underpinning the Toddlers without Tears which was developed explicitly to prevent child behavioural problems from occurring in later preschool. Parents participating in the Toddlers without Tears programme received parenting advice during three home visiting sessions occurring when their infants were 8, 12 and 15 months old. At eight months, health visitors went to parents' homes and provided them with four handouts covering normal child behaviour, motor and social development and strategies for supporting children's language development. At 12 months, mothers attended a two-hour group session where they received information about strategies for creating a warm and sensitive home environment and encouraging positive child behaviour. At 15 months, parents attended a group session to discuss ways to discourage unwanted child behaviour.[537]

533   Wagner, M. M., & Clayton, S. L. (1999). The parents as teachers program: Results from two demonstrations. *The Future of Children (Home Visiting Program Evaluation), 9*, 91–115.

534   Drotar, D., Robins, J., Jeavons, L., & Lester Kirchner, H. (2008). A randomized, controlled evaluation of early intervention: The Born to Learn curriculum. *Child: Care, Health and Development, 35*, 643–649.

535   Neuhauser, A., Ramseier, E., Schaub, S., Burkhardt, S. C., Templer, F., & Lanfranchi, A. (2015). Hard to reach families – A methodological approach to early recognition, recruitment, and randomization in an intervention study. *Mental Health & Prevention, 3*, 79–88.

536   Barlow, J., Smailagic, N., Ferriter, M., Bennett, C., & Jones, H. (2010). Group-based parent-training programmes for improving emotional and behavioural adjustment in children from birth to three years old. *Cochrane Database of Systematic Reviews*, 3.

537   Hiscock, H., Bayer, J. K., Price, A., Ukoumunne, O. C., Rogers, S., & Wake, M. (2008). Universal parenting programme to prevent early childhood behavioural problems: cluster randomised trial. *British Medical Journal, 336*(7639), 318–321.

The Toddlers without Tears programme was assessed by EIF as having no effect, on the basis of no improvements on any child outcome observed when the infants were 2 and 3 years old. Although the study observed initial reductions in parents' reports of the use of harsh discipline when the children were aged 2, there were no positive benefits for parents or children in the intervention group by the time the children were aged 3. The authors concluded that **parent management training interventions offered during the child's first year are insufficient for preventing behavioural problems when children are older**. More intensive interventions should therefore be made available to families at later points in children's development when behavioral problems are more likely to occur.[538]

Findings from the Toddlers without Tears trial are consistent with those observed in a recent Danish RCT of the eight-week Incredible Years Babies Programme.[539] This study also failed to observe any positive parent and child benefits for participants in comparison to families in the control group. The authors concluded that the programme may be of limited value to high-functioning families who typically attend interventions offered at the universal level.

Maternal mental health

Supporting maternal mental health is one of the high impact areas of the Healthy Child Programme. As described in the previous chapter, maternal mental health problems are consistently identified as one of the most significant risks to child wellbeing throughout children's development.[540] Maternal mental health problems during pregnancy and the postpartum period occur at rates similar to the general childbearing population with the exception of depression, which increases by at least twofold in the weeks following childbirth.[541]

The DSM-5 defines postpartum depression as a 'severe depressive episode' occurring within four weeks following childbirth.[542] The International Statistical Classification of Diseases and Related Health Problems 10th Revision[543] defines it more broadly to include mild and moderate symptoms of depression occurring within the first six weeks of childbirth.[544] While both sets of diagnostic criteria identify PND as occurring shortly after delivery, the majority of experts recognise that symptoms of depression may be present during pregnancy and can occur at any point during the child's first year.[545,546]

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538 Bayer, J. K., Hiscock, H., Ukoumunne, O. C., Scalzo, K., & Wake, M. (2010). Three-year-old outcomes of a brief universal parenting intervention to prevent behaviour problems: randomised controlled trial. *Archives of Disease in Childhood*, *95*(3), 187–192.

539 Pontoppidan, M., Klest, S. K., & Sandoy, T. M. (2016). The Incredible Years Parents and Babies Program: A Pilot Randomized Controlled Trial. *PloS One*, *11*(12), e0167592.

540 Galbally, M., & Lewis, A. J. (2017). Depression and parenting: the need for improved intervention models. *Current Opinion in Psychology*, *15*, 61–65.

541 Stein, A., Pearson, R. M., Goodman, S. H., Rapa, E., Rahman, A., McCallum, M., ... & Pariante, C. M. (2014). Effects of perinatal mental disorders on the fetus and child. *The Lancet*, *384*(9956), 1800–1819.

542 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

543 World Health Organization. (2009). International statistical classification of diseases and related health problems.

544 BMJ (2017). Best practice: Postnatal depression: Available: http://bestpractice.bmj.com/best-practice/monograph/512/diagnosis/criteria.html

545 Dennis, C. L., Heaman, M., & Vigod, S. (2012). Epidemiology of postpartum depressive symptoms among Canadian women: regional and national results from a cross-sectional survey. *The Canadian Journal of Psychiatry*, *57*(9), 537–546.

546 Gaynes, B. N., Gavin, N., Meltzer-Brody, S., Lohr, K. N., Swinson, T., Gartlehner, G., ... & Miller, W. C. (2005). *Perinatal depression: Prevalence, screening accuracy, and screening outcomes: Summary*. AHRQ Evidence Report Summaries.

For a substantial subgroup of women, depression will remain a chronic condition.[547]

The increased risk of maternal depression during the postnatal period may be due, in part, to hormonal shifts taking place shortly after the child's birth.[548,549] The majority of mothers, in fact, experience moments of tearfulness after their baby is born, but these mood shifts are usually transitory and rarely interfere with the mother's ability to function.[550] However, a substantial minority of women will experience more severe symptoms of depression that do not resolve quickly. These symptoms include feelings of hopelessness and sleeplessness, which interfere with mothers' ability to function on a daily basis. It is also not uncommon for symptoms of depression to co-occur with symptoms of anxiety.[551]

The prevalence of postpartum depression varies dramatically depending on the population and the instruments used to measure it.[552] Studies report rates as low as .5% and as high as 82%, although studies involving European samples typically suggest rates of between 7 and 19%.[553,554] Risks that increase the likelihood of postnatal depression include an unwanted pregnancy, social deprivation, social isolation, relationship difficulties, stressful life events and a previous history of depression.[555,556] Approximately half of all cases of postpartum depression are already recognisable during pregnancy.[557,558]

Postnatal depression can resolve itself within weeks of onset, but it has been observed to persist for 12 months or longer in at least one-fifth of the affected population.[559,560,561,562]

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547 Vliegen, N., Casalin, S., & Luyten, P. (2014). The course of postpartum depression: a review of longitudinal studies. *Harvard review of psychiatry*, *22*(1), 1–22.

548 Bloch, M., Schmidt, P. J., Danaceau, M., Murphy, J., Nieman, L., & Rubinow, D. R. (2000). Effects of gonadal steroids in women with a history of postpartum depression. *American Journal of Psychiatry*, *157*(6), 924–930.

549 Brummelte, S., & Galea, L. A. (2016). Postpartum depression: Etiology, treatment and consequences for maternal care. *Hormones and Behavior*, *77*, 153–166.

550 Pitt, B. (1973). Maternity blues'. *The British Journal of Psychiatry*, *122*(569), 431–433.

551 Falah-Hassani, K., Shiri, R., & Dennis, C. L. (2016). Prevalence and risk factors for comorbid postpartum depressive symptomatology and anxiety. *Journal of Affective Disorders*, *198*, 142–147.

552 Norhayati, M. N., Hazlina, N. N., Asrenee, A. R., & Emilin, W. W. (2015). Magnitude and risk factors for postpartum symptoms: a literature review. *Journal of Affective Disorders*, *175*, 34–52.

553 Gavin, N. I., Gaynes, B. N., Lohr, K. N., Meltzer-Brody, S., Gartlehner, G., & Swinson, T. (2005). Perinatal depression: a systematic review of prevalence and incidence. *Obstetrics & Gynecology*, *106*(5, Part 1), 1071–1083.

554 Reck, C., Struben, K., Backenstrass, M., Stefenelli, U., Reinig, K., Fuchs, T., ... & Mundt, C. (2008). Prevalence, onset and comorbidity of postpartum anxiety and depressive disorders. *Acta Psychiatrica Scandinavica*, *118*(6), 459–468.

555 Beck, C. T. (2001). Predictors of postpartum depression: an update. *Nursing Research*, *50*(5), 275–285.

556 Robertson, E., Grace, S., Wallington, T., & Stewart, D. E. (2004). Antenatal risk factors for postpartum depression: a synthesis of recent literature. *General Hospital Psychiatry*, *26*(4), 289–295.

557 Putnam, K., Robertson-Blackmore, E., Sharkey, K., Payne, J., Bergink, V., Munk-Olsen, T., ... & Devouche, E. (2015). Heterogeneity of postpartum depression: a latent class analysis. *The Lancet Psychiatry*, *2*(1), 59–67.

558 Norhayati, M. N., Hazlina, N. N., Asrenee, A. R., & Emilin, W. W. (2015). Magnitude and risk factors for postpartum symptoms: a literature review. *Journal of Affective Disorders*, *175*, 34–52.

559 Biaggi, A., Conroy, S., Pawlby, S., & Pariante, C. M. (2016). Identifying the women at risk of antenatal anxiety and depression: a systematic review. *Journal of Affective Disorders*, *191*, 62–77.

560 Goodman, J. H. (2004). Postpartum depression beyond the early postpartum period. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *33*(4), 410–420.

561 Underwood, L., Waldie, K., D'Souza, S., Peterson, E. R., & Morton, S. (2016). A review of longitudinal studies on antenatal and postnatal depression. *Archives of Women's Mental Health, 19*(5), 711–720.

562 Vliegen, N., Casalin, S., & Luyten, P. (2014). The course of postpartum depression: a review of longitudinal studies. *Harvard Review of Psychiatry*, *22*(1), 1–22.

Studies further observe that approximately 2% of mothers who were not depressed within the first six weeks of their child's birth will become increasingly depressed throughout the first year.[563] Factors that contribute to increases in maternal depression include single parenthood and inadequate social support.

A very small percentage of women (two or three out of 1,000) experience puerperal psychosis within the weeks following their baby's birth. Puerperal psychosis is an extreme perinatal mental illness characterised by hallucinations, bizarre behaviours, severe confusion and disorganisation. Puerperal psychosis is considered by many to be a form of bipolar disorder brought on by physiological changes after birth in genetically susceptible women.[564] As mentioned in the previous chapter, women with a previous history of bipolar disorder are at particular risk of developing puerperal psychosis within the weeks following childbirth. Although uncommon, puerperal psychosis requires urgent referral and treatment, since the mother is at increased risk of harming herself or her child.[565]

While a mother's experience of postnatal depression may be temporary, its effect on her child can be more enduring.[566,567,568] This is because PND often impedes a mother's ability to attend to her child's needs at a particularly sensitive period in early development.[569,570] Specifically, feelings of depression can interfere with a mother's ability to understand her infant's cues and respond appropriately. Depressed mothers are also more likely to have difficulty breastfeeding and reinforcing consistent sleep routines.[571,572,573]

During infancy, maternal depression is linked to increases in infant irritability, low social engagement,[574] decreased attachment security,[575,576] and delays in cognitive

563 McCall-Hosenfeld, J. S., Phiri, K., Schaefer, E., Zhu, J., & Kjerulff, K. (2016). Trajectories of Depressive Symptoms Throughout the Peri-and Postpartum Period: Results from the First Baby Study. *Journal of Women's Health*, *25*(11), 1112–1121.

564 Bergink, V., Rasgon, N., & Wisner, K. L. (2016). Postpartum psychosis: madness, mania, and melancholia in motherhood. *American Journal of Psychiatry*, *173*(12), 1179–1188.

565 Howard, L. M., Molyneaux, E., Dennis, C. L., Rochat, T., Stein, A., & Milgrom, J. (2014). Non-psychotic mental disorders in the perinatal period. *The Lancet*, *384*(9956), 1775–1788.

566 Barker, E. D., Jaffee, S. R., Uher, R., & Maughan, B. (2011). The contribution of prenatal and postnatal maternal anxiety and depression to child maladjustment. *Depression and Anxiety*, *28*(8), 696–702.

567 Cummings, E. M., & Davies, P. T. (1994). Maternal depression and child development. *Journal of Child Psychology and Psychiatry, 35*, 73–112.

568 Beck, C. T. (1998). The effects of postpartum depression on child development: A meta-analysis. *Archives of Psychiatric Nursing, XII*, 12–20.

569 Phillips, D. A., & Shonkoff, J. P. (eds.) (2000). *From neurons to neighborhoods: The science of early childhood development*. National Academies Press.

570 Schore, A. N. (2001). The effects of a secure attachment relationship on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal, 22*, 7–66.

571 Field, T. (2010). Postpartum depression effects on early interactions, parenting, and safety practices: a review. *Infant Behavior and Development*, *33*(1), 1–6.

572 Hatton, D.C., Harrison-Hohner, J., Coste, S., Dorato, V., Curet, L.B., & McCarron, D.A. (2005). Symptoms of postpartum depression and breastfeeding. *Journal of Human Lactation*, *21*, 444–449.

573 Teti, D. M. and Crosby, B. (2012), Maternal Depressive Symptoms, Dysfunctional Cognitions, and Infant Night Waking: The Role of Maternal Nighttime Behavior. *Child Development*, *83*, 939–953.

574 Feldman, R., Granat, A., Pariente, C., Kanety, H., Kuint, J., & Gilboa-Schechtman, E. (2009). Maternal depression and anxiety across the postpartum year and infant social engagement, fear regulation, and stress reactivity. *Journal of the American Academy of Child & Adolescent Psychiatry*, *48*(9), 919–927.

575 Martins, C., & Gaffan, E. A. (2000). Effects of early maternal depression on patterns of infant-mother attachment: A meta-analytic investigation. *Journal of Child Psychology and Psychiatry*, *41*(6), 737–746.

576 Atkinson, L., Paglia, A., Coolbear, J., Niccols, A., Parker, K. C., & Guger, S. (2000). Attachment security: A meta-analysis of maternal mental health correlates. *Clinical Psychology Review*, *20*(8), 1019–1040.

and language development.[577,578,579] In older children, maternal depression during the postnatal period is associated with behavioural and cognitive problems in primary school[580,581] and academic performance in adolescence.[582,583,584]

It is important to recognise that not all children with depressed mothers experience adverse outcomes. Factors which likely protect children from the negative effects of maternal depression include maternal education and increased social support, including a supportive couple relationship and help from other family members and friends.[585,586] Studies have also found that the timing and duration of maternal depression contributes to differences in child outcomes.[587,588]

For example, some have argued that the rapid brain development that takes place during the first 12 months of life make it a period of particular risk.[589] However, studies have also found that the impact of maternal depression in early infancy is minimal if the episode is relatively brief.[590] In this respect, studies consistently find that the impact of maternal depression is greatest when it is both chronic and severe.[591,592,593]

577 Kaplan, P. S., Danko, C. M., Everhart, K. D., Diaz, A., Asherin, R. M., Vogeli, J. M., & Fekri, S. M. (2014). Maternal depression and expressive communication in one-year-old infants. *Infant Behavior and Development*, *37*(3), 398–405.

578 Kingston, D., McDonald, S., Austin, M. P., & Tough, S. (2015). Association between prenatal and postnatal psychological distress and toddler cognitive development: a systematic review. *PloS One*, *10*(5), e0126929.

579 Valla, L., Wentzel-Larsen, T., Smith, L., Birkeland, M. S., & Slinning, K. (2016). Association between maternal postnatal depressive symptoms and infants' communication skills: A longitudinal study. *Infant Behavior and Development*, *45*, 83–90.

580 Mensah, F. K., & Kiernan, K. E. (2010). Parents' mental health and children's cognitive and social development. *Social Psychiatry and Psychiatric Epidemiology*, *45*(11), 1023–1035.

581 Murray, L., Fiori-Cowley, A., Hooper, R., & Cooper, P.J. (1996). The impact of postnatal depression and associated adversity on early mother-infant interactions and later infant outcome. *Child Development, 67*, 2512–2526.

582 Halligan, S. L., Murray, L., Martins, C., & Cooper, P. J. (2007). Maternal depression and psychiatric outcomes in adolescent offspring: a 13-year longitudinal study. *Journal of Affective Disorders*, *97*(1), 145–154.

583 Hay, D. F., Asten, P., Mills, A., Kumar, R., Pawlby, S., & Sharp, D. (2001). Intellectual problems shown by 11-year-old children whose mothers had postnatal depression. *The Journal of Child Psychology and Psychiatry and Allied Disciplines*, *42*(7), 871–889.

584 Murray, L., Arteche, A., Fearon, P., Halligan, S., Croudace, T., & Cooper, P. (2010). The effects of maternal postnatal depression and child sex on academic performance at age 16 years: a developmental approach. *Journal of Child Psychology and Psychiatry*, *51*(10), 1150–1159.

585 Goodman, S. H., & Gotlib, I. H. (1999). Risk for psychopathology in the children of depressed mothers: a developmental model for understanding mechanisms of transmission. *Psychological Review*, *106*(3), 458.

586 Pearson, R. M., Evans, J., Kounali, D., Lewis, G., Heron, J., Ramchandani, P. G., ... & Stein, A. (2013). Maternal depression during pregnancy and the postnatal period: risks and possible mechanisms for offspring depression at age 18 years. *JAMA Psychiatry*, *70*(12), 1312–1319.

587 Liu, C. H., & Tronick, E. (2013). Re-conceptualising prenatal life stressors in predicting post-partum depression: Cumulative-, specific-, and domain-specific approaches to calculating risk. *Paediatric and Perinatal Epidemiology*, *27*(5), 481–490.

588 Kawai, E., Takagai, S., Takei, N., Itoh, H., Kanayama, N., Tsuchiya, K. J., & HBC Study Team. (2017). Maternal postpartum depressive symptoms predict delay in non-verbal communication in 14-month-old infants. *Infant Behavior and Development*, *46*, 33–45.

589 Center on the Developing Child at Harvard University (2009). Maternal Depression Can Undermine the Development of Young Children: Working Paper No. 8. http://www.developingchild.harvard.edu

590 Smith-Nielsen, J., Tharner, A., Krogh, M. T., & Vaever, M. S. (2016). Effects of maternal postpartum depression in a well-resourced sample: Early concurrent and long-term effects on infant cognitive, language, and motor development. *Scandinavian Journal of Psychology*, *57*(6), 571–583.

591 Field, T. (1992). Infants of depressed mothers. *Development and Psychopathology*, *4*(01), 49–66.

592 Sutter-Dallay, A. L., Murray, L., Dequae-Merchadou, L., Glatigny-Dallay, E., Bourgeois, M. L., & Verdoux, H. (2011). A prospective longitudinal study of the impact of early postnatal vs. chronic maternal depressive symptoms on child development. *European Psychiatry*, *26*(8), 484–489.

593 Foster, C. E., Webster, M. C., Weissman, M. M., Pilowsky, D. J., Wickramaratne, P. J., Talati, A., ... & Cerda, G. (2008). Remission of maternal depression: relations to family functioning and youth internalizing and externalizing symptoms. *Journal of Clinical Child & Adolescent Psychology*, *37*(4), 714–724.

Screening, prevention and treatment

Supporting maternal mental health during the perinatal period is identified as one of the six high impact areas of the Healthy Child Programme. Activities aimed at preventing and treating postnatal depression include universal screening, group-based support, home visiting, individual therapy and antidepressants.

Screening

Postnatal depression is rarely identified through routine antenatal and postnatal care and mothers rarely self-refer themselves.[594,595,596] A number of screening tools and processes have therefore been developed to help practitioners detect and diagnose the severity of postnatal depression. The Edinburgh Postnatal Depression Scale (EPDS) is perhaps the most widely used instrument, although the Beck Depression Inventory (BDI), and the Hamilton Depression Rating Scales (HDRS) are also frequently used.

The Rapid Review considered the evidence underpinning screening processes from a single systematic review, observing that there is insufficient evidence to indicate that the EPDS is effective in detecting postnatal depression and improving mothers' and infants' wellbeing.[597] However, several comprehensive meta-analyses and systematic reviews conducted subsequently have judged the screening accuracy of the EPDS to be high, with some studies suggesting a sensitivity of 100%.[598,599] A recent systematic review completed by the US Preventive Services Task Force (USPSTF) has therefore concluded that **there is now good evidence linking universal screening activities (involving the EPDS or other validated instruments) to reductions in the prevalence of postnatal depression, as well as higher rates of improvement when effective treatments are made available.**[600] These findings have resulted in the USPSTF recommending that universal screening for depression be used in the general adult population starting at age 18, and during pregnancy and the postpartum period in particular. The Task Force further recommends that this screening be used to initiate an 'adequate system' of referral, diagnosis and treatment.[601] This system should include a depression care manager who is responsible for ensuring that screening occurs and that evidence-based stepped-up care is provided to mothers who screen positive. The current NICE guidelines for depression screening and treatment are the same as those recommended during the antenatal period and are described in chapter 2.

594 Evins, G. G., Theofrastous, J. P., & Galvin, S. L. (2000). Postpartum depression: a comparison of screening and routine clinical evaluation. *American Journal of Obstetrics and Gynecology*, *182*(5), 1080–1082.

595 Fergerson, S. S., Jamieson, D. J., & Lindsay, M. (2002). Diagnosing postpartum depression: Can we do better? *American Journal of Obstetrics and Gynelcology, 186*, 899–902.

596 Morris-Rush, J. K., Freda, M. C., & Bernstein, P. S. (2003). Screening for postpartum depression in an inner-city population. *American Journal of Obstetrics and Gynecology, 188*, 1217–1219.

597 Hewitt, C. E., & Gilbody, S. M. (2009). Is it clinically and cost effective to screen for postnatal depression: a systematic review of controlled clinical trials and economic evidence. *BJOG: An International Journal of Obstetrics & Gynaecology*, *116*(8), 1019–1027.

598 Zee-van den Berg, A. I., Boere-Boonekamp, M. M., IJzerman, M. J., Haasnoot-Smallegange, R. M., & Reijneveld, S. A. (2016). Screening for Postpartum Depression in Well-Baby Care Settings: A Systematic Review. *Maternal and Child Health Journal*.

599 Owora, A. H., Carabin, H., Reese, J., & Garwe, T. (2016). Summary diagnostic validity of commonly used maternal major depression disorder case finding instruments in the United States: A meta-analysis. *Journal of Affective Disorders*, *205*, 335–343.

600 O'Connor, E., Rossom, R.C., Henninger, M., et al. (2016). *Screening for Depression in Adults: An Updated Systematic Evidence Review for the US Preventive Services Task Force: Evidence Synthesis No. 128 [AHRQ Publication No. 14-05208-EF-1]*. Agency for Healthcare Research and Quality.

601 Siu, A. L., Bibbins-Domingo, K., Grossman, D. C., Baumann, L. C., Davidson, K. W., Ebell, M., ... & Krist, A. H. (2016). Screening for depression in adults: US Preventive Services Task Force recommendation statement. *Jama*, *315*(4), 380–387.

Prevention

As mentioned in chapter 2, studies have found that interventions delivered antenatally with the aim of preventing the onset of postnatal depression have no evidence of working.[602] The Rapid Review also reported that the evidence underpinning parenting groups and home visiting as a method for reducing depressive symptoms was weak, although findings from a single systematic review observed that there was some evidence to support the following activities:[603]

- stepped-up midwifery or health visiting care in the weeks following delivery that flexibly responds to the needs of all mothers on the basis of EPDS scores[604,605,606]
- individualised telephone support delivered by trained volunteers[607]
- interpersonal therapy (IPT) delivered by trained and supervised psychologists or health professionals.[608,609,610,611]

A comprehensive systematic review conducted following the Rapid Review additionally reported that educational support offered at the targeted selective level on the basis of key risks may reduce the risk of postnatal depression.[612] However, much of the evidence underpinning this recommendation has

602　Sockol, L. E. (2015). A systematic review of the efficacy of cognitive behavioral therapy for treating and preventing perinatal depression. *Journal of Affective Disorders*, *177*, 7–21.

603　Dennis, C. L., & Dowswell, T. (2013). Psychosocial and psychological interventions for preventing postpartum depression. *The Cochrane Library*.

604　Armstrong, K. L., Fraser, J. A., Dadds, M. R., & Morris, J. (1999). A randomized, controlled trial of nurse home visiting to vulnerable families with newborns. *Journal of Paediatrics and Child Health*, *35*(3), 237–244.

605　MacArthur, C., Winter, H. R., Bick, D. E., Knowles, H., Lilford, R., Henderson, C., ... & Gee, H. (2002). Effects of redesigned community postnatal care on womens' health 4 months after birth: a cluster randomised controlled trial. *The Lancet*, *359*(9304), 378–385.

606　MacArthur, C., Winter, H. R., Bick, D. E., Lilford, R. J., Lancashire, R. J., Knowles, H., ... & Gee, H. (2003). *Redesigning postnatal care: a randomised controlled trial of protocol-based midwifery-led care focused on individual women's physical and psychological health needs*. NCCHTA.

607　Dennis, C. L., Hodnett, E., Kenton, L., Weston, J., Zupancic, J., Stewart, D. E., & Kiss, A. (2009). Effect of peer support on prevention of postnatal depression among high risk women: multisite randomised controlled trial. *British Medical Journal*, *338*, a3064.

608　O'Hara, M. W., Stuart, S., Gorman, L. L., & Wenzel, A. (2000). Efficacy of interpersonal psychotherapy for postpartum depression. *Archives of General Psychiatry*, *57*(11), 1039–1045.

609　Zlotnick, C., Johnson, S. L., Miller, I. W., Pearlstein, T., & Howard, M. (2001). Postpartum depression in women receiving public assistance: pilot study of an interpersonal-therapy-oriented group intervention. *American Journal of Psychiatry*, *158*(4), 638–640.

610　Zlotnick, C., Miller, I. W., Pearlstein, T., Howard, M., & Sweeney, P. (2006). A preventive intervention for pregnant women on public assistance at risk for postpartum depression. *American Journal of Psychiatry*, *163*(8), 1443–1445.

611　Zlotnick, C., Tzilos, G., Miller, I., Seifer, R., & Stout, R. (2016). Randomized controlled trial to prevent postpartum depression in mothers on public assistance. *Journal of Affective Disorders*, *189*, 263–268.

612　Morrell, C. J., Sutcliffe, P., Booth, A., Stevens, J., Scope, A., Stevenson, M., ... & Ren, S. (2016). A systematic review, evidence synthesis and meta-analysis of quantitative and qualitative studies evaluating the clinical effectiveness, the cost-effectiveness, safety and acceptability of interventions to prevent postnatal depression. *Health Technology Assessment*, *20*(37).

methodological limitations,[613,614,615] with some studies observing no improvements in maternal mood.[616,617,618,619,620,621]

It should also be noted that many of the benefits of the activities identified in these reviews are modest and often short-lived.[622] Furthermore, many of these activities might best be classified as targeted indicated treatments (as opposed to prevention), as they are offered only when the mother is manifesting some symptoms of depression.[623] For example, studies involving telephone support frequently involve samples who are experiencing symptoms of depression in the clinical range. The evidence underpinning the use of educational interventions and telephone support for reducing symptoms of depression is therefore weak.

Targeted indicated treatment

Antidepressant medication and a variety of 'talking' therapies such as cognitive behavioural therapy (CBT), interpersonal therapy and psychodynamic therapy are all commonly used to treat postnatal depression once it has been diagnosed.

Antidepressant medication

Antidepressant medication is perhaps the most common form of treatment for postnatal depression.[624] This is because there is strong and consistent evidence linking it to reductions in symptoms of depression in the general population.[625] However, the evidence of the effectiveness of antidepressants with mothers depressed during the postnatal period is less clear.[626] Relatively few studies have investigated the use of antidepressant medication during this period and those

613   Heh, S. S., & Fu, Y. Y. (2003). Effectiveness of informational support in reducing the severity of postnatal depression in Taiwan. *Journal of Advanced Nursing*, *42*(1), 30–36.

614   Shapiro, A. F., & Gottman, J. M. (2005). Effects on marriage of a psycho-communicative-educational intervention with couples undergoing the transition to parenthood, evaluation at 1-year post intervention. *The Journal of Family Communication*, *5*(1), 1–24.

615   Lara, M. A., Navarro, C., & Navarrete, L. (2010). Outcome results of a psycho-educational intervention in pregnancy to prevent PPD: A randomized control trial. *Journal of Affective Disorders*, *122*(1), 109–117.

616   Brugha, T. S., Wheatley, S., Taub, N. A., Culverwell, A., Friedman, T., Kirwan, P., ... & Shapiro, D. A. (2000). Pragmatic randomized trial of antenatal intervention to prevent post-natal depression by reducing psychosocial risk factors. *Psychological medicine*, *30*(06), 1273–1281.

617   Buist, A., Westley, D., & Hill, C. (1999). Antenatal prevention of postnatal depression. *Archives of Women's Mental Health*, *1*(4), 167–173.

618   Howell, E. A., Balbierz, A., Wang, J., Parides, M., Zlotnick, C., & Leventhal, H. (2012). Reducing postpartum depressive symptoms among black and Latina mothers: a randomized controlled trial. *Obstetrics and Gynecology*, *119*(5), 942.

619   Stamp, G. E., Williams, A. S., & Crowther, C. A. (1995). Evaluation of antenatal and postnatal support to overcome postnatal depression: a randomized, controlled trial. *Birth*, *22*(3), 138–143.

620   Walkup, J. T., Barlow, A., Mullany, B. C., Pan, W., ... & Ginsburg, G. (2009). Randomized controlled trial of a paraprofessional-delivered in-home intervention for young reservation-based American Indian mothers. *Journal of the American Academy of Child & Adolescent Psychiatry*, *48*(6), 591–601.

621   Webster, J., Linnane, J., Roberts, J., Starrenburg, S., Hinson, J., & Dibley, L. (2003). IDentify, Educate and Alert (IDEA) trial: an intervention to reduce postnatal depression. *BJOG: An International Journal of Obstetrics & Gynaecology*, *110*(9), 842–846.

622   Bellón, J. Á., Moreno-Peral, P., Motrico, E., Rodríguez-Morejón, A., ... & Conejo-Cerón, S. (2015). Effectiveness of psychological and/or educational interventions to prevent the onset of episodes of depression: a systematic review of systematic reviews and meta-analyses. *Preventive Medicine*, *76*, S22–S32.

623   Trivedi, D. (2014). Cochrane Review Summary: psychosocial and psychological interventions for preventing postpartum depression. *Primary Health Care Research & Development*, *15*(03), 231–233.

624   O'Hara, M. W., & McCabe, J. E. (2013). Postpartum depression: current status and future directions. *Annual Review of Clinical Psychology*, *9*, 379–407.

625   Helfer, B., Samara, M. T., Huhn, M., Klupp, E., Leucht, C., Zhu, Y., ... & Leucht, S. (2016). Efficacy and safety of antidepressants added to antipsychotics for schizophrenia: a systematic review and meta-analysis. *American Journal of Psychiatry*, *173*(9), 876–886.

626   Sharma, V. (2017). A closer look at the preventative effect of antidepressants in postpartum depression. *Archives of Women's Mental Health*, 1–4.

that have typically have serious methodological limitations.[627,628,629,630] Studies have also observed that mothers are often reluctant to use antidepressant medication because of concerns they may cause harm to their infant through their breast milk.[631,632] While this harm is likely minimal,[633] mothers remain reluctant to use antidepressants and this reduces their feasibility as a primary method of treatment. Another drawback of antidepressants is that their benefits for infants and young children remain uncertain. While several studies have verified positive effects of maternal antidepressant use in older children,[634,635] the few studies that have considered their benefits for infants are methodologically limited.[636,637]

Cognitive behavioural therapy

The evidence underpinning cognitive behavioural therapy (CBT) for reducing symptoms of depression is as good, if not better than the evidence underpinning antidepressant medication.[638,639] CBT reduces the symptoms of depression by helping individuals reconsider problems perceived as overwhelming from a more positive perspective. Individuals are thus taught strategies for breaking problems down into smaller components to minimise feelings of helplessness and hopelessness and increase a sense of efficacy.

CBT is most often delivered by psychologists, but can also be delivered by suitably trained and supervised health practitioners. Treatment typically lasts for four to eight weeks and is delivered either in-person or over the telephone. Several group-based programmes also exist, although the evidence underpinning these interventions is not as strong as it is for individual treatment.[640] A number of web-based CBT treatments are in the process of being evaluated.[641]

627 De Crescenzo, F., Perelli, F., Armando, M., & Vicari, S. (2014). Selective serotonin reuptake inhibitors (SSRIs) for post-partum depression (PPD): a systematic review of randomized clinical trials. *Journal of Affective Disorders*, *152*, 39–44.

628 Molyneaux, E., Howard, L. M., McGeown, H. R., Karia, A. M., & Trevillion, K. (2014). Antidepressant treatment for postnatal depression. *Advances in Psychiatric Treatment*, *20*(6), 368–368.

629 Sharma, V., & Sommerdyk, C. (2013). Are antidepressants effective in the treatment of postpartum depression? A systematic review. *The Primary Care Companion for CNS Disorders*, *15*(6).

630 Stephens, S., Ford, E., Paudyal, P., & Smith, H. (2016). Effectiveness of psychological interventions for postnatal depression in primary care: a meta-analysis. *The Annals of Family Medicine*, *14*(5), 463–472.

631 Hendrick, V. (2003). Treatment of postnatal depression. *British Medical Journal, 327*, 1003–1004.

632 Pearlstein, T. B., Zlotnick, C., Battle, C. L., Stuart, ... & Howard, M. (2006). Patient choice of treatment for postpartum depression: a pilot study. *Archives of Women's Mental Health*, *9*(6), 303–308.

633 Wisner, K. L., Perel, J. M., & Findling, R. L. (1996). Antidepressant treatment during breast-feeding. *The American Journal of Psychiatry*, *153*(9), 1132.

634 Foster, C. E., Webster, M. C., Weissman, M. M., Pilowsky, D. J., Wickramaratne, P. J., Talati, A., ... & Cerda, G. (2008). Remission of maternal depression: relations to family functioning and youth internalizing and externalizing symptoms. *Journal of Clinical Child & Adolescent Psychology*, *37*(4), 714–724.

635 Weissman, M. M., Pilowsky, D. J., Wickramaratne, P. J., Talati, A., ... & Cerda, G. (2006). Remissions in maternal depression and child psychopathology: a STAR* D-child report. *Jama*, *295*(12), 1389–1398.

636 Molyneaux, E., Howard, L. M., McGeown, H. R., Karia, A. M., & Trevillion, K. (2014). Antidepressant treatment for postnatal depression. *Advances in Psychiatric Treatment*, *20*(6), 368–368.

637 Goodman, S. H., Broth, M. R., Hall, C. M., & Stowe, Z. N. (2008). Treatment of postpartum depression in mothers: Secondary benefits to the infants. *Infant Mental Health Journal*, *29*(5), 492–513.

638 Butler, A. C., Chapman, J. E., Forman, E. M., & Beck, A. T. (2006). The empirical status of cognitive-behavioral therapy: a review of meta-analyses. *Clinical Psychology Review*, *26*(1), 17–31.

639 Furukawa, T. A., Weitz, E. S., Tanaka, S., Hollon, S. D., Hofmann, S. G., Andersson, G., ... & Mergl, R. (2017). Initial severity of depression and efficacy of cognitive–behavioural therapy: individual-participant data meta-analysis of pill-placebo-controlled trials. *The British Journal of Psychiatry*, *210*(3), 190–196.

640 Sockol, L. E., Epperson, C. N., & Barber, J. P. (2011). A meta-analysis of treatments for perinatal depression. *Clinical Psychology Review*, *31*(5), 839–849.

641 Sheeber, L. B., Feil, E. G., Seeley, J. R., Leve, C., Gau, J. M., Davis, B., ... & Allan, S. (2017). Mom-net: Evaluation of an internet-facilitated cognitive behavioral intervention for low-income depressed mothers. *Journal of Consulting and Clinical Psychology*, *85*(4), 355.

Studies involving the general population suggest that the benefits of CBT can be more enduring than antidepressants.[642,643] However, the extent to which children also benefit from their mothers receiving CBT treatment remains unknown.[644,645] For example, a 2003 study comparing the effectiveness of CBT, psychodynamic therapy, and non-directive counselling found that all three therapies improved maternal mood in comparison to standard care alone, but these benefits were not observed in the behaviour of children.[646,647] In addition, these initial improvements in maternal mood dissipated quickly and did not appear to reduce the risk of additional depressive episodes over time.

Interpersonal therapy

Interpersonal therapy (IPT) has evidence of improving maternal mood when used as either a preventive intervention or a treatment for postnatal depression.[648,649] IPT provides mothers with strategies for improving their relationships with others and managing difficult life events which may interfere with their ability to cope during the postnatal period.[650] IPT is traditionally delivered by clinical psychologists, but it can also be effective when delivered by other health professionals. IPT is typically delivered via 10 to 20 sessions during the months following a baby's birth.

IPT has good short-term evidence of improving maternal mood, and the treatment effect may be enhanced if combined with antidepressants.[651] However, the benefits of IPT for children are unclear. Initial studies were unable to verify any positive benefits for children over time,[652] although more recent findings suggest some promise.[653]

642 Hofmann, S. G., Asnaani, A., Vonk, I. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research*, *36*(5), 427–440.

643 Hollon, S. D. (2016). The efficacy and acceptability of psychological interventions for depression: where we are now and where we are going. *Epidemiology and Psychiatric Sciences*, *25*(04), 295–300.

644 Cuijpers, P., Weitz, E., Karyotaki, E., Garber, J., & Andersson, G. (2015). The effects of psychological treatment of maternal depression on children and parental functioning: a meta-analysis. *European Child & Adolescent Psychiatry*, *24*(2), 237–245.

645 Perveen, T., Mahmood, S., Gosadi, I., Mehraj, J., & Sheikh, S. S. (2013). Long Term Effectiveness of Cognitive Behavior Therapy for Treatment of Postpartum Depression: A Systematic Review and Meta-analysis. *Journal of Pioneering Medical Sciences*, *3*(4), 198–204.

646 Cooper, P.J., Murray, L., Wilson, A., & Romaniuk, H. (2003) Controlled trial of the short- and long-term effect of psychological treatment of post-partum depression - 1. Impact on maternal mood. *British Journal of Psychiatry*, *182*(5), 412–419.

647 Murray, L., Cooper, P.J., Wilson, A., & Romaniuk, H. (2003) Controlled trial of the short- and long-term effect of psychological treatment of post-partum depression 2. Impact on the mother-child relationship and child outcome. *British Journal of Psychiatry*, *182*(5), 420–427.

648 O'Hara, M. W., Stuart, S., Gorman, L. L., & Wenzel, A. (2000). Efficacy of interpersonal psychotherapy for postpartum depression. *Archives of General Psychiatry*, *57*(11), 1039–1045.

649 Zlotnick, C., Tzilos, G., Miller, I., Seifer, R., & Stout, R. (2016). Randomized controlled trial to prevent postpartum depression in mothers on public assistance. *Journal of Affective Disorders*, *189*, 263–268.

650 Weissman , M. M., Markowitz, J. C., & Klerman, G. L. (2000). *Comprehensive guide to interpersonal psychotherapy*. Basic Books.

651 Miniati, M., Callari, A., Calugi, S., Rucci, P., Savino, M., Mauri, M., & Dell'Osso, L. (2014). Interpersonal psychotherapy for postpartum depression: a systematic review. *Archives of Women's Mental Health*, *17*(4), 257–268.

652 Forman, D. R., O'hara, M. W., Stuart, S., Gorman, L. L., Larsen, K. E., & Coy, K. C. (2007). Effective treatment for postpartum depression is not sufficient to improve the developing mother–child relationship. *Development and Psychopathology*, *19*(02), 585–602.

653 Handley, E. D., Michl-Petzing, L. C., Rogosch, F. A., Cicchetti, D., & Toth, S. L. (2017). Developmental cascade effects of interpersonal psychotherapy for depressed mothers: Longitudinal associations with toddler attachment, temperament, and maternal parenting efficacy. *Development and Psychopathology*, *29*(2), 601–615.

Psychodynamic therapy

The evidence underpinning psychodynamic therapy is good, and comparable to that of CBT for reducing symptoms of depression in the general population.[654]
Psychodynamic therapy makes use of Freudian principles to help individuals consider how episodes occurring in their past may be impacting their current moods and behaviour. Psychodynamic therapy is typically delivered by a clinical psychologist for a year or longer, although shorter versions lasting 16 to 20 weeks have also recently been developed. Both short and long versions have good evidence of reducing symptoms of depression immediately after treatment, although longer forms of treatment may be more appropriate for individuals with very severe forms of depression. There is also some evidence to suggest reduced remission rates when psychodynamic therapy is provided for longer periods of time.[655]

The extent to which psychodynamic therapy also improves outcomes for children is less clear, although there is some evidence supporting the use of psychodynamic therapies that include an element addressing parent–child interaction. For example, the Infant Parent Psychotherapy programme (IPP) described in the section covering child attachment helps parents address issues from their past as a means for improving their relationship with their child. IPP has good evidence of improving infant's attachment security, although interestingly, its evidence of reducing maternal symptoms of depression is less clear. A recent Cochrane review observed that the benefits of IPP are generally mixed, with some studies observing improvements for the mother, but not the infant, and vice versa.[656,657]

Non-directive counselling

Non-directive counselling also has evidence as an effective treatment for depression in the general population and mothers during the postnatal period in particular.[658] Non-directive counselling (also referred to as client-centred therapy) makes use of active listening techniques to help individuals develop their own solutions to problems without any specific recommendation or direction from the therapist.[659] The duration of treatment is often variable, based on the client's needs. It is most frequently delivered by individuals with training in psychology or social work, although practitioners from other professions can also be trained to deliver it. For example, non-directive counselling techniques are characteristic of the 'listening visits' delivered by health visitors to mothers experiencing distress, including postnatal depression.

654 Driessen, E., Cuijpers, P., de Maat, S. C., Abbass, A. A., de Jonghe, F., & Dekker, J. J. (2010). The efficacy of short-term psychodynamic psychotherapy for depression: a meta-analysis. *Clinical Psychology Review*, *30*(1), 25–36.

655 Driessen, E., Van, H. L., Don, F. J., Peen, J., Kool, S., Westra, D., ... & Dekker, J. J. (2013). The efficacy of cognitive-behavioral therapy and psychodynamic therapy in the outpatient treatment of major depression: a randomized clinical trial. *American Journal of Psychiatry*, *170*(9), 1041–1050.

656 Barlow, J., Bennett, C., Midgley, N., Larkin, S. K., & Wei, Y. (2015). Parent-infant psychotherapy for improving parental and infant mental health: a systematic review. *Cochrane Database of Systematic Reviews*, *11*(6), 1–30.

657 Fonagy, P., Sleed, M., & Baradon, T. (2016). A randomised controlled trial of parent-infant psycho-therapy for parents with mental health problems and young infants. *Infant Mental Health Journal*.

658 Cuijpers, P., Andersson, G., Donker, T., & van Straten, A. (2011). Psychological treatment of depression: results of a series of meta-analyses. *Nordic Journal of Psychiatry*, *65*(6), 354–364.

659 Rogers, C. R. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology, 21*, 95–103.

Studies consistently observe improvements in maternal mood following short-term treatments involving non-directive counselling.[660,661] However, evidence also suggests that the impact of non-directive counselling may be less than other forms of treatment, including antidepressants.[662] Studies have additionally found that child benefits are minimal.[663,664,665]

Combined approaches

A number of interventions have recently combined CBT with traditional home visiting in attempt to address the needs of the mother and child.[666] The extent to which these efforts are effective remain unclear, however. For example a 2016 study found that while such efforts improved maternal mood immediately after the intervention was completed, these improvements were no longer evident at a six-month follow-up.[667] However, more enduring maternal benefits were observed in the first trial of the In-Home Cognitive Behavioural Therapy (IH-CBT) programme, which observed immediate short-term improvements in maternal mood which were sustained at the three-month follow-up.[668] It should be noted that IH-CBT is much more intensive than the CBT programme offered in the previous study, lasting 15 weeks and addressing more specific issues involving social isolation. However, the study did not consider its impact on child outcomes.

The **Child First** programme also has evidence of reducing maternal symptoms of depression, as well as improving children's early language and self-regulatory development. As mentioned in the section covering infant attachment, Child First combines Infant–Parent Psychotherapy with coordinated community-based services to reduce parents' symptoms of trauma and depression and support early child development. **Child First was identified in the Foundations for Life review as having good evidence from one rigorously conducted trial of reducing parents' symptoms of depression and improving early language development and child behaviour.**[669]

660 Cooper, P. J., Murray, L., Wilson, A., & Romaniuk, H. (2003) Controlled trial of the short- and long-term effect of psychological treatment of post-partum depression - 1. Impact on maternal mood. *British Journal of Psychiatry*, *182*(5), 412–419.

661 Morrell, C. J., Slade, P., Warner, R., Paley, G., Dixon, S., Walters, S. J., ... & Nicholl, J. (2009). Clinical effectiveness of health visitor training in psychologically informed approaches for depression in postnatal women: pragmatic cluster randomised trial in primary care. *British Medical Journal*, *338*, a3045.

662 Sharp, D. J., Chew-Graham, C., Tylee, A., Lewis, G., Howard, L., Anderson, I., ... & McCarthy, A. (2010). A pragmatic randomised controlled trial to compare antidepressants with a community-based psychosocial intervention for the treatment of women with postnatal depression: the RESPOND trial. *Health Technology Assessment*, *14*(43), 1–153.

663 Cooper, P. J., Murray, L., Wilson, A., & Romaniuk, H. (2003) Controlled trial of the short- and long-term effect of psychological treatment of post-partum depression - 1. Impact on maternal mood. *British Journal of Psychiatry*, *182*(5), 412–419.

664 Murray, L., Cooper, P.J., Wilson, A., & Romaniuk, H. (2003) Controlled trial of the short- and long-term effect of psychological treatment of post-partum depression 2. Impact on the mother-child relationship and child outcome. *British Journal of Psychiatry*, *182*(5), 420–427.

665 Cooper, P. J., De Pascalis, L., Woolgar, M., Romaniuk, H., & Murray, L. (2015). Attempting to prevent postnatal depression by targeting the mother–infant relationship: a randomised controlled trial. *Primary Health Care Research & Development*, *16*(04), 383–397.

666 Goodman, S. H., & Garber, J. (2017). Evidence-Based Interventions for Depressed Mothers and Their Young Children. *Child Development, 88(*2), 368–377.

667 McFarlane, E., Burrell, L., Duggan, A., & Tandon, D. (2016). Outcomes of a Randomized Trial of a Cognitive Behavioural Enhancement to Address Maternal Distress in Home Visited Mothers. *Maternal and Child Health Journal*, 1–10.

668 Ammerman, R. T., Putnam, F. W., Altaye, M., Teeters, A. R., Stevens, J., & Van Ginkel, J. B. (2013). Treatment of depressed mothers in home visiting: Impact on psychological distress and social functioning. *Child Abuse & Neglect, 37*(8), 544–554.

669 Lowell, D., Carter, A., Godoy, L., Paulicin, B., & Briggs-Gowan, M. (2011). A randomized controlled trial of Child FIRST: A comprehensive home-based intervention translating research into early childhood practice. *Child Development*, *82*, 193–208.

Preventing unintentional injuries and child maltreatment in infancy

Managing minor illnesses and reducing childhood injuries is one of the six high impact areas for health visiting. During infancy, childhood illnesses are best prevented through breastfeeding advice and vaccination schedules. Breastfeeding is covered in a previous section and vaccination schedules are beyond the scope of this report. In this section, we consider the extent to which childhood injuries can be prevented through activities which range from advice on increasing home safety to comprehensive home visiting interventions aimed at reducing child maltreatment.

Injuries are a leading cause of preventable death in children between the ages of 0 and 4 years.[670] In 2015, 52 infants died because of an injury, representing 2% of all infant deaths (the majority of deaths in injury are birth related). By contrast, 63 children between the age of 1 and 4 died because of an injury, representing 14% of all child deaths in this age group.

Injuries are also a primary reason for visits to the A&E in children aged 4 and younger.[671,672] In 2015/16, 1.8 million A&E visits were within this age group, of which 26% involved an infant under 12 months. The specific reasons why children aged 4 and younger attend A&E are not published nationally, although epidemiological studies observe that the reasons change as children develop.[673,674] Infectious diseases are the primary reason for an A&E visit in early infancy.[675] After the child's first birthday, however, infectious diseases are replaced by unintentional injuries, which account for approximately one-third of all A&E visits for children between the ages of 1 and 4.[676]

Falls are the most common unintentional injury occurring in infancy.[677,678,679,680] Falls occurring in infancy include falls from furniture and falls while being carried. Such falls rarely require a visit to the A&E, but when they do, it is usually because of a head injury. Head injuries are the most common unintentional injury occurring during infancy, because infants do not instinctively shield their head when falling.

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670 ONS (2017). Death registration summary tables: England and Wales. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/deathregistrationssummarytablesenglandandwalesreferencetables

671 NHS Digital (2017) Annual A&E statistics. Available at: http://content.digital.nhs.uk/article/7576/Annual-AE-statistics-published

672 Baker, C. (2017). Accident and Emergency Statistics: Demand, Performance and Pressure. Briefing paper. House of Commons Library.

673 Agran, P. F., Anderson, C., Winn, D., Trent, R., Walton-Haynes, L., & Thayer, S. (2003). Rates of pediatric injuries by 3-month intervals for children 0 to 3 years of age. *Pediatrics*, *111*(6), e683–e692.

674 Flavin, M. P., Dostaler, S. M., Simpson, K., Brison, R. J., & Pickett, W. (2006). Stages of development and injury patterns in the early years: a population-based analysis. *BMC Public Health*, *6*(1), 187.

675 Peden, M. M. (2008). *World report on child injury prevention*. World Health Organization.

676 Downing, A., & Rudge, G. (2006). A study of childhood attendance at emergency departments in the West Midlands region. *Emergency Medicine Journal*, *23*(5), 391–393.

677 Warrington, S. A., Wright, C. M., & ALSPAC Study Team. (2001). Accidents and resulting injuries in pre-mobile infants: data from the ALSPAC study. *Archives of Disease in Childhood*, *85*(2), 104–107.

678 Pickett, W., Streight, S., Simpson, K., & Brison, R. J. (2003). Injuries experienced by infant children: a population-based epidemiological analysis. *Pediatrics*, *111*(4), e365–e370.

679 Mack, K. A., Gilchrist, J., & Ballesteros, M. F. (2008). Injuries among infants treated in emergency departments in the United States, 2001–2004. *Pediatrics*, *121*(5), 930–937.

680 CDC (2017). Injury prevention and control: Data & statistics (WISQARS). Available at: https://webappa.cdc.gov/cgi-bin/broker.exe

Falls are not the primary unintentional cause of death, however.[681,682] Suffocation is by far the most common unintentional cause of death in infancy.[683,684] While the majority of such cases are SIDS-related, in some instances, child abuse or neglect may be suspected.[685,686] Once infants become mobile, burns, poisonings and lacerations become more prevalent, although these kinds of accidents remain relatively rare until after the child's first birthday.[687,688,689]

The vast majority of injuries occurring in infancy take place in the home and are preventable.[690] Factors associated with increases in unintentional injury include inadequate supervision and increased exposure to various household risks (such as stairs, open medicine cabinets, boiling water).[691,692,693] Adequate supervision is frequently understood in terms of the extent to which the child is within sight and reach, relative to the child's age.[694]

Parents may fail to provide adequate levels of supervision because they are distracted by personal or external circumstances, or they have underestimated their child's capabilities.[695] For example, the risk of injury increases when children achieve developmental milestones at unexpected times – such as rolling over and falling off furniture, or learning to climb and falling out of a cot. Studies additionally observe that parents provide their sons with less supervision than their daughters, and this may contribute to the higher rate of injury observed among boys after the age of 1.[696,697]

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681 National Center for Injury Protection and Control (2016). WISQARS Online, non-fatal injury reports. Available at: https://www.cdc.gov/injury/wisqars/fatal_injury_reports.html

682 Trefan, L., Houston, R., Pearson, G., Edwards, R., Hyde, P., Maconochie, I., ... & Kemp, A. (2016). Epidemiology of children with head injury: a national overview. *Archives of Disease in Childhood*, *101*(6), 527–532.

683 National Center for Injury Protection and Control. (2016). WISQARS Online, fatal injury reports. Available at: https://www.cdc.gov/injury/wisqars/fatal_injury_reports.html

684 Sidebotham, P., Fraser, J., Fleming, P. Ward-Platt, M. and Hain, R. (2014). Child death in high income countries 2: Patterns of child death in England and Wales. *The Lancet, 384*, 904–914.

685 ibid Sidebotham et al (2014).

686 Gielen, A. C., McDonald, E. M., & Shields, W. (2015). Unintentional home injuries across the life span: problems and solutions. *Annual Review of Public Health*, *36*, 231–253.

687 Agran, P. F., Anderson, C., Winn, D., Trent, R., Walton-Haynes, L., & Thayer, S. (2003). Rates of pediatric injuries by 3-month intervals for children 0 to 3 years of age. *Pediatrics*, *111*(6), e683–e692.

688 Emond, A., Sheahan, C., Mytton, J., & Hollén, L. (2017). Developmental and behavioural associations of burns and scalds in children: a prospective population-based study. *Archives of Disease in Childhood*, *102*(5), 428–483.

689 Sidebotham, P., Fraser, J., Fleming, P. Ward-Platt, M. and Hain, R. (2014). Child death in high income countries 2: Patterns of child death in England and Wales. *The Lancet, 384*, 904–914.

690 Flavin, M. P., Dostaler, S. M., Simpson, K., Brison, R. J., & Pickett, W. (2006). Stages of development and injury patterns in the early years: a population-based analysis. *BMC Public Health*, *6*(1), 187.

691 Morrongiello, B. A. (2005). Caregiver supervision and child-injury risk: I. Issues in defining and measuring supervision; II. Findings and directions for future research. *Journal of Pediatric Psychology*, *30*(7), 536–552.

692 Heerman, W. J., Perrin, E. M., Yin, H. S., Sanders, L. M., Eden, S. K., Shintani, A., ... & Rothman, R. L. (2014). Health literacy and injury prevention behaviors among caregivers of infants. *American Journal of Preventive Medicine*, *46*(5), 449–456.

693 Schnitzer, P. G., Dowd, M. D., Kruse, R. L., & Morrongiello, B. A. (2014). Supervision and risk of unintentional injury in young children. *Injury Prevention*.

694 Morrongiello, B. A., & McArthur, B. A. (2010). Parent supervision to prevent injuries. *Injury Prevention. Encyclopedia of Early Childhood Development. Montreal, Canada: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development*, 16–21.

695 Ramdzan, S. N., Liew, S. M., & Khoo, E. M. (2014). Unintentional injury and its prevention in infant: knowledge and self-reported practices of main caregivers. *BMC Pediatrics*, *14*(1), 132.

696 Morrongiello, B. A., & Rennie, H. (1998). Why do boys engage in more risk taking than girls? The role of attributions, beliefs, and risk appraisals. *Journal of Pediatric Psychology*, *23*(1), 33–43.

697 Morrongiello, B. A., McArthur, B. A., & Spence, J. R. (2016). Understanding gender differences in childhood injuries: Examining longitudinal relations between parental reactions and boys' versus girls' injury-risk behaviors. *Health Psychology*, *35*(6), 523.

Parents often have difficulty estimating injury risks when they are suffering from mental health problems or high levels of social deprivation.[698] Depressed mothers, in particular, appear less able to provide adequate levels of supervision and estimate the risks associated with potentially dangerous circumstances.[699,700,701,702] Parents living in socially deprived circumstances may also lack knowledge about age-specific risks, while at the same time living in environments where some risks are more prevalent.[703,704,705,706,707] Lower levels of parental education and teenage parenthood have also been found to be associated with higher incidences of child injury and death during the early years.[708]

The Rapid Review considered the evidence underpinning parenting programmes, home visiting interventions and the installation of safety equipment for reducing unintentional injury in infants and toddlers. Findings from two systematic reviews observed that **home visiting has good evidence of reducing unintentional injuries, when offered to highly vulnerable mothers at the targeted selective or targeted indicated level**.[709,710] However, much of this evidence comes from findings involving the Family Nurse Partnership programme, which observed significant reductions in A&E visits in its first two trials.[711,712] These findings were not replicated

698 Towner, E., & Towner, J. (2001). UNICEF: A league table of child deaths by injury in rich nations. Innocenti Report Card No 2. February 2001. UNICEF Innocenti Research Centre, Florence, Italy.

699 Phelan, K., Khoury, J., Atherton, H., & Kahn, R. S. (2007). Maternal depression, child behavior, and injury. *Injury Prevention*, *13*(6), 403–408.

700 Phelan, K. J., Morrongiello, B. A., Khoury, J. C., Xu, Y., Liddy, S., & Lanphear, B. (2014). Maternal supervision of children during their first 3 years of life: the influence of maternal depression and child gender. *Journal of Pediatric Psychology*, *39*(3), 349–357.

701 Schwebel, D. C., & Brezausek, C. M. (2008). Chronic maternal depression and children's injury risk. *Journal of Pediatric Psychology*, *33*(10), 1108–1116.

702 Baker, R., Kendrick, D., Tata, L. J., & Orton, E. (2017). Association between maternal depression and anxiety episodes and rates of childhood injuries: a cohort study from England. *Injury Prevention*.

703 Schwebel, D. C., & Gaines, J. (2007). Pediatric unintentional injury: behavioral risk factors and implications for prevention. *Journal of Developmental & Behavioral Pediatrics*, *28*(3), 245–254.

704 Pearce, A., Li, L., Abbas, J., Ferguson, B., Graham, H., & Law, C. (2012). Does the home environment influence inequalities in unintentional injury in early childhood? Findings from the UK Millennium Cohort Study. *Journal of Epidemiology and Community Health*, *66*(2), 181–188.

705 PHE (2014). Reducing unintentional injuries in and around the home among children under five years. Available at: https://www.gov.uk/government/publications/reducing-unintentional-injuries-among-children-and-young-people

706 Osborne, J. M., Davey, T. M., Spinks, A. B., McClure, R. J., Sipe, N., & Cameron, C. M. (2016). Child injury: Does home matter? *Social Science & Medicine*, *153*, 250–257.

707 Kendrick, D., Mulvaney, C., Burton, P., & Watson, M. (2005). Relationships between child, family and neighbourhood characteristics and childhood injury: a cohort study. *Social Science & Medicine, 61*(9), 1905–1915.

708 Hong, J., Lee, B., Ha, E. H., & Park, H. (2010). Parental socioeconomic status and unintentional injury deaths in early childhood: consideration of injury mechanisms, age at death, and gender. *Accident Analysis & Prevention*, *42*(1), 313–319.

709 Kendrick, D., Mulvaney, C. A., Ye, L., Stevens, T., Mytton, J. A., & Stewart-Brown, S. (2013). Parenting interventions for the prevention of unintentional injuries in childhood. *Cochrane Database of Systematic Reviews*, *3*(3).

710 Kendrick, D., Barlow, J., Hampshire, A., Stewart-Brown, S., & Polnay, L. (2008). Parenting interventions and the prevention of unintentional injuries in childhood: Systematic review and meta-analysis. *Child: Care, Health and Development*, *34*(5), 682–695.

711 Olds, D. L., Henderson, C. R., Chamberlin, R., & Tatelbaum, R. (1986). Preventing child abuse and neglect: A randomized trial of nurse home visitation. *Pediatrics, 78*, 65–78.

712 Kitzman, H, Olds, D. L., Henderson, C. R., Hanks, C., Cole, R. Tatelbaum, R., McConnochie, K. M., Sidora, K., Luckey, D. W., Shaver, D., Englehardt, K., James, D., & Barnard, K. (1997). Effect of prenatal and infancy home visitation by nurses on pregnancy outcomes, childhood injuries, and repeated childbearing. *Journal of the American Medical Association, 278(8),* 644–652.

in the recently completed UK trial, which observed no differences in participants' visits to A&E in comparison to families not enrolled in the programme.[713]

The Rapid Review additionally observed that **there is good evidence underpinning the use of home safety education interventions for improving home safety**, but not necessarily reducing visits to the A&E. Such interventions include the provision of discounted or free safety equipment (such as cupboard locks, stair gates) during the antenatal periods or in the months following the child's birth. Interventions which are delivered in the home and include the installation of home safety devices have particularly good evidence of improving home safety practices. However, the extent to which these practices contribute to reduced child injuries has not been explicitly tested.

Child abuse and neglect in infancy

The extent to which injuries are intentional or unintentional is difficult to determine during infancy.[714] In 2015/2016, 4,020 unborn children and 11,860 infants were identified as being in need because of concerns involving child abuse and neglect. An additional 1,020 unborn children and 5,080 infants were subject to a child protection plan. Over half of child protection cases involving an unborn child or infant were based on concerns related to child neglect. The next most prevalent category of maltreatment was physical abuse, involving approximately 12% of all cases.

Infants are more likely to die as a result of abuse and neglect, representing a disproportionate number (40% or more) of serious case reviews.[715] Neglect in infancy often occurs as a result of maternal drug or alcohol misuse, which can result in children becoming unnecessarily ill, or dying because of unsafe sleeping arrangements.[716,717] Physical abuse in infancy often occurs as a result of parents deliberately harming their infant by hitting or shaking them in an outburst of rage. In this respect, studies have found that infants are seven times more likely to be intentionally killed than at any other point in children's development.[718] Maltreatment during the first year of life also negatively affects children's physical, cognitive and emotional development – both during infancy and as they grow older (table 3.1).

713   Robling, M., Bekkers, M., Bell, K., Butler, C. Cannings-John, R., Channon, S., … & Torgerson, D. (2015). Effectiveness of a nurse-led intensive home-visitation programme for first-time teenage mothers (Building Blocks): A pragmatic randomised controlled trial. *The Lancet*.

714   Sidebotham, P., Fraser, J., Fleming, P., Ward-Platt, M., & Hain, R. (2014). Patterns of child death in England and Wales. *The Lancet*, *384*(9946), 904–914.

715   Sidebotham, P., Brandon, M., Bailey, S., Belderson, P., Garstang, J., Harrison, E., ... & Sorensen, P. (2016). Pathways to harm, pathways to protection: a triennial analysis of serious case reviews 2011–2014.

716   Raynes, G., Dawe, S., & Cuthbert, C. (2013). *All babies count: Spotlight on drugs and alcohol.* NSPCC.

717   Forrester, D., & Harwin, J. (2006). Parental substance misuse and child care social work: findings from the first stage of a study of 100 families. *Child & Family Social Work*, *11*(4), 325–335.

718   Raynes, G., Dawe, S., & Cuthbert, C. (2013). *All babies count: Spotlight on drugs and alcohol.* NSPCC.

TABLE 3.1: EFFECTS OF ABUSE AND NEGLECT ON INFANT DEVELOPMENT

Physical development
Chronic malnutrition
Growth retardation
Brain damage
Intellectual disabilities
Head injury
Brain stem compression and herniation
Blindness or deafness
Intellectual disabilities
Epilepsy or cerebral palsy
Skull fracture
Paralysis
Coma or death
Injury to the hypothalamus or pituitary gland
Growth impairment
Inadequate sexual development
Repeated blows to the head
Brain damage
Injuries to inner ear
Partial or complete hearing loss
Shaking
Brain injury
Spinal cord injury
Physical disabilities
Death
Medical neglect
Hearing loss from untreated infections
Vision loss from untreated strabismus (crossing of the eyes)
Respiratory damage from pneumonia or chronic bronchitis
Physical neglect
Poor muscle tone
Poor motor control
Delays in gross and fine motor development and coordination
Failure to develop basic motor skills
Cognitive development
Absence of stimulation
General cognitive delay
Intellectual disabilities

Language and speech delays
Delays in language development
Delays in communication skills
Early learning behaviours
Apathetic and listless
Placid, less mobile and inactive
Do not manipulate objects, or do so in a passive way
Lack curiosity or interest in exploration
Delays in object permanence
Delays in basic problem-solving skills
Social/emotional development
Failure to form a secure attachment
Does not appear to notice separation from the parent
Does not exhibit separation or stranger anxiety
Is passive or apathetic towards others
Difficulty maintaining eye contact with others
Lacks interest in engaging with others
Does not vocalise with others
Fails to develop a sense of trust in others

Source: EIF, based on Center for Child Welfare (2011). *The effects of abuse and neglect on child development*

Factors known to increase the likelihood of child maltreatment include high levels of poverty, a low birthweight, higher numbers of children per household, low levels of social or family support, lone parenthood, domestic violence, parental mental health problems and harmful drug and alcohol use.[719]

Analyses of serious case reviews consistently find that these last three factors are especially prevalent in child deaths. Figure 3.1 illustrates the overlap of these three factors within a group of 175 families.[720] In 36 families (21% of the 175), none of the three problems were recorded as present, whereas in 39 families (22%) all three factors were recorded as present. Two of the three factors were noted for 53 families (30%) and one factor was recored for 47 of all families (27%). The analysis further showed that the presence of domestic violence was particularly associated with an increased risk of physical maltreatment, whereas parental mental health problems and substance misuse were more frequently associated with child neglect.

719 White, O. G., Hindley, N., & Jones, D. P. (2015). Risk factors for child maltreatment recurrence: An updated systematic review. *Medicine, Science and the Law, 55*(4), 259–277.

720 Sidebotham, P., Brandon, M., Bailey, S., Belderson, P., Dodsworth, J., Garstang, J., Harrison, E., Retzer, A., & Sorensen, P. (2016). *Pathways to harm, pathways to protection: a triennial analysis of serious case reviews 2011–2014.*

FIGURE 3.1: FACTORS COMMONLY ASSOCIATED WITH CHILD FATALITIES RESULTING IN A SERIOUS CASE REVIEW
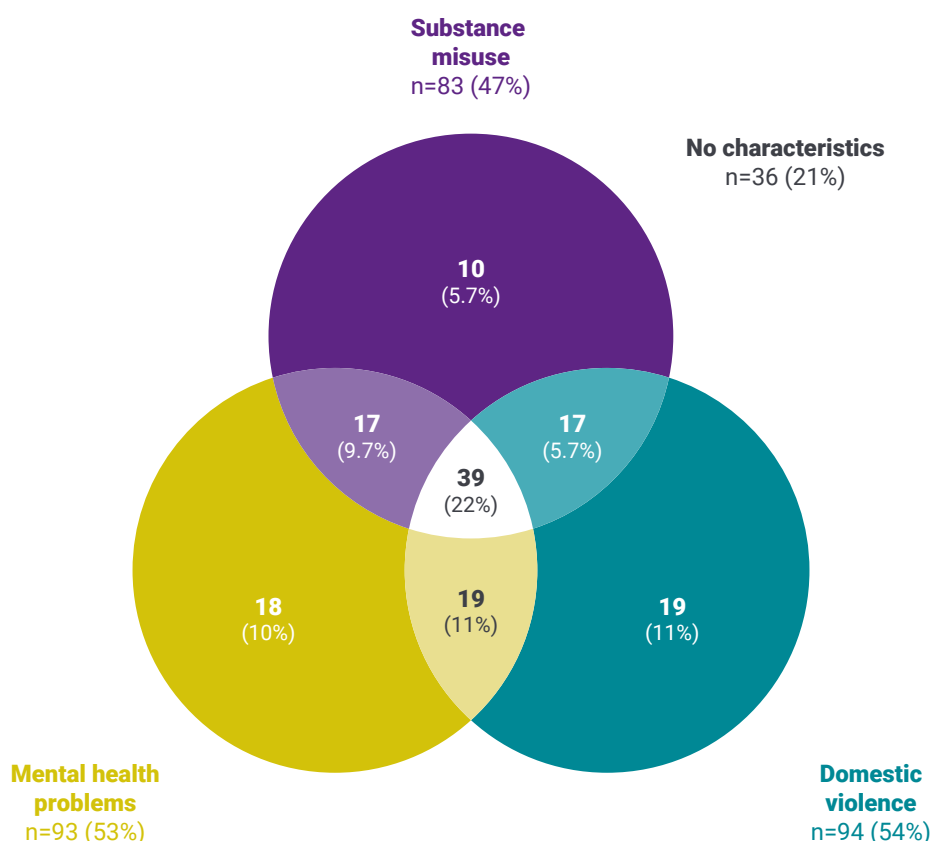
Source: Adapted from Sidebotham, P. et al. (2016). *Pathways to harm, pathways to protection: a triennial analysis of serious case reviews 2011–2014*.

Interventions for preventing or responding to child maltreatment in infancy

The Rapid Review considered the evidence underpinning interventions aimed at both preventing and responding to child maltreatment. It observed that there is good evidence to support the use of home visiting interventions to reduce the risks associated with child maltreatment in highly vulnerable families with infants, although much of this evidence is confined to FNP. Several systematic reviews completed subsequent to the Rapid Review have confirmed that **home visiting in highly vulnerable families has the best evidence of reducing child maltreatment during infancy,** and the other strategies (child parent psychotherapy, strategies targeting domestic violence) may also be effective.[721]

The Foundations for Life review identified the following interventions as having evidence of reducing rates of child maltreatment, as well as improving a variety of other child outcomes:

- Family Nurse Partnership (described in the section covering interventions with evidence of reducing intimate partner violence during the antenatal period)
- Child First (described in the section on attachment during infancy)
- Infant–Parent Psychotherapy (described in the section on attachment in infancy).

721 Levey, E. J., Gelaye, B., Bain, P., Rondon, M. B., Borba, C. P., Henderson, D. C., & Williams, M. A. (2017). A systematic review of randomized controlled trials of interventions designed to decrease child abuse in high-risk families. *Child Abuse & Neglect, 65*, 48–57.

All three of these interventions have good systems for identifying and recruiting families on the basis of risks associated with child maltreatment. In particular, Child First and Infant-Parent Psychotherapy both have evidence of reducing the reoccurrence of child maltreatment when offered to families with a previous history of abuse. Both interventions also have evidence of being effective for mothers with serious mental health problems or a history of intimate partner violence. The extent to which they are effective when one or both parents misuses drugs and alcohol is less clear, however.

CBT and other treatments addressing parental mental health

Interventions targeting maternal mental health are described in the previous section. Their efficacy with parents where there is a risk of child abuse and neglect is largely untested, however. Only two interventions – Child First and Infant Parent Psychotherapy – were found to have evidence from a robust evaluation of improving infant attachment and maternal mental health outcomes in families where there is a known risk of child maltreatment.

Domestic violence

The Rapid Review considered the evidence for interventions aimed at improving outcomes in families experiencing domestic violence and found that there was some evidence to support the use of counselling provided to mothers during the perinatal period. The evidence for interventions targeting mothers with a child specifically is less clear, however. While a recent Cochrane review observed that intensive advocacy support may reduce the risk of intimate partner violence, the extent to which these interventions also benefit children remains unknown.[722,723,724] It is worth noting, however, that the version of the Infant-Parent Psychotherapy used with older children (Child–Parent Psychotherapy) has evidence of reducing symptoms of trauma of both mothers and children with a history of domestic abuse. Specifically, children were assessed as having fewer symptoms of trauma and improved attached security in comparison to children who did not participate in the programme. Their mothers were also assessed as having reduced symptoms of PTSD and depression.[725]

Harmful drug and alcohol misuse

While drug and alcohol misuse does not uniformly result in child maltreatment, it often severely limits parents' ability to appropriately care for their child. This is because harmful drug and alcohol use and dependency impairs parents' capacity to meet their children's needs in a variety of ways:[726]

- the influence of drugs and alcohol can substantially reduce parents' capacity to understand and respond sensitively to their child's needs
- the influence of drugs and alcohol also reduces parents' ability to understand age-specific risks and provide appropriate levels of supervision
- parents are more prone to emotional volatility, angry outbursts and physical aggression when using drugs and alcohol

722   Rivas, C., Ramsay, J., Sadowski, L., Davidson, L. L., Dunne, D., Eldridge, S., ... & Feder, G. (2015). Advocacy interventions to reduce or eliminate violence and promote the physical and psychosocial well-being of women who experience intimate partner abuse. *The Cochrane Library*.

723   Gillum, T. L., Sun, C. J., & Woods, A. B. (2009). Can a health clinic-based intervention increase safety in abused women? Results from a pilot study. *Journal of Women's Health*, *18*(8), 1259–1264.

724   Stewart, D. E., Vigod, S. N., MacMillan, H. L., Chandra, P. S., Han, A., Rondon, M. B., ... & Riazantseva, E. (2017). Current reports on perinatal intimate partner violence. *Current Psychiatry Reports*, *19*(5), 26.

725   Ippen, C. G., Harris, W. W., Van Horn, P., & Lieberman, A. F. (2011). Traumatic and stressful events in early childhood: Can treatment help those at highest risk?. *Child Abuse & Neglect*, *35*(7), 504–513.

726   Neger, E. N., & Prinz, R. J. (2015). Interventions to address parenting and parental substance abuse: Conceptual and methodological considerations. *Clinical Psychology Review*, *39*, 71–82.

- parents may be involved in criminal activities to obtain drugs, which may further reduce their ability to manage their home and their children

- obtaining drugs may limit families' financial resources, resulting in reduced access to food, clothing and shelter

- parents frequently find less pleasure in parenting and engaging with their children when misusing drugs and alcohol.

The negative impact of harmful parental drug and alcohol use on children's development is well documented.[727] Numerous studies have found that parental substance misuse during infancy significantly increases the likelihood of an insecure attachment[728,729,730] and may also negatively impact children's language development.[731] As children grow older, harmful parental drug and alcohol use is also associated with child behaviour problems,[732] as well as drug and alcohol use by their children when they reach adolescence.[733]

Parental substance misuse is also consistently present in a high percentage of child protection cases and infant deaths.[734,735] Findings from the most recent serious case review analysis suggest that harmful parental drug and alcohol use was present in 47% of all cases and in over two-thirds of cases involving infants.[736]

Parental drug and alcohol use is difficult to treat for a variety of reasons.[737] First, studies indicate that addiction issues must first be managed before parents are capable of engaging positively with their children.[738] Recovering from dependency is a highly complicated psychological and social process, however, often taking months or years to address, and is prone to frequent relapse.[739] Parental resistance is often a primary challenge, either because parents are in denial about their problems or are ambivalent about changing their behaviour.[740]

727 O'Connor, L., Forrester, D., Holland, S., & Williams, A. (2014). Perspectives on children's experiences in families with parental substance misuse and child protection interventions. *Children and Youth Services Review*, *38*, 66–74.

728 Beeghly, M. Frank, D. A., Rose-Jacobs R. Cabral H. & Tronick E. (2003). Level of prenatal cocaine exposure and infant–caregiver attachment behavior. *Neurotoxicology and Teratology, 25*, 23–38.

729 Pajulo, M., Suchman, N., Kalland, M., & Mayes, L. (2006). Enhancing the effectiveness of residential treatment for substance abusing pregnant and parenting women: Focus on maternal reflective functioning and mother-child relationship. *Infant Mental Health Journal. 27,* 448–465.

730 Barnard, M., & McKeganey, N. (2004). The impact of parental problem drug use on children: what is the problem and what can be done to help? *Addiction. 99,* 552–559.

731 Dunn, M. G., Tarter R. E., Mezzich A. C., Vanyukov M., Kirisci L., & Kirillova G. (2002). Origins and consequences of child neglect in substance abuse families. *Clinical Psychology Review, 22,* 1063–1090.

732 Barnard, M., & McKeganey N. (2004). The impact of parental problem drug use on children: what is the problem and what can be done to help? *Addiction. 99,* 552–559.

733 Biederman, J., Faraone, S. V., Monuteaux, M. C., & Feighner, J. A. (200). Patterns of Alcohol and Drug Use in Adolescents Can Be Predicted by Parental Substance Use Disorders. *Pediatrics, 106,* 792.

734 Chaffin, M., Kelleher, K., & Hollenberg, J. (1996). Onset of physical abuse and neglect: Psychiatric, substance abuse, and social risk factors from prospective community data. *Child Abuse & Neglect*, *20*(3), 191–203.

735 McGlade, A., Ware, R., & Crawford, M. (2009). Child protection outcomes for infants of substance-using mothers: a matched-cohort study. *Pediatrics*, *124*(1), 285–293.

736 Sidebotham, P., Brandon, M., Bailey, S., Belderson, P., Garstang, J., Harrison, E., ... & Sorensen, P. (2016). Pathways to harm, pathways to protection: a triennial analysis of serious case reviews 2011–2014.

737 Ward, H., Brown, R., & Hyde-Dryden, G. (2014). *Assessing Parental Capacity to Change when Children are on the Edge of Care: an overview of current research evidence*. DfE, Loughborough University.

738 Suchman, N. E., Decoste, C., McMahon, T. J., Rounsaville, B., & Mayes, L. (2011). The mothers and toddlers program, an attachment-based parenting intervention for substance-using women: Results at 6-week follow-up in a randomized clinical pilot. *Infant Mental Health Journal. 32,* 427–449.

739 Adlin Bosk, E., Van Alst, D., & Van Scoyoc, A. (2017). A Chronic Problem: Competing Paradigms for Substance Abuse in Child Welfare Policy and Practice and the Need for New Approaches. *British Journal of Social Work*, *47*(6), 1669–1685.

740 Ward, H., Brown, R., & Hyde-Dryden, G. (2014). *Assessing Parental Capacity to Change when Children are on the Edge of Care: an overview of current research evidence*. DfE, Loughborough University.

Second, many addiction treatments may be insufficient for improving parenting behaviours. In this respect, numerous studies have found that substance misusing parents often respond to their child in an overly harsh, or punitive manner.[741] While substance misuse treatments often address addiction issues, they rarely address parenting behaviours. Thus, support for parental addiction problems is frequently not sufficient for improving parenting or child outcomes.

Third, **the efficacy of many traditionally used treatments is weak**. As observed in the previous chapter, **commonly used practices, such as brief interventions, have been found to have no effect in reducing drug and alcohol problems in the longer term, even when offered as part of a stepped-up programme of care**.[742,743] The quality of evidence underpinning many other common treatments (such as therapies and 12-step programmes) is also weak.[744,745]

Fourth, **the efficacy of many drug and alcohol treatments for children has not been explicitly tested**. In the few instances where child outcomes have been considered, relatively few benefits for children have been found. For example, a series of recently complete systematic reviews observed that while some interventions show promise in reducing parental drug and alcohol problems, improvements for children were relatively small.[746,747,748,749] In particular, relatively few studies have observed reductions in referrals to child protective services that can be attributed to any drug or alcohol treatment. There is also fairly substantial evidence to suggest that child benefits will only occur after the parents' substance misuse and psychological needs have been successfully managed for a considerable period of time.[750] Concerns therefore remain as to whether many treatments are suitable for parents with young infants, who require intensive levels of attention and supervision to ensure that their needs are adequately met.[751]

741 Finger, B., Jobin, A., Bernstein, V. J., & Hans, S. (2017). Parenting contributors to early emerging problem behaviour in children of mothers in methadone maintenance treatment. *Infant and Child Development*.

742 Glass, J. E., Hamilton, A. M., Powell, B. J., Perron, B. E., Brown, R. T., & Ilgen, M. A. (2015). Specialty substance use disorder services following brief alcohol intervention: a meta-analysis of randomized controlled trials. *Addiction*, *110*(9), 1404–1415.

743 McCambridge, J. and Saitz, R. (2017). Rethnking brief interventions for alcohol in general practice. *British Medical Journal*, *356*.

744 Ferri, M., Amato, L., & Davoli, M. (2006). Alcoholics Anonymous and other 12-step programmes for alcohol dependence. *The Cochrane Library*.

745 Klimas, J., Tobin, H., Field, C. A., O'Gorman, C. S., Glynn, L. G., Keenan, E., ... & Cullen, W. (2014). Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users. *The Cochrane Library*.

746 Smith, E. J., Lui, S., & Terplan, M. (2009). Pharmacologic interventions for pregnant women enrolled in alcohol treatment. *The Cochrane Library*.

747 Calhoun, S., Conner, E., Miller, M., & Messina, N. (2015). Improving the outcomes of children affected by parental substance abuse: a review of randomized controlled trials. *Substance abuse and rehabilitation*, *6*, 15.

748 Niccols, A., Milligan, K., Sword, W., Thabane, L., Henderson, J., & Smith, A. (2012). Integrated programs for mothers with substance abuse issues: A systematic review of studies reporting on parenting outcomes. *Harm Reduction Journal*, *9*(1), 14.

749 Niccols, A., Milligan, K., Smith, A., Sword, W., Thabane, L., & Henderson, J. (2012). Integrated programs for mothers with substance abuse issues and their children: a systematic review of studies reporting on child outcomes. *Child Abuse & Neglect*, *36*(4), 308–322.

750 Suchman, N. E., DeCoste, C., Leigh, D., & Borelli, J. (2010). Reflective functioning in mothers with drug use disorders: Implications for dyadic interactions with infants and toddlers. *Attachment & Human Development*, *12*(6), 567–585.

751 Ward, H., Brown, R., & Hyde-Dryden, G. (2014). *Assessing Parental Capacity to Change when Children are on the Edge of Care: an overview of current research evidence*. Department for Education, Loughborough University.

Helping parents find and engage in treatment can also be challenging, because effective treatments are often not available, even when they exist.[752] For example, a recent EIF report on improving the effectiveness of the child protection system observed that there is good evidence to suggest that **behavioural couples therapy (BCT)** substantially reduces alcohol and drug misuse in couples where one or both parents has a serious addiction problem.[753] However, BCT is still not widely available in the UK.[754]

Parents enrolled in BCT receive a combination of individual therapy and couples therapy for a period of 12 weeks. During this time, the couple learns strategies for reinforcing positive behaviours in each other and abstaining from drugs and/or alcohol.[755] There is now good evidence from several RCTs to suggest that BCT substantially reduces substance misusing behaviours in adults and also improves child outcomes when combined with 12 weeks of Helping the Non-compliant Child parenting programme, known as the Parent–Child Game in the UK.[756] The extent to which this programme improves parent–infant interaction remains unknown, however.

Other approaches with evidence of increasing parents' commitment to change and improving their ability to engage positively with their children include:

- **Motivational interviewing**: a brief form of counselling with good evidence of improving problematic alcohol users' engagement in 12-step programmes.[757] Motivational interviewing begins by asking the client what he or she wants from treatment and then links this to the client's overall goals and dreams. Throughout the treatment, the therapist uses questions (rather than comments) to improve the clients' awareness of the potential problems caused by their dependency, as well as identify areas where changes in behaviour could improve their current circumstances. Motivational interviewing is a key component of the Child First programme used in the first phase of the treatment to help parents identify key areas for change. However, motivational interviewing is not intended as a standalone treatment, nor does it have specific evidence of improving child outcomes.[758]

- **Family Drug and Alcohol Courts (FDAC)**: are specialist, problem-solving courts set up to provide legal reinforcement for parental participation in interventions aimed at reducing substance misuse and other problematic parenting behaviours. The primary aim of these courts is to increase parental motivation and reduce the need for punitive sanctions, although these remain an option if necessary. There is good evidence to suggest that FDACs increase parental compliance and abstinence, and improve reunification rates.

752 Forray, A. (2016). Substance use during pregnancy. *F1000Research*, *5*.

753 Schrader-McMillan, A., & Barlow, J. (2017). *Improving the effectiveness of the child protection system – A review of literature*. Early Intervention Foundation. Available at: http://www.eif.org.uk/wp-content/uploads/2017/06/improving-effectiveness-child-protection-system_June2017.pdf

754 Kelley, M. L., Bravo, A. J., Braitman, A. L., Lawless, A. K., & Lawrence, H. R. (2016). Behavioral couples treatment for substance use disorder: Secondary effects on the reduction of risk for child abuse. *Journal of Substance Abuse Treatment*, *62*, 10–19.

755 O'Farrell, T. J., Fals-Stewart, W. (2006). *Behavioral couples therapy for alcoholism and drug abuse.* Guilford Press.

756 Klostermann, K., Kelley, M. L., Mignone, T., Pusateri, L., & Wills, K. (2011). Behavioral couples therapy for substance abusers: Where do we go from here? *Substance Use & Misuse*, *46*, 1502–1509.

757 Miller, W. R., & Rollnick, S. (2013) *Motivational Interviewing: Helping People Change*. (3rd edition) Guilford Press.

758 Killeen, T. K., Cassin, S. E., & Geller, J. (2014). Motivational Interviewing in the Treatment of Substance Use Disorders, Addictions, and Eating Disorders. In *Eating Disorders, Addictions and Substance Use Disorders*. Springer, 491–507.

The extent to which children, including infants, benefit over time, however, remains unclear.[759]

- **Parents Under Pressure (PUP)**: PUP was originally developed to improve the sensitivity of parents demonstrating improvements in a methadone treatment programme. PUP consists of 10 modules delivered over a period of 12 weeks by a master's-level psychologist or social worker. During these sessions, parents learn mindfulness techniques for managing their emotions, as well as strategies for engaging positively with their child. Findings from a recently conducted UK RCT observed improvements in the mood and child protection risk of parents enrolled in the programme, but no changes in parental reports of children's behaviour. Further analysis of outcomes regarding parent and child interaction is ongoing.[760]

It is also worth noting that several pharmaceutical treatments show promise in managing drug and alcohol misuse problems. These drug treatments include buprenorphine and naltrexone for the treatment of opioid addictions and naltrexone and acamprosate for managing alcohol addiction.[761,762,763] All three drugs demonstrate reductions in substance misuse in some (but not all) participants engaging in more traditional treatment programmes – indicating that it may be useful in combination with other treatments and for managing relapse.

NICE recommends that psychological interventions, such as CBT and behavioural couples therapy be offered to adults assessed as harmful drinkers (CG115: 1.3.3.3– 1.3.3.6). Adults drinking more than 15 units a day or scoring 20 or higher on the AUDIT should be offered assisted withdrawal (CG 115: 1.3.4.1–1.3.4.6). Acamprosate or naltrexone can then be offered alongside therapy once withdrawal is successful (CG115: 1.3.6.1–1.3.6.15).

Summary of conclusions

This chapter considered the evidence underpinning a variety of programmes and practices aimed at supporting children's development during the first year of life. This evidence was drawn from a PHE-commissioned Rapid Review to update the evidence underpinning the Healthy Child Programme and the recently completed Foundations for Life review that assessed the strength of evidence of 75 programmes targeting parent–child interaction during the first five years of life. Evidence-based interventions available at the universal, targeted selective, targeted indicated and specialist level are described below. We also provide information about interventions found through robust evaluation not to provide any benefits for parents and children – in other words, as having no effect.

759   Harwin, J., Alrouh, B., Ryan, M. and Tunnard, J. (2014) *Changing Lifestyles, Keeping Children Safe: an evaluation of the first Family Drug and Alcohol Court (FDAC) in care proceedings.* London: Brunel University.

760   Barlow, J., Sembi, S., Petrou, S., Parsons, H., Dawe S., & Harnett P. (2018) *Parents Under Pressure: a programme for families with parental substance misuse. An evaluation of impact, process and cost effectiveness (RCT).* London: NSPCC. Available at: https://www.nspcc.org.uk/globalassets/ documents/evaluation-of-services/evaluation-impact-process-cost-effectiveness-parents-under-pressure.pdf

761   Rösner, S., Hackl-Herrwerth, A., Leucht, S., Lehert, P., Vecchi, S., & Soyka, M. (2010). Acamprosate for alcohol dependence. *The Cochrane Library*.

762   Gowing, L., Ali, R., White, J. M., & Mbewe, D. (2017). Buprenorphine for managing opioid withdrawal. *The Cochrane Library*.

763   Rösner, S., Hackl-Herrwerth, A., Leucht, S., Vecchi, S., Srisurapanont, M., & Soyka, M. (2010). Opioid antagonists for alcohol dependence. *The Cochrane Library*.

Universal

Breastfeeding

Breastfeeding during the first six months of infancy is strongly associated with reductions in childhood diseases. Recent evidence has also verified a link between breastfeeding and improved child cognitive outcomes and a reduced risk of obesity. The World Health Organization therefore recommends that all infants be exclusively breastfed until six months.

This current review further observed that:

- There is good evidence to support activities that encourage mothers to discuss options for breastfeeding and raise questions with health professionals during regularly scheduled antenatal and postnatal visits.
- There is also good evidence to support the use of personalised lactation support offered to mothers during the first 12 weeks following the infant's birth. Lactation support with the best evidence includes advice provided to parents in the hospital followed by home visits or telephone check-up calls in the two months following childbirth.
- **The combination of antenatal advice in the weeks prior to childbirth, combined with postnatal telephone support after the baby is born has the best evidence of increasing breastfeeding initiation and duration.**

Sudden Infant Death Syndrome (SIDS)

Sudden Infant Death Syndrome (SIDS) is the sudden, unexplained death of an infant (12 months or less) during sleep. SIDS is a leading cause of death in infancy and is related to a prone sleeping position and a variety of environmental risks, including exposure to smoke in the home and co-sleeping arrangements when the parents are using drugs or alcohol. **This update identified good evidence to support the use of advice on safe sleep practices**, including placing the infant to bed in a supine position and providing parents with information regarding the risks associated with co-sleeping.

Parent management training programmes

A variety of universal parenting interventions offer parents advice on managing their child's behaviour. Many of these interventions have good evidence of improving child outcomes when offered to parents with a child identified as having behavioural problems, aged 2 or older. However, **this review found that parent management training offered universally during infancy had no effect in improving child behavioural problems during infancy or preventing behavioural problems as children grow older**.

Child injury

Child injuries are prevalent throughout early child development and are more likely to result in death in infancy and toddlerhood. The majority of injuries occur in the home and are preventable. **This update found good evidence to suggest that the provision of child safety advice and equipment increases home safety**, although the extent to which this activity additionally reduces child injuries remains unknown.

Targeted selective

Early language development

Sensitive parent–child interactions support the child's ability to communicate with others and early language acquisition. Children's communication and language development is predictive of their success when they enter school and is strongly associated with family income and social deprivation. The majority of interventions therefore target families living in disadvantaged communities.

This update observed that there is good evidence that intensive home visiting interventions support children's language development in the short term. These programmes include Family Nurse Partnership, Child First and Parents as First Teachers.

There is also evidence from robust evaluations that **various forms of book gifting provide no effect in improving children's language development** when offered at the universal level or to socially disadvantaged families at the targeted selective level.

Targeted indicated

Premature and low-birthweight infants

Children born prematurely or with a low birthweight are at greater risk of a variety of physical and psychological problems throughout their development. This update observed that the following interventions have good evidence of improving parent and child outcomes when a baby is born prematurely.

- **Kangaroo Mother Care (KMC):** involves intensive skin to skin contact between the mother during the days and weeks following a premature birth. KMC has good evidence of increasing breastfeeding rates and improving a variety of birth outcomes (including infant length and weight) and attachment security.

- **Infant massage** provided by parents to infants in neonatal units has good evidence of improving a variety of infant physical outcomes and reducing parental stress.

- The **H-HOPE** programme helps parents understand premature infant feeding behaviours. It has good evidence of reducing the infant's stay in hospital, improving infant physical outcomes (size/weight) and improving parent–child interaction at six weeks.

- **MITP** involves 11 one-hour sessions delivered to the parent and infant aimed at improving parents' understanding of their infant's behavioural cues. It has good evidence of improving mother–infant interaction and reducing infant stress at six months.

Preventing infant exposure to secondhand smoke

Infant and children's exposure to secondhand smoke in their home and cars is linked to a wide range of health problems in childhood, including asthma and middle ear infections. This update identified a variety of strategies with evidence of reducing the levels of secondhand smoke children are exposed to, but very few had evidence of reductions that would be considered safe.

However, **a 12-week, multi-component intervention developed in Nottingham was found to have good evidence of reducing children's exposure to secondhand smoke** to levels that would be considered safe by the World Health Organization. This programme makes use of household air quality measurements to help heavy smokers develop personalised strategies for reducing the amount of secondhand smoke in their home. Heavy smokers are also provided with personalised advice on smoking cessation, should they decide they would like to quit.

Sleep

Sleep problems in infancy are strongly associated with increased levels of parental stress and depression and self-regulatory problems in children as they develop. **This update found good evidence to support the use of behavioural sleep training advice to parents who are having difficulty establishing consistent bedtime routines with infants aged four months or older.** Improved short- and long-term outcomes include reduced night wakings, increased sleep time and greater ease in putting the infant to sleep, as well as improvements in parental mood. This evidence also shows that behavioural sleep training programmes do not negatively affect breastfeeding rates or the quality of the attachment relationship.

Attachment security

Attachment security involves a sense of trust that develops between the infant and parent during the first year of life. It is linked to children's mental health and wellbeing as they develop and is supported by consistent and sensitive parenting behaviours. The majority of infants develop a secure attachment relationship with their parents, although a significant minority (15%) do not. Factors which increase the likelihood of an insecure attachment include social deprivation, young parenthood, maternal mental health problems and parents' experiences of attachment insecurity in their own childhood.

This update observed that video feedback has consistent evidence of improving parental sensitivity, but relatively little evidence of improving child outcomes. The following programmes have evidence of improving children's attachment security and parent outcomes.

- **FNP:** A 2.5-year perinatal home visiting for first-time teenage mothers. FNP has evidence of improving a wide variety of parent and child outcomes, including increased attachment security among infants who were at risk of child maltreatment.

- **Child First:** A year-long home visiting intervention offered to highly vulnerable families where there is a serious risk of attachment-related problems. Child First has evidence of supporting children's language development and reducing referrals to child protective services.

- **Infant–Parent Psychotherapy (IPP):** A psychodynamic therapeutic intervention aimed at helping mothers address issues in their past which may be interfering with their ability to respond sensitively to their child. IPP has good evidence of improving infant attachment security and rates of child maltreatment. IPP also has evidence of reducing symptoms of trauma in mothers and children who have experienced abuse.

Maternal mental health

Maternal mental health problems are consistently associated with poor outcomes throughout children's development. During infancy, maternal depression and anxiety is linked to reductions in breastfeeding, increased infant irritability, low social engagement, decreased attachment security, and delays in child cognitive and language development.

This update has found good evidence to support the use of a variety of screening tools for detecting and monitoring maternal mental health problems in the postnatal period. There is also good evidence to suggest that these tools are effective for informing treatment decisions.

This update additionally observed that interventions that aim to *prevent* postnatal depression and other maternal mental health problems have been found to have no effect. However, **a variety of interventions have good evidence of reducing symptoms of depression** when they occur, including:

- antidepressants
- cognitive behavioural therapy
- interpersonal therapy
- psychodynamic therapy
- non-directive counselling.

Of these approaches, CBT and psychodynamic therapy appear to have the strongest evidence. The extent to which these interventions prevent relapse or improve child outcomes remains unknown, however. This lack of knowledge

therefore represents an important gap in the literature that must be addressed through further research.

The Foundations for Life review observed that the **Child First** programme has evidence of reducing parental symptoms of depression and improving children's language development and reducing rates of child maltreatment.

Specialist interventions

Maltreatment during the first year of life negatively affects all aspects of children's physical, cognitive and emotional development. Neglect is the most common form of child maltreatment occurring in infancy and it is frequently associated with maternal mental health problems, intimate partner violence, and harmful drug and alcohol use.

This update observed that two interventions have good evidence of preventing and reducing child maltreatment: FNP and Child First. Some interventions were also identified as having good evidence of reducing the reoccurrence of domestic violence, although the extent to which children benefit from these interventions as well is currently unknown.

Less is known regarding interventions targeting parental drug and alcohol misuse. While there is some evidence to suggest that motivational interviewing and Family Drug and Alcohol Courts increase parents' engagement with treatment, the extent to which these interventions also improve child outcomes has not been tested. In particular, few studies have considered the impact of these programmes on infant outcomes. The lack of evidence involving child outcomes related to parental substance misuse programmes therefore represents an area where further research is urgently required.

4. Summary of findings and conclusions

The primary aim of this report was to consolidate and update the evidence summarised in the Foundations for Life and HCP Rapid Reviews. The following areas of practice were covered:

- general parenting advice
- smoking cessation
- maternal mental health
- drug and alcohol misuse
- intimate partner violence
- low-birthweight and premature births
- breastfeeding
- Sudden Infant Death Syndrome (SIDS)
- attachment security
- early language development
- unintentional injuries
- child abuse and neglect.

This process entailed:

- Reviewing all of the systematic reviews in the Rapid Review within the above categories and identifying interventions and activities with **good evidence** of being effective (see the annex to this report). Only systematic reviews conducted to a high standard (such as Cochrane or equivalent) were included in this analysis.
- Identifying relevant interventions from the Foundations for Life review with good evidence, meaning level 3 evidence or higher.
- Highlighting interventions with **no effect** – meaning that they have evidence from a robust evaluation showing no benefits for children or parents. Practices and programmes underpinned by less robust designs have been identified as having **weak** evidence.
- Reviewing systematic reviews and individual studies published subsequently to the two reviews, identified through citation forward methodologies in the Google Scholar database.
- Classifying activities as universal, targeted selective, targeted indicated and specialist level.

Due to the scope of these two reports there is a heavy reliance on manualised programmes and reviewing interventions that were part of the original HCP in 2009. While we believe the information provided here can usefully inform health visiting practice, it should be recognised that some evidence is missing – particularly the evidence underpinning current HV practice models (many including skill mix) and more recent practice interventions.

Below we summarise how the activities and interventions identified through this exercise might be provided through the Healthy Child Programme during the antenatal and postnatal period up until the child's first birthday. We also provide information about activities and interventions found not to work through rigorous evaluation studies and systematic reviews. This information is also summarised in table 4.1.

TABLE 4.1: EVIDENCE-BASED ACTIVITIES AND INTERVENTIONS FOR PARENTS AND CHILDREN DURING THE EARLY YEARS

Programmes in **green** are evidence-based; activities in **red** have strong evidence suggesting no effect. Interventions are only included if there is robust evidence (at least EIF level 3) supporting their effectiveness or lack thereof.

	Conception to birth	0 to 12 months
Screening	Smoking Maternal mental health Drug and alcohol misuse IPV	Continued maternal mental health screening
Universal	Couple support embedded in preparation for childbirth (**Family Foundations**)	Specialist-led lactation advice Advice on infant sleeping positions (birth) **Infant massage** **Parent training aimed at preventing child behavioural problems** **Book gifting**
Targeted selective	Home visiting for first-time teen mothers (**Family Nurse Partnership**) **Interventions that aim to prevent maternal mental health problems from occurring**	Home visiting support to promote children's learning in socially disadvantaged families (**Family Nurse Partnership; Parents as First Teachers**) The installation of gates and other safety equipment for economically disadvantaged families
Targeted indicated	Incentive-based smoking interventions Empowerment-based counselling for women experiencing IPV CBT for mothers experiencing depression or anxiety	Kangaroo Mother Care for preterm infants Cue recognition training for preterm infants Infant massage for preterm infants Behavioural sleep training advice (8 weeks) Multicomponent interventions to reduce children's exposure to secondhand smoke Antidepressants, cognitive behavioural therapy and other talking therapies for mothers identified with maternal depression **Infant–Parent Psychotherapy (Lieberman model)** for infant/mother dyads at risk of child maltreatment, including concerns involving maternal mental health and intimate partner violence **Child First** for at-risk families living in socially disadvantaged circumstances, where there are concerns involving child maltreatment, intimate partner violence or maternal mental health issues
Specialist	**Brief interventions for suspected drug and alcohol misuse** Detoxification	**Brief interventions for suspected drug and alcohol misuse** Detoxification

Source: EIF

Summary of findings

Evidence-based activities and interventions that can be offered or initiated during the antenatal period

Universal:

- screening for maternal depression and other mental health problems
- screening for intimate partner violence
- screening for smoking
- screening for harmful drug and alcohol use
- preparation for parenting interventions for couples expecting their first child – **Family Foundations**.

Targeted selective:

- **Family Nurse Partnership**.

Targeted indicated:

- incentive-based smoking cessation programmes for mothers that smoke
- counselling integrated into antenatal care for mothers experiencing intimate partner violence
- cognitive behavioural therapy for mothers identified as depressed or anxious.

Specialist:

- evidence-based treatments for addressing serious mental health problems, including PTSD, bi-polar disorder and psychotic disorders; many of these treatments include safe levels of pharmaceuticals combined with psychological therapies.

Interventions/activities found to have no effect through robust evaluation:

- activities aimed at preventing postnatal depression
- brief interventions provided as treatment for drug and alcohol misuse when used in the general population.

Gaps in the evidence:

- the benefits of interventions targeting **maternal mental health**, **intimate partner violence** and **substance misuse** for child outcomes
- the evidence is particularly non-conclusive when it comes to programmes and activities targeting parental substance misuse.

Evidence-based activities and interventions that can be offered or initiated during the first 12 months after birth

Universal:

- screening for maternal depression, anxiety and other maternal mental health problems
- screening for intimate partner violence
- screening for smoking
- screening for harmful drug and alcohol use
- lactation support provided to mothers in the weeks after pregnancy
- SIDS-awareness information.

Targeted selective:

- the installation of safety equipment for increasing home safety (for children 9 months or older) in disadvantaged communities; however, knowledge of the impact on child injuries is unknown
- home visiting interventions targeting early learning in disadvantaged families
- volunteer telephone support for mothers of infants at risk of PND
- interpersonal therapy for mothers at risk of PND.

Targeted indicated:

- behavioural sleep training (children 4 months or older) for parents experiencing sleep problems with their children
- multicomponent interventions aimed at reducing secondhand smoke in households where parents smoke
- **Infant–Parent Psychotherapy** or **Child First** for parents at risk of child maltreatment, depression or intimate partner violence
- cognitive behavioural therapy or other evidence-based therapies for depressed or anxious mothers.

Specialist:

- home visiting interventions for mothers where there are child protection concerns (see above)
- specialist mental health treatment for mothers with a diagnosed mental health problem; the extent to which such interventions also improve child outcomes remains to be tested.

Interventions/activities found to have no effect through robust evaluation:

- infant massage for full-term babies in healthy populations
- universal parent management training during infancy
- universal and targeted book-gifting programmes.

Gaps in the evidence:

- the benefits of interventions targeting **maternal mental health**, **intimate partner violence** and **parental substance misuse** for child outcomes
- the evidence underpinning programmes and activities targeting harmful parental drug and alcohol use is particularly non-conclusive.

Summary of conclusions and implications for practice

1: The evidence base is growing

Knowledge of what does and does not work to support children's antenatal and postnatal development continues to grow at a rapid pace. Our update to the Foundations for Life and HCP Rapid Reviews confirmed that there is good evidence supporting many of the activities already delivered through the Healthy Child Programme. For example, studies have now verified that a variety of common screening activities have good evidence of accurately identifying parental mental health problems and effectively monitoring progress. These screening activities also have good evidence of improving parent and child outcomes when evidence-based services are offered as a result.

Our review has also identified a variety of evidence-based interventions that can be offered at the universal, targeted selective and targeted indicated level to meet a wide range of family needs. While notable gaps in the evidence base remain,

there are several areas of practice that could clearly be enhanced by evidence-based activities.

Our knowledge of what does not work is increasing, as well. For example, there is now consistent evidence to suggest that parent management training offered at the universal level during infancy does not measurably improve parent or child outcomes in the short run, nor prevent behavioural problems from occurring as children grow older. While there is good evidence to support the use of parent management training interventions for children over the age of two, their impact for parents and babies appears to be minimal.

2: Not all problems are preventable

Prevention of modifiable risks and promotion of positive protective factors is a vital role of health visiting universal services. Not all problems, however, are preventable through maternity and health visiting services. For example, postnatal depression is a condition that is difficult to prevent, although there are a variety of interventions with good evidence of treating symptoms of depression once they occur. Resources should therefore target effective interventions to identify, assess and mitigate problems as well as new research to determine the efficacy of new interventions.

3: There are few magic bullets or quick fixes

The majority of effective interventions identified in this review are relatively intensive – that is, taking place for three months or longer through multiple family visits. This is because studies consistently suggest that time is necessary for families to develop a positive relationship with professionals, to appreciate that aspects of their circumstances may need to change and to develop skills to make that change happen. For example, many of the smoking cessation interventions identified in this review are more intensive than the advice traditionally made available. While these interventions are typically more expensive than care as usual, their costs need to be considered against increased benefits for parents and children. In the case of smoking cessation, these benefits include improved birth outcomes, reduced respiratory problems, and reduced rates of adult and child mortality.

It is worth noting, however, that this report did identify a number 'quick fixes': relatively short interventions with evidence of improving child and parent outcomes in the short and long term for large sections of the general population. These interventions include:

- advice about infant sleeping positions that have dramatically reduced SIDS-related deaths over the past 20 years
- couple support offered to parents expecting their first child also appears to measurably improve parents' ability to establish positive family routines and reduce conflict around childcare issues
- sleep training interventions offered to families experiencing problems with their infant's sleep at four months or older
- personalised lactation advice offered to mothers in the weeks just before and after child birth.

Key message 4: The Healthy Child Programme is a good delivery mechanism for many of the interventions described in this report

The vast majority of interventions and practices identified in this report were developed specifically to be delivered or coordinated by health professionals, including midwives, nurses and health visitors. With minimal additional training,

it is highly likely that the majority of interventions could be successfully delivered as part of the Healthy Child Programme. This includes all of the screening activities described in this report, as well as many of the universal and targeted selective interventions. A wide variety of targeted indicated interventions could also be delivered by qualified midwives, nurses and health visitors.

5: Good systems are required to identify need and refer families on to additional support as and when needed

While a wide variety of the interventions described in this report can be successfully delivered through routine midwifery and health visiting care, some require delivery by specialist teams. These teams might include lactation specialists, smoking cessation teams and health visiting teams trained and supervised to provide intensive home visiting to highly vulnerable families. This means that some interventions may require the set-up and supervision of new specialist teams in order to maximise their effectiveness. Good referral systems may also be required to coordinate services across specialist teams.

Some of the more intensive interventions also require good referral systems between midwifery, health visiting, adult mental health and social work teams in order to be successful. This is particularly true of interventions targeting highly vulnerable families, including those where mental health problems, intimate partner violence and substance misuse are clearly an issue.

6: Evidence of effectiveness is not a replacement for ongoing evaluation

The fact that an intervention has evidence from a rigorous evaluation conducted at one time and place does not mean that it will be effective again. While the evidence underpinning the interventions identified in this report increases the likelihood of improved child and parent outcomes, it is not a guarantee. The evidence described in this report is therefore not a replacement for good monitoring and evaluation systems as interventions are set up and delivered.

7: Evidence that an intervention is effective for parents does not necessarily mean that children will also benefit

Many of the interventions and activities identified in this report have evidence of improving outcomes for parents, but not their children. In some cases, this is because child outcomes have not been measured and in other cases, rigorous studies have failed to verify child improvements. It is therefore not sufficient to assume that children will automatically benefit from interventions that only have evidence of meeting parents' needs.

While evidence of improved parent outcomes is a good starting point, further testing is required to verify child benefits. This caveat is particularly true of interventions targeting maternal mental health. It is now clear that a wide range of interventions have good evidence of reducing symptoms of depression and anxiety in the general population, as well as in mothers during the postnatal period. The extent to which their children also benefit remains unknown, however. We view this to be a significant gap in the evidence base, especially given the significant impact maternal mental health has on children's development and wellbeing.

8: There is a lack of evidence about when and how to intervene when parents misuse drugs and alcohol

Parental drug and alcohol misuse and dependency significantly impairs parents' ability to understand their young child's needs and provide appropriate levels of supervision. It is highly associated with a variety of negative child outcomes and is a primary reason for child protection referrals during the antenatal period and first 12 months of life. Parental substance misuse is also difficult to detect and can be resistant to treatment.

The Rapid Review and this current update failed to identify any interventions with robust evidence of improving outcomes for drug and alcohol misusing parents and their infants. This is because good-quality studies are generally lacking and those that exist have failed to verify meaningful benefits for the parent or child.[764,765] Although a number of effective drug and alcohol treatments exist for the adult population more generally, improvement is often gradual and relapse is common. In addition, the extent to which these interventions improve parenting behaviours remains largely unknown.

We believe that the lack of evidence involving interventions for parents who misuse drugs and alcohol represents a serious gap in the evidence base. More high-quality research is therefore urgently required to understand the extent to which substance misuse interventions improve parenting behaviours and child outcomes.

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764 Brandon, A. R. (2014). Psychosocial interventions for substance use during pregnancy. *The Journal of Perinatal & Neonatal Nursing*, *28*(3), 169–177.

765 Lui, S., Terplan, M., & Smith, E. J. (2008). Psychosocial interventions for women enrolled in alcohol treatment during pregnancy. *The Cochrane Library*.

Annex: Methodology

This annex describes the methods used to identify the rigorously conducted systematic reviews and intervention evaluations summarised in the full report.

HCP Rapid Review

The evidence summarised in the rapid review was identified through a systematic review of systematic reviews that were published between 2008 and 2014. The reviews chosen summarised the evidence in 11 key areas within the HCP known to impact children's early development.

An advantage of this 'review of reviews' methodology is that it quickly identifies areas within the literature where there is a clear consensus. A disadvantage, however, is that some information may be out of date. For example, information provided in a review published in 2008 is only as recent as 2008. The rapid review methodology corrected for this by forward searching for additional studies published between 2008 and 2014, as well as using citation forward methodologies to identify findings that might change the conclusion of previous reviews. Findings from the systematic reviews were also augmented with recommendations from NICE. Further details of the Rapid Review's search methodologies can be found in the full report.[766]

Foundations for Life

Identifying programmes for assessment

The 75 programmes assessed in the Foundations for Life 'what works' review were also identified through systematic methods, originally described in the Best Start at Home review.[767] EIF commissioned the Best Start at Home review to identify early interventions which were specifically developed to enhance children's early social, emotional and cognitive development by supporting parent-child interaction. Programmes were thus included in the review if they:

- expressly aimed to improve at least one non-physical child outcome
- worked directly with parents; and
- targeted families with a child between conception and age five.

Programmes were not eligible if they represented activities that might be considered as ongoing treatment or a form of late intervention. Examples of programmes excluded from the review included specialist interventions developed for various disabilities (such as autism) or families where there were child protection concerns. Further details of the search terms and eligibility criteria used in the Best Start at Home review can be found in the full report.

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766 See: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/429740/150520RapidReviewHealthyChildProg_UPDATE_poisons_final.pdf

767 Axford, N., Sonthalia, S., Wrigley, Z., Goodwin, A., Ohlsen, C., Bjornstad, G., ... & Toft, A. (2015). The Best Start At Home: What Works To Improve The Quality Of Parent-Child Interactions From Conception To Age 5 Years. *A Rapid Review Of Interventions.* Early Intervention Foundation.

TABLE A1: COMPARISON OF METHODOLOGIES USED FOR THE HCP RAPID REVIEW AND THE FOUNDATIONS FOR LIFE EVIDENCE ASSESSMENT
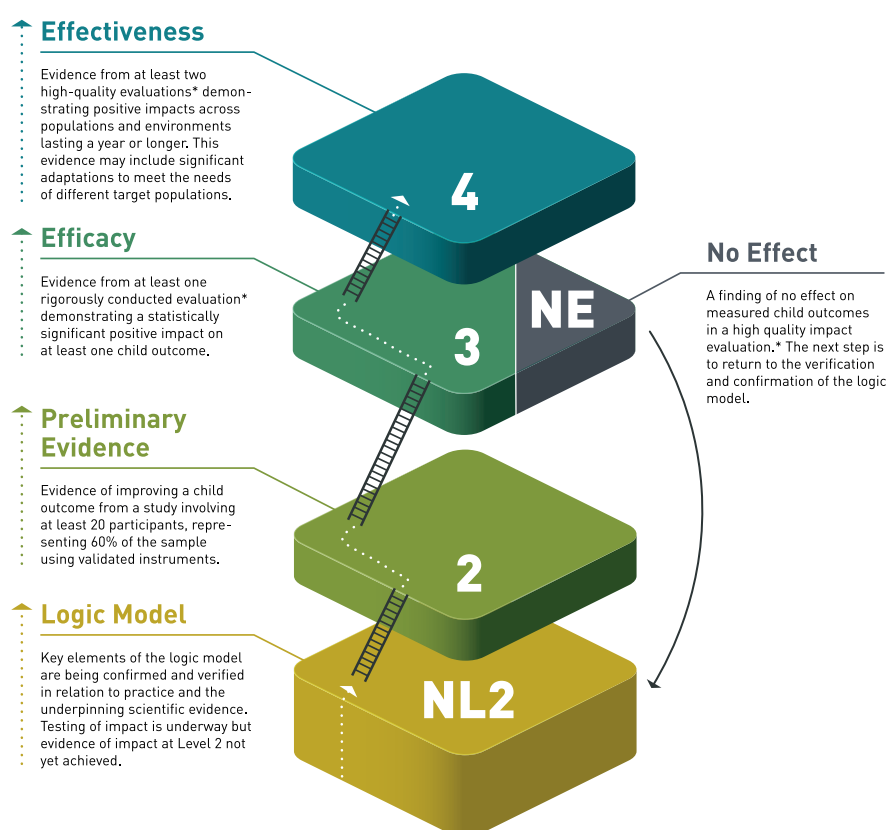
	Rapid Review	Foundations for Life
Scope	Summarised evidence from 160 systematic reviews, 50 RCTs and NICE guidelines when relevant. Interventions, practices, workforce and economic analyses were included when available.	The strength of evidence underpinning 75 individual programmes
Outcomes covered	A variety of outcomes were covered, all of which have some bearing on children's early social, emotional and cognitive development. Outcome domains covered include: Maternal mental health Smoking Obesity Intimate partner violence Parental drugs and alcohol misuse Speech and language Intervention model types: Preparation for childhood/ Parenting support Keeping safe Oral health Promotion of child development	Child outcomes in the domains of children's attachment, early behavioural self-regulation and early language/cognitive development. Parent outcomes are also considered, but only to the extent they impact upon child outcomes.
Methods	Information from systematic reviews and review of reviews was summarised.	The evidence from individual programmes was systematically assessed against EIF's evidence standards.
Length	250 pages	182 pages

Source: EIF

EIF programme assessment and evidence standards

The evidence underpinning each of the 75 interventions included in the Foundations for Life review was assessed against EIF's standards of evidence (see figure A1). The EIF standards are consistent with other what works organisations (such as the Cochrane collaboration and GRADE working group) in emphasising the importance of randomised controlled trials (RCTs) and similarly rigorous quasi-experimental designs (QEDs) for determining the extent to which causality can be attributed to an intervention model. EIF differs from these other organisations, however, by applying these standards to individual programmes rather than to bodies of practice. This is done to facilitate comparisons between interventions on the basis of evidence strength and cost. Such comparisons are useful for commissioners of children's services, who frequently need to make difficult decisions about the programmes they make available in their communities.

FIGURE A1: EIF EVIDENCE STANDARDS

Effectiveness

Evidence from at least two high-quality evaluations* demonstrating positive impacts across populations and environments lasting a year or longer. This evidence may include significant adaptations to meet the needs of different target populations.

Efficacy

Evidence from at least one rigorously conducted evaluation* demonstrating a statistically significant positive impact on at least one child outcome.

Preliminary Evidence

Evidence of improving a child outcome from a study involving at least 20 participants, representing 60% of the sample using validated instruments.

Logic Model

Key elements of the logic model are being confirmed and verified in relation to practice and the underpinning scientific evidence. Testing of impact is underway but evidence of impact at Level 2 not yet achieved.

No Effect

A finding of no effect on measured child outcomes in a high quality impact evaluation.* The next step is to return to the verification and confirmation of the logic model.

4

3

NE

2

NL2

*High quality evaluations do not need to be randomised control trials if a relevant and robust counter-factual can be provided in other ways.

Source: EIF

The EIF evidence standards distinguish five levels of evidence that consider the degree to which a programme has been shown to have a positive, causal impact on specific child outcomes (see table A2). It is worth noting that the term 'evidence-based' is frequently applied to programmes with level 3 evidence or higher, because this is the point at which there is sufficient confidence that a causal relationship between the programme model and outcomes can be assumed.

The EIF assessment process takes place through a series of checks and balances involving both internal and external experts and is overseen by the EIF Evidence Panel of academic experts. Programmes are assessed primarily on their evidence for children, as opposed to parents or practitioners, meaning that higher ratings are awarded to programmes with specific evidence of improving child outcomes. Although it is clearly more challenging to reliably assess child outcomes during earlier periods of children's development (especially pregnancy and infancy), improvements in parenting behaviours during this time are not sufficient for assuming that benefits for children will naturally follow.

TABLE A2: DETAIL ON THE EIF EVIDENCE STANDARDS

|	
Level 4 (or 4+)*	Programmes with evidence from multiple rigorously conducted RCTs or QEDs. At least one of these studies must have evidence of improving a child outcome for one year or longer.
Level 3 (or 3+)	Programmes with evidence of a positive short-term child impact from at least one rigorously conducted RCT or QED.
Level 2 (or 2+)	Programmes with preliminary evidence of improving a child outcome from a pre/post study or comparison study with known biases that prohibit a causal attribution to the programme model.
NL2	Programmes whose most robust evaluation evidence does not meet the level 2 threshold for a child outcome. These programmes may have evidence of other outcomes thought to be associated with child outcomes (e.g. parent outcomes), or their study design may not have met the level 2 threshold because of sample or measurement issues.
No Effect (NE)	Programmes where there is evidence from a high-quality evaluation of the programme demonstrating no consistent effect on any observed parent or child outcome. This rating should not be interpreted to mean that the programme will never work, but it does suggest that the programme should likely adapt and improve its model.

Source: EIF

*Programmes may be additionally be awarded a '+' if they have exceeded all of the requirements of a level 2, 3 or 4 rating but have not yet met the threshold of the next higher level.

Summary of Foundations for Life assessments

Figure A2 provides a summary of the distribution of the evidence ratings for programmes assessed in the Foundations for Life review. Just under a quarter (17 programmes, or 23%) could be considered evidence-based, with evidence from a rigorously conducted evaluation (level 3 or 4) confirming improved outcomes for children and parents. An additional 18 programmes had preliminary evidence of improving child outcomes through an evaluation that meets EIF's criteria for a level 2 rating. Five further programmes had evidence from a well-conducted (level 3) study observing no effects for parents or children.

The remaining 35 programmes were assessed as NL2, meaning that the programme had yet to undergo a study meeting the minimal criteria for a level 2 rating (30) or had evidence from a rigorously conducted trial confirming parent outcomes only (5). In all, 27 interventions had evidence from an evaluation that was sufficiently rigorous to attribute causality to the programme model, 17 of which had evidence of improving a child outcome.

FIGURE A2: DISTRIBUTION OF INTERVENTIONS BY LEVEL OF EVIDENCE (N = 75)
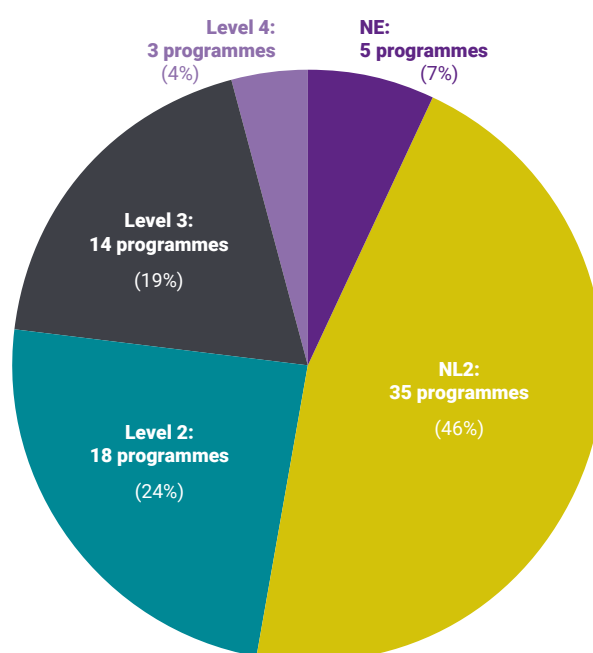
Source: Asmussen, K., Feinstein, L., Martin, J., & Chowdry, H. (2016). *Foundations for life: What works to support parent child interaction in the early years*. Early Intervention Foundation. Available at: http://www.eif.org.uk/publication/foundations-for-life-what-works-to-support-parent-child-interaction-in-the-early-years/

Systematic update

Citation forward methods involving the systematic reviews summarised in the Foundations for Life and Rapid Reviews were used to identify rigorous research studies published between 2014 and 2017. These studies include all Cochrane reviews within the relevant topic areas, as well as other similarly rigorous systematic reviews when a Cochrane review was not available. Appraisal of these reviews was guided by the Critical Appraisal Skills Programme (CASP) checklist criteria for systematic reviews.[768]

Findings from the newly identified systematic reviews were used to identify activities underpinned by strong evidence (EIF level 3 or higher, as described above), as well as individual interventions that appeared particularly relevant for the Healthy Child Programme. While many of these interventions have yet to undergo a full EIF evidence assessment, those described as having evidence comparable to the EIF level 3 standard are included with the aim of identifying potentially promising practices.

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768 See: http://docs.wixstatic.com/ugd/dded87_7e983a320087439e94533f4697aa109c.pdf