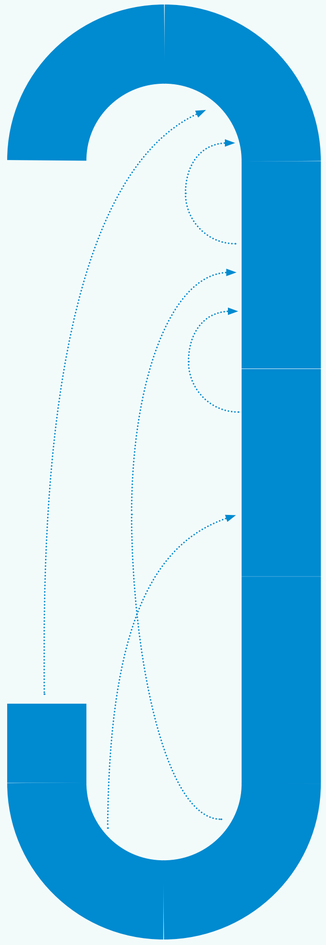

EVIDENCE REVIEW

IMPROVING THE EARLY LEARNING OUTCOMES OF CHILDREN GROWING UP IN POVERTY:
A RAPID REVIEW OF THE EVIDENCE

DARTINGTON SERVICE DESIGN LAB

WORKING WITH

Save the Children

UNIVERSITY OF PLYMOUTH
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2018

AUTHORSHIP AND ACKNOWLEDGEMENTS [1]

A number of people have contributed to the writing of this report. Nick Axford (University of Plymouth) is the main author of chapters 1 to 10 and 13. Bianca Albers (Centre for Evidence and Implementation) is the main author of chapters 11 and 12. Amanda Wanner (University of Plymouth) undertook literature searches for the content in chapters 2 to 10. Hannah Flynn (University of Plymouth) and Michaela Rawsthorn (Dartington Service Design Lab) undertook reviews of studies that informed chapters 2 to 10, and Michaela also contributed copy to these chapters. Tim Hobbs (Dartington Service Design Lab), co-developer of the early learning toolkit that is based on this review, assisted with refining evidence assessments and key messages. Jane Barlow (University of Oxford), Jonathan Bradshaw (University of York), Gill Main (University of Leeds), Jonathan Sharples (Education Endowment Foundation) and Kathy Sylva (University of Oxford) advised in the early stages of the work on suitable literature and important messages from the research and commented on draft chapters. Save the Children staff and Early Learning Community partners provided comments on drafts. John Tredinnick-Rowe (University of Plymouth) assisted with identifying relevant data and formatting references, and Rosie Allen (Dartington Service Design Lab) assisted with proof-reading. Maria Portugal (Dartington Service Design Lab) designed the report. We are grateful to everyone for their contributions, and as main authors, Nick and Bianca take responsibility for any errors or omissions in their respective chapters.

[1] The time of Nick Axford and John Tredinnick-Rowe is supported by the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care South West Peninsula. The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care.

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CHAPTER 1.
INTRODUCTION

OBJECTIVES

The objectives of this chapter are:

- **to explain the origins of the project that this review feeds into**
- **to frame the content of the review by setting out key issues relating to the early learning of children in poverty**
- **to describe the aims and scope of the review and the approach to undertaking it**
- **to highlight strengths and limitations of the review**
- **to outline how the remainder of the report is organised**

CHAPTER 1. INTRODUCTION

BACKGROUND

Children from poorer backgrounds often start school with fewer academic skills than their better-off peers, and as they progress through school they often lag behind in their cognitive development (Sylva et al. 2012). The strong case for investment and intervention in the early years is demonstrated by recent analyses showing that by the time disadvantaged young people in England sit their GCSEs (aged 16 years), they are 18.4 months behind their peers on average, and that about 40% of the gap has already emerged by the age of five years (Hutchinson et al. 2016, 2018).

A host of factors contribute to this pattern. For example, an extensive review of studies in Europe (including the UK) focusing on social inequalities in early childhood health and development concluded that "(i) most social factors, at both the neighborhood and household levels, appear to influence early childhood health and development, (ii) [...] this influence extends across a wide range of adverse health and developmental outcomes in early life, and (iii) [...] this influence spans the entire continuum of early life" (Pillas et al. 2014: 421). For example, of 49 studies that measured the relationship between neighbourhood or household factors and children's developmental outcomes, 43 showed significant associations in the expected direction. This was further disaggregated in terms of cognitive delay (1 out of 1 studies that measured it found a significant association with neighbourhood level factors, 23/25 household level), language / speech (1/1, 11/13) and school readiness (1/1, 2/2). The key social factors identified by the report were: neighbourhood deprivation; low parental income/wealth, educational attainment, and occupational social class; high parental job strain; parental unemployment; lack of housing tenure; and household material deprivation. Country-level differences in the observed patterns were minor.

Accordingly, the authors advised that "[t]hese findings suggest multiple opportunities for prevention, early intervention, and intersectoral approaches to tackle the complex embedding, clustering, and cumulative nature of social disadvantage observed in early life" (Pillas et al. 2104: 423). This current evidence review is all about identifying evidence-based approaches to capitalise on these opportunities by preventing or reducing early socio-economic disparities in children's early learning and development, with a particular focus on key aspects of children's school readiness, namely speech and language development, literacy and pre-literacy, and numeracy and pre-numeracy.

SAVE THE CHILDREN UK AND CHILDREN'S EARLY LEARNING

Save the Children's work in the UK seeks to achieve significant and sustainable improvements in the quality of children's early years, with a particular emphasis on narrowing the gap in early learning between children living in poverty and their better-off peers. Until now it has focused on the innovation, delivery, evaluation and scaling up of individual evidence-based programmes to support the development of children in poverty, with demonstrable impact on early learning and parental engagement. However, a refocusing of Save the Children's work has been underway in recent years in recognition of the fact that discrete programmes, though important, are only part of the solution to narrow the gap in attainment between poor and more affluent children. Breakthrough and population level change requires a whole system approach.

Local early learning systems include, but are more than, the sum of the programmes and services that are available in a given area. They are complex entities that determine priorities and establish incentives and barriers to effective practice and innovation (Center on the Developing Child 2016). Effective systems have the potential to align services around shared goals and a common understanding of what local children and families need and when.

CHAPTER 1. INTRODUCTION

Save the Children UK is seeking to continue and deepen the refocusing of its work towards whole system approaches. As part of this endeavour, it wants to work with others to help to enhance early learning systems so that more children in poverty have the types of relationships, interactions and experiences – tailored to their developmental stages and their needs – that best support their development, whether at home, in early years and community settings or at school. This necessarily involves applying the best available evidence, but considers this to be a *starting point* for continued local innovation and co-creation with a view to learning more about how to optimise whole system early years support. By extending understanding of the range of support and system characteristics that best foster the early learning of children in poverty, and demonstrating the potential benefits of a whole system approach, Save the Children aims to catalyse change in practice and policy across the UK.

In order to realise this vision, Save the Children plans to work with partners in a network of 'Early Learning Communities' across the UK to help co-design improved local early learning systems. In each site, the aim will be to offer a continuity of high-impact, age-appropriate support for the learning and development of children in poverty and extend understanding about the characteristics of effective early learning systems. In addition to achieving local impact, the Early Learning Communities aim to have national significance. This will entail: addressing gaps in the knowledge of 'what works' through rapid cycle innovation and learning; targeting national advocacy strategies on enablers of or barriers to early learning and development that are best addressed at a national level (both UK and within each of the four nations of the UK); and creating a national knowledge network and community of practice, comprising the Early Learning Communities and other places in which Save the Children UK works. The first step in this journey was to draw on the latest evidence from child development research, practice evaluation and implementation science to understand the early experiences that best enhance children's early learning, at each developmental stage, and the support and systemic factors shown by research to enable these experiences for children in poverty. This is the purpose of this report.

Second, practitioners, leaders and families in each of the first four Early Learning Communities were consulted in order to create a development framework and to support the use of this evidence as the starting point for the co-design of innovative local systems change efforts across the Communities.

Third, a toolkit has been developed, drawing on the evidence review and consultation in Communities, to be used as a tool for Save the Children staff and their partners to guide strategy and activity in the Early Learning Communities. The toolkit sets out how to go about improving early learning outcomes for children growing up in poverty using a whole system approach. It provides a framework to help focus, shape and develop Save the Children's work in Early Learning Communities.

The next steps will be for Early Learning Communities to work with local partners and communities to co-create effective whole system approaches, with an emphasis on applying the evidence in a way that responds to local circumstances and generates innovative new ideas. Early Learning Communities will be evaluated to harness and share learning.

KEY ISSUES FOR THE EARLY LEARNING OF CHILDREN IN POVERTY

EARLY LEARNING AND SCHOOL READINESS

The review focuses on children's learning and development in early childhood. Since the turn of the century, remarkable progress in scientific understanding about the developing brain has shown that early childhood is a time of rapid cognitive, linguistic, social, emotional and motor development. The foundations for lifelong learning, behaviour and wellbeing are laid during this period and are strongly influenced by early experiences.

Early childhood is also when children are most vulnerable to economic deprivation (Duncan et al. 2011). Children growing up in poverty in their early years are less likely than their more affluent peers to be ready for school, make less progress throughout their education and experience significantly poorer life chances. To a large degree, this is because they are much less likely than better-off children to benefit from experiences that support positive development. According to data for England, the attainment gap, which is the disparity in early learning outcomes that is related to a child's socio-economic background, begins in the early years, is already evident when children are aged 5 years (a gap of 4.3 months) and grows wider at every subsequent stage of education, doubling to 9.5 months by the end of primary school and more than doubling again to 19.3 months by the end of secondary school (Education Endowment Foundation 2017).

It is therefore important that concerted efforts are made to ensure that children in poverty are ready for the transition to school. Children who are not ready for this transition to school are disproportionately likely to have later problems, including poorer educational performance (attendance, attainment, dropping out), behavioural and emotional difficulties and participation in anti-social or offending behaviour. Traditionally, school readiness has been defined in terms of three components (Child Trends, 2001):

(1) readiness in the child;
(2) schools' readiness for children; and
(3) family and community supports and services that contribute to children's readiness.

Although the primary focus of this review is on how to improve aspects of children's school readiness (i.e. item (1) above), as will be seen it necessarily covers what early years settings and schools together with families and other community supports can do to promote this.

The child's readiness for school is widely regarded as having five dimensions:

(1) physical well-being and motor development (e.g., health status, gross and fine motor skills, conditions before, at and after birth);
(2) social and emotional development (e.g., ability to regulate emotions, interact with peers and understand own and others' feelings);
(3) approaches to learning (e.g., enthusiasm, curiosity, persistence, motivation to learn);
(4) language development (verbal language – listening, speaking and vocabulary; also emergent literacy – print awareness, story sense and the writing process); and
(5) cognition and general knowledge (e.g., knowledge about the properties of particular, and knowledge about societal conventions, shapes, spatial relations and number concepts).

Here, the focus is primarily on children's speech and language development, literacy and pre-literacy, and numeracy and pre-numeracy, although this is not to say that the other elements are unimportant.

Taking children's social and emotional development as an example, while regulatory difficulties in the early years, including problems with sleeping, feeding and crying but also emotional and behavioural difficulties, can resolve over time, some continue and predict longer-term difficulties, including delays in motor, cognitive and language development (Barlow, 2019). For example, children's social-emotional skills affect children's learning outcomes because of their effect on children's ability to concentrate and pay attention and their relationships with peers and teachers, which in turn affect classroom dynamics (Emond and Coad, forthcoming). Further, child behaviour problems are associated with lower speech and language, motor and play skills (ibid.). Indeed, social-emotional skills might be regarded as central to children's early learning and critically important for the learning outcomes that this review focuses on. As Payton et al. (2008) put it, "Students who appraise themselves and their abilities realistically (self-awareness), regulate their feelings and behaviors appropriately (self-management), interpret social cues accurately (social awareness), resolve interpersonal conflicts effectively (relationship skills), and make good decisions about daily challenges (responsible decision making) are headed on a pathway toward success in school and later life" (p.5). The importance of these capabilities for learning outcomes is underscored by a major review of studies of universal school-based social-emotional learning programmes for children and young people aged 5 to 18 years, which found that such interventions increased academic achievement by 11 percentile points on average (Durlak et al. 2011).

There are numerous interventions aimed at improving young children's social-emotional skills. In the early years, many of these focus on promoting better parent-child interaction, with the strongest evidence of effectiveness coming from evaluations of group-based parenting programmes targeted at parents of children with early signs of emotional and behavioural problems (see Chapter 4 of Axford et al. 2015b; also Chapter 5 of Asmussen et al. 2016). In addition, a significant number of interventions for pre-school settings and the early school years have been shown to be effective in promoting aspects of children's social-emotional development (e.g. CASEL 2013; Bierman et al. 2016).

EARLY LEARNING, SCHOOL READINESS AND POVERTY

Children from poorer backgrounds are less likely to be ready to start school, meaning that they are behind their better-off peers in terms of various aspects of their early learning and development. For example, government figures from 2014 suggest that fewer than two-thirds (60%) of children in the UK reached a good level of development by 5 years of age (while those eligible for free school meals lagged 19 percentage points behind their more affluent peers) (Gov.uk 2014; Ofsted 2014). As Edwards et al. (2009) put it, "children from financially disadvantaged families are at greater risk of poor school readiness, due to the much higher rates of risk factors evidenced among this group and the accumulation of risks experienced" (p.30). These differences open up before the start of school; for instance, figures suggest that on cognitive test scores there is a significant gap between the poorest fifth of children and their peers by 3 years (Carter-Wall and Whitfield 2012).

Poverty can be defined and measured in multiple ways, although most measures focus on low income and/or material deprivation. The latest figures show that more than one in four (30%) children in the UK are in poverty (defined as less than 60% of median household income in the UK, adjusted for family size and after housing costs (McGuinness 2018)).

Poverty has an *indirect impact* on child development insofar as it affects the quality of the family environment and the way in which parents interact with

and parent their children. It also has a *direct* effect on children, whether because it makes parents more stressed, which in turn affects parenting, or because it adversely affects parents' ability to pay for better nutrition, educational resources, housing and higher quality childcare, all of which further child development. In order to promote children's school readiness, it is therefore important to understand more fully the ways in which poverty affects early learning and development and how it might be addressed both directly – by improving families' income and social status – and indirectly – by addressing factors in the child's home and wider environment that are associated with poverty.

KEY INFLUENCES ON EARLY LEARNING AND SCHOOL READINESS

It is widely acknowledged that there are two key influences on children's school readiness. First are children's parents, in particular how they interact with their children and the wider home learning environment that they create. Second, children's school readiness is shaped by the amount and quality of early childhood education and care provision that they receive, whether centre-based or more informal. There is also an interaction between these two insofar as early years settings often seek to influence the way in which parents support their children's development and early learning.

The former includes the nature of parents' interactions with their children, particularly when they are babies and infants, and the extent to which they are sensitive and responsive to their child's needs, as this is known to contribute to children becoming securely attached to their parent. Secure attachment is a foundation of several aspects of children's development (e.g. cognitive, behavioural, social, emotional) whereas insecure or disorganised attachment are predictive of various problems in these areas. Parents also affect children's early learning and development in multiple ways, for instance through the way they talk with their children, aspects of the home learning environment and the kinds of activities they do with their children both in the house and in the wider community. As indicated already, these aspects of parenting – sensitive and responsive interactions and support for learning – are associated with parents' economic situation. It is important, therefore, to understand more fully both how parents shape their children's early learning and development and how positive interactions and other aspects of the child's home learning environment can be promoted, in particular for more disadvantaged parents. Based on studies in the UK and US, it has been estimated that parenting behaviours such as maternal sensitivity, shared book reading and out-of-home 'educational' activities explain approximately 40% of the income-related gaps in cognitive outcomes for children aged four years (Waldfogel and Washbrook 2011, cited in Asmussen et al. 2016).

Young children spend a significant amount of time in early years education and childcare, and there is a growing understanding of the impact of such provision on various aspects of children's early learning and development. A consistent message is that such provision can have a positive impact where it is high quality, although the facets of 'high quality' are not articulated consistently and evidence tracing their effect on outcomes is relatively scarce. Further, it is increasingly recognised that early childhood education and care settings, and indeed schools, have an important role to play in supporting parents' engagement with their children's learning, whether in terms of academic attainment, related learning outcomes (e.g. attendance, positive attitude, persistence) or behaviour. Children from poorer backgrounds have traditionally been less likely to be able to access good-quality childcare, and early years settings and schools often struggle to engaged so-called 'hard-to-reach' parents, many of whom come from more disadvantaged backgrounds. It is important, then, to understand the effects of early years provision on children's early learning and development, especially for poorer children, and the features of good-quality provision in terms of both how they are organised and run and the day-to-day activities that children experience. It is also necessary to understand

how early years and schools can support parents with their children's learning and in particular ensure that the least well-off families are able to access the support they need.

OTHER INFLUENCES ON EARLY LEARNING AND SCHOOL READINESS

As already indicated, a range of factors associated with family socio-economic status affect children's early learning and development, whether directly or indirectly via their impact on parents' well-being and ability to provide good care and a positive learning environment. For example:

- Parents' physical health, in particular their engagement in unhealthy behaviours such as smoking and alcohol misuse in the antenatal period, can adversely affect birth outcomes, which in turn are associated with later developmental problems.
- Poor maternal mental health in the ante- and post-natal periods is associated with less sensitive and responsive interactions with babies and infants, with adverse effects for attachment outcomes.
- Domestic abuse has harmful effects for children, both because they may witness or get caught up in it but also because it adversely affects parent's abilities to provide adequate care.
- Maltreatment, whether physical, emotional or sexual, affects children's ability to learn and other developmental outcomes.
- Whether or not children are breastfed, and their parents' feeding practices (e.g. food they give their children, eating habits) affect children's nutritional status, which in turn contributes to other development outcomes.
- Then there is the effect of children's wider environment, including housing and the neighbourhood.

Of course, these various factors are also related and, as such, exert a cumulative effect on child outcomes, further justifying their inclusion in this review. For instance, mothers in overcrowded housing or experiencing domestic abuse are more likely to have poor mental health, which in turn affects their parenting capacity. While these factors are arguably more *distal* to children's early learning and development (insofar as they are more indirectly associated with those outcomes) compared with the more *proximal* factors of parenting and early years provision (which are more directly associated and potentially causal), it is nevertheless important to understand their influence and the nature of effective prevention and early intervention to address them.

Several of these factors fall into the category known as 'Adverse Childhood Experiences' (or ACEs), in other words potentially traumatic experiences and events that can have harmful effects in childhood or later life (e.g. on educational performance, health, behaviour, general well-being), especially if multiple such adversities accumulate and/or protective factors are absent.[2] For example, analysis of data from a national urban birth cohort in the US found that experiencing three or more ACEs was associated with below-average language and literacy skills, maths skills, attention problems, social problems and aggression according to teacher report at the end of kindergarten (age 5 or 6 years) (Jimenez et al. 2016). The authors used this evidence to argue for collaborative or synergistic efforts between different service providers to address such problems, and others have drawn on the ACEs literature to advocate adversity- and trauma-informed services for children and young people (Bush 2018).

[2] ACEs are commonly understood to include physical abuse, sexual abuse, emotional abuse, physical neglect, emotional neglect, intimate partner violence, substance misuse within household, household mental illness, parental separation or divorce, and incarcerated household members. It has also been suggested that poverty and poor neighbourhood quality are added to the list.

IMPLEMENTATION AND SYSTEM CHANGE

A rapidly growing body of work in recent years has highlighted the importance of good quality implementation of services for children if positive outcomes are to be achieved. This will apply to the kinds of interventions discussed briefly above and described in more depth later in the report as having been demonstrated to be effective in improving children's early learning and development and/or factors known to contribute to such outcomes. There is a developing understanding of the key elements of effective implementation, such as the importance of readiness (of the delivery organisation and its practitioners), strong leadership, initial and ongoing workforce support, and monitoring and feedback. While there will be detailed aspects of good quality implementation that are specific to each of the subject areas covered in this report, the cross-cutting messages will hold.

Recent years have also seen a growing disenchantment with attempts to improve outcomes through efforts to develop, implement and scale evidence-based programmes. This has led to increased attention to the facets of service systems that best enable the integration of evidence into practice – in other words, taking robust knowledge and bringing it to life in practice. Place-based initiatives designed to achieve collective impact are designed to improve outcomes for children and families through the uptake of evidence in real-world settings, whether at the individual, organisational or system level. The report therefore looks at the key features of systems that do this with a view to their application in the context of services to support children's early learning.

AIMS OF THE REVIEW

The aims this evidence review are to draw on international research to:

(1) describe the experiences and circumstances that best support the learning and development of children in poverty below the age of eight years and help protect or mitigate against the impact of significant family stress or adverse childhood experiences on development. It is intended that this should cover all aspects of the child's life in the context of their relationships with parents and caregivers, their lives at home, in early years settings, in the first years of primary school and in the community; and

(2) indicate the kind of programmes, practices, policies, approaches and multi-agency systems that, collectively, most effectively promote the early learning and development of young children in poverty. In doing so it seeks to indicate the impact on outcomes that can be achieved through the effective implementation of the system of early years support, collectively and through the key component parts. Where possible, the review seeks to outline rationales for prioritising and focusing activity based on their impact on children's early learning and the ease of achieving change and to identify gaps in current knowledge about what works, or where what is known has limited impact. Save the Children will aim to address these through new innovations to have the potential to bring about a step change in its impact.

Thus, the report seeks to answer four key questions:

1. What are the *factors* that affect the chosen early learning outcomes for children growing up in poverty?

2. What *interventions* (or types of intervention) best improve the chosen early learning outcomes for children growing up in poverty?
3. What are the *implementation considerations* that best improve the chosen early learning outcomes for children growing up in poverty? This needs to cover how they relate to the interventions and how they are achieved.
4. What are the *systems considerations* that best improve the chosen early learning outcomes for children growing up in poverty?

In doing so it seeks to articulate as best as possible the strength of evidence, the extent of intervention impact and, based on these considerations and 'implementability', the activities that should be prioritised. The primary audience for the review is Early Learning Community partnerships, so it seeks to be both robust and accessible, hence short summaries of objectives and key points at the start of each chapter.

SCOPE OF THE REVIEW

The Save the Children project described earlier in this chapter seeks to benefit children aged up to and including eight years, which is likely to involve working with their parents and other significant family members, including from before the child is born. According to Save the Children, the focus is on changeable factors which:

(1) enable early childhood experiences that best enhance development and therefore make the most significant contributions to optimal early learning for children growing up in poverty; and
(2) have the potential to be influenced locally, whether through programmes, practices, services, strategy or systems change.

This includes factors that directly support the early learning and development of children growing up in poverty, including:

- qualities of the parent-child relationship and interactions
- parent engagement in their children's learning and education
- material aspects of the home learning environment (e.g. the availability of learning materials, including books and apps/digital technology)
- qualities of the relationship and interactions that the child has with other significant adults in his or her community
- the quality of early learning settings and childcare (including nurseries, child-minders and integrated settings)
- aspects of maternity and early health that relate directly to child development (including aspects of ante- and post-natal support and the Healthy Child Programme)
- equality of access to all such services, for children growing up in poverty
- approaches to building children's resilience to or mitigating the impact on children's development and well-being of adverse childhood experiences

In order to maintain a realistic focus for the Early Learning Communities, some wider contextual and infrastructure factors were considered to be beyond the immediate scope of the project. These include mainstream school teaching provision and practice and housing shortages.

APPROACH TO THE REVIEW

The review started by consolidating evidence from highly relevant and recent reviews, several of which members of the research team were involved in (e.g. Axford and Barlow 2013; Barlow and Axford 2013; Axford et al. 2015a/b; Sharples et al. 2017; Barlow et al. 2016; Axford et al. 2018) and a series of evidence reviews

in a special edition of the Journal of Children's Services guest-edited by Jane Barlow.[3] This material was mapped against the subject areas outlined above. In parallel, consortium partners with subject-specific knowledge were consulted to identify other relevant studies and to gather focused information about key messages that the evidence review will need to convey.

Next, focused literature searches and supplementary searching were undertaken for substantive subject areas (Chapters 2 to 10) using an iterative approach. These searches were used to identify the most relevant literature, prioritising coverage of topics of interest rather than exhaustivity. Focused literature searches were conducted in relevant databases (e.g. MEDLINE, Embase, Web of Science, PsycINFO, Cochrane Library). Supplementary searches included citation chasing, hand-searching websites of pertinent organisations and using Google and Google Scholar. Where possible, evidence from systematic reviews, meta-analyses or other reviews of the literature was prioritised.

New studies were screened for relevance and a simple framework was used to extract key information on substantive subjects, organised as follows:

> (1) experiences and circumstances that promote the learning and development of children in poverty below the age of eight years at different developmental stages and mitigate against the impact of significant family stress or adverse childhood experiences;
> (2) activities[4] that promote those experiences and circumstances in order to improve the early development and learning of children in poverty;
> (3) messages on implementation (including how to engage children and families in greatest need and workforce support and training).

For each subject area an attempt was made to make summary assessments as follows:

- The developmental stages to which it applies: gestation and birth; 0-1 years; 2-3 years; and 4-8 years
- For 'what matters':
  - The early learning outcomes it relates to: speech, language and communication; literacy (and pre-literacy); numeracy (and pre-numeracy); and general cognitive development
  - The strength of evidence for the relationship between the factor and the early learning outcomes (one, two or three dots to indicate lower to higher strength)
  - The nature of the relationship: causal or correlational; direct or indirect (the latter if theoretically or empirically mediated by another factor); and proximal or distal (depending on how close to early learning outcomes the factor is in the theory of change i.e. whether it represents an immediate or underlying vulnerability respectively)
  - Whether there is a socio-economic gradient to the factor whereby poorer children are more likely to experience the problem
  - Links to other factors in the framework that are theoretically or empirically affected by the factor in question

[3] https://www.emeraldinsight.com/toc/jcs/9/2

[4] 'Activities' include relevant programmes, practices, policies, approaches and multi-agency systems.

- For 'what works':
  - The strength of evidence for the impact of interventions *on the factor in question*: one or two dots to indicate lower or higher strength (or 'not known' if not tested)
  - The strength of evidence for the impact of interventions to address the factor in question on *early learning outcomes*: one or two dots to indicate lower or higher strength (or 'not known' if not tested)

These summary assessments appear at the start of the relevant chapter and are necessarily judgements based on the research team's assessment of the evidence. Particularly useful sources and links to other elements of the overarching framework are also indicated at the end of the respective chapters.

A parallel process of literature searching and data extraction operated in order to identify relevant research on implementation and systems change (Chapters 11 and 12).

Drafts of chapters were shared within the research team and with Save the Children UK and partners in Early Learning Communities and revised in the light of comments. Finally, key messages from the review were integrated into the toolkit.

STRENGTHS AND LIMITATIONS OF THE REVIEW

The review has several strengths, starting with its coverage of a wide range of subject areas relevant to the early learning and development of children in poverty. In addition to summarising key evidence in relation to what matters as regards the early learning and development of children and what works in terms of interventions or approaches that contribute to positive outcomes, it sets out key elements of effective implementation and system change. The final section seeks to integrate the findings into a coherent and practical theory of change that can be used to inform practice in Early Learning Communities.

Equally, the review has limitations that should be borne in mind when interpreting and applying the findings. The foremost of these is that, as a rapid review, it is by no means exhaustive in terms of either subject area or the literature within each subject area. Rather it has sought to prioritise on both counts and to synthesise in order to identify key messages. In that respect, it offers an introduction to key issues and should be supplemented by further reading and inquiry (hence sample resources listed at the end of chapters). It is important to stress as well that the review is in no way a substitute for consulting and complying with relevant official guidelines on the issues covered.

Four subjects that are not considered in any depth warrant a brief explanation. The first is child oral health. Tooth decay affects about one in four children aged five years in England (PHE 2014) and has an adverse effect on various aspects of their development, including growth, speech and school performance (Chou et al. 2013). A major determinant of inequality in oral health is socio-economic status (Bazian Ltd., 2014; PHE, 2014). There is robust evidence of what works in improving young children's oral health (see Chapter 11 in Axford et al. 2015a for an overview), but it was determined that the subject did not warrant extensive coverage relative to other subjects covered in the review.

The second subject not covered here concerns extracurricular activities for children, defined as "adult-supervised activities that are unrelated to the primary curricula, provide opportunities for participants to develop specific skills or knowledge, and take place outside of school hours" (Metsäpelto and Pulkkinen, 2014: 11). They are typically delivered by schools, youth organisations and after-school programmes and range from specific activities (e.g. sports, music, arts) to general programmes offered by youth developmental organisations (e.g. Scouts,

Brownies). There is evidence for the academic and non-academic benefits of participating in such activities, and for poorer children benefiting as much if not more than their better-off peers (although they are less likely to take part in such activities) (Gardner et al. 2009; Metsäpelto and Pulkkinen, 2014). However, the research is mostly conducted with children from near the upper end (7 years) of the age group covered by this review and into adolescence, hence its exclusion.

Third, there is not a separate chapter for social capital and social networks. This is not to say that they are unimportant. Indeed, there is reason to believe that they are related to many early childhood outcomes. For young children, social capital functions through parents. For example, when parents' social networks provide social support and social control there are benefits for children's behavioural development, possibly because parents feel less isolated and stressed and can set behavioural norms for their children (Turley et al. 2017). Further, extensive evidence supports the idea that parents who are less socially isolated are less likely to be irritable, distracted, neglectful or abusive, and more likely to attend and respond to their children's needs (ibid.). Another study found that family social capital exerts stronger effects on academic achievement than does school social capital (Dufur et al. 2013). However, research related to social capital in the early years and in particular means of improving it is relatively limited, hence it is given little attention here.

The fourth subject not covered in depth is intensive family support services. Arguably some of the interventions, or types of intervention, cited in the 'what works' sections of the substantive chapters constitute intensive family support. However, in recent years the term has increasingly been used to denote either intensive interventions targeted at families with multiple problems and frequently exhibiting anti-social behaviour (e.g. Pawson et al. 2009) or intensive practical support for families in poverty and/or whose children might be at risk of being removed (Featherstone et al. 2014; Cottam 2018). While these interventions may be valuable, they tend not to focus to any large degree on early learning outcomes and, moreover, they tend not to have been evaluated in robust comparison group studies. For these reasons they are not included.

Another limitation related to the nature of this review is that constituent studies have not been subject to extensive critical appraisal of the kind that is common in an in-depth systematic review. That said, as far as possible it draws on existing systematic reviews or meta-analyses which, on the whole, offer a balanced judgement based on the preponderance of the evidence (taking amount and quality into account). Attempts are also made to frame key findings bearing in mind the weight of evidence and its applicability to the UK.

A frustration for some readers may be that the review says less about the situation of children in poverty specifically, but that arguably reflects the literature. For instance, studies looking at the prevalence of an issue or trends over time often take a broader (population) perspective and comment only relatively briefly about whether a social gradient exists, while it is relatively uncommon for evaluations of interventions to explore differential effects according to a child's socio-economic status. It is worth noting, of course, that many of the kind of early intervention programmes cited in the review deliberately target socially disadvantaged families, and to that extent the findings may be taken as speaking to the target group of interest for Save the Children.

A final challenge is that, particularly for the more distal factors considered in the report, evidence for (a) their direct effect on children's early learning or (b) the effect of interventions that target them on aspects of children's early learning may be limited or non-existent. For example, it is known that parent-child interaction affects children's learning, but also that maternal mental health

affects parent-child interaction. Maternal mental health is associated with child outcomes, so it is plausible to suggest that this is at least partially because of its effect on parent-child interaction. Similarly, evaluations of interventions to prevent or address domestic abuse tend to measure the effect in terms of whether the violence persists, and in some cases how this affects children's well-being (but not necessarily learning outcomes). As such, it is necessary to make connections between different parts of the review. To continue the example, if it is known that parents' interaction with their children affects children's cognitive development and that violence in the home adversely affects those interactions, it is plausible to conclude that preventing or reducing violence has the potential to contribute to improved learning outcomes, even if it is not sufficient in and of itself. Thus, throughout the report there is an attempt to show this 'golden thread' between various distal and proximal factors and the early learning outcomes of interest.

ORGANISATION OF THE REVIEW

The remainder of the review starts with consideration of key influences on children's early learning and development, moves to an analysis of key elements of effective implementation and system responses to the issues raised, and ends by drawing together implications of key findings for the early years toolkit. Chapters 2 to 11 all follow broadly the same broad pattern in terms of covering both 'what matters' (why the issue is relevant to children's early learning and development) and 'what works' (what the evidence indicates is effective in addressing the issues identified, including where it is inconclusive or where the evidence suggests that a type of intervention is ineffective or even harmful).

Chapter 2 describes briefly how young children learn, with a particular focus on the main outcomes of interest, namely language, literacy and numeracy.

Chapters 3 and 4 focus on the role of parents in supporting children's early learning and development, with particular attention to sensitive parenting and child attachment, and parent engagement in children's learning (including the home learning environment).

Chapter 5 looks at the role of early childhood education and childcare services, recognising that they will be sites for provision of some of the interventions described in 'what works' sections above but focusing in particular on their impact on children's early learning and development and the features of high-quality provision.

Chapters 6 to 10 explore other aspects of families' lives that bear on children's early learning and development and learning whether directly or via their impact on carers, including parent health (physical and mental), family relationships (domestic abuse and child maltreatment), child nutrition, family economic situation (with a particular focus on poverty) and the wider environment (housing and neighbourhood).

Chapter 11 defines what is meant by implementation, summarises evidence for why implementation matters, and identifies key elements of effective implementation.

Chapter 12 describes aspects of system change needed to support and enable efforts to improve children's early learning.

Finally, Chapter 13 draws together headline findings and sets out implications for the toolkit. It seeks to provide a coherent framework for informing local practice aimed at improving school readiness and reducing the gap between children growing up in poverty and their peers by the time they start school and into their school careers. Where possible it aims to indicate not just domains of important intervention but also stages (i.e. what is most important to intervene in at *what stage*). It closes by outlining a theory of change for how to improve the early learning outcomes of children in poverty.

SUMMARY OF KEY POINTS

Children from poorer backgrounds often start school with fewer academic skills than their better-off peers, and as they progress through school, they often lag behind in their development.

Most social factors, at both the neighbourhood and household levels, appear to influence early childhood health and development, including their learning, creating multiple opportunities for prevention, early intervention and intersectoral approaches to tackle the complex nature of social disadvantage in the early years.

Save the Children's work in the UK seeks to achieve significant and sustainable improvements in the quality of children's early years, with a particular emphasis on narrowing the gap in early learning between children living in poverty and their better-off peers.

An ongoing refocusing of this activity involves moving from an emphasis on delivering, evaluating and scaling evidence-based programmes to achieving whole systems change. This will be supported through a UK-wide network of Early Learning Communities, in which Save the Children will work with local partners to co-design improved early learning systems.

The work needs to be grounded in scientific evidence of the early experiences that best enhance children's positive development, at each developmental stage, and the support and systemic factors that enable these experiences for children in poverty. There is a particular focus on children's speech and language development, literacy and pre-literacy, and numeracy and pre-numeracy, although the importance of social-emotional development for early learning outcomes is also acknowledged.

Its explicit aim is to draw on international research to describe the experiences and circumstances that best support the learning and development of children in poverty below the age of eight years and help protect or mitigate against the impact of significant family stress/adverse childhood experiences on development.

The evidence review examines two main *proximal* factors that directly affect children's early learning and development. The first of these concerns aspects of parenting, notably sensitive interactions and attachment, the home learning environment and parental support for children's learning. The second concerns the quality of early childhood care and education.

It also examines more distal factors associated with family socio-economic status that individually but particularly cumulatively affect children's early learning and development indirectly through *in utero* exposure to various stressors and/or their impact on parents' well-being and ability to provide good care and a positive home learning environment. This includes maternal health behaviours during pregnancy, maternal mental health, how children are fed, the relationship between the child's mother and her partner, how parents treat their children and the quality of a child's housing and neighbourhood. The family's economic situation, which acts as both a proximal and distal factor, is also considered.

Finally, the report considers why services in the early years need to be implemented well, and what it takes to do this, and how systems need to operate to facilitate effective intervention.

The review proceeded by consolidating evidence known to or authored by members of the review team, conducting a focused search of key electronic databases, extracting data from relevant studies and summarising key messages in terms of:

- **'what matters' – experiences and circumstances that promote the learning and development of children in poverty below the age of eight years at different developmental stages and mitigate against the impact of significant family stress or adverse childhood experiences; and**
- **'what works' – activities that promote those experiences and circumstances in order to improve the early development and learning of children in poverty.**

Strengths of the review include generating messages from research on a range of topics pertaining to the early learning and development of children in poverty and associated implementation and system issues.

Limitations are that as a rapid review the report necessarily offers a high-level perspective on a range of complex subjects, and does not examine issues that some might consider to be worthy of greater scrutiny, including children's oral health, extracurricular activities, families' social capital and intensive family support services.

CHAPTER 2.
CHILDREN'S EARLY LEARNING

OBJECTIVES

The objectives of this chapter are:

- **to describe briefly how young children learn, with a particular focus on the main outcomes of interest for this review, namely language (speech and communication), literacy (and pre-literacy) and numeracy (and pre-numeracy)**
- **to provide evidence of the relationship between socio-economic status and children's early learning outcomes**
- **to outline briefly other important (and related) aspects of early learning, notably play and physical development**
- **to outline the longer-term consequences of early socio-economic disparities in children's early learning**
- **to highlight opportunities to improve the early learning outcomes of children in poverty**

CHAPTER 2. CHILDREN'S EARLY LEARNING

INTRODUCTION

The purpose of this chapter is to describe briefly how young children learn, with a particular focus on the main outcomes of interest, namely language, literacy (and pre-literacy) and numeracy (and pre-numeracy). Strong skills in these areas are associated with school readiness, and with positive social and academic outcomes throughout childhood. The chapter highlights the critical role of young children's interactions with parents and also draws attention to the socio-economic gradient for these outcomes.

THE FOUNDATION: ATTACHMENT SECURITY

Research suggests that parent-child interaction is key for improving not only children's social and emotional development as a result of the attachment relationship (Chapter 3) but also children's early language and cognitive development. In infancy, responsive parent-infant interaction provides the basis for the infant's capacity to be securely attached and to use the parent as a secure base from which to explore the world. Moreover, experts advise that the kind of home learning activities described in Chapter 4 and found to be effective in improving children's development must be provided in the context of warm relationships in which children are listened to, their contributions are valued, their ideas are taken seriously and their language and thinking are encouraged (Melhuish and van der Merwe 2018). Attachment security – and the sensitive and responsive parenting that contribute to it – are, as such, associated with better learning outcomes. Positive emotional development during infancy and early childhood is also associated with school readiness and positive emotional adjustment in later life. Given the central importance of this attachment relationship, it is explored more fully in the next chapter.

COGNITIVE DEVELOPMENT

The process by which children learn to think and understand, or cognitive development, includes neurological and intellectual activities such as perception, memory, information processing, problem-solving, organising 'knowledge', and language (Asmussen et al. 2016). It occurs fundamentally through children's social interactions (Vygotsky 1962, 1978), notably with 'more knowledgeable others' (i.e. parents and other adults). Hands-on activities that are within children's unique 'zone of potential development' (ZPD) – the distance between what a child is currently capable of and what he or she can potentially achieve with adult guidance – are particularly important (ibid.). Children need adult instruction and guidance, often called 'scaffolding', in the ZPD, which in turn requires being sensitive towards the child's needs as a learner (Asmussen et al. 2016). This ensures that children are more likely to master the task and thereby gain a sense of mastery, which in turn helps them to be more confident and willing to learn.

An important concept here is executive functioning, which refers to those higher-order cognitive processes that allow children to plan, stay focused and manage their impulses (Asmussen et al. 2016). It includes behaviour that contributes to school readiness, such as impulse control (i.e. ability to not react to outside stimuli), set-shifting (i.e. ability to control moving attention from one task to another) and working memory (i.e. keeping track of short-term information) (Bernier et al. 2015). It also includes the ability to take a managerial role in the monitoring of goals, self-regulated thinking and behaviour (ibid.). Mothers' verbal ability and sensitivity in infancy have been linked to behaviours associated with

children's executive functioning (particularly their planning capabilities) when they enter primary school (Sylva 2014; Hackman et al. 2015).

LANGUAGE, LITERACY AND PRE-LITERACY

It is widely agreed by experts that early language learning is best promoted by daily parent-child language exchanges, and that richer and more varied language exchanges increase not only young children's vocabulary but also improve the cognitive and memory skills linked to improved reading comprehension when children are older (Asmussen et al. 2016). Mathers et al. (2014) highlighted the importance for children's early learning of early interactions in which young children take the lead. Parents and carers can enhance their children's speech and language development, and in the process enhance their own relationship with children, through conversation and enjoyable shared play and activities such as book reading, and sharing rhymes and songs. Put another way, socially meaningful interactions between caregivers and children (responding to their child's early attempts to communicate, maximising talk during every day routines, and so on) optimises early development (Law et al. 2017a). For example, infants produce more syllabic, speech-like vocalisations when mothers smile and make eye contact with them, and infants whose mothers respond to their vocalisations with behaviours such as smiling and touching produce more developmentally advanced vocalisations.

Parenting behaviours that reinforce child's early learning include infant-directed and responsive speech, the gentle but exaggerated baby talk that takes place in reciprocal parent-child interactions (Asmussen et al. 2016). This reinforces several key skills, namely differentiating the sounds of words, associating words with emotional expressions, grasping the meaning of specific words and using language for communication.

Communicative gestures, used to share attention, are precursors to language development; early gesture use is a strong predictor of later language ability (ibid). Further, the amount of time infants and caregivers spend interacting together over objects, particular those objects of interest (by holding them up to the caregiver), predicts the frequency of infant gestures both concurrently and at later stages of development (Salomo and Liszkowski 2013).

The nature of such interactions changes as children develop, as Mathers et al. (2014) outline for the child's first three years. Thus, babies and toddlers use many different 'languages' to express themselves, and through active involvement in dance, song, creative activities and pretend play (see below) they have opportunities to express themselves, use all their senses and develop and represent ideas. The foundations of early language skills are laid when caregivers 'join in the conversation' by responding to a baby's expressions and vocalisations. This enables children to extend their range of vocalisations, experiment with a growing vocabulary and learn about the rules of conversation (e.g. turn-taking, sensitive timing, listening and responding to behaviour and facial expressions). Play with babies, which involves verbal exchanges, also lays the foundation for later, more complex verbal interaction. Indeed, from birth, engagement and verbal stimulation by parents in interaction with their children is the key transmitter of language development. Babies in poor households tend to hear fewer words and engage in fewer conversations.

During the second year, narratives become an increasingly important means of learning (ibid.). Narrative refers to recalling and retelling experiences, either within children's own lives or through story-telling and imaginative role play. It helps children to give meaning to their personal and social experiences and is a tool for thinking. Storytelling is most effective when children are encouraged to

form their own accounts and make hypotheses about events and consequences (Why did that happen? What will happen next?). Conversations with children about what has taken place or what might take place helps them to develop a rich vocabulary and contemplate an imaginary world.

By recall and retelling their day-to-day experiences, especially with people, objects or activities that are meaningful to them, children develop their sense of self, self-regulation and understanding of others' minds (ibid.). Story-telling and role-play, meanwhile, help children to understand, predict and try out different human behaviours. Narratives may be expressed through song, dance, movement or drawing and painting as well as through words. Through listening to, prompting and extending stories, caregivers play an important role in facilitating these narratives. Conversations between adults and children during the second year often rely on non-verbal cues, as children's language may not be easy to understand, so adults need to be carefully attuned to interpret children's communications and respond appropriately. Similarly, the development of 'narratives' (either real or imagined) in the second year of life, which is also important for later learning involves responsive adults who can 'share and enrich children's narratives, support storytelling and creative games, teach early literacy skills and encourage children to play imaginatively together; allowing children to take the lead and provide structure and guidance when needed' (see Mathers et al. 2014 for an overview).

Between 24 and 36 months, great advances are made in children's communication, language, social competence, thinking, memory and social awareness. This is supported and encouraged by responsive adults who use storytelling and creative games to share and enrich children's narratives, teach early literacy skills and encourage children to play imaginatively together, allowing children to take the lead and providing structure or guidance when needed (ibid.).

Some of the key features of effective parent-child communication can be highlighted. First, the kind of conversational turn-taking skills, which are key to establishing early attachment relationships with infants (see Chapter 3), are also key to the early language and conversational skills of toddlers and young children (Markus et al. 2000). Second, the number and variety of different words or syllables a child hears (Pan et al. 2005) directly affects his or her speech and language development. Third, contingency in interaction (i.e. communicating when the infant is ready to receive and process it) is important; less high contingency communication may be more effective than more low contingency communication (Topping et al. 2013). This sensitivity/responsiveness in communication particularly affects vocabulary and the age when children start talking. Fourth, communicative gestures, used to share attention, are precursors to language development, including vocabulary and comprehension (Law et al. 2017a). Fifth, toys facilitate symbolic play and the development of curiosity and provide an opportunity for interaction (Topping et al. 2013). Lastly, conflict and resolution resulting from interaction with siblings and peers also enhances language development.

In terms of early language development, therefore, research suggests that the following factors are key to optimal early development: the amount of words spoken to a child; the extent to which adults provide cues for and respond sensitively to children's communication; the way adults talk with children, such as encouraging the child to take the lead, elaborating on their utterances, engaging in conversations that include reminiscing about events, and sharing rhymes, songs, and books. For bilingual children, the continued use of the home

language is very important, including reading in the home language. Moreover, different types of interaction at different ages can affect different aspects of language development. For example, interventions that focus on training parents and practitioners to engage in a lot of social interaction with babies should result in babies vocalising more frequently and producing more sophisticated vocalisations, while those that promote language-boosting behaviours focused on both vocabulary learning and contextually supported language use in daily routines (when getting dressed, meal times and so on) are likely to have a positive impact on the development of sentences (Law et al. 2017).

Shared book reading is an ideal context for early language learning (Asmussen et al. 2016), and looking at books together, for example pointing to familiar objects and talking about the pictures, can promote early literacy skills. Most toddlers enjoy being read to and have identified several favourite stories by the age of 18 months (ibid.). Reading aloud and storytelling, with or without books, gives infants a sense of security and familiarity and promotes vocabulary development. Early language skills are also fostered by the use of familiar songs and rhymes, including those with accompanying movements. Books introduce children to new words, give them opportunities to practise and apply those words in different contexts, and allow children to imagine new situations (real and pretend), while shared book reading can reinforce the attachment relationship through opportunities for positive parent-child exchanges (ibid.). Shared book reading can also promote executive function skills, which together with knowledge of letters and numbers, best prepare children for the transition to school (Blair and Razza 2007).

In contrast, recent research has found that household chaos (e.g. noise, crowding, lack of structure and routine), and in particular household disorganisation, adversely affect children's ability both to express and understand language at 36 months. This can have a long-term impact not only on cognitive development but also on the child's ability to negotiate with others and interact positively with peers.

It is worth acknowledging that most research showing that individual differences in children's language skills stem in part from variations in the quantity and quality of parent speech input focuses on mothers' input whereas less is known about the effects of variability in father input (Leech et al. 2013). A review of the relationship between parent input and child language development with a focus on low-income families found that conversation-eliciting speech, such as 'wh' questions and clarification requests, occur on average more frequently in father input than mother input (ibid.). This is important because conversation-eliciting speech is challenging for 2-year-old children and has been shown in research with mothers to relate to child vocabulary development. The study concluded that understanding that speech input varies among fathers, and the specific strengths that fathers bring to interactions with their young children, can help develop and implement more effective speech and language interventions.

The income achievement gap in reading grows most during the first five years, and then remains large (Rowe 2017). A key indicator is children's vocabulary, because early vocabulary skills are highly predictive of learning to read and school success generally. An important factor in children's vocabulary growth is the language input that they receive, notably their communicative conversational experiences. Research shows that parents' input in this respect is shaped by their knowledge of child development and their parenting mindset beliefs (ibid.). This suggests that there is value in (1) providing caregivers with information about why parent input matters for child development, and

(2) helping them to understand how much difference they can make and promoting a growth mindset (ibid.)

Rowe (2017) identified several features of parent input that research shows best predict children's vocabulary development in the early years:

- From birth:
  - Responsiveness, contingent talk, fluent and connected communication
  - Repetition of words
- From 1 year:
  - Gesture (parent gesture predicts child gesture, for instance children see parents point and do so themselves, and parents translate their children's gestures into words).
- 1 to 2 years:
  - Ask challenging 'wh-' questions
- 2 to 3 years
  - Diversity, sophistication, complexity
- 3 to 5 years:
  - Decontextualised talk and explanations, which refers to language removed from the here and now

NUMERACY AND PRE-NUMERACY

According to the All Party Parliamentary Group for Maths and Numeracy, numeracy during the pre-school years is "vitally important and sets them on a path towards numeracy skills and confidence in later life" (All Party Parliamentary Group for Maths and Numeracy, 2015: 1). Children who bring into school early mathematical knowledge are advantaged in terms of their mathematical progress through primary school. For example, one small-scale longitudinal study in England found that children who enter Key Stage 1 with higher numeracy knowledge performed better on maths assessments at the end of both Key Stage 1 and Key Stage 2 (Aubrey et al. 2006).

Early numeracy skills, or pre-numeracy, are defined as a child's fluidity and flexibility with numbers, sense of what numbers mean, and ability to perform mental mathematics and to look at the world and make comparisons (Lindahl, 2016). In practical terms, this involves exposure to the language of mathematics in play through activities such as singing number rhymes, fitting smaller boxes into bigger boxes, talking about concepts such as 'same', 'different', 'fast' and 'slow', and practising tactical skills such as sorting, pouring and measuring.

This early exposure to mathematical concepts helps young children to develop number sense, which provides a sound foundation for learning maths at school (Reid and Andrews 2016). Number sense refers to a child's level of comfort with numbers and what numbers mean as well as an ability to perform mental mathematics and to look at the world and make comparisons. Put another way, it concerns the inclination and ability to use numbers and quantitative methods as a means of communicating, processing and interpreting information, the expectation that numbers are useful, and the appreciation that mathematics has a role in our everyday lives (McIntosh et al. 1992).

Numbering, numerical relations and arithmetic operations are the most studied and most necessary skills for the development of basic formal mathematics skills such as addition and subtraction (Purpura et al. 2011). These domains cover a child's ability to understand counting processes and sequences, think critically

about numbers and quantity, understand the association between collections of objects and numbers on a mental number line, know the meaning of numerals, and understand how to compose and decompose specific quantities (Lindahl, 2016).

Specifically, numbering covers the verbal counting sequence, knowledge of counting principles, and the ability to determine the total number of items in a set by immediately recognising it or by counting the set (Purpura et al. 2011). The concept of numerical relations refers to the understanding of how two or more items are connected or relevant to each other and the association between the numbers on the mental number line (ibid.). Lastly, arithmetic operations refers to the ability to understand changes in quantity and obtain new quantities from the change in the size of sets (ibid.).

Where such knowledge and skills are lacking, children's mathematics development at school may be adversely affected (Reid and Andrews 2016). In fact, without intervention, children with little mathematical knowledge at the beginning of formal schooling will remain low achievers throughout their primary years and, probably, beyond (Aubrey et al. 2006). For example, mathematics skills in childhood are strongly associated with socio-economic status in adulthood – above and beyond the effects of socio-economic status at birth – and with other important factors, such as intelligence (Ritchie and Bates 2013).

PLAY

There is consensus that play in which children take the lead and make personal choices is essential for supporting children's social, emotional, cognitive and physical development and learning in their early years and beyond (Mathers et al. 2014). Accordingly, children need a balanced range of play-based activities and experiences, including opportunities to explore the environment actively and engage in different forms or indoor and outdoor play. Of particular importance is floor-based play, which allows children to explore different objects and experiences, and symbolic or representational play, which entails enacting familiar activities out of context and using objects to represent other objects.

The research around play and its positive effects on healthy child development is extensive, dating back decades. More recent research supports the notion that play is an essential part of childhood, with strong links with language, logical/mathematical, physical, cognitive, and social development (Early Childhood Learning Division 2011; Burriss and Tsao, 2002). Studies have also shown that play improves attention, planning skills, and attitudes, creativity and divergent thinking, perspective-taking, and memory (Isenberg and Quisenberry 2002). When children play they integrate all types of learning, their brains develop, and outdoor play, specifically, helps with children's sensory and coordination development (Early Childhood Learning Division, 2011).

Certain factors may influence cognitive development during play, such as individual personal characteristics (e.g., playful attitudes), certain play activities (e.g., dramatic play or experiencing symbolic play), and factors of the play situations (e.g., use of unconstructed materials in play) (Burriss and Tsao, 2002). While it is critical to use a balance of child-initiated and adult-guided play, parents, caregivers and early childhood professionals have a crucial role in

carefully structuring and planning the use of play in the curriculum and the learning environment (Burriss and Tsao, 2002; Early Childhood Learning Division, 2011; Isenberg and Quisenberry, 2002).

Parents can take a role in their children's learning by comforting and responding to children's needs as well as reading, talking, singing, dancing and exploring the world with their children (Early Childhood Learning Division, 2011). In fact, in one study of African American children in the US, teachers noted that children who frequently played at home were motivated, autonomous and attentive, and displayed a positive attitude toward learning (Bulotsky-Shearer et al. 2010).

In the classroom, embedding literacy materials in pretend play increases young children's engagement in literacy activities, as such environmental print in pretend play helps children to understand what reading is and how print works (Early Childhood Learning Division 2011). It is enhanced when children draw from their knowledge and experience with stories and topics they have been exposed to through books and conversations (ibid.).

Further, the support of parents and other significant adults in exploring mathematics through play, and everyday activities, is important in a child's mathematical development (Early Childhood Learning Division 2011). Opportunities to engage in mathematical activities on a daily basis in a playful, natural way helps prepare children for when they encounter mathematical concepts in formal schooling (ibid).

PHYSICAL ACTIVITY

There is strong evidence for the positive relationship between physical activity and physical health but also evidence for relationship between physical activity and a variety of well-being outcomes, including those relating to mental health (e.g. self-esteem, anxiety, stress) and those more closely concerned with learning (e.g. cognitive functioning, academic achievement, attention and concentration) (Chalkley et al. 2015). Young children need opportunities to move and be physically active (Mathers et al. 2014). For children over three years, increased physical activity is associated with motor skill development (important for writing), psychosocial health, cardio-metabolic health and reduced obesity. The evidence base is sparser for children under three, although there is low to moderate evidence for infants and moderate evidence for toddlers that increased physical activity is associated with reduced obesity, improved bone and skeletal health and improved motor and cognitive development (part of children's early learning).

Research is not sufficiently detailed to identify the most effective pedagogical practices for encouraging physical development at different ages. However, there are national physical activity guidelines in several countries based on expert interpretation of the evidence. These cover the importance of floor-based play (e.g. tummy time, crawling, rolling) and water-based activities and play with other people, objects and toys (for children not yet walking) and activities that allow children to use large muscles and to develop loco-motor, stability and object control skills once they start to walk (e.g. walking, cycling, scooting, active purposeful play, everyday tasks such as tidying up toys) (e.g. Department of Health 2011). According to guidelines, babies should be active several times a day and toddlers for three hours. Sedentary behaviour (being restrained or sitting in high chairs, pushchairs, baby walkers) for extended periods should be minimised (ibid.).

Official figures show that for children in England aged 2 to 4 years fewer than one in 10 (9%) are involved in the recommended three or more hours of physical activity per day (there are no comparable figures for the other parts of the UK).[5]

Collectively the data suggest that large numbers of children are not participating in recommended levels (Department of Health 2011) of physical activity across the UK. Parent influence is clearly important insofar as parents model physical activity, create opportunities for physical activity and encourage children to be physically active (Chalkley and Sherar, forthcoming). Marginalised groups are disadvantaged in their access to opportunities to be physically active. Promoting children's physical activity requires a multifaceted approach to address multiple influences, and there is evidence for the effectiveness of interventions to reduce sedentary behaviour on these behaviours and anthropometric measurements such as BMI (e.g. Biddle et al. 2014; van Grieken et al. 2012; Maniccia et al. 2011).

THE SOCIO-ECONOMIC GRADIENT

There is a social gradient to the development of aspects of school readiness: children from poorer backgrounds tend to do worse than their more affluent peers. This is not deterministic, but the risk of poor outcomes decreases as family socio-economic status increases. This applies particularly to cognitive developmental and educational outcomes (Chaudry and Wimer 2016).

For example, a report by the Department for Education (2014) showed that while 60% of children are making good progress against the early years foundation stage profile (EYFSP) of child development, this figure drops to 53% in deprived areas. Similarly, Millennium Cohort data show that poorer children are over-represented in the bottom quintiles for language ability at 3 and 5 years of age and under-represented in the top quintiles (Donkin et al. 2014). Social disadvantage during the early years is a primary risk factor for academic problems throughout children's development (Asmussen et al. 2016). The difference between low- and middle-income children is stark and persistent by entry to primary school (ibid.). Indeed, the gap between lower- and middle-income children assessed as having a good level of development remained at a constant 19% over a 13-year period despite the overall attainment of preschool children in the UK increasing (Ofsted 2015).

Delays to development during the preschool period show a significant socio-economic gradient, with disadvantaged children being significantly more likely to show signs of cognitive and language delays. Specifically, on average, children from low socio-economic status (SES) homes and children from homes in which a language other than English is spoken have language development trajectories that are different from those of children from middle-class, monolingual English-speaking homes (Hoff 2013) (although it should be acknowledged that in the case of children with English as an Additional Language their language trajectory at home may be good.). Many reach school age with lower levels of English language skill than do middle-class, monolingual children. Even at 16-30 months of age, children in the US from lower SES backgrounds have smaller vocabularies, on average, than children from higher SES backgrounds (Law et al. 2017a).

Given that children's early language environments are critical for their cognitive development, school readiness and ultimate educational attainment, it is important to note that significant disparities exist in these environments, with profound and lasting impacts on children's ultimate outcomes (Leffel and Suskind 2013). Research demonstrates differences in the quantity and quality of language that children hear across low-, mid-, and high-SES groups, and that family and community factors may constrain parents' ability to participate in high-quality interactions with their young children (Schwab and Lew-Williams 2016). For example, differences in the rate of productive vocabulary growth between children from different SES groups at two years of age can be explained

[5] https://www.gov.uk/government/statistics/health-survey-for-england-health-survey-for-england-2015

almost entirely by differences in caregiver input (Law et al. 2018). Children from backgrounds of low socio-economic status experience diminished language inputs and enter school at a disadvantage, with disparities persisting throughout their educational careers.
According to Asmussen et al. (2016), such disparities may be attributed to:

> (1) *indirect* processes, namely the low educational attainment and limited financial resources that restrict parents' capacity to provide their children with a sufficiently enriching environment, and
> (2) *direct* processes, that is parents' interaction with their children through language and scaffolding behaviours.

For instance, there is consistent evidence that, compared with mothers who did not complete secondary school or attend university, university-educated mothers talk to their babies more frequently, use a richer vocabulary and respond more appropriately to their babies' speech (Hoff 2003; Hart and Risley 2003). The so-called '30 million word gap' refers to a study in the US which showed that by the age of three years middle-class children have heard over 30 million more words and a more diverse vocabulary than lower-income children (Hart and Risley 1995). The same study found that children's speech mirrored that of their parents. There have been other studies of this issue since in the UK, US and elsewhere, involving larger samples from more diverse backgrounds – for example, see Kelly et al. 2011; Pace et al. 2017; both cited in Law et al. 2017). Indeed, one study has shown that the gap is already in existence at 18 months (Fernald et al. 2013). An analysis of data from the Millennium Cohort Study found that although children's academic performance was predicted by social disadvantage, their language skills at 5 years was one of the of the most important factors in children reaching the expected levels in English and maths at age 7 years (Finnegan et al. 2015).

Lasting disparities in language development between poor and better-off children in cognitive ability are apparent by the time children are nearing two years of age. Moreover, those who do well initially but whose parents are poorer do less well than those who do worse initially but whose parents are better-off. And children with low initial scores can catch up if their parents are educated or wealthy but are unlikely to do so if their parents are disadvantaged.

In terms of children's social and emotional development, characteristics such as perseverance, motivation, self-esteem and self-control are all associated with parents' socio-economic position. The development of such skills takes place in the early years. As a result, children from disadvantaged backgrounds are more likely to start primary school with lower social-emotional skills than their peers and are much more likely to develop conduct disorders that lead to difficulties in education, relationships and longer-term mental health and ability to contribute to society. For example, one study found that at 3 years 16% of children from families in the lowest income group had socio-emotional difficulties compared with 2% of children from families in the highest income group (cited in Donkin et al. 2014).

LONGER-TERM CONSEQUENCES

These disparities between poorer and richer children matter because of their effects on children's later development. For example, early disparities in oral language skills (vocabulary and grammatical knowledge) have consequences for academic achievement. Low levels of English language skill are a risk factor for children about to enter school, and this in turn, has adverse effects. For example, longitudinal research shows that children with stronger vocabulary and grammatical skills (knowledge of word order in sentences and morphological rules such as the past tense 'ed') at school entry (age 4) go on to have more

advanced reading comprehension skills two years later compared to children with less advanced skills (Law et al. 2017a). Similarly, children who begin school with more advanced oral language skills developed in their home environment or early years setting will fare better in learning to read successfully. Phonological awareness in preschoolers is strongly related to their later ability to read fluently, even when other skills such as vocabulary are controlled, and children's knowledge of print in the preschool years is concurrently related to their vocabulary and is predictive of their later reading ability.

CONCLUSION

The preschool years represent a prime opportunity to promote the language and communication of all children, but particularly those who may need additional support, especially those who are from socially disadvantaged backgrounds. Although both genetic and environmental factors affect early child development, including the risk of problems such as language delay, the environment – especially the parent-child relationship – is particularly important during the preschool years. Based on a review of the evidence, Law et al. (2017) concluded that "at all levels of communicative development in the preschool years (0-5), the right environmental support has the potential to make a real difference to children's language learning, and consequently to their later academic success" (p.14). This chapter has also shown that interaction with adults who are in a caregiving position, whether as parents or teachers in early childhood education and care, is the primary means through which children learn.

Given that, during the early years, a child's home and parents are the main agents of influence, the next-but-one chapter (Chapter 4) looks at the relationship between parent support for learning (including the home learning environment) and children's early learning outcomes and how it can be promoted. However, children in the UK increasingly spend a significant amount of time in early years education and childcare, which in turn can support parents, so the subsequent chapter (Chapter 5) considers the effectiveness of such provision and how it can be strengthened. But first, the next chapter looks at the role of parent-child interaction in infancy and the foundational importance of attachment security for children's learning and other aspects of their development.

SUMMARY OF KEY POINTS

A child's secure attachment to their parent or primary caregiver is foundational to children's early learning because it provides them with a secure base from which to explore the world.

Children's cognitive development occurs fundamentally through their social interactions, in particular those with parents and other adults. They need adult instruction and guidance, or 'scaffolding', in order to learn and master tasks.

Children's early language learning is best promoted by daily parent-child language exchanges. There is particular value in richer and more varied language exchanges, including those in which the child takes the lead, in the context of enjoyable shared play and activities such as book reading and sharing rhymes and songs.

The nature of these interactions changes as children develop, for example moving from exaggerated baby talk and gestures in infancy to more decontextualised talk by the age of 4 or 5 years.

Several key features of effective parent-child communication can be identified, including *inter alia*: the use of communicative gestures; conversational turn-taking; the number and variety of words a child hears; the quality and sensitivity of interaction; the use of toys to facilitate symbolic play and develop curiosity; and shared book-reading.

Improving parent-child interaction in the early years is therefore important for improving children's early language and cognitive development.

Early exposure to mathematical concepts in play through activities such as singing number rhymes and practising skills such as sorting and measuring helps children to develop number sense, which in turn provides a sound foundation for learning maths at school. Without intervention, children with little mathematical knowledge at the beginning of formal schooling are likely to remain low achievers throughout their primary years and, probably, beyond.

Play in which children take the lead and make personal choices is essential for supporting children's cognitive, social, emotional and physical development and learning in their early years and beyond.

Children need a balanced range of play-based activities and experiences, including opportunities to explore the environment actively and engage in different forms or indoor and outdoor play.

In the classroom, embedding literacy materials in pretend play increases young children's engagement in literacy activities, and engaging children in mathematical activities on a daily basis in a playful, natural way helps prepare them for when they encounter mathematical concepts in formal schooling.

Young children also need opportunities to move and be physically active, with evidence that increased activity is associated with better physical health (including reduced obesity) and motor and cognitive development.

National physical activity guidelines in several countries cover the importance of floor-based play and play with other people, objects and toys (for children not yet walking) and activities that allow children to use large muscles and to develop loco-motor, stability and object control skills (once they start to walk).

There is a socio-economic gradient to the development of aspects of school readiness, with children from more disadvantaged backgrounds having poorer early learning and social-emotional outcomes in the early years than their better-off peers. These early differences adversely affect children's later development, including their academic attainment.

Further reading and resources

Law, J., Charlton, J. and Asmussen, K. (2017) *Language as a Child Well-being Indicator*. London: Early Intervention Foundation. https://www.eif.org.uk/report/language-as-a-child-wellbeing-indicator

Law, J., Charlton, J., Dockrell, J., Gascoigne, M., McKean, C. and Theakston, A. (2017) *Early Language Development: Needs, Provision, and Intervention for Preschool Children from Socio-economically Disadvantaged Backgrounds*. London: Education Endowment Foundation. https://educationendowmentfoundation.org.uk/evidence-summaries/evidence-reviews/early-language/

CHAPTER 3.
ATTACHMENT AND SENSITIVE PARENTING[6]

Note: See Chapter 1 for an explanation of the categories and ratings

AGES: **0-1, 2-3**

WHAT MATTERS

OUTCOMES
General cognitive

STRENGTH

NATURE
Correlational, Direct, Proximal

SOCIO-ECONOMIC GRADIENT
Yes

LINKS
N/A

WHAT WORKS

IMPACT ON ISSUE

IMPACT ON EARLY LEARNING OUTCOMES
Not known

[6] This chapter draws in part on: Axford and Barlow (2013), Barlow and Axford (2013), Axford et al. (2015a, 2015b) and Barlow et al. (2016).

OBJECTIVES

The objectives of this chapter are:

- **to explain what attachment is and its importance for children's early learning**
- **to provide evidence for the relationship between attachment and social disadvantage**
- **to outline the factors that contribute to secure attachment, on the one hand, and insecure and disorganised attachment, on the other**
- **to describe the kinds of intervention that are effective in promoting secure attachment and reducing insecure or disorganised attachment**

CHAPTER 3. ATTACHMENT AND SENSITIVE PARENTING

INTRODUCTION

The previous chapter showed that positive parent-child interaction is key for improving children's early learning and that children who are securely attached are better able to learn because it gives them a secure base from which to explore the world. Attachment security is, as such, associated with better learning outcomes. The aims of this chapter are to unpack in more detail why attachment is important for early learning, to show how it relates to socio-economic disadvantage, to explain what contributes to secure attachment and, finally, to outline the kinds of interventions that can promote secure attachment and address insecure and disorganised attachment.

WHAT MATTERS

A child's development is profoundly affected by the quality of their attachment with a parent. This has effects on aspects of children's social-emotional development, which as discussed in Chapter 1 are important elements of school readiness (if not the focus on the present review): "Insecure and disorganised children may bring their negative attachment experiences into their new social interactions and therefore may show more adaptational problems in the social and behavioural domains" (Van der Voort et al. 2014: 169). For example, one meta-analysis found that attachment security predicted children's social competence with peers, whereas avoidance, resistance and disorganisation all predicted less social peer competence (Groh et al. 2014). In other studies, meta-analyses have shown that attachment insecurity and attachment disorganisation both predict externalising behaviour problems as reported by mothers (Fearon et al. 2010), and that attachment insecurity and in particular avoidance relate to internalising problems (Groh et al. 2012).

The socio-emotional and behavioural skills with which secure attachment equips children are important here because children need them in order to function well in a classroom and achieve academically (Bergin and Bergin 2009; Drake et al. 2014; Bernier et al. 2015). For example, one study using data from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development, in the US, showed that attachment security in infancy and preschool predicted self-regulation at 6-7 years and 10-11 years (Drake et al. 2014). The study authors suggest that "considering young children's experiences within primary relationships may help shed further light on the processes that support their readiness to navigate the social and cognitive challenges of the school environment" (ibid., p.9).

Similarly, a Canadian longitudinal study (3-year follow up, 105 mother-child pairs) examined the relationship between attachment and executive functioning in young children. Kindergarteners (aged 5-6 years) who were more securely attached to their mothers in toddlerhood showed better performance on all executive functioning tasks and were considered by their teachers to present fewer executive functioning problems (Bernier et al. 2015). These finding persisted even after controlling for family socioeconomic status, child age, sex, and general cognitive functioning (ibid.).

Attachment has also been shown in larger reviews to be associated with children's early language development (Moullin et al. 2014). Specifically, they show that "insecure-avoidant attachment is associated with poorer language skills at age three, even after accounting for other risks like poverty, minority ethnicity, single parenthood, social support, and maternal depression or stress – although the detrimental effect of poor attachment is particularly strong for children exposed to more of these risks" (ibid., p.14). Secure attachment and early

literacy work "hand in hand" (p.14) insofar as "secure parents are better 'teachers', and secure children more receptive, motivated 'students'" (p.14). Moreover, sensitive parent-chid interactions and attachment security between 1 and 2 years are associated with children's executive function (working memory, mental flexibility, self-control), which is known to help with learning, at 3 years (ibid.).

THE EFFECTS ON CHILDREN OF EXPOSURE TO STRESS

A review of the evidence for the 'A Better Start' initiative made several points to highlight the importance of the attachment relationship (Axford and Barlow 2013). First, infants experience different sources of stress, whether internal (e.g. hunger, tiredness, discomfort) or external (e.g. fear). Since babies are completely dependent on their primary caregivers for emotional regulation, when they are distressed they rely on a caregiver to comfort them. Second, a key task of children in infancy and early childhood is learning how to begin to regulate themselves. Sensitive and responsive caregiving from a parent or a childcare provider can serve as a powerful buffer against stress hormone exposure (NSCDC 2014) and help children to regulate their emotions and behaviour. Children with a good capacity for self-regulation function better in a wide range of later life situations. Third, some children are exposed to 'toxic stress', namely the severe and prolonged activation of the infant/toddler's stress response system without any buffering from a supportive and responsive caregiver.[7] Such stress is elevated in disadvantaged communities and occurs as a result of various factors, including extreme poverty, recurrent abuse and neglect, parental substance misuse, domestic abuse, severe parental mental health problems and overcrowded or poor-quality housing (the effects of all of these on children's early learning are covered in later chapters in this report). Fourth, children's experience of toxic stress can affect the development of their brain and reduce thresholds for stress, which in turn can impair learning and behaviour and contribute to chronic, stress-related physical and mental illness.

THE ROLE OF ATTACHMENT

Attachment is the key mechanism by which young children manage stress and learn to regulate themselves. Specifically, when children are distressed they seek comfort and security from their primary caregivers. These intimate interactions form the foundations of cognitive development and a developing sense of self (Mathers et al. 2014). In the first few months, babies need physical support and protection but also emotional nurturing. They are competent learners, primed to be curious and explore, discovering things about themselves, others and their environment (ibid.). They communicate their needs (gazing, moving, crying, smiling) and rely on caregivers to be sensitive and responsive to their signals in order to meet their needs for care and interaction (ibid.). Parents act as a safe haven or secure base from which children can explore the world.

Parents who are consistently responsive to their child's distress help their children to become 'securely' attached (van der Voort et al. 2014). These children learn how to regulate their emotional states, build positive images of themselves and others that stay with them throughout later life, and encounter new social situations with a basic sense of trust (ibid.). Infants and toddlers whose parents are able to understand what their infant is feeling (known as 'mind-mindedness') are more likely to be securely attached. Attachment security is significantly associated with a range of improved child outcomes across various domains of functioning, including academic achievement and social-emotional and behavioural adjustment (Sroufe, 2005).

While the majority of children (60%) are *securely* attached, the remainder (40%) are insecurely attached (Moullin et al. 2014). Children who are insecurely attached are less able to be comforted by parents and other adults when they are distressed, or to use them as a 'secure base' from which to explore the

[7] https://developingchild.harvard.edu/science/key-concepts/toxic-stress/

world. Insecurely attached children split into two main groups. One concerns the one in four (25%) children who learn to avoid their parent when they are distressed because the parent ignores their emotional needs; this is referred to as *avoidant* attachment (ibid.) The other 15% of children develop a *disorganised* attachment as a result of experiencing parenting during the first two years of life that frightens rather than comforts them, thereby amplifying their distress (van der Voort et al. 2014; Moullin et al. 2014). This may occur if parents have suffered unresolved loss or traumatic experiences These children build up images of themselves as 'bad' and their parents/other adults as uncaring and even dangerous (Axford and Barlow 2013). The prevalence of disorganised attachment is higher in disadvantaged groups, rising to 25% according to Moullin et al. (2014) and even 80% in maltreated populations (Cyr et al. 2010). Insecurely attached children are at greater risk for prominent impediments to education and upward social mobility, including poor literacy, weaker executive function, behaviour problems (aggression, defiance, hyperactivity), and leaving school without further education, employment or training (Moullin et al. 2014). Insecure attachment is also associated with less resilience to poverty and parental mental health problems (ibid.), and later problems such as externalising disorders, PTSD and personality disorder (van der Voort et al. 2014; Barlow et al. 2016).

FACTORS AFFECTING ATTACHMENT

Parents who are consistently responsive to their child's distress help their children to become 'securely' attached, and these children learn how to regulate their emotional states. However, it can be difficult for parents who face insecurity, whether economic or emotional, to offer the parenting needed for secure attachment (Moullin et al. 2014). According to a nationally representative study in the US (Halle et al. 2009), the odds of insecure attachment at two years were double in families below twice the poverty line, relative to families with incomes above this threshold. The impact of poverty on attachment is considered to be indirect via the high levels of stress it creates for parents and their children (Moullin et al. 2014). Parents in poverty are more likely to be depressed and to experience family instability and poor health and to receive poorer quality services (see Chapters 6 and 8 of this report).

Parenting during the first year of life is one of the primary predictors of infant attachment security, indeed an early systematic review of 12 studies found that parental sensitivity was a significant predictor of such security (De Wolff and Izjendoorn 1997; see also Van der Voort et al. 2014). Sensitive parents can pick up the child's signals, interpret them correctly and act on them promptly and adequately. Affectionate and mutually attentive relationships in which babies and caregivers are attuned to rhythms and expressions of voice, facial expression, touch and body movements are the foundations of early development (Mathers et al. 2014). Playful interactions, in which young children take the lead, are the driving force of early learning (ibid.).

However, parental sensitivity explained only around a third of the total variance (De Wolff and Izjendoorn 1997). Two further components have been identified as important for attachment. The first is 'reflective functioning', which refers to a parents' capacity to acknowledge the child's mental state (feelings, beliefs and intentions) and foresee his or her psychological needs (Slade et al. 2001; Fonagy et al. 2002). A related concept is 'mind-mindedness', which refers to a mother's ability to treat her infant as an individual with a mind rather than a set of need states that must be satisfied (Meins et al. 2001, 2002). Second is 'midrange' interaction, referring to the specific nature or quality of the attunement or contingency between parent and infant, and in particular to interaction that is neither too intrusive nor too passive (Beebe et al. 2010).

In contrast, parenting that is unresponsive/punitive or erratic/intrusive is associated with avoidant and anxious/resistant attachment, while abusive/neglectful parenting practices are associated with disorganised attachment. For example, a meta-analysis of 12 studies found a strong association between atypical or 'anomalous' parent-infant interaction at 12-18 months and disorganised attachment (Madigan et al. 2006). A range of factors may compromise a parent's ability to provide attuned and responsive parenting, including poverty, mental health problems (e.g. anxiety and depression), social isolation, domestic abuse and substance or alcohol misuse, all of which are addressed in later chapters in this report.

AS CHILDREN GET OLDER

As young children begin to develop a sense of independence, they need interaction with their parents that are primarily aimed at enabling them to use the parent as a 'safe base' from which to explore the world (Axford et al. 2015b). As such, toddlers build on their secure attachment to primary carers in order to develop their exploration and learning. Parents function as a 'safe base' for their toddler by: encouraging and delighting in the child's explorations; being available to comfort the child when they are distressed; providing boundaries and supervision; and using positive discipline rather than the type of coercive cycles of interaction that contribute to and reinforce behaviour problems (ibid.).

WHAT WORKS

Early intervention with parents that focuses on maternal sensitivity has been clinically effective in promoting secure attachment in children (Wright and Edginton, 2016). Among the interventions found to be effective are infant carrying (using soft baby carriers daily, with the aim of promoting increased physical contact and encouraging greater maternal responsiveness), home-based and home visiting programmes and toddler parent psychotherapy (ibid.). The same study conducted a meta-analysis, finding that parent-child attachment interventions resulted in increased secure behaviours compared with the control groups (ibid.). Studies seeking to reduce disorganised attachment showed that interventions resulted in overall reductions in disorganised attachment compared with the control groups (ibid.). Another recent review (Barlow et al. 2016) distinguished between interventions with an effect on attachment, on the one hand, and attachment-related outcomes, on the other, reflected in what follows.

A systematic review of preventive interventions aimed at improving sensitivity in depressed mothers found a small-to-medium effect overall (Kersten-Alvarez et al. 2011). It included interventions such as interpersonal psychotherapy, non-directive counselling, CBT, infant massage, home-based interaction coaching, parent training, support group, and mother-infant therapy. A later review, focusing on interventions targeting disadvantaged mother-child dyads (or pairs), found a small mean effect size for observed parent-child interaction, with the most positive results when programmes were shorter, provided direct services to the parent-child dyad (or pair) and were delivered by professionals (Mortensen and MasterGeorge 2014). Like the earlier review, it also covered a range of intervention types, including but not limited to home visiting, video-based feedback and pregnancy programmes focusing on alcohol use. The evidence for different types of intervention can be unpacked a little further, as follows.

SKIN TO SKIN CARE

Skin to skin care (SSC) refers to practices designed to increase skin to skin contact between mother and infant following birth. They generally involve placing the infant on the mother's stomach or chest immediately after birth,

although Kangaroo Mother Care (KMC) involves additional daily contact (often lasting several hours) (Asmussen and Brims 2018). Evidence for the effects of either approach on improving attachment security of full-term infants in low-risk populations is relatively mixed and inconclusive (Axford et al. 2015).

INFANT MASSAGE

Infant massage involves teaching infant massage strokes in groups of around 6 to 8 mothers for 1 to 2 hours on a weekly basis (Asmussen and Brims 2018). A systematic review found no evidence for the effect of infant massage for healthy parent-infant dyads (pairs) on infant temperament, parent-infant interaction and mental development (Bennett et al. 2013). The approach may have more potential with socially deprived families, although infant massage may cause harm when there is a risk of maltreatment (Underdown et al. 2013).

HOME VISITING

A systematic review found that home visiting was moderately successful at improving the home learning environment and maternal sensitivity, with more positive effects when visits were frequent and over 12 months or longer (Nievar et al. 2010). Similarly, a subsequent review of home visiting found small but statistically significant effects for parenting behaviours (including increased sensitivity) and child cognitive outcomes (Filene et al. 2013). Components that predicted these positive outcomes included coaching parents on how to respond sensitively to their child's cues, using role play to enable parents to practise parenting skills and giving parents strategies for age-appropriate discipline (Asmussen and Brims 2018).

GROUPS

A small trial of a perinatal group-based programme targeting depressed mothers and aiming to improve parent-infant interaction found significant improvements in maternal depression and some aspects of parent-infant interaction (Puckering et al. 2010). Mothers spend time exploring links between past and present feelings and relationships and considering strategies for managing depression. After this, they play with their children (e.g. baby massage, looking at picture books, playing lap games) to promote sensitive interaction and attunement. Videos are used to demonstrate sensitive interaction.

MENTALISATION

'Mentalisation' refers to envisioning mental states in oneself and others and understanding behaviour in terms of mental states (Fonagy et al. 2002). There is evidence from trials that interventions adopting this focus can have positive effects on reflective functioning and caregiving behaviour (Suchman et al. 2011) and attachment security (Sadler et al. 2013) in families where there are difficulties such as depression, substance abuse, child maltreatment, homelessness, poverty or violent relationships.

VIDEO FEEDBACK

Video-feedback involves videoing parent-child interaction, showing parents videotaped clips, using these to discuss with the practitioner the efficacy of various parenting behaviours and then, in some cases, coaching parents in how to nurture their children. It is usually targeted at families where there are difficulties, such as maltreatment, and aims to promote parents' self-reflection and parental sensitivity. The evidence is generally stronger for the effect of these interventions on aspects of parenting and attachment-related outcomes, with more mixed evidence for their effects on child outcomes and especially

attachment per se. A meta-analysis of brief video feedback showed a positive, statistically significant effect for parenting behaviours, with interventions for parents in high-risk groups being the most effective, and a small-to-average effect on child behaviour (Fukkink, 2008). Later trials of the effectiveness of video feedback for high-risk parent-child dyads (pairs) involving children under 5 years have found positive effects for maternal emotional availability, child behaviour and family environment (Negrão et al. 2014) and sensitive parenting and non-intrusiveness (Yagmur et al. 2014). Trials with positive results for attachment include one in which more intervention children became secure while fewer remained insecure (Moss et al. 2011) and another, for children under 2 years at risk of maltreatment, in which fewer children in the intervention group had a disorganised attachment compared with children in the control group (Bernard et al. 2012). Examples of studies with more mixed results include one in which there was a large effect on mothers' sensitive responsiveness but no effect on attachment security (Kalinauskiene et al. 2009), and another showing improved attachment for highly but not moderately irritable infants (Cassidy et al. 2011). A forthcoming review will provide a more comprehensive analysis of the effectiveness of video feedback (see O'Hara et al. 2016 for the protocol).

PARENT-INFANT/CHILD PSYCHOTHERAPY

Parent-infant/child psychotherapy (PIP) involves a therapist working with the parent and infant/toddler together, with the aim of helping the parent to recognise the way in which their current interactions are shaped by past experiences (including how they were parented), in order to enable them to respond more sensitively to their infant (ibid). A review concluded that at PIP is promising in terms of improving infant attachment in high-risk families, although it was not effective when compared with other models of treatment (e.g. video interaction guidance, counselling, CBT) (Barlow et al. 2015). However, Asmussen and Brims (2018) caution that positive child outcomes are not shared by all PIP programmes, despite consistent improvements in maternal sensitivity and maternal mood.

CHILD PARENT PSYCHOTHERAPY

Child Parent Psychotherapy (CPP) addresses past experiences (e.g. insecure attachment with own parents, previous/ongoing trauma/abuse) that may negatively affect parents' ability to interpret their child's mental states and respond appropriately to their child's cues. It is usually offered to families where the quality of the attachment relationship is deemed to be at risk. CPP for parents of older children (beyond toddlers) is effective at improving children's behaviour and reducing parents' trauma symptoms, and although evidence for the toddler version is weaker it is still promising (Asmussen and Brims 2018).

CONCLUSION

Children who are securely attached to a caregiver show better social-emotional skills, which are important for their cognitive development and early learning. Important risk factors for insecure or disorganised attachment are considered later in this report (see especially Chapters 6, 8 and 9). In the meantime, a range of types of intervention are promising for improving attachment in various high-risk groups, including maltreating parents, notably parent-infant psychotherapy, video feedback and mentalisation-based programmes. These, together with interventions such as infant massage and parenting programmes, have also been shown to improve attachment-related outcomes, notably maternal sensitivity and reflective functioning. These results align with the findings of earlier systematic reviews (e.g. Bakermans-Kranenburg et al. 2003).

SUMMARY OF KEY POINTS

Parents who are consistently responsive to their child's distress help their children to become 'securely' attached, and these children learn how to regulate their emotional states. However, it can be difficult for parents who face insecurity, whether economic or emotional, to offer the parenting needed for secure attachment.

Whereas secure attachment is associated with better outcomes across a range of domains in childhood, insecure and disorganised attachment, which are are disproportionately common in disadvantaged social groups, are associated with a range of later problems, including externalising and internalising problem behaviours.

Parenting which is unresponsive or abusive is associated with poor attachment and is more common among parents who are experiencing mental health problems, domestic abuse, substance dependency and poverty.

A range of types of intervention are effective in promoting parental sensitivity and preventing or treating attachment-related problems, including video feedback, home visiting, and parent-infant psychotherapy (which aims to help the parent to recognise the way in which their current interactions are shaped by past experiences, so that they can respond more sensitively to their infant). Other promising approaches include mentalisation-based interventions and group-based parenting programmes. The evidence is generally stronger for the impact on aspects of parenting rather than on attachment per se.

Further reading and resources

Asmussen, K., Feinstein, L., Martin, J. and Chowdry, H. (2016) *Foundations for Life: What Works to Support Parent-Child Interaction in the Early Years?* London: Early Intervention Foundation. https://www.eif.org.uk/report/foundations-for-life-what-works-to-support-parent-child-interaction-in-the-early-years

Asmussen, K. and Brims, L. (2018) *What Works to Enhance the Effectiveness of the Healthy Child Programme: An Evidence Update*. London: Early Intervention Foundation. https://www.eif.org.uk/report/what-works-to-enhance-the-effectiveness-of-the-healthy-child-programme-an-evidence-update

Axford, N., Barlow, J., Coad, J., Schrader-McMillan, A., Sonthalia, S., Toft, A., Wrigley, Z., Goodwin, A., Ohlson, C. & Bjornstad, G. (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*. London: Early Intervention Foundation.

CHAPTER 4.
PARENT SUPPORT FOR CHILDREN'S LEARNING [8]

Note: See Chapter 1 for an explanation of the categories and ratings

AGES: **0-1, 2-3, 4-8**

WHAT MATTERS

OUTCOMES
Speech, language and communication
Literacy (and pre-literacy)
Numeracy (and pre-numeracy)
General cognitive

STRENGTH

NATURE
Causal, Direct, Proximal

SOCIO-ECONOMIC GRADIENT
Yes

LINKS
N/A

WHAT WORKS

IMPACT ON ISSUE

IMPACT ON EARLY LEARNING OUTCOMES

[8] This chapter draws in part on Axford et al. (forthcoming).

OBJECTIVES

The objectives of this chapter are:

- **to outline evidence for the relationship between parent support for children's learning – including the quality of the home learning environment – and children's academic and related learning outcomes**
- **to explore the relationship between parent engagement in children's learning, family socio-economic status and children's early learning outcomes**
- **to identify activities that early years settings and schools can undertake with evidence of effectiveness in improving parental engagement in young children's learning, and improve children's learning outcomes accordingly**

CHAPTER 4. PARENT SUPPORT FOR CHILDREN'S LEARNING

INTRODUCTION

Chapters 2 and 3 have highlighted the important role that parents play in young children's learning. This chapter explores in more depth what is known about the relationship between parent support for their children's learning and child learning outcomes, especially for families from more disadvantaged backgrounds. It also summarises evidence for the effectiveness of interventions that operate in the early years to promote parent engagement in terms of their impact on what parents do with their children but also children's learning outcomes.

WHAT MATTERS

Parent engagement refers here to parents' participation in supporting their child's learning (academic attainment, related learning outcomes and behaviour), whether at home, in early years settings – the primary focus of this chapter – or school or via home-setting/school connections and wider community collaborations (Harris and Goodall 2007). There is good evidence that parental engagement in children's learning is associated with improved academic outcomes (including literacy and maths) and related learning outcomes (such as attendance) regardless of grade level (Wilder 2014; Castro et al. 2015; Hill and Tyson 2009) and can help to close the achievement gap (Goodall 2017). Two meta-analyses in the overview by Wilder (2014) suggested that parent involvement had a greater effect at primary school level than later on, possibly because parents know more about subjects at this level and can influence their children's learning habits. However, another meta-analysis, which focused on children aged 3 to 9 years and found a "reasonably strong and positive" (p.790) correlation between parent involvement and children's learning outcome, identified a weaker relationship for younger children within this age range, suggesting that this may be because it is easier for older children to tell their parents what help they need (Ma et al. 2016). Meanwhile, a review by McWayne et al. (2013), focusing on the amount and quality of father involvement and the early learning outcomes of children aged 3 to 8 years, found a small to moderate association, the strongest effects being for self-regulation skills (regarded as foundational for academic and social learning).

There is also evidence on the type of parent engagement that is most helpful. Reviews highlight the importance of parents having high academic expectations for their children, being proactively involved in various activities and behaviours that support their children's learning and development, communicating well with children about school activities and promoting reading habits (Wilder 2014; Castro et al. 2015; Ma et al. 2016). A review by See and Gorard (2015) found that two types of early parental behaviour are positively associated with school readiness and successful school outcomes, namely parents reading to their children and the related quality of early parent-child interaction, and parents' support for children's learning in the early years. It also identified a few evaluation studies that provided evidence of a causal effect (i.e. between parent engagement and child outcomes) in the pre-school phase.

The quality of the home learning environment is also consistently associated with children's academic outcomes. The home learning environment (HLE) reflects the home environment and interactions in and around the home with family members (Smees and Sammons 2016). Young children's learning experiences, which are vital for their development, are shaped by the nature of everyday life and activities. The family provides a blueprint for learning, behaviour and attitudes insofar as it is where children investigate the world. Early years research mainly focuses on educational or developmentally stimulating parent-child activities, which for young children include reading to a child, playing

with letters or numbers, counting or sorting things, drawing and painting (make meaningful marks), and learning, rhymes, songs and poems, also educational visits. It also includes the presence in the home of material learning resources such as books, puzzles and toys.

A wealth of evidence supports the benefits of a positive home learning environment in terms of children's cognitive, social and physical development. For example, children's emergent literacy skills in vocabulary, oral language ability and receptive language are predicted by high levels of *informal* home learning environment (e.g. shared book reading with parents, visits to libraries and museums, access to books and toys), and higher levels of *formal* home learning environment (e.g. direct teaching of letters, sounds and print concepts) predict children's phonological awareness and word-letter knowledge (Donkin et al. 2014). Similarly, "Reading to children has [...] been found to be particularly beneficial, improving vocabulary, reading ability, and encouraging positive attitudes to reading. Home activities such as counting and doing simple sums with children or playing games with numbers have been found to predict better numeracy ability and attitudes" (Smees and Sammons 2016: 2).

An analysis of data from the Growing Up in Scotland longitudinal study, for example, found that the influence of the home learning environment on children's cognitive development at age 34 months was over and above that of socio-demographic factors such as parental education, socio-economic status and income (Melhuish 2010). Moreover, at the same age the home learning environment was effective in differentiating between both under- and over-achieving groups from children achieving at the expected level. Although the report acknowledges that the strong relationship between the home learning environment and cognitive scores may be mediated by an unmeasured intervening factor, it argues that the findings suggest that "policies that encourage active parenting strategies (including for disadvantaged parents) can help to promote young children's cognitive development and educational achievement both early and later in development" (Melhuish 2010: 20).

Sylva et al. (2004), in their longitudinal study (EPPE) following over 3000 children aged three years until the age of seven, also stressed the importance of home learning: "The home learning environment activities providing opportunities for learning) was strongly related to intellectual and social development in all children. There is a modest association between social class and parental education and the home learning environment. However, the home learning environment was more important than either of these factors. What parents do is more important than who they are" (p.70). Thus, if parents from poor backgrounds with few qualifications engage their children at home in activities that engage and stretch the child's mind they can give their children a better start in school and improve their progress.

A positive home learning environment also helps to promote better longer-term outcomes. For instance, analyses of longitudinal data from the EPPSE study show that the quality of the home learning environment experienced by children before they attended school has a continuing effect when they are 17 and 18 years, for example in terms of likelihood of taking AS-levels, A-levels and Key Stage 5-point score (Sammons et al. 2012). These effects hold after taking account of other important drivers of such outcomes, such as parents' qualification levels and family income.

The SEED study also found that several cognitive and socio-emotional outcomes at age four were significantly associated with variations in the home

environment, particularly the quality of the parent/child relationship, maternal qualifications and the home learning environment (Melhuish and Gardiner 2018). Indeed, "outcomes are generally more strongly associated with demographics and home environment than they are with time spent in ECEC settings" (ibid., p.22). However, as indicated in Chapter 5 of this report, "the advantages of a more stimulating and responsive Home Learning Environment and the beneficial effects of time in ECEC are largely independent" (ibid., p.23), suggesting that children whose home learning environments are very stimulating can still benefit from receiving ECEC (early childhood education and care).

Regarding numeracy and pre-numeracy specifically, parents and teachers can help children develop pre-numeracy and numeracy skills through a variety of ways that can be integrated into everyday activities. For example, incidental counting and measurement experiences help to introduce children to the concepts of number and quantity. Additionally, more intentional learning can include talking with children about the shapes they see around them or ask them to draw the shapes they see (Reid and Andrews, 2016). Early counting skills can be taught and reinforced through songs and nursery rhymes such as 'Ten in the bed', which helps with counting back from 10 and demonstrates the meaning of counting back by ones (ibid.). Activities such as counting and doing simple sums with children or playing games with numbers have been found to predict better numeracy ability and attitudes (Smees and Sammons 2016).

Material aspects of the home learning environment are also important. One study, which included data on home learning environments of households in 27 countries, showed that children who grow up in homes with many books spend three years longer in school than children from bookless homes, independent of their parents' education, occupation and class (Evans et al. 2010). The authors argued that it gives children as "great an advantage [toward the likelihood of academic success] as having university educated rather than unschooled parents, and twice the advantage of having a professional rather than an unskilled father" (ibid., p.171).

There is a socio-economic gradient to parents' engagement in their children's learning and the home learning environment. Specifically, children from advantaged homes typically receive more enriched home learning, are read to more, hear more words, have more books, and are taken on more out-of-home activities. In contrast, children in chaotic households or experiencing high levels of risk have poorer outcomes (e.g. Kelly et al. 2011) and receive poorer quality home learning (e.g. Vernon-Feagans et al. 2012): "It is not surprising that risks such as maternal depression, maternal basic skills, and violence within the home impact on the kind of home learning environment experienced" (Smees and Sammons 2016: 2). While the size of these differences is generally fairly modest, over time the accrue to create larger disparities, notwithstanding the fact that in the last generation self-reported parent engagement in home learning activities has increased for all social groups and the gap between rich and poor is narrowing (Smees and Sammons 2016).

Parents from socially disadvantaged backgrounds face numerous barriers to engagement in their children's learning and especially educational institutions (Harris and Goodall 2007). They are more likely to have had poor experiences of education themselves, meaning that they are less predisposed to participate, and tend to have less 'social capital' in terms of social networks and skills, rendering them less well-equipped – or feeling less equipped – to negotiate and meet the demands of schooling. They also tend to have less time and money.

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WHAT WORKS

The evidence is weak by comparison on the best approaches early years settings and schools can take to encourage greater parental engagement in learning, including the home learning environment, and boost children's attainment accordingly (See and Gorard 2013; See 2015a/b; See and Gorard 2015b). This relates largely to the quality of the studies reviewed. That said, there are things that early years settings and schools can do to promote parental engagement that have some evidence of impact. The most important is arguably giving parents practical guidance and encouragement about the kinds of things they can do at home. For younger children, this typically consists of activities, such as reading together, while for older children parental encouragement of and interest in learning appears to be more important than direct involvement (e.g. helping with homework) (See and Gorard 2015; Castro et al 2015; Higgins and Katsipataki 2015). In practical terms, the following activities can be helpful.

LANGUAGE AND LITERACY INTERVENTIONS

First are language and pre-literacy programmes that promote shared reading and children's use of language. Parent-child shared reading activities are a vehicle for supporting children's language development and reducing the gap identified above (Asmussen et al. 2016). This is because they create a structured context in which high-quality verbal exchanges can take place. Put another way, age-appropriate picture books provide a robust framework for parents to scaffold their children's language learning (ibid.). Structured reading activities also improve lower-income parents' use of language and vocabulary with their children, potentially reducing differences between how higher- and lower-income parents read to their children (ibid.).

There are two types of intervention in this area, both of which may be delivered independently through regular home visiting or alongside a classroom-based curriculum (Asmussen et al. 2016).

One involves family literacy programmes, which seek to increase parents' awareness about the benefits of shared book reading. They range from universally available book-gifting schemes to community-based initiatives that are developed specifically for families living in disadvantaged communities. While these programmes are often well-liked by parents, evidence for their impact on children is limited (Sénéchal and Young 2008; Swain et al. 2014), partly because few have attempted a rigorous evaluation but also because where robust evaluations have been conducted the benefits for children are few (Reese et al. 2010). For instance, a trial in Australia of the Let's Read book gifting scheme for disadvantaged families found no impact on parents' reading activities or their children's language capabilities immediately post-intervention or two years later (Goldfeld et al. 2011). The programme's low intensity (a free book and a demonstration by a practice nurse of shared reading strategies during a health visit at 4, 12 and 18 months), together with the fact that many of the families already had enriched home literacy environments, may explain these disappointing results may be partially responsible (Goldfeld et al. 2011, 2012). There are more promising examples of book-sharing interventions (see below) but, as will be seen, they tend to be effective where parents receive suitable support.

The other type of literacy intervention involves dialogical reading, in which parents share books with their children and are trained to use a series of prompts to encourage discussion (Asmussen et al. 2016). It is based on the PEER sequence (Prompts, Evaluates, Expands, Repeats), in which the adult: prompts

the child to say something about the book; evaluates the child's response; expands the child's response by rephrasing and adding information to it; and repeats the prompts to ensure the child has learnt from the expansion, and aims to guide older children who are reading to consider what they are reading and asks questions to gauge understanding (Whitehurst 1992).

Meta-analytic reviews of dialogical reading programmes show that their benefits for children's vocabulary (expressive and receptive) tend to be small to modest and are more likely to be achieved in white middle-class families (Asmussen et al. 2016). Mol et al. (2008) found that effects were larger for younger pre-school children (2-3 year-olds) and groups not at risk, possibly in the case of the latter because for children at risk of school failure making inferences (and similar requests) goes beyond their abilities. In order to improve results with lower SES groups it is considered likely that interventions need to be longer and more intensive and involve more explicit instruction (e.g. emphasising and explaining target words and including specific teaching goals rather than simply using questions and conversation about the story) (Marulis and Neuman 2013). Parents with relatively low levels of education may also need more input on how to benefit from dialogic reading (Mol et al. 2008). Another review noted that a common theme of the more successful dialogic and interactive shared book reading interventions is that they actively involve children in a variety of ways, concluding that "how one reads to children seems to matter more than the sheer amount of reading in terms of developing reading skills" (Trivette and Dunst (2007: 4).

The benefits of parents reading to children before they are able to read are clear from the literature (Higgins et al. 2017; see also Chapter 2). Supporting parents with this can have positive effects for children. For instance, a seven-week paired reading intervention in which parents receive in vivo coaching during two sessions and take part in two group sessions with other parents in the same school, was found in a trial to have positive effects on children's word recognition and reading fluency and parent-perceived child reading and motivation (Lam et al. 2013).

Although early years settings and schools and invariably encourage parents to read to their children, home reading can be more effective if parents receive additional tips, support and resources. The evidence suggests that it is particularly important for parents to read more interactively and prompt longer and more frequent conversations with their children (See and Gorard 2015; Bierman et al. 2015; Grindal et al. 2016).

Structured interventions can be effective at introducing parents to home reading strategies and supporting their regular use. It can be effective to provide carefully chosen books and offer structured support. For example, Burgoyne et al. (2018) evaluated an intervention for parents of pre-school children that provides families with storybooks and asks parents to spend 20 minutes a day on shared reading and fun activities that promote oral language development, finding positive effects on literacy and language outcomes.

Raising a Reader, for young children from socially disadvantaged backgrounds, had no effect on children's oral language and print knowledge relative to services as usual (Anthony et al. 2014). However, when additional parent instruction was added, for example focusing on shared reading techniques and time to practise these with one's children, the children did better at the end

of the year than the standard Raising a Reader group on receptive vocabulary, expressive grammar and memory for sentences (ibid.)

The majority of language interventions target families with a child aged 12 months or older (see below), although one intervention that was identified focused on families before the child's first birthday. Baby sign programmes use aim to accelerate a baby's language acquisition through the use of symbolic gestures. They generally start when the infant is aged 8-12 months and are usually delivered to groups of mothers and infants attending weekly sessions over six to 10 weeks. Many are delivered by mothers or other practitioners with no specific training in sign language or speech and language therapies. There have been very few rigorous evaluations. One randomised trial found 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 (Kirk et al. 2013), although the small sample size limits the ability to generalise the findings. As such the evidence must be considered to be weak (Asmussen and Brims 2018).

More promising are interventions in primary school to promote children's reading during the summer holiday by offering classroom- and home-based support have been shown in international studies to have positive effects on reading outcomes, especially for children from low-income families (Kim and Quinn 2013; Kim et al. 2016, 2017). It is important, however, that teachers give parents and children some input on knowledge and skills prior to or during such interventions.

Drawing on research about the features of parent input that best predict children's vocabulary development in the early years, Rowe (2017) reports on evaluations of interventions designed to improve some of these features of parent input. A brief intervention focused on gesture, for example, and involving a short video and home visits to promote parents' knowledge of child development and promote a growth mindset, resulted in short-term effects on parent and child gesture and a positive effect on child vocabulary, but only for families where parents endorsed "fixed" mindsets at baseline (ibid.) A second study, focusing on decontextualised language training for parents of 4-year-olds to increase children's exposure to and use of abstract talk, found that it was possible to increase parent use of decontextualised language, which in turn resulted in an increase in children's use of this type of language.

BETTER COMMUNICATION BETWEEN EARLY YEARS SETTINGS / SCHOOL AND PARENTS

Well-designed communication between early years settings or schools and parents can help to improve attainment and other learning outcomes. For example, one intervention involved sending parents of preschool children three text messages per week over eight months, covering maths, literacy and socio-emotional domains (York et al. 2014). There were positive effects on children's literacy (especially for those performing less at the outset) and parents were more likely to do literacy activities at home with their children and ask teachers questions about their children. The authors suggested that messages usefully comprise: facts highlighting the importance of certain skills; tips for simple activities for parents to do with their children, or conversations prompts; and messages of encouragement and reinforcement (York et al. 2014). A later trial of an adapted version of the intervention found that personalised messages had a greater effect on early reading levels than sending general texts (Doss et al. 2017). The authors concluded that school communications are more likely to be more effective if they are personalised, linked to learning and promote positive interactions. Another study of a text messaging intervention, again

for young children (attending Head Start or Early Head Start in the US) and involving several weekly messages to parents suggesting activities and offering encouragement, found that it had a positive effect on parents' engagement in activities (Hurwitz et al. 2014). It was particularly effective for engaging fathers, which is important given what is known about their potential impact on children's learning and their typically lower level of contact with school (McWayne et al. 2013).

HOME VISITING

Home visiting programmes tend to focus on developing a home learning environment that is conducive to children's early learning. They do this by seeking to enhance parents' knowledge of early childhood development, promote positive parenting practices and improve parent-child interaction in order to further children's cognition, self-regulation, language and communication, early literacy skills, basic numeracy and social-emotional development. There is a strong emphasis on increasing parent-toddler verbal interaction to stimulate positive cognitive development and school competence.

Some home visiting programmes developed to support parental sensitivity in a child's first year have evidence of improving children's language outcomes (e.g. Family Nurse Partnership (FNP) and Child First) (Asmussen and Brims 2018). Another promising home visiting programme for supporting children's early language development is Parents as First Teachers. It involves practitioners sharing age-appropriate child development information and facilitating parent-child interaction through age-appropriate talk, play and reading activities (ibid.). According to Asmussen and Brims (2018), findings from two trials in the US were inconsistent (Wagner and Clayton, 1999; Drotar et al. 2008) but a more recent trial in Switzerland of a significantly modified version found consistent improvements in children's language, behaviour and motivation in low-income families who took part in the programme (Neuhauser et al. 2015).

Home visiting interventions can teach parents effective scaffolding strategies and help them create a stimulating home environment. Home visiting interventions originated mainly in the US and were designed to serve a similar role to health visiting in the UK. Outcomes are often modest and inconsistent across evaluations (Asmussen et al. 2016), although they tend to be more effective if they are high intensity (lasting a year or more, with four or more visits per month on average) and delivered by Masters-level therapist or social worker who teaches parents specific skills (ibid.). Several examples of trials of home visiting interventions testing effects on early learning outcomes are given in the overview by Axford et al. (2015b). For example:

- a trial of Child First found a positive impact on children's language (Lowell et al. 2011)
- a trial of Let's Play in Tandem found positive effects children's knowledge, pre-reading and numeracy skills, listening and communication, responding to stimuli, writing, mathematics, personal and social skills, and inhibitory control (Ford et al. 2009)
- trials of Playing and Learning Strategies (PALS), which targets families at socio-economic disadvantage or with other risks for poor parenting, have shown positive effects on maternal warmth, with increased responsiveness leading to greater improvement in infants' communication and cognitive, social and emotional competence (Landry et al. 2006, 2008).
- a trial of My Baby & Me (based on the PALS curriculum) involving high-risk mothers found positive effects when children were 30 months for some aspects of parent-child interaction (e.g. higher levels of contingent

responsiveness and verbal stimulation) and some aspects of child development (e.g. expressive language) but not others (e.g. receptive language) (Guttentag et al. 2014)
- experimental and quasi-experimental studies of the Parent Child Home Programme, meanwhile, show mixed results (REFS).

A more recent trial of the 16-week REDI-P home visiting programme, which is aimed at low-income pre-school children attending pre-school (Head Start) classes, found positive effects on some child outcomes (e.g. emergent literacy skills, teacher-related academic performance in kindergarten, self-directed learning and social competence, but not vocabulary or reading fluency) and parent-reported but not independently observed parent support for children's learning (Bierman et al. 2015) parent engagement. The effects on some of the child outcomes were partially mediated by gains in parent's academic expectations (Loughlin-Presnal and Bierman 2017). Thus, on balance it may be concluded that home visiting is promising but requires careful evaluation and monitoring to understand how and when it is most effective (Asmussen et al. 2016).

A systematic review by Grindal et al. (2016) explored whether adding parenting education services to preschool programmes had an effect on children's cognitive and pre-academic skills in early childhood. Interventions covered by the 46 studies included involved home visits or parent groups delivered by teachers, paraprofessional home visitors and other trained workers. Although a meta-analysis found that adding parent education was not associated with impacts on short-term measures of cognitive or pre-academic skills for children, there was evidence that home-visits can be effective if they are sufficiently intensive (one or more visits per month) and focus on active learning (the modelling and practice of particular parenting skills) as opposed to simply providing general information on child development or curriculum content.

GROUP-BASED SUPPORT FOR PARENTS

There are several group-based interventions designed to support children's early learning and development. Some are targeted at parents living in socially disadvantaged areas. An example from the UK is the Parents Early Education Partnership (PEEP). This works with parents of children aged up to 5 years on a weekly basis during term time and focuses on children's self-esteem, attitudes to learning, physical development, language, literacy and numeracy. There have been two quasi-experimental evaluations, with one showing positive effects on children's verbal comprehension, phonological awareness, early number concepts, vocabulary and self-esteem relating to cognitive and physical competence (Evangelou and Sylva 2003), and the other showing more mixed effects for parent and child outcomes (Evangelou et al. 2005).

Some group-based interventions also have adjunctive activities for children. A good example is ParentCorps, which targets pre-school children in low-income areas. It involves concurrent after-school parent and child groups delivered after school over 13 weeks by a mental health professional and teacher respectively, combined with professional development for teachers. Trials in the US have shown positive effects on children's reading, writing and maths scores (Brotman et al. 2013) and parent involvement for those with less involvement at the start (Dawson-McLure et al. 2015), with some evidence of sustained effects on child academic performance (Brotman et al. 2016). Another example is the KITS programme (Kids in Transition to School). This comprises 24 group sessions for children, designed to promote early literacy and social-emotional skills, and an 8-session group for caregivers to strengthen their involvement in early literacy and school. Trials have shown positive effects on parenting skills and children's early literacy and self-regulation (Pears et al. 2013, 2015).

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Structured, targeted interventions for parents aimed at improving children's social, emotional and behavioural outcomes have proliferated in recent years, in particular for young children, and there is promising evidence for the effectiveness of some of them on their targeted outcomes, all of which support learning (Furlong et al. 2012; see also Axford et al. 2015a; Asmussen et al. 2016). These include group courses aimed at helping parents to manage their children's difficult behaviour; it is important, however, that they are implemented with fidelity (Axford et al. 2017) and that concerted relational and practical efforts are made to support parents' attendance (see Chapter 11). Improvements in children's behaviour are best predicted by changes in specific parenting behaviours (e.g. age-appropriate praise and discipline) rather than changes to parental mood or confidence (Asmussen and Brims 2018). Further, reviews suggest that such interventions are most effective if they give parents information specific to the problems they are experiencing with their child and provide ample opportunities for parents to practice new skills (e.g. via role play, homework and group exercise) with practitioners providing individualised feedback (ibid.).

SUPPORTING CHILDREN WITH LANGUAGE DIFFICULTIES

Most of this chapter has focused on prevention and early intervention but it is important to acknowledge that some young children have particular difficulties with language and that there are interventions to support parents in addressing these. For example, a systematic review (Roberts and Kaiser 2011) found that parent-implemented language interventions are effective for young children with language impairments, showing a positive impact on children's:

- receptive language skills (the ability to understand language heard or read)
- expressive language skills (the ability to communicate with others using language i.e. by putting thoughts into words and sentences)
- receptive vocabulary (words that a child can comprehend and respond to, even if they can't produce them)
- expressive vocabulary (words that a child can express or produce)
- expressive morphosyntax (the structure of words and way in which words are put together to form phrases and sentences), and
- rate of communication.

The study evaluated the effectiveness of parent-implemented language interventions for children with language impairments aged 18-60 months. The authors concluded that parent-implemented language interventions are effective for young children with language impairments from middle-class families whose parents agree to participate in research studies and that even a small amount of parent training can have substantial effects on children's language development.

ENGAGING FAMILIES

Children with early reading or behaviour difficulties and those from disadvantaged backgrounds are likely to need more intensive and sustained approaches to support parental engagement in learning. Sensitivity is needed to avoid parents feeling stigmatised or discouraged, and additional resources are likely to be needed to support attendance at interventions, particularly of those deemed likely to benefit the most. For example, a trial in the UK of a 10-week programme for parents of struggling readers aged 5 to 6 years, which involved teaching parents strategies to support their children's reading, found no effect on standardised reading or social-emotional outcomes (Tracey et al. 2016). (There was evidence in the longer term of a positive impact on some aspects of reading for boys.) One of the reasons suggested for the lack of effect was the low

attendance rate (see also the Education Endowment Foundation guidance on promoting language, cited in the next chapter).

Beyond interventions per se, good engagement of parents is likely to have several important ingredients at the early years setting and school level (Epstein et al. 2008):

- a leader who prioritises it and sees that it is integrated into planning in early years settings and schools (i.e. assessing strengths and weaknesses of current practice, viewing it as core to early years setting / school improvement and monitoring accordingly)
- a plan for working with parents; informed by an understanding of families' lives and what facilitates / impedes their support for their children's learning – this is like to entail (a) talking to parents in the school about this and (b) providing some training;
- enacting the plan – implementing interventions, approaches and techniques that help parents to support their children's learning, and applying practical strategies to make it easier for parents to avail of these opportunities;
- training for staff and ongoing support;
- ensuring that staff have time and motivation to engage with parents (i.e. not treating it as an inconvenient add-on); and
- a coherent structure of partnership working between the school, the home and the community to support these components.
- However, the effectiveness of an approach based on these principles has not yet been robustly tested for its impact on children's learning.

Good parent engagement in children's learning requires that staff in early years and school settings are suitably trained and supported in working with parents, especially those who are from different backgrounds (Goodall and Vorhaus, 2011; Webster-Stratton and Bywater 2015). However, a recent national survey in England showed that while the majority (80%) of schools believe that engaging parents is the responsibility of all staff, relatively few (37%) report that they currently provide staff with training about how to engage parents (Axford et al. forthcoming). Moreover, initial teacher training currently pays very little attention to developing family-school partnerships (Mutton et al. 2018). Training for teachers in how to engage with parents can be provided by discrete interventions, although evaluation of such approaches is limited. In one exception, Herman and Reinke (2017) evaluated a six-day teacher training programme to improve teacher-student and teacher-parent relationships (as well as to increase teachers' use of effective classroom management strategies). Based on teacher report there was increased parental engagement, which in turn was associated with children displaying better behaviour and academic performance.

Melhuish and van der Merwe (2018) argue that "Research over many years suggests that all parents are keen to support their children, especially when services are led by sensitive practitioners who work hard to forge relationships, welcome parents in a warm and consistent way and offer a range of opportunities to engage. This can mean challenging organisational inflexibility and particular assumptions, such as labelling some families hard to reach or assuming others have no interest in their children's learning. All parents are interested in their children doing well, but they often lack confidence and knowledge about how to help" (pp.2-3). Accordingly, they contend that the key elements for how nurseries and schools can improve children's learning at home success are as follows:

- "Designated staff with responsibility for supporting parents
- Good knowledge of the local community and its strengths
- Building trustworthy relationships and parents' confidence
- Reaching out to families with flexible times and a range of ways to engage (e.g. home visits and evening or weekend sessions)
- Book, toy and equipment libraries to offer resources to parents
- Regularly sharing educational knowledge and observations about children's progress
- Listening to what parents say about their child's development and sharing decision making." (p.3)

CONCLUSION

There is good evidence that parent engagement in children's learning and a positive home learning environment contribute to improved learning outcomes, including in the early years, but weaker evidence for what works to improve parent engagement and, in turn, children's early learning outcomes. However, there are promising forms of intervention, with some showing benefits for low-income children in particular. Given that parents from socially disadvantaged backgrounds are less likely to engage in their children's learning, concerted efforts are needed to support those parents in effective interventions. In order to facilitate changes to practice on the ground, there is also a need for policy level support. For example, in relation to the home learning environment Melhuish and van der Merwe (2018) argue that:

- School inspectors should include support for home learning in early years inspections;
- Initial teacher training and other early education courses should include modules on the home learning environment and working with parents; and
- Early education messages should be integrated into health services and social services so that anyone in contact with families pre-birth and from birth to the age of three delivers the message about the importance of the home learning environment.

SUMMARY OF KEY POINTS

There is good evidence that parent engagement in children's learning is associated with improved academic outcomes (including literacy and maths) and related learning outcomes (such as attendance) regardless of grade (school year) level. There is also evidence on the type of parent engagement that is most helpful, such as high academic expectations, reading with and to children (including the high-quality interaction that accompanies that) and introducing mathematical concepts such as counting and measuring into everyday activities.

The quality of the home learning environment is also consistently associated with children's academic outcomes. The home learning environment includes interactions in and around the home with family members and also the presence of material learning resources such as books, puzzles and toys.

A wealth of evidence supports the benefits of a positive home learning environment in terms of children's cognitive, social and physical development. This is over and above the effect of socio-demographic factors such as parent education and family income. The positive outcomes can be seen well into adolescence.

Parents from socially disadvantaged backgrounds face numerous barriers to engaging in their children's learning and especially with nurseries and schools, for example owing to a lack of money and time and, in some cases, their own negative experience of education.

Children from advantaged homes typically receive more enriched home learning, are read to more, hear more words, have more books and are taken on more out-of-home activities, whereas children in chaotic households or experiencing high levels of risk have poorer outcomes and receive poorer quality home learning.

The evidence is weak by comparison on the best approaches that early years settings and schools can take to encourage greater parental engagement in learning and boost children's attainment accordingly, although there are activities with some evidence of impact.

The most important is arguably giving parents practical guidance and encouragement about the kinds of things they can do at home, such as reading together. There is promising evidence for language and pre-literacy programmes that promote shared reading and children's use of language, in particular through parent-child shared reading activities. The children of parents who receive tips, support and resources have been shown to have improved literacy and language outcomes. Interventions that deliver such support over the summer holiday have been shown to improve reading outcomes, especially for children from poorer families.

Well-designed communication between early years settings or schools and parents can help to improve attainment and other learning outcomes. These include text messaging interventions, especially when they are personalised, linked to learning and promote positive interactions.

Children with early reading or behaviour difficulties and those from disadvantaged backgrounds are likely to need more intensive and sustained approaches to support parental engagement in learning.

Adding parent education (groups or home visiting) to pre-school education is not associated with impacts on short-term measures of cognitive or pre-academic skills for children. However, home visits can be effective in improving early learning outcome if they are sufficiently intensive and focus on active learning for parents. Such interventions commonly teach parents effective scaffolding strategies and help them create a stimulating home environment by providing age-appropriate toys and books. Groups can also be effective, and some include adjunctive components for children.

There is promising evidence for the effectiveness of targeted interventions for parents aimed at improving young children's social-emotional and behavioural outcomes, all of which support early learning outcomes. These include group parent training programmes aimed at helping parents to manage their children's difficult behaviour.

There is also evidence to support the effectiveness of some parent-implemented interventions for children with language difficulties.

Families from socially disadvantaged backgrounds are likely to need more intensive and sustained support to improve parental engagement in learning. Sensitivity is needed to avoid parents feeling stigmatised or discouraged, and additional resources are likely to be needed to support attendance at interventions.

Nurseries and schools need to integrate parent engagement into their planning and provide staff with adequate training, support and time to work with parents.
Policy-level support is also needed to facilitate changes to practice on the ground.

Further reading and resources

Axford, N., Berry, V., Lloyd, J., Moore, D., Rogers, M., Hurst, A., Blockley, K., Durkin, H. and Minton, J. (forthcoming) *How can schools and early years settings support parent's engagement in their children's learning*? London: Education Endowment Foundation.

Axford, N., Barlow, J., Coad, J., Schrader-McMillan, A., Sonthalia, S., Toft, A., Wrigley, Z., Goodwin, A., Ohlson, C. & Bjornstad, G. (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*. London: Early Intervention Foundation. https://www.eif.org.uk/report/the-best-start-at-home

Education Endowment Foundation (2018b) *Working with Parents to Support Children's Learning: Guidance for Schools*. London: EEF.

Education Endowment Foundation Early Years Toolkit: https://educationendowmentfoundation.org.uk/evidence-summaries/early-years-toolkit/

HM Government and National Literacy Trust (2018) *Improving the Home Learning Environment: A Behaviour Change Approach*. London: HM Government and National Literacy Trust. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/756020/Improving_the_home_learning_environment.pdf

National Children's Bureau, Foundation Years Trust, National Literacy Trust and Peeple (2018) *Home Matters: Making the Most of the Home Learning Environment. Guidance for Schools, Nurseries, Local Authorities and Public Health Partners.* https://www.ncb.org.uk/resources-publications/resources/home-matters-making-most-home-learning-environment

CHAPTER 5.
EARLY CHILDHOOD EDUCATION AND CARE

Note: See Chapter 1 for an explanation of the categories and ratings

AGES: **2-3, 4-8**

WHAT MATTERS

OUTCOMES
Speech, language and communication
Literacy (and pre-literacy)
Numeracy (and pre-numeracy)
General cognitive

STRENGTH

NATURE
Causal, Direct, Proximal

SOCIO-ECONOMIC GRADIENT
Yes

LINKS
N/A

WHAT WORKS

IMPACT ON ISSUE
N/A

IMPACT ON EARLY LEARNING OUTCOMES

OBJECTIVES

The objectives of this chapter are:

- **to outline evidence on the effectiveness of early childhood education and care (ECEC) in improving aspects of children's development, including early learning outcomes**
- **to explore the relationship between early childhood education and care, families' socio-economic status and early learning outcomes**
- **to describe the relationship between the *quantity* of ECEC received and children's early learning outcomes**
- **to explain how *quality* in ECEC settings is defined and its relationship with children's early learning outcomes**
- **to examine the features of an effective ECEC workforce**
- **to outline evidence for the effectiveness of so-called 'two-generation' models in which high-quality ECEC is combined with support for parents to engage in their children's learning and development**

CHAPTER 5: EARLY CHILDHOOD EDUCATION AND CARE

INTRODUCTION

Earlier chapters emphasised the central role that parents and other caregivers play in children's early learning, and the previous chapter focused on what parents can do to support their children in this respect. This chapter focuses on the role of early childhood education and care (ECEC) provision and in particular the practitioners who work in this sector. As well as outlining evidence for the effectiveness of such provision in improving children's early learning, especially for those from socially disadvantaged backgrounds, it explores the role of quantity and quality, with a particular focus on the features of high-quality provision. It also considers how best to develop and sustain a high-quality early years workforce and looks at evidence for the value of two-generation models in which both children and parents receive support.

EFFECTIVENESS

The potential of early childhood education and care to support child development (including health, cognitive, behavioural, social and physical outcomes), in particular, that of children from a disadvantaged background, and especially if the quality is good, has long been recognised (Burger 2010; Camilli et al. 2010; Sylva et al. 2014; Melhuish et al. 2015). These effects can be seen in terms of children's school readiness but also their long-term school attainment and lifelong outcomes. These short- and long-term outcomes are linked: "Attending high quality ECEC helps prepare young children to be 'school ready', i.e. achieving the level of development that helps their ability to learn when they start school (Becker, 2011), which is important as a foundation for a successful educational career and long-term life outcomes" (Melhuish and Gardiner 2018: 25). As well as improving children's cognitive skills, the effects of ECEC in boosting confidence and social skills provides a stronger foundation for success at school and, later in the workplace.

An example of such a study is the EPPE project, a prospective longitudinal study in England involving over 3,000 children recruited at age three years and followed until the end of Key Stage 1 (7 years). This found that pre-school experience, compared to none, enhances children's all-round development, and that high-quality pre-schooling is related to better intellectual and social/behavioural development (Sylva et al. 2004). The later SEED study also identified wide-ranging benefits of attending ECEC between the ages of two and four years in terms of aspects of children's cognitive development and social-emotional development (e.g. self-regulation, peer relations, prosocial behaviour) (Melhuish and Gardiner 2018). Although contrary to EPPE, the SEED study did not find short-term language benefits for children in group settings, group settings were beneficial for other cognitive skills, such as non-verbal reasoning ability, as well as various social-emotional outcomes.

The evidence consistently suggests that preschool provision is beneficial to the educational and social development of children regardless of their background. Put another way, children from both poor and rich home learning environments stand to benefit from spending time in ECEC. The EPPE 3-11 study, for instance, found that even after accounting for the home learning environment and other socio-economic factors (e.g. family income, parent education level), pre-school had almost as much impact on children's educational achievement at age 11 as did primary school (Sammons et al. 2007). Similarly, the later SEED study concluded that, by age four years, "the beneficial effects of ECEC use and of a rich Home Learning Environment (HLE) are largely independent of each other, suggesting that children from a rich home environment still benefit from ECEC use" (Melhuish and Gardiner 2018: 94).

So, disadvantaged children benefit from good-quality pre-school provision in terms of their cognitive, language and social development, which can help prepare them for school entry (a point reinforced in several reviews cited by Melhuish and Gardiner 2018: Barnett 1995; Brooks-Gunn 2003; Heckman 2006; Melhuish 2004; Yoshikawa et al. 2013). For instance, the EPPE study found that children from disadvantaged backgrounds "benefit significantly from good quality pre-school experiences, especially where they are with a mixture of children from different social backgrounds" (Sylva et al. 2004: ii). However, some evidence goes further than that, suggesting that early education can have the largest impact on children from disadvantaged backgrounds (e.g. Cattan et al. 2014, cited in Melhuish and Gardiner 2018), and may at be particularly important for disadvantaged children who lag behind their peers from an early age (Speight et al. 2015, cited in Melhuish and Gardiner 2018). On this basis, ECEC may be regarded as "crucial in narrowing the gap in development and attainment between groups of children" (Melhuish and Gardiner 2018: 26).

For instance, the EPPE 3-11 study showed that the benefit of pre-school is greater for children who are disadvantaged and 'at risk'; while one in three children were 'at risk' of developing learning difficulties at the start of the pre-school, this proportion fell to one in five by the time they started primary school (Sammons et al. 2007). Similarly, the Effective Pre-School, Primary and Secondary Education project (EPPSE) shows that attending high-quality ECEC is associated with long-term improvements in outcomes (e.g. English and mathematics GCSE attainment), with particularly strong effects for children with parents with lower levels of qualifications (Sylva et al. 2014). In this context it is important to note that children from disadvantaged backgrounds are less likely to attend early years settings, even for government-funded provision (Department for Education 2017), hence the importance of boosting uptake within this group.

The SEED study also found that "the benefits of attending ECEC are similar across all levels of family disadvantage" (Melhuish and Gardiner 2018: 94) but advised that "given that poorer child outcomes have been found for disadvantaged children [...], and these children may be less likely to attend childcare settings [...], children from disadvantaged families may be considered to have more to gain from time in ECEC" (ibid., p.94).

This last point reiterates the importance of the quality of provision, an issue explored in more depth later in this chapter. The EPPE study showed that benefits in terms of outcomes are often greater for high-quality provision (Sylva et al. 2004), while in the SEED study having attended higher-quality formal group ECEC settings was associated with better cognitive and social-emotional outcomes at age four in models controlling for home environment at ages two (Melhuish and Gardiner 2018). Additional efforts to improve the quality of care may, therefore, be expected to further improve outcomes (ibid.).

QUANTITY

The *quantity* of provision has been identified as being important, although research suggests that this concerns duration (more terms) rather than intensity (more hours per day): "Full time attendance led to no better gains for children than part-time provision [...] Duration of attendance (in months) is important; an earlier start (under age 3 years) is related to better intellectual development" (p. ii). This is particularly salient given that disadvantaged children were found to attend pre-school for around 4-6 months less than their more advantaged peers. The finding on dose is supported by a secondary analysis of eight large studies of preschool children in centre-based care, which concluded that better cognitive outcomes are associated with greater exposure: "We see some indications that a larger dosage of higher quality care or sustained exposure to programs with

early intervention goals or guided by performance standards may result in more favorable outcomes across both cognitive and behavioral domains, especially for children in low income families" (Zaslow et al. 2016: 25).

The amount of ECEC provision received is important. Studies have shown that starting from two years of age onwards is most effective for preschool education (Sammons et al. 2002), and that the number of months in ECEC may have a stronger influence than the number of hours per week received (Sylva et al. 2004). In a similar vein, the SEED study found that when controlling for home environment and demographic factors, the average number of hours per week in ECEC between two and four years was associated with difference in cognitive and social-emotional outcomes at four years (Melhuish and Gardiner 2018). Earlier studies have suggested that high levels of childcare, especially group care in the first two years, can increase the risk for developing antisocial behaviour, but later research indicates that this may relate to high levels of poor-quality care (Melhuish et al. 2015).

Partly in response to evidence for the benefits of early education for child development, in England all 3 and 4-year-olds and disadvantaged 2-year-olds are offered free part-time early education. Take-up is generally high for the older children (94%) and has increased for younger children (now 72%), but there are regional variations and not all children who would benefit from such provision are receiving it (Albakri et al. 2018). Children from the most disadvantaged families are least likely to access these entitlements, even though they would benefit the most (ibid.). This may partly be explained by the challenges for providers in terms of offering places, for example owing to financial costs providing childcare (especially in London) and lack of staff and physical space. Demand from parents naturally also plays a part, with some parents perceiving that free childcare must be poor quality, or believing that it is wrong to put young children into a group setting, or considering that they do not need 'childcare' because they were not employed, or getting confused about their eligibility, or struggling to find provision that is sufficiently flexible. Other factors related to take-up include language (English as an Additional Language), population mobility and SEND. While efforts can be made to address such concerns and therefore possibly increase take-up, it is also likely that some parents will continue to choose for their child to start formal education when they are older (ibid.).

QUALITY

Although there is consensus that early years provision needs to be high quality in order to deliver its promise, what this looks like in practice is still debated. Research on this subject has two main strands. The first concerns the *structural quality* of early years provision and focuses on the more easily observed, measured and regulated elements, such as group size, child-staff ratios, wages, staff retention, leadership structures, and staff qualifications, and training and professional development. The second strand, *process quality*, refers to what happens on a day-to-day basis in early years settings and covers educational activities, the types of interaction between children, early education staff and parents and how children's routine care needs are met. This includes the nature of pedagogical quality, cognitive stimulation, emotional care and support.

Process quality is deemed to be most responsible for children's outcomes, as it is more proximal to children's experiences in early childhood (Melhuish et al. 2015). However, these two elements are intertwined insofar as "[s]tructural elements provide the framework for the elements of process quality to operate and to have the fullest impact on children's outcomes" (Bonetti and Brown 2018, p.5).

CHAPTER 5: EARLY CHILDHOOD EDUCATION AND CARE

There is a considerable body of research on the characteristics of best practice in early years childcare and education. The EPPE study found that good quality could be found in all kinds of early years settings but that it was higher overall in settings that integrate education and care and in nursery schools (Sylva et al. 2004). Quality was also associated with outcomes: "Pre-school quality was significantly related to children's scores on standardised tests of reading and mathematics at age 6 years. At age 7 years the relationship between quality and academic attainment was somewhat weaker but still evident, and the effect of quality on social behavioural development was no longer significant. High quality pre-school provision combined with longer duration had the strongest effect on development." (ibid., p. iii). Features of higher-quality settings included: staff having warm interactive relationships with children; a good proportion of staff having qualifications (including a trained teacher as manager); the provision of instructed learning environments; interaction associated with teaching; and viewing education and social development as complementary. Further, case studies of settings that were particularly effective in improving children's outcomes given their starting position and social background identified several important areas when working with children aged three to five years:

- Good-quality adult child verbal interactions involving sustained shared thinking, open-ended questioning, formative feedback modelling of skills or appropriate behaviour
- Initiation of activities by staff (e.g. via group work) and children (e.g. in free play), with staff extending child-initiated interactions
- Good knowledge and understanding of the curriculum
- Knowledge about how children learn, reflected in a combination of teaching and "freely chosen yet potentially instructive play activities" (p. vi)
- Trained staff with skills to support children (the study found that "The most highly qualified staff also provided the most instruction, and were the most effective in their interactions with the children, using the most sustained shared thinking. Less qualified staff were significantly better at supporting learning when they worked with qualified teachers." (p. vi)
- Encouraging high levels of parent engagement in their children's learning, for example by sharing child-related information, involving parents in making decisions about heir child's learning programme, and sharing educational aims so that parents can support their children at home (see also Chapter 4 of this report).

Quality was also associated with outcomes in the SEED study (see above), with indications that "a number of structural characteristics of settings, including staff qualifications and training, [...] may be instrumental in achieving the high quality provision that is seen to be associated with the best child outcomes" (Melhuish and Gardiner 2018, citing the SEED quality report – Melhuish and Gardiner 2017).

Zaslow et al. (2016) found that "interaction-specific measures of quality [focusing in depth on the quality of teacher-child interactions as regards instructional and emotional support] are more consistently related to child outcomes than are global measures of quality [focusing on interactions as well as physical features of the environment, activities and routines]" (p.21). Domain-specific measures of quality, which focus on instruction and stimulation in specific content areas (e.g. early language and literacy), also predicted child outcomes.

There are also international studies that look at the relationship between quality and outcomes. The OECD (2018) undertook a cross-national literature review and meta-analysis of the relationship between structure and process quality in early childhood education and care. It found that the primary driver of children's

learning and development in ECEC was quality of staff-child interactions: "Staff-child interactions and implementation of developmental and educational activities are linked to higher levels of children's emerging literacy and numeracy skills, as well as better behavioural and social skills" (p.65). With the exception of in-service training, however, "changes in structural levers are not directly linked to child development and learning" (p.105). Rather, there was some evidence that some of them, such as working conditions and staff well-being, are related to better staff-child interactions. The study also found that systems to monitor quality and improve practice were associated with better staff-child interactions.

However, the strength of conclusions that can be drawn from some of the aforementioned literature is limited. This is partly because of the representativeness of the samples often used, but also because of a lack of studies with strong counterfactuals or comparison groups and a tendency to use self-report or practitioners' perceptions as measures of effective pedagogy (Sim et al. 2018). In this context, two recent studies attempted to fill this gap by using systematic methods to identify interventions that have been tested robustly tested and also to identify areas requiring further research. They looked at structural quality and process quality respectively.

STRUCTURAL QUALITY

In the first of these studies, Bonetti and Brown (2018) focused on what it referred to as the 'iron triangle' of structural quality, comprising child-to-staff ratios, workforce training and professional development, and size of group or classroom. It sought to use quantitative studies or meta-analyses of quantitative studies but found very few randomised controlled trials or quasi-experimental design studies.

The review concluded that these structural elements have an impact on children's outcomes across several domains, including cognitive and social-emotional, although – critically – few studies isolated the impact of each element of the iron triangle. It also argued that each element of the triangle may be necessary but not sufficient to improve the quality of provision and that paying insufficient attention to any one of the three could lead to disappointing outcomes. The results for each structural element may be summarised as follows.

Ratios

Thirteen relevant studies were identified. Collectively, these showed that having fewer children per member of staff leads to better child outcomes because they enable staff to provide more individualised attention and are conducive to better teacher and child behaviour. While early years settings need to apply ratios that are in line with agreed guidelines, ratios in classes in the first year of primary school are "much higher" than what is recommended to maximise impact on child outcomes.

Training and development

Based on 34 studies, the authors concluded that it is useful for early years teachers to have a formal degree and some specialised training in early childhood education or child development if they are to have the necessary skills and knowledge to do their job well.

Class size

This subject was explored in 12 studies. The evidence showed that having smaller class sizes for the whole school day is associated with improved children's outcomes, greater educational effectiveness and other classroom-level benefits. In England, classroom sizes for children aged 0-4 years are not regulated but

they are usually aligned with what is considered best practice. In the first year of primary school, however, international evidence shows that the maximum average size of 20 children per class is best practice, yet 30 pupils per class in England is the norm.

While these elements are clearly important, the authors stressed that "The structural elements considered in this report do not act in isolation. They interact with each other, with elements of process quality and with other factors, such as financing, policies and regulations, entitlement and participation rates. All these elements contribute to the ultimate functioning of the early years system" (p.7). They also advised that the evidence is limited in some important respects. Specifically, most of the research analysed was conducted outside of England and/or in very specific conditions. Depending on how child outcomes were defined, the results were also potentially different and/or not comparable.

There were also gaps in knowledge, which point to the need for new research. First, there is a need for more rigorous research on pre-service and in-service training, partly to understand the added value of a degree with a specialisation in early childhood but also to determine whether and to what extent Continuing Professional Development (CPD) can be a substitute for pre-service training. Second, there would be value in testing the effectiveness of different staffing structures in terms of levels and types of qualifications, training routes into the profession, and years of experience. Third, although coaching shows good promise as an effective model of in-service training, other models such as mentoring or supervised teaching should also be evaluated. Fourth, there has been minimal rigorous research to isolate the impact of smaller ratios and class size in nursery and first year of primary school (e.g. without changing teachers' qualification requirements). Finally, it would be useful to assess the impact of smaller classroom sizes in the first year of primary school specifically.

PROCESS QUALITY

A parallel rapid review by Sim et al. (2018) focused on process quality in early years childcare and education, involving 108 studies from the past 10 years covering 83 specific programmes or practices. It included systematic reviews, meta-analyses and high-quality experimental and quasi-experimental designs that directly examined the effectiveness of practices or programmes on a range of child outcomes. These included language and literacy, numeracy, other cognitive outcomes (e.g. cognitive flexibility, attention, problem-solving skills, motivation creativity), socio-emotional and physical outcomes.

Overall, the review found favourable outcomes for language and literacy, maths, cognition, social-emotional well-being and physical development (supporting evidence from the mostly UK studies cited earlier in this chapter) (Box 5.1). These derived mainly from US programmes and focused on children aged three years and older. In other words, there is robust evidence on the effectiveness of programmes or interventions in terms of improvements to children's outcomes in early years childcare.

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Box 5.1 Summary of effects of early years childcare and education from studies in Sim et al. (2018) review

Language and literacy

- 53 studies, seven systematic reviews or meta-analyses, 42 programmes (most commonly Head Start), mostly children aged over 3 years in the US.
- The majority of studies found that programmes had a favourable and moderate impact on language and literacy outcomes, although it is unclear if impacts are maintained in the longer term.

Numeracy and mathematics

- 21 studies, two meta-analyses, 17 programmes, mostly children aged three years and over in the US.
- The meta-analyses and the majority of studies found that programmes had a positive impact on numeracy or mathematics outcomes and promising longer term effects.

Other cognitive outcomes

- Outcomes related to cognitive ability or flexibility, including scientific creativity and originality, problem-solving ability, attention and science knowledge
- 20 studies, 13 programmes, mostly children aged over 3 years in the US.
- The majority of programmes were found to have positive impacts for children (five studies found no impact). There is limited evidence on which to draw conclusions about which programmes may be most beneficial to children at risk, though a small number of studies suggest that Head Start may be particularly beneficial for some subgroups.

Social-emotional outcomes

- 35 studies, 4 systematic reviews or meta-analyses, 25 programmes, mostly children aged three years and above in the US.
- Studies generally found that programmes had a positive and moderate impact for children. There is limited evidence on whether effects are maintained, and insufficient evidence to determine which programmes may work better for children at risk.

Physical outcomes

- Several studies, one meta-analysis, five programmes, mostly children aged three years and above in the US.
- Most programmes except Active Play demonstrated small to moderate positive effects on children's physical outcomes. There is very limited evidence on which programmes may work better for children at risk.

However, there were also several limitations to the evidence reviewed, which made it difficult to draw firm conclusions about process quality that would apply in the UK.

First, studies were mostly conducted in the US, with a very small number in Europe and elsewhere, and there were few replication studies (with the exception of Head Start), so it is by no means certain that interventions and their effects could be replicated in the UK. This points to the need for more relevant studies in the UK.

Second, it is not possible to isolate the effects of discrete elements or undertake a more fine-grained assessment of the effectiveness of specific pedagogical practices (e.g. scaffolding, child-centred learning, direct instruction, guided play opportunities). This is because of a combination of the lack of detailed programme descriptions in the literature, and the fact that interventions often operated at multiple levels. Put another way, studies tend not to test specific pedagogical practices in isolation, which makes it difficult to identify the 'active ingredients' that make them work.

Third, language and literacy was also the most frequently tested outcome domain, with findings against this outcome being reported in around half of all the studies included. It was not clear whether this is because more programmes target those outcomes or whether they are easier to test in the early years. There are many innovative approaches and resources which incorporate *numeracy* learning into play and help to bring abstract concepts to life, but these are often not properly understood or used in early learning settings by practitioners (APPG 2015). Two important approaches to building strong foundations for maths learning in school are to: enhance the profile of early numeracy; and encourage early childhood educators in order to actively foster growth in early numeracy (Reid and Andrews 2016).

Fourth, there is limited evidence on sustained or long-term impact, pointing to the need for studies with longer-term follow-ups.

Finally, there was relatively little research on children aged under three years or on differential effects for children deemed to be 'at risk', such as those from economically disadvantaged backgrounds. Although many programmes targeted disadvantaged children, few studies tested variation in the impacts for different groups of children. As such, it was not possible to say with any certainty whether particular programmes or interventions might be more effective for certain groups.

These limitations inevitably point to areas requiring more research. These include:

- evaluating the impact in isolation of specific pedagogical practices such as scaffolding and child-centred learning that are widely accepted as being part of effective early years education;
- conducting more rigorous evaluations of interventions in the UK;
- providing more detail on implementation in studies so that it is possible to assess in more detail the variations across programmes and how they were implemented;
- exploring the differential impact of services, whether according to age (e.g. for children aged under three years) or those at greater risk of falling behind their peers on key developmental milestones); and
- undertaking studies with longer-term follow-ups

That said, and as indicated earlier in this chapter, there are aspects of provision in the early years that are regarded as being conducive to achieving positive early learning outcomes. Some examples in relation to (i) communication, language and literacy, and (ii) numeracy and pre-numeracy follow.

Communication, language and literacy

Recent guidance from the Education Endowment Foundation (2018a) outlines seven ways in which early years services can promote young children's communication, language and literacy skills. It is not possible to describe them in detail but in brief, the recommendations are to:

1. *Prioritise the development of communication and language*, for example by:
   - Developing vocabulary implicitly (through a rich language environment) and explicitly (through directly extending children's vocabulary)
   - Prioritising high-quality interactions with children
   - Using relevant frameworks, such as sustained shared thinking and guided interaction
2. *Develop children's early reading using a balanced approach*, for example by:
   - Focusing on both language comprehension (e.g. through storytelling and shared reading) and decoding (e.g. through activities focusing on alphabet knowledge and phonological awareness)
   - Developing phonological awareness through singing and rhyming activities
3. *Develop children's capability and motivation to write*, for example by:
   - Working hard to develop motivation (because extensive practice is needed to develop effective handwriting), for instance by encouraging children to write for a range of purposes and audience and with opportunities to share it
   - Encouraging unstructured activities for younger children (e.g. drawing a picture of their choice) and more structured activities for older children (e.g. copying letters or symbols)
4. *Embed opportunities to develop self-regulation*, for example by:
   - Supporting children to plan, monitor and evaluate activities or learning
   - Using stories or characters to encourage children to articulate their own thinking
5. *Support parents to understand how to help their children learn*, for example by:
   - Promoting shared reading and help parents to read effectively with children, such as asking questions and linking the book topic to real-life examples
6. *Use high-quality assessment to ensure all children make good progress*
7. *Use high-quality targeted support to help struggling children*
   - The guidance is careful to stress that these ideas should be implemented together rather than selectively and that professional judgement is needed when applying them because there is no one-size-fits-all approach.

These ideas are rooted in a rigorous review of the best available international evidence and consultation with experts. Some of the key points from the evidence, summarised in EEF (2018a), are that:

1. Approaches that emphasise spoken language and verbal interaction can support the development of communication and language, but their quality is more important than the quantity.
2. Developing communication and language is linked to other important outcomes including children's self-regulation, socio-emotional development and reasoning.

3. Storytelling and shared reading activities are consistently found to improve children's language comprehension skills.
4. Effective writing is underpinned by children's expressive language capabilities, so it is necessary to develop and monitor children's capability to formulate and articulate increasingly sophisticated sentences and express them in writing.
5. Children as young as three can begin to self-regulate, and children who can self-regulate effectively are likely to be able to motivate themselves to engage in learning (this is especially important for children from poorer backgrounds, as their self-regulation on starting nursery or primary school is likely to be disproportionately weaker).
6. The level and quality of parent engagement in children's learning is associated with children's communication, language and literacy capabilities (see Chapter 4 of this report).
7. Gathering high-quality information through observation and assessment enables the adaptation of teaching and learning so that the challenge and support each child receives is appropriate.

Numeracy and pre-numeracy

Interventions to promote early numeracy aim to develop young children's knowledge and understanding of early mathematical concepts and help them to develop skills. According to a recent extensive review of the evidence (EEF 2018b), they can be: structured – for instance, programmes designed to develop children's 'number sense' (their developing understanding of quantity and number); *informal* – for example, playing mathematical games (including on the computer); or pretend – activities that require counting or using other mathematical language. Based on a review of three meta-analyses and numerous single studies, mainly from the US but also from some European countries and New Zealand, the authors concluded that: "On average, early numeracy approaches have a positive impact on learning equivalent to approximately six additional months' progress for early mathematics outcomes. There is some variation between approaches, which suggests that the choice of approach and the way in which strategies are introduced are important. Approaches tend to produce larger effects when they are designed to develop a particular mathematical skill (such as counting or estimating), commit a regular amount of time to developing mathematics (between two and three hours per week), designed them specifically for the early years setting involved and include some specific individual interaction" (EEF 2018b, p.1).

The evidence reviewed also showed that all groups of children benefit from early numeracy activities, including those from poorer families; indeed, given the focus of the current review it is important to note that there is some evidence indicating that targeted approaches "help children from disadvantaged backgrounds catch up with their peers by the beginning of formal schooling, though not all approaches appear to be equally effective" (EEF 2018b, p.1)

Regarding variation in effectiveness between approaches, the review advises that the most effective early numeracy approaches include small group work and balance guided interaction with direct teaching and child-led activities (EEF 2018b). It also reports a number indicating the importance of early years professionals understanding young children's mathematical development (e.g. typical stages in learning to count) and how to assess this development, because this contributes to them doing more effective activities with children (EEF 2018b).

CHAPTER 5: EARLY CHILDHOOD EDUCATION AND CARE

In order to illustrate the kind of early numeracy activities that might be effective, a few brief examples follow. These are maths-oriented early childhood curricula that have been shown to improve the mathematical skills of pre-school children from low-income backgrounds.

The first, *Rightstart* (later renamed *Number Worlds*), uses games and experiences with different models of number (e.g. groups of objects, pictures, thermometers, or dials) to develop children's central conceptual structure for number. In a longitudinal study involving children from low-resource communities who experienced the programme from kindergarten, intervention children did better on maths-related outcomes than a second low-resource group and a mixed-resource group who showed a higher initial level of performance and attended a school with an enriched mathematics curriculum (Clements and Sarama 2011).

Second, *Building Blocks* is a preschool curriculum developed in the US with support from the Institute of Education Sciences, featuring small-group and whole-group activities, computer games and family activities to be done at home. Randomised controlled trials of the intervention have found large and significant changes in mathematical competence for children who received the programme compared to children in the control group (Diamond et al. 2013).

The third programme, *Pre-K* Mathematics, combines school-based activities with activities for parents and children to do at home and includes units on seven basic mathematics topics, such as enumeration and number sense, spatial sense, geometric reasoning and logical relations. Studies have demonstrated that combining aspects of *Pre-K Mathematics* curriculum with the computer software component of *Building Blocks* led to large gains in children's mathematical knowledge, as compared to control classrooms that continued using the same curricula used in the classroom the previous year (Diamond et al. 2013).

An example of more informal methods to improve numeracy is The Great Race, a board game similar to 'Snakes and Ladders' (Diamond, et al. 2013). Its goal is to improve children's ability to translate between numerical and non-numerical representations, with a focus on children from low-income backgrounds. An evaluation found that children who played the number board game gain outperformed those children playing a colour board game on five types of numerical knowledge (ibid.).

Social-emotional skills

There are a significant number of interventions shown to improve young children's social-emotional skills that could be implemented in pre-school settings or in the early years of compulsory schooling (e.g. CASEL 2013; Bierman et al. 2016). A recent review of studies concluded that "evidence-based SEL programming produces positive impacts on children's development of SE skills, enhancing their learning engagement, interpersonal relationships, behavioral adjustment, and school success" (Bierman et al. 2016: 2). Critically, given the focus of this review on children in poverty, it also found that while all children benefit from such interventions, the benefits are greater "for children with delays in SE [social-emotional] skill development associated with early socioeconomic disadvantage" (ibid., p.2). The review also helpfully identified features of effective practice, suggesting that interventions are more effective when they (ibid., p.2):

1. Improve teachers' classroom management and the quality of teacher-student interactions;
2. Include social-emotional skill-building for preschool students;
3. Integrate with academic enrichment programs;
4. Use professional development to promote high-fidelity implementation; and
5. Involve parents.

CHAPTER 5: EARLY CHILDHOOD EDUCATION AND CARE

EARLY YEARS WORKFORCE

The importance of having a well-trained and well-supported workforce in early childhood care and education has already been noted. This deserves to be unpacked further.

An increasing amount of evidence shows that the provision of early child care needs to be of high quality to have a positive impact on children's outcomes. Further, the evidence is clear that the early years workforce is key to high-quality provision (Bonetti 2018; Nutbrown 2012). Qualified teachers – meaning that they have a degree level specialism in early childhood – have positive impacts in terms of both curriculum and pedagogical leadership, and measurable improvement in children's outcomes in early literacy, mathematics and science and social development (Nutbrown 2012).

For example, according to the evaluation of the Department of Education's Graduate Leader Fund (GLF) (which provided a further £305 million in funding between April 2008 and March 2011), care settings that gained a graduate leader with Early Years Professional Status made significant improvements in quality for pre-school children (aged 30 months to 5 years) compared with settings which did not (Mathers et al. 2011). Gains were seen in overall quality of care and a number of individual dimensions of practice, including: positive staff-child interactions; support for communication, language and literacy; reasoning/thinking skills and scientific understanding; provision of a developmentally appropriate schedule; and providing for individual needs and diversity (ibid.).

Another large piece of research, the Millennium Cohort Study, followed the lives of nearly 19,000 babies born between 2000 and 2002 in the UK. The study showed that qualifications of child care staff were a predictor of quality of provision, especially related to aspects of provision which foster children's developing language, interactions and academic progress (Mathers et al. 2007). The number of unqualified staff was also important and had a negative effect on quality (Mathers at al 2007).

There have been some positive developments in the UK for the early years workforce in the past few years, such as:

- the introduction of the National Living Wage, the increase in the Minimum Living Wage and the pension auto-enrolment scheme, which all have increased pay and benefits;
- the increased qualification levels of childminders (in particular, the Early Years Professional status); and,
- the government commitment to provide a long-term vision for workforce development through the Workforce Strategy published in 2017 (Bonnetti, 2018).

Still, much can be done. For example, pay is still lower than in other sectors of the economy, yet a review of the international evidence about the social benefits of early childhood education and care found that good pay, along with good training, and good working conditions are key factors for ensuring quality through the recruitment and retainment of well-qualified individuals (NESSE 2009). Support for new staff, such as taking time to induct them to the setting and their role, and ensuring they have mentoring in place for at least their first six months, also leads to lower staff turnover (Nutbrown 2012).

Additionally, there is in need to promote early years employment as a desirable profession (i.e. a career, not a job) (Nutbrown 2012). The early years workforce still suffers from low status in society and within the education system itself, and qualification levels are decreasing among staff working both group-based and school-based settings (Bonetti 2018).

The early years workforce – and the young children they care for – can benefit from putting in place a rigorous set of qualifications to ensure a competent and confident staff, raising our expectations of what it means to work with young children, and attracting the best people into the workforce (Nutbrown 2012). To do so, several changes in policy and practice need to offer to increase the number of qualified teachers with specialist early years training and knowledge (qualified at a minimum of level 3) (ibid.). Those who are working towards early education and childcare qualifications need to be taught and supported by qualified and knowledgeable tutors, who are experienced in the early years (ibid.). Only those candidates who are confident and capable in their literacy and numeracy should be able to enrol on these level 3 courses (ibid.). Qualifications must be rigorous and challenging, requiring high-quality experiences in placements, giving students time to reflect on and improve their own practice (ibid.).

TWO-GENERATION MODELS

It is generally accepted that children from disadvantaged backgrounds underperform educationally in part because on average they experience more risk factors (e.g. poor parenting, less stimulating home learning environments) that impede their cognitive development. It follows that interventions that seek to address multiple causes of educational underperformance for disadvantaged children may have a better chance of success. Two-generation models of early childhood education and care which involve supporting both parent and child, are a promising way of improving outcomes for disadvantaged children because they address multiple risk factors. Specifically, they provide children with stimulating and high-quality education and care, and they support parents to engage better with their children's development. The best-known example of a two-generational model is Head Start. High-quality evaluations of this programme suggest that a broad and holistic approach which combines delivery by well-qualified individuals with active screening and monitoring of children's progress can improve long-term outcomes for disadvantaged children. Otherwise, to date the impact of two-generation models on parents and parenting behaviours has not been evaluated extensively.

Two-generation, multi-component programmes, which intervene in more than one area of the child's life and are regarded as appropriate for children facing chronic or cumulative risks (Masten and Gewirtz 2006), are one of several types of community-based initiative addressing disadvantaged children's early learning (Asmussen et al. 2016). These approaches can include education and health services for children and support for parents with issues such as parenting, education and preventing child abuse, domestic abuse and mental ill-health. A common model involves combining an enriching classroom-based curriculum with individual support for the parents (frequently via home visiting). Two generational interventions include well-implemented regional pre-schools (e.g. Chicago Child-Parent Centre programme) and national initiatives in the US (e.g. Head Start, Early Head Start). These are underpinned by established evidence demonstrating their potential for improving child outcomes in disadvantaged communities (Duncan and Magnuson 2013). Many extensive and rigorous evaluations have found short-term and sometimes dramatic gains in children's cognitive skills (Asmussen et al. 2016). For instance, gains exceeding

one standard deviation in children's IQ immediately post-intervention have been observed in the Perry Preschool and Abecedarian projects, together with improvements in health and employment that last into middle adulthood (ibid.). The more effective multi-component community-based interventions tend to be fairly long and intensive, include a well-structured preschool curriculum that supports active learning, and have suitably-qualified staff and low child-teacher ratios (ibid.).

Examples of two-generation programmes are given in a recent review of interventions to promote parent-child interaction in the early years, albeit they were labelled there as 'multicomponent' (Axford et al. 2015b). The interventions were all selective, meaning that they targeted families based on elevated risk (often low income), and all were focused on helping parents to help children to be ready for school (i.e. promoting children's cognitive, linguistic, physical, motor, social and emotional development). Comparison group evaluations for six interventions (Early Head Start, Head Start, Sure Start, Infant Health and Development Programme, HIPPY and REAL) showed that between them they:

- improved *parent* outcomes, including: more involvement in and support of children's learning (e.g. reading more frequently with the children); improved knowledge of infant development; more positive parenting; and less use of punitive discipline strategies.
- improved *child* outcomes, including in the areas of language, reading, cognition, maths, socio-emotional development and behaviour.

However, it should be noted that results within studies were sometime mixed. Another two-generation intervention originating in the US is Midwest Child Parent Centers. These targeted low-income families and provide a mix of pre-school education and family support services. They were highlighted as promising in a systematic review (See and Gorard 2015b) and a more recent study found that they were more effective than regular pre-school programmes on six domains of school readiness, namely (oral language, literacy, maths, socio-emotional development, cognitive development, physical health) and the total score (Reynolds et al. 2016). Teachers rated intervention parents as more involved in school (ibid.).

A new wave of two-generation programmes has a stronger focus on building the human capital of low-income parents (via post-secondary education and sectoral training) and their children (via early childhood education centres) (Chase-Lansdale and Brooks-Gunn 2014). The underlying theory holds that parent will get a better education and jobs, leading to higher income, less stress (improved mental health) and more effective parenting Including a more enriched home learning environment), with improvements in children's social competence and school success following; in parallel, advances in children's learning will stimulate parents to expand opportunities for their children and to get more education themselves (i.e. appositive feedback loop) (ibid.). While the effectiveness and features of high-quality early education are well established (see earlier in this chapter), evidence from evaluations of education and workforce training programmes for low-income parents is less promising (ibid.). For example, evaluations of New Chance and Teen Parent Demonstration (TPD) in the US found weak effects on mothers' education, employment and income, and no effect on children's school readiness, vocabulary or prosocial involvement (ibid.). One area identified for improvement is seeking to prepare parents for jobs with "family-supporting wages" (p.26). So far, only Enhanced Early Head Start has been evaluated, in a randomised trial, with disappointing results. However, Chase-Lansdale and Brooks-Gunn (2014) remain optimistic about second wave two-generation programmes and encourage further intervention development and testing.

CHAPTER 5: EARLY CHILDHOOD EDUCATION AND CARE

CONCLUSION

Substantial evidence from longitudinal studies in the UK for the benefits of high-quality early childhood education and care for young children's learning and related outcomes was summarised earlier in the chapter. There are also several reviews demonstrating the benefits of such provision for children's social-emotional, cognitive and educational development (e.g. Melhuish et al. 2004; Burger 2010; Camilli et al. 2010), and a series of studies using experimental or quasi-experimental studies from the US, also showing positive effects on children's early learning outcomes. Children from socially disadvantaged backgrounds stand to benefit in particular. A longer duration (but not intensity) of provision is associated with better outcomes, and there are also good indications of the features of high-quality provision in terms of both *structure* – how early years settings are organised – and also *process* – what happens in them on a day-to-day basis. Some aspects of the latter are specific to language and literacy or numeracy respectively, whereas others are cross-cutting. The quality of provision is predicted by the qualifications of the workforce. Two-generation models of support are also promising, although currently the best evidence for these comes from the US.

SUMMARY OF KEY POINTS

There is extensive evidence from longitudinal studies in the UK demonstrating the potential of early childhood education and care (ECEC) to support children's development (including cognitive, health, behavioural, social and physical outcomes), especially for those from a disadvantaged background. These effects hold even after accounting for the home learning environment and other socio-economic factors.

There is also robust evidence from experimental and quasi-experimental studies, albeit mostly from the US, for the effectiveness of early years practices and programmes in terms of a range of outcomes (language and literacy, maths, cognition, social-emotional well-being and physical development).

Effectiveness depends to some degree on the *quantity* of early years provision received, with more generally being better, although this relates more to duration (months between start and finish) than intensity (hours per day). Take-up of free part-time early education in England is lowest among more socially disadvantaged groups.

There is also consensus that early years provision needs to be high *quality* in order to deliver its promise. There are two types of quality: process and structural quality. They are intertwined insofar as structural elements provide the framework for the process quality elements to operate and impact on child outcomes.

The first of these, *structural* quality concerns the more easily observed, measured and regulated elements. Child-to-staff ratios, workforce training and professional development, and size of group or classroom have an impact on children's outcomes across several domains, including cognitive and social-emotional. It is better to have:

- **fewer children per member of staff;**
- **early years teachers with a formal degree and some specialised training in early childhood education or child development; and**
- **smaller class sizes**

The second type, *process* quality, refers to what happens on a day-to-day basis in early years settings, such as educational activities and the types of interaction between children, early education staff and parents.

Some aspects of process quality are cross-cutting. Quality features observed in case studies of more effective settings include *inter alia*:

- **Warm interactive relationships with children**
- **Good-quality adult-child verbal interactions**
- **Initiation of activities by staff and children**
- **Good staff knowledge of curriculum and how children learn**
- **Encouragement of high levels of parent engagement in their children's learning**
- **Instructed learning environments**
- **Education and social development viewed as complementary**

Other aspects of process quality relate more specifically to the outcomes of interest. Thus, in relation to *communication, language and literacy* elements of good practice include, *inter alia*:

- **creating a rich language environment**
- **focusing on both language comprehension and decoding**
- **developing children's capability and motivation to write**
- **supporting parents to help their children learn**

Similarly, in relation to *numeracy and pre-numeracy* important features include, *inter alia*:

- **small group work**
- **balancing guided interaction with direct teaching and child-led activities**
- **early years professionals understanding young children's mathematical development and to assess it so that they can help more effectively**

There is evidence to support the effectiveness of interventions that can be delivered in early years settings and the early school years to improve children's social-emotional skills, especially for children from more socially disadvantaged backgrounds.

It is important to have more qualified staff in the early years workforce because qualifications predict the quality of provision. Efforts are also needed to increase the pay and status of the early years workforce.

Two-generation models of early childhood education and care are a promising way of improving outcomes for disadvantaged children because they address multiple risk factors. They provide children with stimulating and high-quality education and care, and support parents to engage better with their children's learning and related aspects of their development. To date, however, the best evidence for the impact of this approach comes from Head Start in the US.

Further reading and resources

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CHAPTER 6.
PARENT HEALTH [9]

Note: See Chapter 1 for an explanation of the categories and ratings

AGES: GESTATION AND BIRTH, 0-1, 2-3, 4-8

WHAT MATTERS

OUTCOMES
Speech, language and communication
General cognitive

STRENGTH
Mental health
Physical health

NATURE
Correlated, indirect, Distal

SOCIO-ECONOMIC GRADIENT
Yes

LINKS
Attachment and sensitive parenting
Parent engagement in learning

WHAT WORKS

IMPACT ON ISSUE

IMPACT ON EARLY LEARNING OUTCOMES
Not known

[9] This chapter draws in part on: Axford and Barlow (2013), Axford et al. (2015a) and Glover et al. (forthcoming).

OBJECTIVES

The objectives of this chapter are:

- **to explain how parental physical and mental health in the perinatal period in particular but also as children get older contribute to children's development, including early learning outcomes, whether directly (through in utero exposure and impact on birth outcomes and the child's brain development) or indirectly (via their effect on parent-child interaction)**
- **to explore the relationship between selected parent physical and mental health problems and socio-economic disadvantage**
- **to summarise evidence on the effectiveness of interventions to promote parent physical and mental health and intervene early or treat problems when they arise**

CHAPTER 6: PARENT HEALTH

INTRODUCTION

As explained in Chapter 1, a distinction is made in this report between factors that are proximal (or near) to children's early learning outcomes and those that are distal (or further away) in the sense that their effects on children's early learning operate to some degree at least via the more proximal factors. Until now, the report has focused on the proximal factors. This is the first of a series of chapters exploring distal factors. As will be seen, parents' mental and physical health, both of which are negatively associated with socio-economic background, affect the developing foetus but also parents' interactions with their child. Fortunately, there are various types of intervention that are effective in promoting better parent health or addressing physical or mental illness.

WHAT MATTERS

MENTAL HEALTH

A review of poverty and mental health to inform the Joseph Rowntree Foundation's Anti-Poverty Strategy found that "Poverty increases the risk of mental health problems, and can be both a causal factor and a consequence of mental ill health" (Elliott, 2015: 7 – see also Fell and Hewstone 2015). As such, higher rates of mental health problems are associated with poverty and socio-economic disadvantage. In the UK, men and women in the poorest 20% of the population are twice as likely as those on average incomes to be at risk of developing mental health problems (ibid.). This section looks initially at maternal mental health in the perinatal period because of its important influence on the cognitive, social, emotional and behavioural development of the child, all of which are related to school readiness. There follows a short summary of research on mental health beyond the perinatal period.

The perinatal period

Stress, anxiety and depression are common in the perinatal period. A recent study in the UK found that one in four (27%) women experience mental health problems during pregnancy, including depression (11%) and anxiety (15%) but also other conditions, with some women experiencing multiple problems (Howard et al. 2018). Earlier studies have suggested that mild to moderate depressive illness and anxiety states affect 10 to 15% of maternities, with severe depressive illness affecting 3% (Joint Commissioning Panel for Mental Health 2012).

A range of factors affect a mother's mental health (Axford and Barlow 2013; Glover and Barlow 2014), including:

- her earlier mental health
- whether the pregnancy was planned
- whether she has unresolved trauma (e.g. abuse, death in the family)
- her relationship with her partner (especially domestic abuse)
- whether she misuses alcohol/substances.

Maternal psychological health problems during pregnancy have adverse effects on both the physical development of the foetus (e.g. low birthweight for gestational age, earlier delivery) and child (e.g. increased risk of asthma) but also later psychopathology: "[T]here is now considerable evidence from prospective studies that the children of women who are depressed, anxious or stressed during pregnancy are more likely to experience a range of adverse neurodevelopmental, emotional, behavioural, and cognitive outcomes compared with children of mothers who do not experience such problems" (Glover and Barlow 2014: 96). Indeed, adverse effects of maternal mental health problems for the child include an increased risk of emotional and behavioural problems

(e.g. symptoms of anxiety and depression, and symptoms of ADHD and conduct disorder) and lower cognitive performance, not to mention an increased risk of autism and schizophrenia (Glover and Barlow 2014). Such problems can last into adolescence and even early adulthood (ibid.).

The effects of prenatal stress on child outcomes are clinically significant; for example, a large population study in England found that "if the mother was in the top 15 per cent for anxiety, her child was at double the risk for emotional/behavioural problems at ages four and seven (O'Connor et al. 2002, 2003) after controlling for a wide range of possible confounders including postnatal maternal mood" (Glover and Barlow 2014: 99). Similarly, "In a study correlating prenatal life events with child cognitive development at 17 months, Bergman et al. (2007) found that prenatal stress accounted for 17 per cent of the variance in cognitive ability" (ibid., p.99).

Research suggests that the associations between maternal mental health during pregnancy and child outcomes are in part owing to physiological effects on the foetus, including the developing brain, but also because the mother's psychological functioning in pregnancy affects her imagined relationship with her baby ('reflective functioning') and is thereby transmitted via the mother's parenting postnatally (Glover and Barlow 2014). During the postnatal period, the infant's capacity to develop a secure attachment to the primary caregiver depends on sensitive parenting (De Wolff and van Ijzendoorn 1997) and parental reflective functioning (Fonagy and Target 1997). A mother's capacity to provide this type of parenting is impaired by poor mental health, with adverse effects for children. For instance, depressed mothers have been shown to be less sensitively attuned to and less affirming of their infants than non-depressed parents (Murray 1992), with adverse effects in terms of behavioural difficulties and cognitive outcomes at 18 months (Murray et al. 1996). Sharp et al. (1995) found that boys of mothers with postnatal depression may score lower on standardised intellectual attainment tests, while a recent review concluded that maternal postpartum depression reduces children's cognitive performance (Mirhosseini et al. 2015).

Perinatal anxiety and depression are also common in men, with 5 to 10% of new fathers worldwide experiencing postnatal depression and 5 to 15% affected by anxiety disorders (Paulson and Bazemore 2010; Leach et al. 2016). Adverse effects on fathers' interaction with infants include poorer attachment (Buist et al. 2003) and less singing, reading and storytime (Paulson et al. 2006), while adverse effects on children's later development include conduct and psychiatric problems (Ramchandani et al. 2005, 2008).

Beyond the perinatal period

Exposure to maternal depressive symptoms, whether during the prenatal period, postpartum period, or chronically, increase children's risk for later cognitive and language difficulties (Sohr-Prestion and Scaramella 2006). The effects of depressed mood on parenting may be particularly pronounced when mothers experience chronic depression (ibid.). When raised by a chronically depressed mother, children perform lower, on average, on cognitive, emotional, and behavioural assessments than children of non-depressed mothers, and they are at risk for later mental health problems, social adjustment difficulties, and difficulties in school (NSCDC 2009). A longitudinal study of children in Scotland, however, found that while cognitive outcomes (both naming vocabulary and picture similarities) at 34 months were significantly associated with maternal mental health, the association was no longer significant once other social and economic factors were considered (Marryat and Martin 2010).

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In terms of how maternal depression impacts on child outcomes, research indicates that depression affects mother-child interaction, which, in turn, influences cognitive, emotional, and behavioural development during the early years (NSCDC 2009; Sohr-Prestion and Scaramella 2006). When infants and young children interact with a hostile, irritable caregiver, this creates feelings of fear and anxiety in the child, which may result in the increased production of potentially harmful stress chemicals that affect brain development, interfere with young children's ability to learn, and increase the risk of emotional disorders (NSCDC 2009; Razza et al. 2010).

An analysis of data on over 3,500 children in the US found that mothers of five-year-old children with persistent depression were less likely to spend time on the following: outings; trips to playgrounds or parks; reading with their child and playing indoors with their child (Frech and Kimbro 2011).

PHYSICAL HEALTH

The developing foetus

In a summary of evidence, Axford and Barlow (2013) note the following:

- the foetus is uniquely vulnerable during pregnancy because rapid cellular division is taking place.
- the mother's physical and mental health and behaviour affect the environment in the womb, which in turn can affect the cellular growth and development of the brain and other organs.
- this has lifelong effects (positive and negative) on the developing child's physical and mental health, learning and behaviour
- important aspects of this include exposure of the foetus to toxins (tobacco, alcohol, other drugs), poor nutrition (including micro-nutrients, obesity, folic acid, Vitamin D) and general ill-health (e.g. infections, high blood pressure, anaemia).

Good health in pregnancy is important in preventing a child being born prematurely and/or with a low birth weight, both of which are strongly associated with poorer outcomes. Children born preterm (less than 37 weeks gestational age, 7.1% in the UK) are at increased risk of neurodevelopmental problems, cerebral palsy, chronic lung disease, premature mortality and potentially fatal bowel disease (Gray et al. 2014). Their adult health and development are disproportionately poor. Intrauterine growth restriction, the impaired growth of the foetus, affects 3-10% of pregnancies (ibid.). Risk factors include smoking, alcohol and drug use, poor nutrition, obesity, hypertension, pre-eclampsia and problems with the functioning of the placenta., with rates of stillbirth, infant mortality and neurodevelopmental disorders higher in affected pregnancies (ibid.).

The effects on outcomes of poor health behaviours (smoking, poor nutrition, heavy alcohol consumption, the use of illicit drugs) during pregnancy are compounded by poor behaviours both before pregnancy (e.g. obesity, lack of exercise) and after pregnancy (e.g. not initiating / persisting with breastfeeding) (Gray et al. 2014). These tend to cluster together in certain individuals, which makes it difficult to disentangle their impact on later child development (ibid.).

Age at conception

The risk of adverse pregnancy outcomes, such as preterm birth, low birthweight and stillbirth, is increased at the extremes of the age distribution in pregnancy. The increased risk for younger women is related to them tending to be poorer and being less likely to adopt healthy behaviours. Older women, who tend to be better off and display healthier behaviours, are at increased risk because of their age (Gray et al. 2014).

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Pre-existing chronic disease and disability

Some women who become pregnant have a pre-existing diagnosis of one or more diseases, ranging from common conditions (e.g. asthma, diabetes and arthritis) to those that are less common (e.g. multiple sclerosis, cystic fibrosis, inflammatory bowel diseases). The effects of such conditions on the foetus and child depend on the underlying condition's nature and severity. According to research based on the Millennium Cohort Study (Sumilio et al. 2012, 2013), 9% of women in the sample had longstanding limiting illness around the time of birth, which increased the risk of longstanding limiting illness in children aged 7 years, regardless of whether the child started life in poverty.

Nutrition

Up to 6% of pregnant women in the UK are clinically obese (Gray et al. 2014). Women who are obese when they become pregnant have a higher risk of hypertension (general or pregnancy-induced), gestational diabetes, emergency or elective caesarean section, stillbirth, recurrent unexplained miscarriage, a range of foetal congenital deformities and neonatal complications (including premature birth) (ibid.). Obese women are also less likely to initiate or sustain breastfeeding (ibid.).

Smoking

A survey[10] in 2010 found that 26% of women in England smoked in the 12 months before or during their pregnancy, with 12% continuing to smoke throughout their pregnancy. The latest figures suggest that 10.8% pregnant women in England smoke at the time of delivery, reflecting a continued downward trend since 2006.[11] Smoking prevalence during pregnancy is higher among socially disadvantaged groups (Boucher and Konkle 2016). For example, an analysis of UK Millennium Cohort data found that among children aged 5 years the proportion of mothers who smoked during pregnancy was about six times higher in the lowest income quintile (44.2%) than in the highest income quintile (7.3%) (Goisis et al. 2015).

Smoking and environmental tobacco exposure during pregnancy increase the risk of a number of negative birth outcomes, including miscarriage, stillbirth, preterm birth, low birthweight and lower IQ (WHO 2011). Adverse effects on child health during infancy and childhood include physical health problems such as asthma, pneumonia and bronchitis but also neurobehavioural and neurodevelopmental deficits (ibid.).

Alcohol

A national survey in 2013 found that 28% of pregnant women in Britain had drunk alcohol in pregnancy, although fewer than 10% pregnant women drank in the week before the interview compared with more than 50% of those who were not pregnant or unsure (ONS 2015). A more recent UK-wide estimate, suggests that 41% of women drink alcohol during pregnancy, one of the highest rates in Europe (Popova et al. 2017). The evidence is not strong enough to conclude that there is no risk from low levels of alcohol consumption (1 to 2 drinks per week), while low/moderate levels can damage the brain, leading to adverse cognitive and neurological development that may affect speech and language development (Barlow and Axford, forthcoming). Higher levels of alcohol consumption, such as binge drinking, are very harmful for the foetus; indeed, one of the main causes of intellectual deficiencies in childhood is foetal alcohol syndrome (Riley et al 2011). Populations that experience high degrees of social deprivation and poverty are most at risk for foetal alcohol spectrum disorders (BMA Board of Science 2007), which are associated with a wide range of effects, including permanent brain damage, growth restriction and cognitive, behavioural and emotional deficits (Popova et al. 2017).

[10] Infant Feeding Survey (http://content.digital.nhs.uk/catalogue/PUB11454/smok-eng-2013-rep.pdf).

[11] https://www.statista.com/statistics/445149/smoking-during-pregnant-in-england/

Other drugs

The prevalence of drug use in pregnancy is hard to ascertain but it is the case that most drug users are young adults of childbearing age (EMCDDA 2012). Misusing substances in pregnancy is associated with a number of maternal and fetal complications, with the exact effects depending on the type of drug and frequency, amount, gestational period and method of use (Madgula et al. 2011). Specifically, the following adverse outcomes are more likely (Forray 2016):

- Cannabis use: increased preterm labour, low birthweight and adverse effects on the developing brain (e.g. reduced attention and executive functioning, poorer academic achievement and more behavioural problems).
- Cocaine use: premature delivery, low birthweight, small for gestational age infants, perinatal mortality and cot death (the evidence about language, motor and cognitive impact is inconclusive).
- Opioid use: greater risk of low birthweight and respiratory problems amongst other things.

Issues associated with substance use, such as domestic abuse, poverty, poor nutrition, chronic medical problems and co-morbid psychiatric illness, some of which are covered elsewhere in this report, further exacerbate these problems (ibid.).

In the postnatal period, parental substance use can adversely affect the parent-child relationship and, in turn, children's socio-emotional development, which as indicated in Chapter 1 is important for children's early learning. Substance-dependent parents are at high risk for child maltreatment and have a reduced capacity for sensitivity and attunement, made worse by co-occurring problems such as psychiatric disorders and psychopathology (Barlow and Axford, forthcoming).

Other issues

Other factors that bear on maternal health during pregnancy but not discussed here include high blood pressure, drugs used to treat medical conditions and chemical and environmental factors. Domestic abuse is covered in Chapter 8.

WHAT WORKS

MENTAL HEALTH

Identifying problems

There is NICE (2014) guidance on the questions that practitioners should ask at a woman's first contact with primary care or her booking visit, and during the early postnatal period, as part of a general discussion about mental health and wellbeing. This involves brief questions[12] initially to determine whether further assessment using standardised screening tools for anxiety[13] and/or depression[14]. If the further assessment is required, the practitioner should also consider referring the woman to her GP or, if a severe mental health problem is suspected, to a mental health professional.

Identifying the effect on parent-child interaction

Given the evidence that maternal mental health problems can adversely affect mother-infant interaction (see above), NICE (2014) further recommends that where there are concerns about the mother's mental health, the practitioner

[12] The two Whooley questions (Whooleyquestions.ucsf.edu, 2015) The guidance recommends that practitioners should also consider asking about anxiety using the 2-item Generalized Anxiety Disorder scale (GAD-2) (ACP Depression Care Guide, 2016).

[13] The GAD-7 scale (Patient.info, 2017)

[14] The Edinburgh Postnatal Depression Scale (EPDS) (Scale and Depression., 2017) or the Patient Health Questionnaire (PHQ-9:) (Patient Health Questionnaire- 9, 2017).

should assess whether this is affecting her interaction with the baby (including verbal interaction, emotional sensitivity and physical care). There are simple assessment tools to do this.[15]

Prevention

There are various opportunities to prevent antenatal depression and anxiety, but evidence regarding effective methods of working is limited (Howard et al. 2014). A recent review of reviews (Axford et al. 2015a) found that evidence for the following is limited:

- the benefits of CBT for preventing antenatal anxiety (Howard et al. 2014)
- providing feedback during the ultrasound scan for reducing anxiety and depression (Nabhan and Faris 2010)
- mind-body interventions such as psycho-education, relaxation and meditation during pregnancy for perceived stress or mood (Beddoe and Lee, 2008)
- hypnotherapy, imagery, autogenic training and yoga during pregnancy and the immediate postnatal period for anxiety (Marc et al. 2011)
- exercise-based interventions for preventing antenatal depression (Daley et al. 2015)
- mindfulness training during pregnancy for preventing stress, depression and anxiety (Hall et al. 2016)
- home visits conducted by laypeople (Dennis and Dowswell 2013).

In contrast, psychosocial or psychological interventions delivered to women in pregnancy and up to six weeks postpartum can help to prevent postpartum depression (Dennis and Dowswell 2013). Promising interventions include:

- intensive, professionally-based postpartum home visits provided by public health nurses or midwives
- flexible, individualised midwifery-based postpartum care that incorporates postpartum depression screening tools
- telephone-based peer support
- interpersonal psychotherapy (which focuses on the interpersonal issues associated with depression, including marital conflict and lack of support)

Later reviews (Kawanishi et al. 2015; Sheffield and Woods-Giscombé 2016) suggest that prenatal yoga can improve mental health (stress, depression and anxiety) of healthy and at-risk pregnant women. However, omega-3 supplementation during pregnancy was not found to help prevent postpartum depression (Saccone et al. 2016).

Treating depression and anxiety

NICE (2014) guidance is clear on how to treat depression in pregnancy, recommending facilitated self-help, high-intensity psychological intervention (e.g. CBT) or medication (antidepressants) depending on the severity and persistence of depressive symptoms and, in the case of medication, the woman's understanding of the risks and whether symptoms have responded to previous treatment. The same guidance advises on what to offer women experiencing anxiety in pregnancy and the postnatal period, again depending on severity and persistence of symptoms, for example facilitated self-help (CBT-based materials with telephone or face-to-face support or high-intensity psychological intervention (e.g. CBT).

[15] For example, the Parent-Infant Interaction Observation Scale (PIIOS) (Svanberg et al 2013) or the Keys to Parenting Interaction Scale (KIPS) (Comfort et al 2011).

In line with these recommendations, a review found that psychosocial interventions (e.g. peer support, non-directive counselling) and psychological interventions (e.g. CBT, interpersonal psychotherapy) are effective in reducing depressive symptoms in the first year postpartum (Dennis and Hodnett 2007). Further support also comes from more recent reviews showing the benefits for treating depression in the perinatal period of CBT interventions (Sockol 2015) and interpersonal psychotherapy (Miniati et al. 2014). Additionally, exercise-based interventions have been shown to reduce depressive symptoms during pregnancy (Daley et al. 2015),[16] while computer- or web-based interventions for perinatal mental health – involving various therapeutic approaches (e.g. CBT, relaxation, biofeedback, mindfulness, stress management) and often including therapist contact – are also promising (Ashford et al. 2016; Lee et al. 2016). In contrast, evidence for the effectiveness of a number of alternative therapies (e.g. maternal massage, bright light therapy, acupuncture and Omega-3 fatty acids) for treating antenatal depression is inconclusive. There is also insufficient evidence to make recommendations about the effectiveness of mindfulness training during pregnancy in reducing perinatal mental health problems generally (Hall et al. 2016).

Parent-child interaction

As indicated earlier in this chapter, maternal mental health problems such as depression and anxiety can adversely affect mother-infant interaction. Where this occurs, NICE (2014) recommends supporting the mother and infant (see Chapter 3 of this report for evidence on a range of relevant types of intervention).

This is important because treating maternal depression alone does not appear to impact on child outcomes (NSCDC 2009). Evidence suggests that treatments designed to improve child outcomes need to address both the mother's depression and parenting behaviour in order to improve in¬teractions with the child (NSCDC 2009; Sohr-Prestion and Scaramella, 2006). Project PRIMER (Producing Infant/Mother Ethnic Readers) and Toddler-Parent Psychotherapy (TPP) are two examples of mother-child programmes that have shown a positive impact with this approach (ibid.).

In an experimental test of Project PRIMER, a community-based literacy programme targeting low-income families, children of depressed mothers following the programme actually matched their peers reared by non-depressed mothers in most measures of cognitive performance at the end of the study (ibid.). TPP, meanwhile, was designed to improve the mother-child relationship and communication patterns. When TPP was experimentally tested, children in the depressed intervention group were indistinguishable from the non-depressed control children in their cognitive functioning, at the end of the intervention, despite the fact that the children in the depressed intervention group had lower verbal IQ scores than the children of the non-depressed control group (ibid.).

Support for fathers

There is a dearth of research on the effectiveness of interventions for fathers who have mental health problems. Best practice includes ensuring that services welcome both parents, and groups for fathers that do not focus on mental health explicitly but allow fathers to open up about their experience (Glover et al. forthcoming).

[16] It is, however, uncertain whether exercise interventions reduce symptoms of postnatal depression (Daley et al. 2009).

CHAPTER 6: PARENT HEALTH

PARENT PHYSICAL HEALTH

Midwife-led care

The value of midwife-led care for the health of the mother and baby in both the antenatal and postnatal periods had been demonstrated in several studies (for a review see Sandall et al. 2013) and is not discussed any further here.

Age at conception

According to Harden et al. (2009), sex education and sexual health services are not effective by themselves for reducing the teenage pregnancy rate. Instead, they need to be complemented by early childhood and youth development interventions that tackle social disadvantage.

Pre-existing maternal chronic disease and disability

The importance of preconception care for women with pre-existing medical conditions such as diabetes is widely recognised, although there is a need for more research into the effectiveness of such interventions. Gray et al. (2014) note the developing evidence base on the effectiveness of preconception care (e.g. Temel et al. 2013; Seshadri et al. 2012) and suggest that women with pre-existing chronic illness and those with risky health behaviours could benefit most. For instance, both obese women and their pregnancies would benefit from getting their weight under control preconception (Shaikh et al. 2010).

Nutrition

Although a balanced diet provides women with most of the vitamins and minerals they need for a healthy pregnancy, in order to protect against rickets (a bone disease) and birth defects, such as spina bifida they are recommended to take vitamin D (10 micrograms) daily throughout pregnancy and folic acid (400 micrograms) each day from preconception to the 12th week of pregnancy. Public health guidance from NICE does not recommend weight loss during pregnancy but does recommend asking women who are overweight or obese at their 6-8 week postnatal check if they would like advice or support about losing weight. There is evidence that trying to limit weight gain during pregnancy for obese women may be beneficial and evidence-based interventions that may achieve this exist (Thangaratinam et al. 2012; Oteng-Ntim et al 2012).

Smoking

NICE (2010a) guidance recommends that:

- health professionals (health visitors, GPs, family nurses) should use any meeting to ask women who are pregnant if they smoke and, if they do, to advise them to stop, explain how NHS Stop Smoking can help and, with consent, make a referral to the service
- health practitioners with specialist training should give pregnant women who smoke information about:
    - risks to the unborn child of smoking when pregnant
    - the dangers for both mother and baby of exposure to second-hand smoke
    - the benefits of stopping smoking (not just cutting down).
- midwives should implement routine Carbon Monoxide (CO) testing in pregnancy clinics to help identify women who smoke
- referrals to NHS Stop Smoking services should be made for:
    - current smokers
    - those who stopped in the previous fortnight
    - those with a CO reading of 7 ppm or above
    - light or infrequent smokers even if they register a lower reading
- women in any of these last few categories should also be given the NHS Pregnancy Smoking Helpline number and local helpline numbers.

CHAPTER 6: PARENT HEALTH

According to a recent major review (Chamberlain et al. 2017), psychosocial interventions (i.e. non-pharmacological strategies, including cognitive-behavioural, motivational and supportive therapies) can increase the proportion of women who stop smoking in late pregnancy and reduce the proportion of infants born with low birthweight. Although the effect of health education and social support was unclear, counselling, feedback and incentives were found to be effective.

Arguably the most effective approach for smoking cessation in pregnancy is contingency management (CM) with financial incentives (Forray and Foster 2015). Other types of incentive include lottery tickets and shopping vouchers. A series of reviews (not only focused on maternal non-smoking in pregnancy) suggest that, overall, incentives are very effective up to six months follow-up and that effects can last beyond when they finish (Higgins et al. 2012; Cahill et al. 2015; Mantzari et al 2015; Giles et al 2014; Radley et al. 2013). Such schemes may appeal particularly to low-income women and heavy smokers. The use of social media to provide information and peer support is a promising avenue but largely untested (Cobb et al. 2011).

According to Chamberlain et al. (2017), the effect of counselling interventions on smoking cessation is clear when compared with usual care and has a smaller effect when compared with less intensive interventions. Another review concluded that proactive telephone counselling can result in higher quit rates in both pregnant and non-pregnant women (Stead et al. 2013). Other psychosocial interventions with some evidence of effectiveness include social marketing campaigns, nurse home visiting, brief feedback on urinary cotinine results, mindfulness training, text messaging or smartphone interventions and internet-based programmes for youth (Forray and Foster 2015; Park and Drake 2015; De Souza et al. 2015).

High rates of relapse in pregnancy and the postpartum period among women who stop smoking during pregnancy mean that interventions to prevent relapse are important for preventing children from being exposed to environmental tobacco smoke (Priest et al. 2008). A recent review – not specific to pregnancy – concluded that text-messaging support interventions can increase the likelihood of staying quit (Whittaker et al. 2016). Approaches to establishing smoke-free homes in the perinatal period include motivational interviewing, education, counselling and plans for smoke-free homes, although evidence on whether they are effective is inconclusive (Baxter et al. 2011).

There is ongoing research into the safety and efficacy of *pharmacological* smoking cessation interventions for pregnant and postpartum women. According to Forray and Foster (2015), NRT (nicotine replacement therapy) has limited efficacy in increasing abstinence rates in pregnant women, and a major review (Coleman et al. 2015) recommended combined with behavioural support. E-cigarettes have demonstrated effectiveness for smoking cessation, at least in the short term (Kalkhoran and Glantz, 2016; Orr et al. 2014), but have not been tested with pregnant women.

Finally, it is worth acknowledging that efforts to help women who are pregnant to stop smoking need to take account of the interplay between the individual, *interpersonal* and environmental aspects of women's lives (Bauld et al. 2017). At the individual level, factors that affect a woman's decision to stop smoking include the perceived risk to the baby, her own self-efficacy, the influence of close relationships and the extent to which smoking is used as a way to cope with stress. At the interpersonal level, smoking cessation is affected by the extent of a partner's emotional and practical support, their willingness to change smoking behaviour and the role of smoking within relationships. At the

community level, it is harder to stop smoking if smoking is considered a normal part of life, and at the *organisational* level half-hearted support from health professionals and a lack of practical help and advice act as barriers to quitting. Health professionals, therefore, need education on how to address barriers to smoking cessation, and can best assist by "providing support and understanding, and access to effective interventions, including an opt-out referral pathway to Stop Smoking Services, routine carbon monoxide screening, behavioural support and access to pharmacotherapy" (Bauld et al. 2017: vi).

Alcohol

Many countries, including the UK, recommend that pregnant women do not consume any alcohol. Best practice guidance (NICE 2010b, 2011, 2014) recommends that if alcohol misuse is suspected, the Alcohol Use Disorders Identification Test (AUDIT) should be used to help decide whether to offer a brief intervention (and if so what) or, in the case of dependency, to refer the woman to specialist services.

Brief interventions delivered in primary health are effective in reducing hazardous and harmful drinking (O'Donnell et al. 2014), and although weaknesses in the evidence suggest that some caution is needed, reviews have shown that brief psychological and educational interventions, especially those using motivational interviewing (MI), can increase abstinence and reduce alcohol use in the perinatal period (Stade et al. 2009; Gilinsky et al. 2011).

Despite preventive efforts, some women drink heavily during pregnancy. There is not enough evidence to support using home visiting (Turnbull and Osborn 2012), telephone support (Lavender et al. 2013) or public health interventions such as media campaigns (Crawford-Williams et al. 2015) for these women. There is also a lack of research on the effectiveness of CM for perinatal alcohol use (Forray and Foster 2015).

Other drugs

In order to identify and address drug misuse in the antenatal and postnatal period, best practice guidance (NICE, 2007b, 2014) recommends that practitioners ask questions about drug misuse (e.g. type, quantity, frequency), make an assessment and agree a care plan. Health professionals are advised to use biological testing as part of a comprehensive assessment but not to rely on it as the sole method. General principles for treating women with substance misuse in pregnancy include (Madgula et al. 2011):

- Building a supportive relationship and gaining the woman's confidence
- Combining full assessment with biological, psychological and social management
- A coordinated multifaceted approach that includes support for parenting and attention to comorbid problems such as anxiety and depression
- Cooperation with or referral to perinatal addiction treatment services

Although their efficacy with pregnant cannabis users has not been evaluated, there is evidence that several psychosocial interventions (motivational interviewing (MI), Cognitive Behavioural Therapy (CBT) and Contingency Management (CM)) – i.e. giving substance-users tangible positive reinforcers for objectively-evidenced behaviour change (Madgula et al. 2011) – are fairly effective in reducing cannabis use in women (Forray and Foster 2015). A recent major review of psychosocial interventions for cannabis disorder (Gates et al. 2016) found that they reduce the frequency of use and severity of dependence, at least in the short term, although abstinence rates are low. A review of several pharmacotherapies for treating cannabis dependence concluded that they are probably of little value (Marshall et al. 2014). There are ongoing trials of promising pharmacotherapy approaches for cannabis-use disorders, but currently no such approach is approved (Madgula et al. 2011; Copeland and Pokorski 2016).

Evidence-based treatments for cocaine use in pregnancy are psychosocial and include CBT, MI and CM, with the latter showing the most potential (Madgula et al. 2011; Forray and Foster 2015). However, a major review (Terplan et al. 2015) focusing on pregnant women in outpatient illicit drug treatment programmes found no difference in retention or abstinence between CM or MIB techniques and usual care.

Methadone maintenance is the standard treatment for pregnant women using opiates, although buprenorphine has also emerged as a potential therapy for opioid use in pregnancy (Madgula et al. 2011; Forray and Foster 2015). CM is regarded as an important addition to methadone or buprenorphine in pregnant women, with evidence that it can increase abstinence and treatment attendance (Madgula et al. 2011; Jones et al. 2001).

CONCLUSION

This chapter has shown that poor parental health particularly in the perinatal period (especially maternal health) and as children grow older adversely affects various aspects of children's development, including their cognitive development but also related aspects that contribute to school readiness (especially social-emotional skills). While problems are not irreversible, they get children off to a poor start in life. It is also clear that poor parental health is associated with socio-economic disadvantage; there is a social gradient whereby, on average, poorer parents have poorer health. For these reasons, any strategy to improve children's early learning would be remiss not to attend to parental health, particularly in the perinatal period.

As demonstrated in this chapter, there are evidence-based interventions that can promote parents' health directly and intervene to address problems. Although it is not the focus of this chapter, there is also a need for policy-level initiatives to, for instance to discourage smoking and alcohol use in pregnancy, and to promote adults' mental health; services alone will struggle to exert their influence unless he surrounding environment is also changed.

Finally, in order to improve parental health, there is a need to reduce poverty and socio-economic inequality. Gray et al. (2014) put it like this: "Although no opportunity should be lost to improve health behaviours before or after pregnancy, often these are heavily dependent on social context, and working to tackle social inequality is therefore likely to be just as important as trying to alter behaviour directly (Marmot Review, 2010) [...] If we want to bring the health of the majority of women before, during and after pregnancy up to the health of the best, more universal intervention will be needed, which is evidence-based and tailored to be proportionate to need (Marmot Review, 2010). An economic case for such investment in the antenatal and postnatal periods has been made (Doyle et al. 2009)" (pp. 118-119).

SUMMARY OF KEY POINTS

Mental health

Higher rates of mental health problems are associated with poverty and socio-economic disadvantage.

Mental health problems such as stress, anxiety and depression are common in the perinatal period. Factors that affect maternal mental health include unresolved trauma, domestic abuse, alcohol or substance misuse and earlier mental health.

Maternal mental health problems can adversely affect the foetus and impair mother-infant interaction (leading to less secure attachment), with later harmful effects on the child's cognitive development, behaviour and social-emotional well-being.

Perinatal anxiety and depression are also common in men and can adversely affect a father's interaction with his infant, leading for instance to less reading, singing and storytime, and increase the risk of later child psychopathology.

The adverse effects of poor parental mental health on parent-child interaction and children's learning extend beyond the perinatal period.

Best practice guidelines indicate how mental health problems can best be identified in the perinatal period and how to act on signs of difficulty, including if adverse effects on mother-infant interaction are identified.

There is limited evidence for the effectiveness of approaches to preventing antenatal depression and anxiety. This includes the use of CBT or hypnotherapy to prevent anxiety, and the use of exercise-based interventions to prevent antenatal depression.

However, there is evidence for the benefits of psychosocial or psychological interventions in preventing *postpartum depression*, including intensive home visits by public health nurses or midwives, telephone-based peer support and interpersonal psychotherapy.

Best practice guidance suggests various suitable approaches to treating depression and anxiety in pregnancy and the postnatal period, depending on its nature and severity and ranging from facilitated self-help through to high-intensity psychological intervention (e.g. CBT) alongside medication (under certain conditions).

Also promising are computer- or web-based interventions for perinatal mental health. These entail various therapeutic approaches (e.g. CBT, relaxation, biofeedback, mindfulness, stress management) and often involve therapist contact.

Evidence for the effectiveness of a number of alternative therapies (e.g. maternal massage, bright light therapy, acupuncture and Omega-3 fatty acids) for treating antenatal depression is inconclusive.

Where there are concerns about the mother-infant interaction as a result of maternal mental health problems, further support targeting the dyad (mother and infant pair) is needed. The evidence suggests that in order to improve child outcomes it is necessary to address the mother's depression and parenting behaviour to improve in¬teractions with the child.

Physical health

The mother's physical and mental health and behaviour affect the environment in the womb, which in turn can affect the cellular growth and development of the brain and other organs in the foetus. This has lifelong effects (positive and negative) on the developing child's learning, behaviour and physical and mental health.

Good health in pregnancy is also important in preventing a child being born prematurely and/or with a low birth weight, both of which are strongly associated with poorer outcomes.

The effects on outcomes of poor maternal health behaviours (poor nutrition, smoking, heavy alcohol consumption, the use of illicit drugs) during pregnancy are compounded by poor behaviours both before pregnancy (e.g. obesity, lack of exercise) and after pregnancy (e.g. not initiating / persisting with breastfeeding). These tend to cluster together in certain individuals.

Nutrition

There is evidence that trying to limit weight gain during pregnancy for obese women may be beneficial, and evidence-based interventions that may achieve this exist.

Smoking

Smoking during pregnancy is more prevalent among socially disadvantaged and marginalised groups. It increases the risk of a number of negative birth outcomes.

Approaches to smoking cessation in the perinatal period need to account for and potentially address a range of factors, including the extent of a partner's practical and emotional support, the normalcy of smoking in the mother's social network, and the degree and quality of support from health professionals.

There is best practice guidance on what health professionals should do during pregnancy to identify smoking and help women to stop, including asking about it at any contact, providing information and, where relevant, referring women to specialist services.

There is evidence that psychosocial interventions (i.e. non-pharmacological strategies, including the use of cognitive-behavioural, motivational and supportive therapies) can increase the proportion of women who stop smoking in late pregnancy and reduce the proportion of infants born with low birthweight.

Arguably the most effective smoking cessation approach involves the use of contingency management with financial incentives. Other promising approaches include counselling, nurse home visiting social marketing campaigns, brief feedback on urinary cotinine results, text messaging or smartphone interventions, internet-based youth smoking prevention and cessation programmes, and mindfulness-based interventions.

Research into the safety and efficacy of *pharmacological* smoking cessation interventions for pregnant and postpartum women is ongoing.

Alcohol use
About a quarter of pregnant women in Britain have a drink during pregnancy. High levels of consumption have a strong adverse effect on the foetus, including foetal alcohol syndrome, while low/moderate levels can produce functional damage to the brain, leading to adverse cognitive and neurological development that may affect speech and language development.

Many countries, including the UK, recommend that no alcohol is consumed in pregnancy. Best practice guidance advises on action in the case of suspected alcohol misuse.

Brief psychological and educational interventions, especially those using motivational interviewing (MI), can increase abstinence and reduce perinatal alcohol use, and there is some evidence for tailored advice delivered via the Internet.

Substance use
The misuse of substances (e.g. cocaine, amphetamines, opioids, cannabis) during pregnancy is associated with a number of adverse neonatal outcomes. These include reduced attention and executive functioning, poorer academic achievement and more behavioural problems. In the postnatal period, parental substance use can impact the parent-child relationship, further affecting children's socio-emotional development.

Best practice guidance advises on the identification and treatment of drug misuse in the ante- and postnatal periods. There are various psychosocial and pharmacological interventions with evidence of effectiveness for treating different types of substance misuse, although not all have proven efficacy with pregnant women.

Further reading and resources

Asmussen, K. and Brims, L. (2018) *What Works to Enhance the Effectiveness of the Healthy Child Programme: An Evidence Update*. London: Early Intervention Foundation.
https://www.eif.org.uk/report/what-works-to-enhance-the-effectiveness-of-the-healthy-child-programme-an-evidence-update

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https://www.gov.uk/government/publications/healthy-child-programme-rapid-review-to-update-evidence

CHAPTER 7.
CHILD NUTRITION [17]

Note: See Chapter 1 for an explanation of the categories and ratings

AGES: GESTATION AND BIRTH, 0-1, 2-3, 4-8

WHAT MATTERS

OUTCOMES
Speech, language and communication
General cognitive

STRENGTH

NATURE
Correlated, Direct and indirect, Distal

SOCIO-ECONOMIC GRADIENT
Yes

LINKS
N/A

WHAT WORKS

IMPACT ON ISSUE

IMPACT ON EARLY LEARNING OUTCOMES
Not known

[17] This chapter draws in part on: Axford and Barlow (2013) and Axford et al. (2015a).

OBJECTIVES

The objectives of this chapter are:

- **to outline the benefits of good nutrition for young children's development (including their cognitive development)**
- **to explore the relationship between the nutrition of children in the early years and socio-economic disadvantage**
- **to summarise evidence on the effectiveness of interventions to improve young children's nutrition**

CHAPTER 7: CHILD NUTRITION

INTRODUCTION

According to the World Health Organization (2000), "From the earliest stages of foetal development, at birth, through infancy, childhood, adolescence, and into adulthood and old age, proper food and good nutrition are essential for survival, physical growth, mental development, performance and productivity, health and well-being" (p.3). Nutrition affects every level of being, including children's learning. Children's school outcomes, including their participation and achievement, are affected by their physical development (sight, hearing and speech; motor skills; body mass index and obesity), cognition (intelligence; attention span; concentration; memory) and behaviour (ADHD; hyperactivity; aggression), all of which are affected by their nutrition (Sorhaindo and Feinstein 2007). As will be seen, nutritional deficiencies are more common among children from socially disadvantaged backgrounds. This chapter therefore looks at evidence for why good nutrition for children is important for their early learning, what makes it harder to achieve, and what can be done to promote good nutrition.

WHAT MATTERS

BREASTFEEDING

There is good evidence that breastfeeding is strongly associated with a range of short- and long-term health and wider benefits for children, such as intelligence (e.g. Sankar et al. 2015; Horta et al. 2015a/b; Lodge et al. 2015). It is widely considered to be the optimal method of feeding babies because it: plays an immune protective role; builds children's physical resilience; protects them against later life problems, such as middle ear infections, lung infections, asthma, diabetes, sudden infant death, dermatitis, gastrointestinal disorders and leukaemia; is associated with higher IQ; and protects children against later obesity (Summerbell et al. 2014).

There is also evidence that breastfeeding is associated with aspects of school readiness. An analysis of data on white singleton children from the UK Millennium Cohort Study found that after adjusting for confounders there was a significant difference at five years in mean score on cognitive outcomes (naming vocabulary, pattern construction, picture similarities) score at five years between children who were breastfed and those who were never breastfed. Differences were greater for pre-term children. In plain terms, the results suggested that "breastfed children will be 1 to 6 months ahead of children who were never breastfed (Quigley et al. 2012: 25). The authors state that these findings are consistent with a meta-analysis and several large studies published since. Potential mechanisms for the effect of breastfeeding on cognitive development suggested by the study's authors include: the content of breastmilk, notably higher concentrations of 'essential long-chain polyunsaturated fatty acids', which are essential for brain development, and growth factors and hormones that influence brain biochemistry and functional development; the physical or social interaction associated with breastfeeding which simulate cognitive development; and the association of formula feeding with infant infections and delayed developmental milestones.

In a similar vein, a study using data from over 11,500 children in the UK found that breastfeeding had larger positive effects on children with lower cognitive test scores, and that these distributional effects are larger when the duration of breastfeeding is longer (Koh 2017). The author cautiously concludes that "Since a high proportion of children with lower test scores generally come from families with low SES and since there are observed SES-related disparities in maternal breastfeeding incidence and duration, government policies such as the UNICEF UK Baby Friendly Initiative aims at promoting breastfeeding may reduce SES-related gaps in children's academic development" (p.106).

CHAPTER 7: CHILD NUTRITION

Overall breastfeeding rates in the UK have improved since the 1970s but they remain one of lowest rates in Europe (RCPCH 2017). National figures for the UK (from 2010) showed that: 81% of mothers initiated breastfeeding, 55% of mothers were breastfeeding at six weeks, 40% at four months and 34% at six months and 0.5% at 12 months (McAndrew et al. 2012). Figures from 2015/16 in England were 73% initiating and 43% still breastfeeding at 6-8 weeks, while in Scotland 49% of women were breastfeeding soon after birth but only 39% at 6-8 weeks (RCPCH 2017). Socio-economically marginalised populations with low levels of education and income are much less likely to start and continue breastfeeding than their peers with higher levels of income and education, further widening existing inequalities in health (ibid.).

Recent research has shown that a woman's decision about whether to breastfeed is influenced by a range of factors, with barriers including: a lack of support from within her social network (especially fathers); limited or no prior exposure to breastfeeding; a lack of role models; not being sufficiently prepared for the realities of breastfeeding; receiving insufficient support and encouragement when it proves difficult; and feeling uncomfortable about breastfeeding in public places, especially if they are overweight or don't have a positive body image (e.g. Mossman et al. 2008; Wambach and Cohen 2009; Condon et al. 2013; Simpsa et al. 2014; Brown 2016). Perceptions about the problems associated with breastfeeding often supersede more positive beliefs about its benefits. A study in Canada where breastfeeding cessation rates at 1 month were 3.5 times higher in the disadvantaged population than in the socio-economically privileged population, found that among the disadvantaged population determinants of cessation were lack of partner support, negative first impression of breastfeeding and lack of skin-to-skin contact after birth (Newhook et al. 2017).

LATER NUTRITION

In order to achieve good nutritional health outcomes, following breast or bottle feeding infants need to be introduced to appropriate weaning foods at the right time and toddlers need to be introduced to healthy eating patterns. This is important for learning: as indicated in the introduction to this chapter, children's participation in and achievement in early years settings and school are affected by their physical well-being, cognition and behaviour, which in turn are affected by their nutrition. Good nutrition during infancy also has multiple positive outcomes for health during childhood and later life, and nutritional habits formed in early life are thought to track into later childhood and further affect food choices and subsequent nutrition during childhood (Axford et al. 2015a).

Nutritional deficiencies in children before they start school potentially impact adversely on cognitive outcomes in school-aged children. Young children are "particularly susceptible to the moment-to-moment metabolic changes that impact upon cognitive ability and performance of the brain" (Sorhaindo and Feinstein 2007, p.i). In addition to its effect on performance, nutrition affects children's participation and engagement at school; children with poor nutrition more likely to have reduced immunity and increased susceptibility to infectious disease, leading to greater absence owing to illness (ibid.). Specifically, poor nutrition in infants and toddlers is associated with a number of health problems, including poor oral health (dental caries, tooth erosion, gum disease), which is more prevalent in disadvantaged children, and anaemia and Vitamin D deficiency, which are linked with the recent resurgence of rickets (weak bones) (Summerbell et al. 2014). Nutritional deficiencies can also contribute to behaviour problems, including ADHD (in which children have shorter attention spans and find it harder to concentrate and sit still) (Sorhaindo and Feinstein 2007). Iron is important for children's neurodevelopment, and from six months

children need complementary food (i.e. to complement milk feeding) that contains iron, such as meat, eggs, beans, pulses and dried fruit in order to prevent deficiencies (Wright, forthcoming). The transition from milk to solid food is not complete until children are over a year old (ibid.).

There is also some evidence that obesity is negatively associated with some aspects of school readiness via physiological mechanisms, although further research is needed (Miller et al 2013; Sutter et al. 2018). The authors of one review concluded that "Outreach efforts that focus on promoting skills implicated in school readiness, such as inhibitory control, in children with early childhood obesity may improve school outcomes given that underlying physiological differences associated with obesity could create barriers to learning" (Sutter et al. 2018: 36).

There is a problem with under-nutrition and obesity in UK, especially among younger children, and worse in deprived groups (Sorhaindo and Feinstein 2007). An analysis of data from the UK Millennium Cohort Study shows that by age 5 years, children from the lowest income quintile were twice as likely as their peers in the top income quintile to be obese, and that income inequalities in both overweight and obesity grow between the ages of 5 and 11 years (Goisis et al. 2016). These inequalities could be explained in large part by factors related to physical activity and diet. In relation to diet, children in the lower income quintiles were not breastfed or breastfed for a shorter duration, were introduced to solid food earlier, and were less likely to be eating fruit or having breakfast every day. As children become toddlers, they are more likely to consume unhealthy foods and to have poor nutritional status, including vitamin D deficiency and iron-deficiency anaemia. Skipping breakfast can adversely affect children's energy levels and cognition; indeed, reviews of the evidence point to the benefits for children's classroom behaviour and cognitive and academic performance of having breakfast as opposed to not having breakfast (Hoyland et al. 2009; Adolphus et al. 2013).

In order to develop effective strategies to improve child nutrition, it is necessary to understand the contributory factors. Children's food choices develop from birth "in response to biological, familial, and societal factors" (Sorhaindo and Feinstein 2007: 26) and are affected by various factors, including what parents and peers eat, media (including advertising and marketing), and food production and consumption practices more generally. A variety of parental practices have been shown to be associated with children's eating habits, including: feeding styles (pressure to eat, restriction, monitoring and control of dietary intake); instrumental behaviours (using food as a reward); availability (degree to which parents provide a healthy environment), role modelling (particularly weight-related behaviours); and nutritional knowledge (Summerbell et al. 2014). Children are more likely to consume a healthy diet and accept new foods when parents model healthy eating and provide children with healthy food options (ibid.). From two years children should move to eating the same foods as the rest of the family, in the proportions recommended in the UK government's Eatwell Guide[18] (Wright, forthcoming), although given the focus of this report on children in poverty it is important to note recent research showing that nearly half (47%) of UK households with children do not spend enough to meet the Eatwell cost targets, rising to 60% for single-parent families (Scott et al. 2018). Early exposure to different fruits and vegetables helps to develop healthy eating habits, as does parental praise for positive eating behaviour (ibid.).

[18] The Eatwell guide outlines a diet that meets population nutrition needs: https://www.gov.uk/government/publications/the-eatwell-guide

CHAPTER 7: CHILD NUTRITION

The strong link between low income and high rates of obesity in children is at least partially attributable to low-income families having limited access to shops selling healthy food and the need to buy cheaper food simply to make ends meet (Fabian Society 2015). They are also under pressure to buy energy-dense (high in sugar and fat) foods that cost less per unit of energy than those that are more nutritious, such as fruit and vegetables (Sorhaindo and Feinstein 2007). Aside from the practical barriers to healthy eating that arise as a result of low income, the effects of deprivation are reinforced by socio-environmental factors such as culture and lack of literacy (ibid.).

WHAT WORKS

BREASTFEEDING

There is evidence for the effectiveness of a variety of interventions to support breastfeeding, as shown below. However, it is important to stress that support for breastfeeding requires knowledge of how breastmilk is produced and supplied as well as an understanding of the importance of good positioning, a sensitive and reciprocal mother-baby relationship and the challenges with breastfeeding that often occur initially (Wright, forthcoming).

Group and/or individual support

Individual and group breastfeeding support delivered face to face and/or via the telephone, and by lay people and/or professionals, has been shown to increase the duration of breastfeeding (Renfrew et al. 2012). Although telephone support (mostly postpartum) may increase the duration of breastfeeding (Lavender et al. 2013), strategies that rely mainly on face-to-face support are more likely to begin and sustain breastfeeding (Renfrew et al. 2012). There is a lack of good quality evidence on the impact of media activity on breastfeeding initiation and duration, while the provision of written information alone or together with formal interactive health education has a limited impact on breastfeeding initiation rates (Moreton et al. 2008).

Online / e-technology approaches

There is some evidence that online interventions may contribute to breastfeeding initiation and duration. One review found that e-based interventions have a moderate positive effect on breastfeeding, with the author concluding that they may be considered as an alternative to or integrated into provider-based interventions, which are expensive and time-consuming (Pate 2009). A later review also looked at whether e-technologies improve breastfeeding outcomes among perinatal women (Lau et al. 2016). All the interventions reviewed were designed to promote, teach and support breastfeeding during the perinatal period. E-technologies included web-based, CD-ROM, e-education/learning, virtual interactive approach, SMS and e-prompt. Topics covered: the benefits of breastfeeding, the physiology of breastfeeding, preparing for breastfeeding, breastfeeding techniques, breastfeeding problems management, breastfeeding empowerment and breastfeeding peer support. The authors concluded that web-based interventions, text messaging, CD-ROM, e-prompts and interactive computer agents may improve exclusive breastfeeding initiation, exclusive breastfeeding duration, breastfeeding attitudes and breastfeeding knowledge. However, there was insufficient evidence to show that video-conferencing, e-learning and e-teaching improved breastfeeding outcomes.

Incentives

Moran et al. (2015) reviewed the effectiveness of incentive interventions for individuals and/or their families seeking to increase and sustain breastfeeding in the first 6 months after birth. Incentives included: access to breast pumps, vouchers, gifts, entry to a raffle, food packages, cash and help with household tasks. The majority of interventions were multicomponent and varied in frequency, intensity and duration. Some studies reported positive effects. For example, a study of breast pumps, when given with gifts and vouchers, found increased breastfeeding *initiation* and *duration* up to 6 weeks postpartum. On the other hand, a study of food packages found no impact on breastfeeding initiation. Overall, the authors concluded that due to study heterogeneity and variation in study quality it is unclear whether incentives for breastfeeding have a positive effect in comparison to no incentives.

School-based interventions

Glaser et al. (2016) reviewed school-based interventions and promotion activities that focus on breastfeeding. Interventions varied greatly in terms of format, duration, outcome measures, and significance of the results. All interventions were short, ranging from one 30-minute session to three 50-minute sessions. The teaching strategy varied (e.g. videos, interactive games, peer counsellors, lectures). Overall, these studies demonstrated positive effects on perceptions and attitudes toward breastfeeding and increased behavioural intention of breastfeeding lasting at least three months after the intervention. Increases in positive attitudes regarding breastfeeding were deemed particularly encouraging since attitude is a significant predictor of intention to breastfeed. The authors concluded that Coordinated School Health (CSH) programming on breastfeeding may be an effective and cost-efficient health promotion strategy to increase knowledge of breastfeeding, change attitudes, foster a culture where breastfeeding is the norm, increase social acceptance, and increase future intentions to breastfeed across the globe.

Interventions for adolescents

Sipsma et al. (2015) reviewed interventions designed to improve breastfeeding rates among adolescents (mean/median age <22 years). Interventions included school-based programmes, home visits and telephone support. They were implemented by a combination of peer counsellors, nurse clinicians, doulas, and lactation consultants. All interventions included education and support delivered during pregnancy, during postpartum hospitalisation, and/or up through 6 months postpartum. Only one intervention, a combination of education and counselling provided by a lactation consultant-peer counsellor team, significantly improved both breastfeeding initiation and duration. Other results were mixed, and studies were subject to several methodological limitations. Although many interventions were effective in one area of breastfeeding promotion, sustained effects across breastfeeding initiation, duration, and exclusivity were lacking. Interventions are generally more successful at promoting breastfeeding *initiation* and *exclusivity* than they are at increasing breastfeeding *duration*. The authors recommended that interventions should specifically include mothers and partners of adolescents to successfully promote breastfeeding among adolescent mothers.

Workplace interventions

A review of workplace interventions to support and promote breastfeeding in an employment context (on-site or outside of the workplace) among women returning to paid work after the birth of a child found no RCT or quasi-RCT studies (Abulwadud and Snow, 2012).

Style of intervention

A meta-synthesis of qualitative studies examining women's perceptions and experiences of breastfeeding support highlighted a number of components that women find supportive (Schmied et al. 2010). These include professionals adopting a *facilitative style* (e.g. providing accurate and realistic information, encouragement and practical help) and having an authentic presence (e.g. having an empathetic approach, developing a therapeutic relationship, being responsive). Overall, women considered unhelpful components of breastfeeding support to include professionals taking a *reductionist approach* (e.g. providing conflicting information, adopting didactic approach) and *disconnected encounters* (e.g. feeling pressured, insensitive or invasive touch, not giving enough time).

IMPROVING LATER CHILD NUTRITION

Much of the research into effective ways of improving young children's nutrition as they grow older is bound up with a focus on preventing or reducing obesity and overweight.

The most effective interventions for the prevention and treatment of overweight and obesity in children involve a multi-component and holistic approach that aims simultaneously to improve diet (reducing the intake of non-nutrient-dense, energy-dense foods and increasing the consumption of healthy food) and increase physical activity in the multiple domains of children's lives through both behavioural and environmental approaches (e.g. Hesketh and Campbell 2010; Hoelscher et al. 2013). Specifically, they involve parents/the whole family, physical activity, nutritional education, and – for children in school/preschool – support from teachers and a supportive school environment (e.g. Waters et al. 2011).

Attention to social and environmental factors is important and often given insufficient attention, particularly since narrow interventions focusing on single aspects of behaviour are unlikely to achieve long-term change in efforts to tackle obesity (Bourke et al. 2014). One review concluded that there was no evidence of interventions increasing socio-economic inequalities in obesity, with some studies indicating that they could prevent the widening of such inequalities (Hillier-Brown et al. 2014).

In terms of the promotion of healthy eating, the most effective strategies for parents of young children, whether from professionals, paraprofessionals[19] or trained peer supporters: are intensive; incorporate behavioural theories; give a clear message; and are tailored to the educational level and material resources of families (D'Souza et al. 2008). There is also emerging evidence to support the use of group-based interventions with mother-infant dyads (pairs) in altering maternal feeding practices (e.g. reduced sweet snack intake, increased consumption of water and fruit/vegetables) and reducing the time that children spend watching television (Campbell et al. 2013; Cameron et al. 2014).

Some home visiting programmes delivered during the postnatal period have positive effects on family/parental nutritional practices (e.g. increased duration of breastfeeding, later introduction of solid foods, less use of food as a reward or to make children feel better) (Wen et al. 2011, 2012), and – in one study – on children's intake of water, vegetables and healthy snacks (McGowan et al. 2013).

[19] A paraprofessional is someone who is trained to assist or work alongside professionals but not qualified to fulfil that professional role per se; examples include teaching assistants and assistants to trained nurses.

There is also evidence to support the effectiveness of school breakfast clubs in terms of improving children's behaviour and academic performance. For example, one review found that they "have a positive effect on children's academic performance with clearest effects on mathematic and arithmetic grades in undernourished children" (Adolphus et al. 2013: 1), and although an earlier review arrived at a similar conclusion it cautioned that the effect may be explained partly by the increased school attendance encouraged by such programmes (Hoyland et al. 2009). It is important to note that most of the studies analysed in these reviews involved older children than those covered by this review.

CONCLUSION

This chapter has shown that good nutrition is important for various aspects of young children's development, including their early learning. It has also shown that children from poorer backgrounds are less likely than their peers to receive good nutrition. A range of interventions, or kinds of intervention, with demonstrated effectiveness in improving children's nutrition have been highlighted.

SUMMARY OF KEY POINTS

Good nutrition during infancy has multiple positive outcomes for health during childhood and later life. It has an effect on children's physical development, cognition and behaviour, all of which contribute to children's participation and achievement in early learning settings and school.

Breastfeeding is strongly associated with a range of health and wider (e.g. cognitive) benefits for children. However, socio-economically marginalised populations are less likely to initiate and sustain breastfeeding than their peers and face significant barriers to doing so.

In order to achieve good nutritional health outcomes, following breast or bottle feeding infants need to be introduced to appropriate weaning foods at the right time and toddlers need to be introduced to healthy eating patterns.

Nutritional deficiencies have an adverse effect on young children's cognition and ability to concentrate, increase the likelihood of absence (owing to poor health), and contribute to behaviour problems (which can make it harder for children to sit still and pay attention).

There is some evidence that obesity, which is caused in part by poor diet, is negatively associated with some aspects of school readiness via physiological mechanisms.

Children from poorer backgrounds are less likely to have been breastfed and also less likely to eat fruit or have breakfast every day, which is important given evidence that breakfast contributes to better behaviour and cognitive performance in school.

Children's nutrition is affected by a range of factors, including parent's food intake and feeding styles, the media and food production and consumption practices more generally. Low-income families are more likely to buy cheaper and less nutritious food owing to a lack of money and poor access to shops selling healthy food.

Individual and group breastfeeding support delivered face to face and/or via the telephone, and by lay people and/or professionals, has been shown to increase the duration of breastfeeding.

Online interventions may also contribute to breastfeeding initiation and duration, either by themselves or in combination with provider-based methods.

It is unclear whether incentives for breastfeeding have a positive effect in comparison to no incentives.

School-based interventions can have positive effects on perceptions and attitudes toward breastfeeding and increased behavioural intention of breastfeeding. Increases in positive attitudes are encouraging since attitude is a significant predictor of intention to breastfeed.

Much of the research into effective ways of improving young children's nutrition as they grow older is bound up with a focus on preventing or reducing obesity and overweight. A multi-component and holistic approach is needed to improve diet (reducing the intake of non-nutrient-dense, energy-dense foods and increasing the consumption of healthy food). Parents and children are advised to follow the EatWell Guide.

Further reading and resources

Asmussen, K. and Brims, L. (2018) *What Works to Enhance the Effectiveness of the Healthy Child Programme: An Evidence Update*. London: Early Intervention Foundation.
https://www.eif.org.uk/report/what-works-to-enhance-the-effectiveness-of-the-healthy-child-programme-an-evidence-update

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

CHAPTER 8.
FAMILY RELATIONSHIPS [20]

Note: See Chapter 1 for an explanation of the categories and ratings

AGES: GESTATION AND BIRTH, 0-1, 2-3, 4-8

WHAT MATTERS

OUTCOMES
Speech, language and communication
General cognitive

STRENGTH

NATURE
Correlated, Direct and indirect, Distal

SOCIO-ECONOMIC GRADIENT
Yes

LINKS
N/A

WHAT WORKS

IMPACT ON ISSUE

IMPACT ON EARLY LEARNING OUTCOMES
Not know

[20] This chapter draws in part on: Axford and Barlow (2013) and Axford et al. (2015a).

OBJECTIVES

The objectives of this chapter are:

- **to outline the adverse effects of exposure to domestic abuse on child development, including early learning outcomes, and the pathways through which this occurs (including effects on the developing foetus but also parenting and parent-child interaction)**
- **to explore the relationship between domestic abuse and socio-economic disadvantage**
- **to set out evidence on the effectiveness of interventions to prevent or intervene early in domestic abuse and address its harmful effects on children**
- **to describe the harmful effects of child abuse and neglect on young children's development, including their learning and education**
- **to outline evidence on the relationship between child maltreatment and family socio-economic disadvantage**
- **to summarise what is known about the effectiveness of interventions to prevent or intervene early in child maltreatment**

CHAPTER 8. FAMILY RELATIONSHIPS

INTRODUCTION

The importance of responsive and sensitive parent-child interactions in the early years for children's healthy development, including their learning, was stressed earlier in this report. Clearly, this is going to be compromised when parents abuse or neglect their children or when parents are violent towards one another; indeed, domestic abuse and maltreatment are important risk factors for poor attachment. This chapter outlines the adverse effects of domestic abuse and child maltreatment on children's early learning outcomes, shows how there is an elevated risk of both among socially disadvantaged families and summarises evidence of the effectiveness of interventions to promote healthy family relationships and address problems that arise.

WHAT MATTERS

DOMESTIC ABUSE

Domestic abuse refers to an incident or pattern of incidents of controlling, coercive or threatening behaviour, violence or abuse between people aged over 16 years who are or have been intimate partners or family members, regardless of gender or sexuality. It encompasses but is not limited to psychological, physical, sexual, financial and emotional abuse. According to a nationally representative study in the UK (Radford et al. 2013), 12% of under-11s had been exposed to domestic abuse between adults in their homes during childhood. Although men and women both perpetrate violence in heterosexual and same-sex relationships, women are more likely to be exposed to coercive control and severe or sexual violence and to die at the hands of a partner or ex-partner (Donovan et al. 2006).

Domestic abuse and poverty

A review of the evidence concluded that international and UK analyses consistently show that vulnerability to domestic abuse and abuse is associated with low income, economic strain and benefit receipt (Fahmy et al. 2016). This is supported by an analysis of the 2012 UK Poverty and Social Exclusion Survey, which found that "the prevalence of experiencing both physical abuse and controlling behaviour are significantly higher for respondents experiencing poverty than for the non-poor group" (ibid., p.3).

Although the mechanisms linking poverty and domestic abuse are not well understood, most studies emphasise "the effects of financial strain arising from poverty for relationship quality and stress" (ibid., p4) and/or "status-based models of interpersonal conflict arising from perceived diminished role-performance (e.g. in relation to the male breadwinner model)" (ibid., p.4). Social policies can also trap women in abusive relationships, for instance because of a lack of court-ordered child support (reducing incomes), a lack of affordable childcare (increasing reliance on the partner's family) and partner abuse (limiting the woman's ability to work). Welfare reforms intended to reduce 'dependency' on state welfare (e.g. labour market activation) can make low-income women more dependent on violent partners (e.g. because of non-compliance with work requirements). The influence is also bidirectional, in that domestic abuse can make women poorer; for example, women fleeing abuse often become single parents who struggle to earn independently and are more likely to report financial difficulties and financial abuse (e.g. partner not paying child support contributions) (ibid.).

Effects on victims

Domestic abuse is associated with an increased risk of poor health, depressive symptoms, substance use and injury for both male and female victims (Lawrence at al., 2012). It can also be very harmful for children's physical health, development (emotional, social, cognitive), relationships and behaviour (Stanley 2011; MacDonell, 2013). Effects may include low self-esteem, depression, post-traumatic stress reactions, aggression, running away from home, risk-taking behaviour in adolescence and offending that starts at an early age and continues into adulthood (Bair-Merritt et al. 2006; Moffitt et al. 2002). Adverse outcomes can result from abuse or neglect by the perpetrator, being harmed when trying to protect the victim, living in a fearful and controlling climate, and the fall-out of violence (e.g. homelessness, caregiver mental health problems) (Schrader-McMillan and Axford, forthcoming).

Domestic abuse in the antenatal period is associated with poor birth outcomes, including a greater risk of miscarriage, preterm birth, low birthweight and neonatal death (Jasinksy, 2004). For infants and toddlers, it can adversely affect developmental milestones, including language learning, and cause emotional distress (Osofsky, 2003). Infants are especially vulnerable because domestic abuse makes it harder for them to create secure attachment (Sturge-Appel et al. 2012), their brains are highly plastic and they cannot talk about, make sense of or escape the abuse.

Children exposed to violence at home (including witnessing violence between caregivers or direct child maltreatment) or in the community have an increased risk of developing school-related problems such as mental health problems, learning disabilities, language impairments, and other neurocognitive problems (Perkins and Graham-Bermann 2012). Early life stress in the form of exposure to violence is related to neurocognitive deficits, including executive functioning (the ability to organise and synthesise information) and problems with self-regulation. The pathways to the effect of violence are twofold (ibid.). First, it can be a direct cause of problems through brain injury or brain changes related to learning, executive functioning and self-regulation. Second, violence is related to interpersonal communication and exposure to language, which in turn is related to children's language development. If these differences in cognitive and language processing are not addressed early, they are precursors of learning and cognitive disabilities. Parents who are victims of domestic abuse may spend insufficient time with their children, either because they are not allowed to or because they are incapable physically or emotionally.

CHILD MALTREATMENT

Different types of child abuse and neglect may be defined as follows: "Physical abuse refers to non-accidental physical injury inflicted on children, for example through hitting, shaking, burning, suffocating or drowning. Emotional abuse [...] is captured by the mental injury inflicted on children through patterns of interaction that indicate the child is worthless, flawed, unloved or unwanted. Sexual abuse has been defined as using superior strength and/or resources to make a child engage in undesired sexual behaviour. Neglect concerns the omission of care, where caregivers fail to provide adequate supervision, physical and emotional nourishment, or medical care" (Berry et al. 2013: 178). It is important to recognise that child maltreatment is a rapidly changing field, with emerging forms including trafficking, modern slavery, female genital mutilation (FGM) and online grooming.

According to a UK-wide study, 2.5% of children under 11 years had been abused or neglected by a parent or caregiver in the past year, while 8.9%

had experienced this once or more during childhood (Radford et al. 2013). Multiple studies across developed countries repeatedly show that children from poorer families are more likely to be abused or neglected (Bywaters et al. 2016). Common explanations for this association are that there is a *direct* effect of material hardship or not having enough *money* to buy support or better environmental conditions and an indirect effect via or elevated parent stress or poor neighbourhood conditions. These effects of poverty interact with other factors affecting parenting to elevate or reduce the chance of maltreatment, for example parenting capacity (which may be affected by mental or physical health) and negative adult behaviours (e.g. domestic abuse, substance use) (ibid.). The notion that poverty is a causal factor for child maltreatment is supported by evidence from experimental or quasi-experimental studies in the US showing that increasing family income reduced rates of abuse and neglect (ibid.).

As indicated earlier in this chapter, children who are maltreated are disproportionately likely to develop neurocognitive deficits and a range of difficulties with their learning and education. One pathway through which this occurs concerns exposure to language: "Parents who communicate with their children using high amounts of negative control (use of anger, criticisms, threats, punishments, slapping and spanking), fewer questions, and more commands and prohibitions, overall, use fewer words and different types of words. Children in these dyads also use fewer words and different types of words but they also use words with fewer morphemes (the smallest part of a word that carries meaning), fewer grammatical word types, and language with fewer different functions (Taylor et al. 2009)" (Perkins and Graham-Bermann 2012: 5).

In other evidence supporting the association between child maltreatment and difficulties with learning, a recent study using data on over 19,000 children in Australia found that in instances of alleged maltreatment children had increased odds of poor school readiness in both cognitive and non-cognitive domains (Bell et al. 2018). Romano et al. (2015) similarly found that children with who have been maltreated often experience impaired academic performance (e.g. special education, grade retention, lower grades) and mental well-being (e.g. anxiety, low mood, social skills deficits, poor interpersonal relationships). This may be explained in part by disrupted developmental processes, including attachment, emotional regulation and sense of agency. Adverse effects of child maltreatment can last well into adulthood, manifested in an increased risk of behavioural, emotional and social problems (including delinquency, depression, suicide ideation, chronic illnesses and post-traumatic stress disorder) (Hildyard and Wolfe 2002; MacMillan et al. 2007; Radford et al. 2013).

WHAT WORKS

DOMESTIC ABUSE

There is evidence of effectiveness for a number of practice-level interventions to prevent or address domestic abuse and its effects, as the following shows. However, it is important to say upfront that programmes need to be complemented by policy action to promote greater gender equality and community action to challenge norms that condone gender-based violence.

Preventing domestic abuse

Media campaigns may be useful in raising awareness of domestic abuse and services to address it, and there are a small number of studies of their effectiveness. These show inconsistent evidence that such campaigns can help improve recall, raise awareness of available resources, increase calls to hotlines and improve knowledge of domestic abuse among target audiences (BCCEHW, 2013).

Home visiting interventions in the perinatal period can reduce women's exposure to domestic abuse in the short term (it is unclear if they have a long-term effect), although it is important that they include specific content on domestic abuse and support women who are abused (Prosman et al. 2015). The most effective programmes are delivered by trained nurses – as opposed to paraprofessionals – and last 12 to 24 months (Van Parys et al. 2014).

There is reasonably strong evidence that so-called 'dating violence prevention' interventions delivered in schools can improve participants' *attitudes* and increase their *knowledge* around dating violence, and weaker evidence that they can reduce perpetration and victimisation (Whitaker et al. 2006, 2013; de Koker et al. 2014; Petering et al. 2014; De La Rue et al. 2014; Fellmeth et al. 2013; Stanley et al. 2015a/b; BCCEWH, 2013; DeGue et al. 2014). Such interventions tend to be universal and involve teachers delivering a curriculum in group settings over several sessions. Community-based interventions (mostly targeted), meanwhile, can also reduce dating violence victimisation or perpetration. However, there is a need to develop and rigorously test such interventions in the UK because most were developed and tested in North America (Stanley et al. 2015a). Aspects of the more effective dating violence programmes, such as training participants in effective communication and conflict resolution skills, are summarised elsewhere (Axford et al. 2018).

Identifying domestic abuse

There have been numerous studies of the early identification of domestic abuse through routine screening, primarily in antenatal care, primary care and emergency department settings (Rabin et al. 2009; O'Campo et al. 2011; O'Reilly et al. 2010; Todahl and Walters, 2011; Taft et al. 2013). Although it increases disclosure and identification of domestic abuse, particularly when it is integrated into the routine care of women during the perinatal period (Taft et al. 2013), there is no evidence that it reduces the abuse of women identified as at risk, or that it leads to better outcomes than opportunistic or routine enquiry. This may be because those women who are identified in this way are not be referred to appropriate services or offered relevant support (O'Campo et al. 2011). As such, NICE (2014) does not recommend screening or routine enquiry in healthcare settings. Instead, it recommends that health and social care practitioners should be able to: respond with empathy and understanding; recognise signs of domestic abuse and ask relevant questions to help people disclose; know about and have access to relevant services and understand how domestic abuse affects children and how to refer to child protection services.

Working with victim-survivors

Schrader-McMillan and Barlow (2017) summarise evidence on work with victim-survivors from the comprehensive review (BCCEWH 2013) that underpins the NICE (2014) guidelines on domestic abuse. Advocacy interventions aim to help

domestic abuse victims to access services and receive their entitlements. There is moderate evidence for their positive impact on outcomes such as parental depression and stress, safety and child well-being (BCCEWH 2013). However, *long-term* levels of re-exposure to abuse are high. Another review found that intensive advocacy can improve short-term quality of life and reduce physical abuse up to two years after the intervention for women recruited from domestic abuse shelters and refuges, and that brief advocacy may provide small short-term mental health benefits and reduce abuse, particularly in pregnant women and for less severe abuse (Rivas et al. 2015).

Skill-building interventions for victim-survivors of domestic abuse involve teaching, training, experiential or group learning, and focus on subjects such as coping skills, safety planning, conflict resolution, decision-making, danger-assessment and economic education. There is moderate evidence that they can improve coping skills, well-being, decision-making abilities and safety (BCCEWH 2013).

BCCEWH (2013) found moderate evidence that therapy, including but not limited to CBT, psychosocial group therapy and dialectical behavioural therapy, can improve outcomes relating to mental health (e.g. PTSD symptoms, depression) and parenting, and may reduce re-victimisation. Arroyo et al. (2015) found that short-term psychotherapy is particularly effective in reducing PTSD symptoms and symptoms of depression and general distress for domestic abuse survivors, and increasing their self-esteem and life functioning, with moderate effects for other outcomes (e.g. substance abuse, emotional well-being, a sense of safety, subsequent domestic abuse). The most effective approaches were CBT and interpersonal therapies that are tailored to abuse victims. Stronger outcomes were also associated with a higher dose and individual (as opposed to group) delivery.

Counselling interventions tend to be based on brief educational, cognitive-behavioural and motivational interviewing approaches. There is moderate evidence that they can improve PTSD symptoms, other aspects of mental health (depression, anxiety, self-esteem, stress management) and birth outcomes, and also reduce the re-occurrence of abuse (BCCEWH 2013).

Evidence for the effectiveness of group-based interventions is limited, although user-satisfaction ratings are often good (Williamson and Abrahams 2010).

Working with perpetrators

There are a range of interventions for perpetrators (mostly for heterosexual males), including group-based approaches and one-to-one support. The BCCEWH (2013) review found stronger evidence for their impact on attitudinal, psychological and interpersonal outcomes (e.g. communication, conflict management skills) than for actual behaviour change (reductions in further abuse). Other reviews have also found insufficient evidence to draw conclusions about the effectiveness of perpetrator-focused interventions (e.g. Smedsund et al. 2011; Akoensi et al. 2013; Gilchrist et al. 2015), and NICE (2014) recommended commissioning and evaluating new forms of treatment for perpetrators. Emerging areas include integrating domestic abuse treatment with, respectively, efforts to help perpetrators to improve their parenting and treatment for substance abuse, with promising but as yet inconclusive evidence (McConnell, 2016; Stover, 2015).

Working with couples

Careful screening for risk is required for any work with couples in the context of domestic abuse. The BCCEWH (2013) review found preliminary evidence that *behavioural couples therapy* (BCT) for couples where domestic abuse is

compounded by the abuse of alcohol or drugs can be beneficial, with effects including improved relationship skills and reduced aggression and conflict. There were also modest effects for conjoint work with couples not in need of treatment for substance abuse.

A review by Harold et al. (2016) of interventions designed to improve inter-parental relationships, sometimes but not always in the context of domestic abuse, found that they have the potential to improve the couple relationship, parental well-being, parenting behaviour and child outcomes. Interventions included CBT, skills training, psycho-education and conflict reappraisal approaches. They were a mix of preventive and targeted and could be group-based, for couples or for individuals. Positive outcomes for parents and children were seen in couples interventions that focus on conflict management and communication for couples, even if parenting skills are not targeted directly.

Working with children exposed to domestic abuse

A recent review (Howarth et al. 2016) found relatively little evidence on the effectiveness of interventions designed for preschool children who have been exposed to domestic abuse. The most robust evidence was for an intervention in which child-parent psychotherapy for the non-abusive parent and their child (aged 3 to 5 years) was combined with advocacy and advice (Liebermann et al. 2005). The positive effects on children included reduced behaviour problems and traumatic stress symptoms.

CHILD MALTREATMENT

The authors of several systematic reviews of the effectiveness of interventions to prevent child abuse and neglect criticise the quality of available research, advocating greater use of control groups, measures of actual child maltreatment and longer-term follow-up. Nevertheless, the research does offer some useful pointers.

First, the evidence for universal mass media campaigns (e.g. TV, radio, billboards) is limited in terms of their effectiveness in reducing child maltreatment (Poole at al. 2014). However, several studies in that review reported a positive impact on other outcomes, notably increasing parents' knowledge of child development and community resources, reducing dysfunctional and coercive parenting and increasing community involvement in safeguarding. There is also a small amount of evidence for the effectiveness of interventions that try to increase awareness among adults of child sexual abuse and help them to recognise and respond to it, either through video-based public service announcements in shopping centres (Rheingold et al. 2007) or training adults with caring responsibility (Rheingold et al. 2015).

Second, targeted home visiting interventions in early childhood are promising for preventing actual child maltreatment (Barlow et al. 2006; Mikton and Butchart 2009; Chen and Chan 2016).

Third, there is evidence that parenting programmes (some universal, but mostly targeted) can prevent actual child maltreatment, but on balance it is stronger for the effect on risk factors (e.g. reducing coercive child-rearing behaviours) and protective factors (e.g. improving parents' attitudes towards abuse) (Barlow et al. 2006; Lundahl et al. 2006; Mikton and Butchart 2009; McCloskey et al. 2011; Chen and Chan 2016). This is partly because when actual abuse is measured there is not necessarily a positive effect (see the review by Euser et al. 2016), but also because the impact on actual abuse is not always measured.

Fourth, targeted family-focused interventions are effective in improving certain aspects of family functioning relating to child maltreatment, such as families' skills in regulating negative emotional states and parents' skills in managing their children (Barlow et al. 2006).

Fifth, systematic reviews provide reasonably strong evidence from for the effectiveness of sexual abuse prevention programmes delivered in schools in terms of outcomes such as children's knowledge about sexual abuse and how to be safe and their protective behaviours (Topping and Baron 2009; Walsh et al. 2015). However, evidence for whether such interventions reduce sexual abuse was lacking. It should be noted that the reviews cited here focused on studies targeting children aged 4 or 5 years and above, so a good proportion of the studies concern children above the age range of interest to this review.

Sixth, there is some evidence that hospital-based interventions can reduce abusive head trauma – also known as shaken baby syndrome – although methodological flaws in the studies conducted mean that the evidence is still unclear (Mikton and Butchart 2009).

In addition to evidence on prevention and early intervention, there is an extensive literature on the effectiveness of interventions to work with families where abuse has been identified, both to address the abusive behaviour but also to work with the children who are affected and improve outcomes associated with abuse (see Schrader-McMillan and Barlow 2017 for an overview). A range approaches have been found to be promising in this respect, including home visiting, group-based parenting programmes and various types of family and individual therapy.

CONCLUSION

This chapter has shown that both domestic abuse and child maltreatment adversely affect young children's learning and related aspects of their development, notably their social-emotional well-being. In the case of domestic abuse this is partly through the increased likelihood of poor birth outcomes but also through its harmful effect on the child's developing brain and parents' ability to interact positively with their children. In the case of child maltreatment, part of the adverse effect on child's learning may be attributed to limitations to children's language exposure in the home. The chapter has also shown that there is evidence for the effectiveness of some types of intervention in preventing, intervening early with or addressing domestic abuse, child maltreatment and their effects, although it is mixed and in the case of child maltreatment the evidence tends to be stronger for the impact on risk and protective factors rather than abuse per se.

SUMMARY OF KEY POINTS

Domestic abuse

Domestic abuse, which includes physical, emotional, psychological or financial abuse by a partner, is associated with low income, economic strain and benefit receipt.

For both male and female victims, domestic abuse is associated with an increased risk of poor physical and health, depressive symptoms, substance use and injury. It can also be very harmful for children's physical health, development (emotional, social, cognitive), relationships and behaviour, in part because of its adverse effects on parents' capacity to protect and interact positively with their children.

In the antenatal period, domestic abuse is associated with poor birth outcomes, including a greater risk of miscarriage, preterm birth, low birthweight and neonatal death. For infants and toddlers, it can affect developmental milestones, including language learning. Early life stress, such as exposure to violence, is related to neurocognitive deficits, including executive functioning (the ability to organise and synthesise information) and problems with self-regulation.

There is reasonably strong evidence, mainly from the US, that (mostly universal) school-based dating violence prevention programmes can improve participants' *attitudes* and increase their *knowledge* around dating violence, and weaker evidence that they can reduce perpetration and victimisation. The same evidence base shows that community-based interventions (mostly targeted) can also reduce dating violence victimisation or perpetration.

Media campaigns may be useful in raising awareness of domestic abuse and services to address it. A small number of studies of their effectiveness show inconsistent evidence that such campaigns can help improve recall, raise awareness of available resources, increase calls to hotlines and improve knowledge of domestic abuse among target audiences.

Home visiting interventions that include specific content on domestic abuse and support women who are abused can reduce women's exposure in the short term (their long-term effect is unknown).

Screening leads to increased disclosure and identification of domestic abuse, particularly when it is built into the routine care of women during pregnancy and the postnatal period but there is no evidence that it results in reduced exposure to violence for women identified as at risk, or that it leads to better outcomes than routine or opportunistic enquiry. Best practice guidance recommends that health and social care practitioners be able to: recognise indicators of domestic abuse and ask relevant questions to help people disclose; know about and have access to relevant services; understand the effects of violence on children and how to refer to child protection services and respond with empathy.

There is mixed evidence for the effectiveness of various forms of intervention for victim-survivors, including:

- advocacy (help to access services and supports and ensuring that those involved receive their entitlements);
- skill-building (focusing on, inter alia, coping skills, safety planning and conflict resolution);
- counselling (usually based on brief educational, cognitive-behavioural and motivational interviewing approaches);
- therapy; and
- group work.

While these types of intervention may reduce re-abuse and improve child safety, they are arguably often more concerned with – and more successful at – helping participants to address the effects of abuse and improve their well-being.

The evidence on interventions for perpetrators, including group-based approaches and one-to-one support, is stronger for improving attitudinal, psychological and interpersonal outcomes (e.g. communication, conflict management skills) than for reducing recidivism.

Couples work in the context of domestic abuse requires careful screening for risk but there is some evidence of its effectiveness in improving relationship skills and reducing aggression and conflict.

There is relatively little evidence on the effectiveness of interventions designed for pre-school children who have been exposed to domestic abuse.

Child maltreatment

Child maltreatment encompasses physical, emotional and sexual abuse, together with neglect. It can have harmful effects in the short- and long-term on various aspects of children's health and development (e.g. behaviour, mental health, education).

Multiple studies in developed countries show that there is a strong relationship between family socio-economic status and the chances of children experiencing abuse or neglect.

Children who are maltreated are also more likely to develop difficulties relating to their learning and education, with evidence of an adverse effect on school readiness. This is partly because parents who communicate with their children using high amounts of negative control (e.g. use of anger, criticisms, threats, punishments, slapping and spanking) use fewer words and different types of words, which in turn affects children's language development.

There is mixed evidence for the effectiveness of universal mass media campaigns to prevent physical abuse, suggesting the need for further development and evaluation.

Parenting interventions can prevent maltreatment although evidence is stronger for their effect on promoting protective factors and reducing risk factors.

Home visiting interventions in early childhood are promising for preventing actual child maltreatment.

Targeted family-focused interventions are effective in improving aspects of family functioning related to abuse and neglect.

Sexual abuse prevention programmes delivered in schools (targeting children aged 4/5 years and above) can improve children's knowledge about sexual abuse and how to be safe and but evidence for whether they reduce abuse is lacking.

There is also evidence for the effectiveness of interventions such as home visiting, group parenting programmes and individual and family therapy to address identified maltreatment and associated child outcomes.

Further reading and resources

Acquah, D., Sellers, R., Stock, L and Harold, G. (2017) *Interparental Conflict and Outcomes for Children in the Contexts of Poverty and Economic Pressure*. London: Early Intervention Foundation. https://www.eif.org.uk/report/interparental-conflict-and-outcomes-for-children-in-the-contexts-of-poverty-and-economic-pressure

Axford, N., Lowther, K., Timmons, L., Brook, L., Webb, L. and Sonthalia, S. (2018) *Rapid Review on Safeguarding to Inform the Healthy Child Programme 5-19*. London: Public Health England. https://www.gov.uk/government/publications/healthy-child-programme-rapid-review-on-safeguarding

Barlow, J. and Schrader-McMillan, A. (2017) *Improving the Effectiveness of the Child Protection System: A Review of the Literature*. London: Early Intervention Foundation. https://www.eif.org.uk/report/improving-the-effectiveness-of-the-child-protection-system-a-review-of-literature

Harold, G., Acquah, D., Chowdry, H. and Sellers, R. (2016) *What Works to Enhance Interparental Relationships and Improve Outcomes for Children*? London: Education Endowment Foundation. https://www.eif.org.uk/report/what-works-to-enhance-interparental-relationships-and-improve-outcomes-for-children

CHAPTER 9.
FAMILY ECONOMIC SITUATION

Note: See Chapter 1 for an explanation of the categories and ratings

AGES: **GESTATION AND BIRTH, 0-1, 2-3, 4-8**

WHAT MATTERS

OUTCOMES
Speech, language and communication
Literacy (and pre-literacy)
Numeracy (and pre-numeracy)
General cognitive

STRENGTH

NATURE
Correlated, Direct and indirect, Distal/ Proximal

SOCIO-ECONOMIC GRADIENT
N/A

LINKS
Attachment and sensitive parenting
Parent engagement in learning
Early years childcare and education
Parent health (physical and mental)
Family relationships
Housing and neighbourhood

WHAT WORKS

IMPACT ON ISSUE

IMPACT ON EARLY LEARNING OUTCOMES
Not known

OBJECTIVES

The objectives of this chapter are:

- **to explain the pathways through which poverty has adverse effects on children's early learning and related developmental outcomes**
- **to summarise evidence on how to prevent or reduce poverty and mitigate its effects on children's early learning and related aspects of their development**

CHAPTER 9. FAMILY ECONOMIC SITUATION

INTRODUCTION

Thus far, this report has shown that there is a socio-economic gradient to both the proximal and distal factors associated with children's early learning outcomes. The relationship is not deterministic, but on average children from poorer backgrounds have worse learning (and related developmental) outcomes or are less likely to experience favourable conditions for their development, whether at home or because they are less likely to have access to high-quality services. Rather than rehearse these points, this chapter starts by exploring in more depth the mechanisms by which poverty affects children's development, before setting out evidence on how to prevent or reduce poverty and thereby mitigate its effects. The fact that it has both direct and indirect effects on child outcomes suggests that conceptually it may be considered as both a distal and a proximal factor.

WHAT MATTERS

According to the most recent government statistics, nearly one in three (30%) of children (4.1 million) in the UK are in relative poverty, meaning that household income is less than 60% of median household income in the UK, adjusted for family size and after housing costs (McGuinness 2018).

THE *INDIRECT* IMPACT OF POVERTY

Poverty has an *indirect* impact on outcomes – it affects the quality of the family environment and the way in which parents interact with and parent their children (e.g. actively and supportively or negatively or neglectfully). [21] The majority of parents in poverty – like the majority of parents who are not poor – provide good parenting, and poor parenting can happen across the socio-economic spectrum. But some of the impact of poverty on children is modified by the parenting that children receive. For example, children's language development is compromised by factors such as irregular bedtimes and lower levels of being read to, both of which are related to low socio-economic status. The impact is a direct consequence of parenting behaviours, which are highly amenable to being changed with appropriate support (including the kind of programmes referred to in Chapter 2 but also other forms of support, including material and financial). Similarly, toddlers from families where one or more adults have a professional job enjoy lots of verbal encouragement and by age three will have heard many more words than children whose parents are dependent on benefits. Good parenting is clearly important. Indeed, the Millennium Cohort Study suggests that it could be nearly twice as important as poverty in terms of its impact on children's development.

However, it is important to note that, as Cooper (2017) put it following her in-depth analysis of UK Millennium Cohort data, "it is not straightforwardly the case that low-income mothers are uniquely parenting worse than better-off parents" (p.365). On the whole, most mothers were parenting in ways that could be described as good regardless of their income. Where there were differences in parenting between the low- and median-income groups, some favoured the low-income group (e.g. more likely to take their child to the part, play sport with the child, do drawing and painting, play indoor games, help with maths or writing). Where the differences between these groups were negative i.e. favouring the median-income parents, these differences were often not specific to low-income mothers but rather part of a wider income-parenting gradient extending all the way up the income distribution (e.g. having routine meal and bedtimes, hours spent watching TV).

[21] This is not to imply intent; parents may be trying to provide for their children but struggle to do so owing to lack of resources and associated stress.

CHAPTER 9. FAMILY ECONOMIC SITUATION

THE *DIRECT* IMPACT OF POVERTY

Good parenting can moderate only *some* but not all of the effects of poverty. A family's economic situation also has *direct* effects on children's well-being. It affects their housing, with children living in damp housing more likely to have poorer physical health. It also affects what food can be bought, which influences their nutrition, and their experiences and opportunities, which shape multiple outcome areas, not least social and emotional development and language. For example, some of the aspects of a positive home learning environment described in Chapters 2 and 4, such as access to books and toys, and visits to libraries and museums, come with hidden as well as visible costs, making them more accessible to higher-income families.

An important study in this respect is a systematic review focusing on the causal impact of household resources on children's outcomes (Cooper and Stewart 2013). This found that money does make a difference; specifically, "poorer children have worse cognitive social-behavioural and health outcomes in part because they are poorer, and not just because poverty is correlated with other household and parental characteristics" (p.5). The size of effect associated with an increase in income equivalent to £900 (2013 prices) ranged from 5 to 27% of a standard deviation for cognitive outcomes and 9 to 24% for social and behavioural outcomes. To put this in context, if household income for children receiving free school meals (FSM) were increased by £7,000, thereby bringing them up to the average income for the rest of the population, half the gap in outcomes at Key Stage 2 between children eligible for free school meals (FSM) and non-FSM children would be eradicated (ibid.).

An update of this systematic review included 27 new studies in addition to the original 34 (Cooper and Stewart 2017). Although the evidence is still dominated by studies from the US, an increase in the number of quasi-experimental studies was considered encouraging. Overall, the expanded evidence supported the original review's conclusions, namely that (i) raising income has significant positive effects of across a variety of outcomes, including cognitive development school achievement, social and behavioral development and child health, and (ii) income effects tend to be non-linear, with greatest effects at the bottom of the income distribution. Effect sizes in the new studies were broadly in line with those found in the earlier review (small but by no means negligible). New evidence on intermediate outcomes provided additional support for the two main theories of how money affects child outcomes (see below). The authors concluded that "increases in household income cannot be seen as a magic bullet solution for inequalities in children's development and wider outcomes. But there is strong reason to believe that reducing income poverty would itself have important and measurable effects both on children's environment and on their development [...] Certainly any strategy that seeks to improve life chances and equalise opportunities for children without turning the tide against growing levels of child poverty is going to face an uphill struggle and place an even greater burden on services that seek to alleviate various negative effects of inadequate family resources" (ibid., pp. 28-29). Additionally: "[R]educing poverty can be expected to have a significant impact on children's environment and on their development" (Cooper and Stewart 2017: iii).

The direct mechanism operates through two routes. First, the family stress model holds that insufficient income has an adverse effect on parental stress levels, which has a bearing on how parents parent their children. Families who live in poverty face disadvantages that can hinder their children's development in many ways. As they struggle to get by economically, and as they cope with substandard housing, unsafe neighbourhoods, and inadequate schools, poor

families experience more stress in their daily lives than more affluent families do, with a host of psychological and developmental consequences (Duncan et al. 2014).

A study by Cooper (2017), using UK Millennium Cohort Survey data, provides evidence in a UK context that "the Family Stress Model explains some of the relationship between hardship and parenting behaviours; hardship was associated with worse mental health [...] and lower life satisfaction which in turn was associated with worse parenting" (p. 367). However, the family stress model did not explain the relationship between hardship and two parenting measures, namely trips outside the home and hour of TV and computer games. It was considered that the Investment Model (see below) explains these connections better "given the financial cost of trips outside the home and relatedly the amount of time spent watching television instead" (p.368). Hardship was also associated with lower relationship quality, which in turn was associated with worse parenting on most measures, in particular educational activities and meeting physical needs.

Second, the investment model holds that insufficient income adversely affects parents' ability to pay for better nutrition, educational resources, housing and higher quality childcare, all of which further child development. Poor families also lack the resources to invest in things like high-quality child care and enriched learning experiences that give more affluent children a leg-up (Duncan et al. 2014). Often, poor parents also lack the time that wealthier parents have to invest in their children because poor parents are more likely to be raising children alone or to work non-standard hours and have inflexible work schedules.

The aforementioned systematic review (Cooper and Stewart 2013) also found evidence to support two theories for why income affects outcomes. First, there was evidence of a causal impact of income on maternal mental health and parenting behaviour, both of which are mediators linked to the Family Stress Model. Second, there was evidence of a causal impact (albeit to a lesser extent on mediators associated with the Investment Model, such as the physical home environment. They concluded that "Protecting households from income poverty may not provide a complete solution to poorer children's worse outcomes, but it should be a central part of government efforts to promote children's opportunities and life chances [...] [I]ncome increases have effect sizes comparable to those identified for spending on early childhood programmes or education, but income influences many different outcomes at the same time" (p.7).

BIOLOGICAL PATHWAYS

There is also increasing evidence for the biological pathways through which co-occurring risks related to poverty, such as food insecurity, infectious disease and psychological stress, interact to shape children's neurocognitive development (Jensen et al. 2017). The key pathways through which poverty becomes biologically embedded and might have long-term effects on children's neurocognitive development are: "changes in energy metabolism that affect somatic and neural functioning and growth, immune activation resulting in acute or chronic inflammation and dysregulation, and neuroendocrine stress activation resulting in increased allostatic load" (p.225). For example, malnutrition, which is higher among poorer populations and can result from deficiencies in calories or specific micronutrients, is associated with poorer neurocognitive developmental outcomes. In terms of its adverse effects it can: impair neural cell growth and the activity of neurotransmitters associated with

cognitive processing and mood; impair immune defences and cause chronic inflammation, "which could, in turn, contribute to poor cognitive outcomes in poor children" (p. 226); and increase concentrations of the stress hormone cortisol. This is important because "[a]cute stress activation (as indexed by, for instance, increased cortisol production) has also been shown to correlate with poor executive functioning, memory, intelligence quotient (IQ), and language in children" (p.229). Other sources of poverty-related stress besides malnutrition include inter alia inadequate housing conditions, family conflict and community violence.

In addition to the mediating effect of poverty-related exposures on child outcomes, there are also *cumulative* effects: "adverse cognitive and neural outcomes are exponentially more pronounced in the poorest children in a non-linear manner" (Jensen et al. 2017: 229). Of course, not all children in poverty succumb to the same poor outcomes: some do as well as their better-off peers. Some of this "differential susceptibility" relates to intrinsic child factors, such as temperament, but it also relates to family factors (e.g. maternal IQ or level of education), both of which can *moderate* the effect of poverty-related exposures on child development. Since exposures are "generally more likely to interfere with skills that are developing than with established skills" (p.232), ante and postnatal services are particularly important for the achievement of early developmental and cognitive milestones.

The authors conclude that "large-scale policy initiatives such as financial support, increased access to affordable, high-quality child care, initiatives to support high-quality child care and early education, and increased access to affordable health care to support healthy development throughout life and across all levels of society" (Jensen et al. 2017: 236). Finally, they stress that other pathways also contribute to the effect of poverty on child development, whether biological (e.g. sleep) or psychosocial (e.g. attachment, quality of interactions, and stimulation – see Chapters 3 and 4 in this report).

Holz et al. (2015) undertook a review of recent research regarding neural mechanisms and socio-economic disadvantage, concluding that "socioeconomic disadvantage and related risk factors may account for a significant proportion of variance in measures of brain structure and function, which may mediate the increased risk of psychopathology" (p.1). The study found evidence in particular for a decrease in volume, activity and cortical thickness, especially in the left hemisphere, and for effects being most pronounced in the prefrontal cortex.

Johnson et al. (2016) summarise recent research on the relationship between child poverty and brain structure and function, demonstrating its effect on areas of the brain (hippocampus, amygdala, prefrontal cortex) that support memory, emotion regulation and higher-order cognitive functioning and regions (cortical areas in the left hemisphere) that support language and literacy. The review focuses particularly on three environmental stressors associated with poverty, as follows.

First is *material deprivation*: children in poverty tend to have less cognitive stimulation in the home (toys, books, educational opportunities) and are exposed to fewer words and conversations and less complex and more directive speech. They are also more likely to experience nutrient deficiencies, with different effects depending on the severity of deficiency and neural processes developing at the time; for example, in early childhood iron deficiency is associated with poor academic performance, and cognitive, emotional and attention problems.

Second, children in poverty are disproportionately likely to experience stressors such as family conflict, parental separation, overcrowded housing, neighbourhood disorder and violence, disruptions to the parent-child relationships (maternal depression or anxiety extended separation), inconsistent and harsh discipline, and parenting that is less nurturing and responsiveness.

Third, children from poor backgrounds are more likely to be exposed to toxins such as lead (which can lead to worse performance on cognitive tasks and reduced auditory recognition ability) and environmental tobacco smoke (which has a greater effect on children's cognitive outcomes for children from poorer backgrounds).

All three sets of environmental mediators link socio-economic status with brain development through a set of biological mechanisms: "Brain regions that process and respond to threat, regulate the stress response, and support language, literacy, and executive functions [such as higher-order planning, reasoning and decision-making may be particularly vulnerable to these SES-related factors" (Johnson et al. 2016: 10). Fortunately, the authors argue, evidence for the effectiveness of interventions such as the Perry Pre-school Project shows that "the impact of poverty may be preventable or reversible at cognitive and behavioural levels" (p.10).

OTHER KEY POINTS

Several other points are important to make.

First, the timing, duration, and community context of poverty also appear to matter for children's outcomes-with early experiences of poverty, longer durations of poverty, and higher concentrations of poverty in the community leading to worse child outcomes (Chaudry and Wimer 2016).

Second, the young ages at which language outcomes relating to socioeconomic status are detected underscores the importance of early targeted interventions for the youngest children (this is not to deny that there are other opportunities to intervene effectively as children grow up, for instance in adolescence – e.g. UNICEF Office of Research – Innocenti (2017)). As early life adversity produces lasting and deleterious effects on developmental outcome and brain structure, increased focus on programs and policies directed to reducing the impact of socioeconomic disparities is essential (Hurt and Betancourt 2016).

Third, a note of caution about causation is warranted. While hundreds of studies have demonstrated associations between family income in childhood and a multitude of outcomes in childhood, adolescence and even adulthood, evidence on the benefits for children of increasing family income is mostly correlational. By contrast, impacts estimated from experimental and quasi-experimental studies are more selective (Duncan et al. 2017). Stronger studies have linked increases in family income to increased school achievement in middle childhood and to greater educational attainment in adolescence and early adulthood but "there is no experimental or quasi-experimental evidence in the US that links child outcomes to economic deprivation in the first several years of life" (p.413).

WHAT WORKS

INDIRECT METHODS

Indirect methods for addressing socio-economic variation in outcomes seek to minimise the impact of challenges and difficulties associated with lower social status (accepting that they would arguably be useful for all parents regardless of income). They are described in more detail in earlier chapters of this report but essentially involve the following (adapted from Box 1 in Donkin et al. 2014: 89):

- Early identification and treatment of alcohol and drug misuse in pregnancy
- Reducing the incidence of obesity and excess weight gain in pregnancy
- Reducing the incidence of significantly low and high birth weight
- Improving breastfeeding rates
- Better detection and treatment of antenatal stress/maternal depression/ postnatal depression and mental health disorders
- Encouraging timely weaning of infants onto a varied balanced diet
- Ensuring that parents are aware of how to provide appropriate diets and calorie intake/exercise balance in toddlers and encourage communities to tackle environments that encourage unhealthy diets and physical inactivity
- Improving parenting skills (e.g. bonding, talking and reading to children, setting regular bedtimes and having consistent boundaries) by communicating "what works" to all parents, with interventions available to those who might be most at risk
- Improving the home learning environment with information for all on what to do, and targeted intervention for those who need it most
- Raising awareness of the importance of talking and reading to babies and toddlers
- Encouraging the use of high-quality affordable pre-school, particularly for those children who may get less stimulation at home

DIRECT METHODS

Cooper (2017) argued that a focus in policy and practice on the behaviour of parents "negates the importance of the economic context in which parenting takes place" (p.375). As such, there is a need to protect families from hardship by ensuring that families have adequate incomes, which will likely benefit mothers' mental health and how they look after their children (i.e. parenting behaviours). Direct methods for tackling socio-economic variation in outcomes aim to improve income and social status. This is based on a systematic review (Cooper and Stewart 2013, 2017), which identified two routes through which money impacts on children's outcomes. According to the *family stress model*, income affects parental stress and thereby pre- and post-natal parental behaviours, which in turn adversely affect children's outcomes. The *investment model*, by contrast, focuses on how money enables parents to pay for better housing, nutrition, educational resources (including books and toys) and childcare and to move into the catchment area of good nurseries and schools.

In a review of the evidence, Donkin et al. (2014) argue that there are three main direct methods for improving families' socio-economic position.

The first is a minimum income for healthy living, to include the costs for purchasing the things needed to ensure adequate levels of nutrition, physical activity, housing, psychosocial interaction, clothing, transport, heating and hygiene and to be able to participate in society and maintain human dignity by consuming goods and services regarded as essential in modern-day Britain. In 2012 about a third (31%) of families with children did not reach the minimum income threshold, and it has been calculated that increasing annual household income for children who are eligible for free school meals (FSM) to the average for the rest of the population (an extra £7,000) would eradicate half the gap in Key Stage 2 scores between FSM and non-FSM pupils (Cooper and Stewart 2013, cited in Donkin et al. 2014: 90).

A second approach is to raise incomes. Given that over half (67%) of children in poverty in Britain live in households where someone is working, it is necessary to improve the incomes of working-poor households. Councils can agree to

pay the living wage to all directly employed staff, ensure that contracts meet that criterion and encourage other organisations to follow suit (e.g. schools and private businesses). Social protection for people who are unemployed or in precarious and insecure employment needs to be sufficient to support a family to live a healthy life. Local authorities can seek to curb rises in the price of goods, services and housing. An analysis by Waldfogel (2010) of policies introduced in Britain in the late 1990s to help eradicate child poverty – promoting employment, making work pay, increased financial support for children in families and investment in education, social and health services – showed that the package helped to reduce poverty and improve children's life chances. Low-income families who gained from the policies used the extra income to purchase resources related to child well-being. The provision of high-quality early childhood education and care has the potential to benefit families as well as children by enabling parents "to work, re-enter the labour market, undergo training to improve employability and work more hours. Thus, it can play a role in improving family income, reducing welfare dependency and poverty, and improving social mobility for families" (Melhuish and Gardiner 2018: 24)

Third, several welfare-to-work interventions in the US have been shown to improve the economic situation of families (Donkin et al. 2014). These variously offer one or more of the following: community-based or public sector jobs; help with job searches; income supplements; subsidised childcare; and training. According to research commissioned by the Joseph Rowntree Foundation (2014), comparative evidence suggests that, when well designed, welfare-to-work interventions have contributed to improved outcomes by ensuring that benefit claimants have a better chance of getting employment and, in countries with high and/or long-lasting out-of-work benefits, offsetting the possible negative impact of such entitlements on work incentives. Outcomes have also been improved by interventions that offer financial support with housing; these are typically voucher-based programmes to subsidise the cost of housing (e.g. Welfare to Work Voucher Programme and Housing Choice Voucher Programme; Moving to Opportunity) (Donkin et al. 2014).

Three possible avenues to address poverty directly may be added to those mentioned by Donkin et al. (2014).

One is to increase the amount and take-up of welfare benefits. These have been cut severely in recent years under the UK government's austerity policies: "Some benefits were abolished, working age benefits were uprated by less than inflation, then frozen […] Limits to housing benefit were imposed, including the bedroom tax […] Having won the 2015 election George Osborne announced a whole new extra raft of cuts including emasculating Universal Credit lowering the benefit cap and introducing the odious two child limit" (Bradshaw, n.d., p.2). The net effect has been that the biggest losses have been experienced by the lowest income deciles and the incomes of families with children (ibid.). The median poverty gap[22] for all families with children after housing costs increased from £50.40 per week in 2007/8 to £63 per week in 2016/17, with the sharpest increases since 2012 which saw the introduction of the first wave of cuts.[23] Moreover, cuts in benefits explain why poverty is now mainly a problem for people in work (Bradshaw et al. 2017). Welfare rights advice services can help parents to ensure that they are receiving the benefits to which they are entitled. Action is also needed to address the stigma of claiming benefits, for example by changing pejorative political and media rhetoric and offering more and better training to staff so that the benefit system operates in a more respectful way (Baumberg 2016).

[23] This refers to the average of how far the incomes of households below the poverty line are from the poverty threshold.

[24] https://www.york.ac.uk/news-and-events/news/2018/research/poverty-report-children/

A further possible avenue is to increase poor families' possession of assets such as savings accounts and homes. Potentially this could relieve some of the stress of living in poverty and make a better future seem possible. In favour of this idea, there is substantial evidence that assets are connected to positive outcomes for poor children. For instance, correlational data from longitudinal data sets show that: young people who have any college savings at all, even a very small amount, are more likely to go to college; children in households with assets score higher on standardised achievement tests; and children of home-owners experience fewer behavioural problems (Grinstein-Weiss et al. 2014). In addition, results from trials of experimental programmes that opened various types of savings accounts for poor people and matched their contributions show that participants were generally able to accumulate savings (ibid.). Although it is too early to tell if assets and asset-building programmes have long-term effects on children's wellbeing, one experiment has shown positive impacts on disadvantaged children's social-emotional development at age four. According to Grinstein-Weiss et al. (2014), the most promising programmes have common features: they are opened early in life; they are opened automatically, with no action required from the recipients; and they come with an initial deposit. All this said, research commissioned by the Joseph Rowntree Foundation (2014) found little evidence for an asset effect on reducing poverty or decreasing income inequality.

Finally, Cooper (2017) makes the case for improving families' living standards in other ways as a means to improve parenting, for example through specialist services to help reduce debt (thereby reducing stress and its harmful effect on parenting). While there is no evidence that problem debt causes poverty, poor households are at greater risk of financial difficulties and problem debt than those who are better off (Joseph Rowntree Foundation 2014). Moreover, debt can deepen poverty and increase the risk of remaining in poverty because it adversely affects poor households' well-being and their ability to address their financial circumstances (ibid.).

CONCLUSION

This chapter has sought to explain how social disadvantage exerts a negative effect on young children's learning and related aspects of their development. It has also indicated how the adverse effects of poverty can be addressed not just indirectly, as shown in earlier chapters in this report, but also directly. Developmental neurobiology strongly suggests that increased income should have the greatest effect during children's early years, when their brains and other systems are developing rapidly, although more evidence to prove this conclusively is needed (Duncan et al. 2014) and neuroscientists point to opportunities for intervention that present in adolescence (UNICEF Office of Research – Innocenti 2017).

SUMMARY OF KEY POINTS

There is a strong association between the economic situation of families and various aspects of young children's development: children from poorer backgrounds tend to do worse than those who are better off.

Poverty has both indirect and direct impacts on child outcomes.

***Indirect* impact means that it affects the quality of the family environment and the way in which parents interact with and parent their children (e.g. actively and supportively or negatively or neglectfully). Good parenting can moderate only some but not all of the effects of poverty.**

This is because a family's economic situation also has *direct* effects on children's well-being. It affects their housing, with children living in damp housing more likely to have poorer physical health. It also affects what food can be bought, which influences their nutrition, and their experiences and opportunities, which shape multiple outcome areas, not least social and emotional development and language.

There is evidence for two theories of how income affects outcomes.

The *family stress model* holds that insufficient income has an adverse effect on parental stress levels, which has a bearing on how parents look after their children (i.e. parenting behaviours).

The *investment model* holds that insufficient income adversely affects parents' ability to pay for better nutrition, educational resources, housing and higher quality childcare, all of which further child development.

There is also increasing evidence for the pathways through which poverty becomes biologically embedded and affects children's neurocognitive development.

***Indirect* methods for addressing socio-economic variations in outcomes seek to minimise the impact of negative characteristics associated with lower socio-economic status. They include things like the better detection and treatment of maternal mental health problems and improving parenting skills (see earlier chapters in this report).**

***Direct* methods for addressing socio-economic variation in outcomes aim to improve income and social status. Methods for reducing poverty with evidence of a positive impact include:**

- **Introducing a minimum income for healthy living**
- **Raising incomes (wages and benefits)**
- **Introducing welfare-to-work interventions**

Other approaches to reducing poverty that need more testing include:

- **Increasing the take-up of welfare benefits**
- **Increasing families' possession of assets, such as savings accounts and homes**
- **Providing specialist services to help reduce debt**

Further reading and resources

Cooper, K. and Stewart, K. (2013) *Does Money Affect Children's Outcomes? A Systematic Review*. York: Joseph Rowntree Foundation. https://www.jrf.org.uk/report/does-money-affect-children's-outcomes

Cooper, K. and Stewart, K. (2017) *Does Money Affect Children's Outcomes?* An Update. CASE Paper 203. London: London School of Economics.

CHAPTER 10.
HOUSING AND NEIGHBOURHOOD

Note: See Chapter 1 for an explanation of the categories and ratings

AGES: GESTATION AND BIRTH, 0-1, 2-3, 4-8

WHAT MATTERS

OUTCOMES
General cognitive

STRENGTH

NATURE
Correlated, Indirect, Distal

SOCIO-ECONOMIC GRADIENT
Yes

LINKS
Parent health (physical and mental)

WHAT WORKS

IMPACT ON ISSUE

IMPACT ON EARLY LEARNING OUTCOMES
Not known

OBJECTIVES

The objectives of this chapter are:

- **to describe the adverse effects of poor housing on children's development, including their early learning**
- **to outline the relationship between neighbourhood quality and children's outcomes**
- **to summarise the effects of initiatives designed to improve children's housing and neighbourhoods**

CHAPTER 10: HOUSING AND NEIGHBOURHOOD

INTRODUCTION

The previous chapter alluded to the relationship between poverty and living in poor housing and a poor neighbourhood, and the adverse effects this can have on children's early learning and related outcomes both directly and indirectly, for instance through increased stress for their parents. This chapter unpacks these issues in more depth and outlines evidence on the effectiveness of initiatives to improve housing and neighbourhood quality.

WHAT MATTERS

HOUSING

A review by Harker (2007) of over 100 studies examined the direct impact of housing conditions on children's development, focusing on their health, learning, safety and behaviour. She acknowledges the difficulty of disentangling the effect of poor housing on child well-being from related circumstances and problems, such as family conflict and poor diet, but states that "Some studies have isolated a clear 'housing effect' in relation to important aspects of children's development and future life chances" (p.43). The review found "strong evidence of a relationship between poor housing conditions and children's health and some evidence that growing up in sub-standard housing affects children's performance at school. While children's safety is clearly linked to the quality of their home environment, further research is necessary to understand the apparent link between poor housing conditions and children's behavioural problems" (p.43). While learning is clearly of primary interest given the focus of the present review, the other outcomes are important because they are intertwined, as will be seen. The key findings fell into two broad categories, as follows.

First, poor housing has harmful effects for children's health and safety. The strongest evidence was for the adverse effect of cold, damp and mould: "Cold temperatures lower resistance to respiratory infections; damp conditions are favourable to bacteria and viruses; and mould and fungi produce allergens that can lead to asthma and other respiratory problems. There also appears to be a link between dampness and mould and other health problems in children, such as diarrhoea, headaches and fever" (p.44). Respiratory problems can lead to loss of sleep, restrict children's daily activities and result in missing school. Harker (2007) also argues that children's mental health may be adversely affected by living in cold, damp housing, by increasing stress, anxiety and depression, although it is hard to isolate a causal link. The review also states that rates of respiratory problems are elevated among children living in overcrowded housing, and that this may be caused by an increased incidence of infectious disease but also higher exposure to tobacco smoke. In the period 2016-2017, figures show that around 682,000 (3%) of the estimated 23 million households in England were overcrowded, and that rates of overcrowding are higher in the rented sectors (7% social, 5% private) than in the owner-occupied sector (1%) (Ministry of Housing, Communities & Local Government 2018). Living in overcrowded accommodation also increases children's risk of contracting viral or bacterial infections, which can increase their risk of meningitis and other life-threatening diseases (Harker 2007). Meanwhile, children living in homeless families are particularly vulnerable to mental health problems, such as anxiety and depression, which may be related in part to related risk factors, such as an increased likelihood of having been abused. Finally, poor housing and the wider environment are also more likely to be unsafe for children and make it easier for them to have accidents (ibid.).

Second, the Harker (2007) review found that poor housing adversely affects children's education. Homelessness is harmful for children's educational progress because it affects their access to and attendance at school (homeless children are between two and three times more likely to be absent), and can make children feel isolated because of their traumatic experiences. Children in temporary housing often need to move school frequently, which means that they miss class time and the stability of attending one school. Overcrowding has a damaging effect on children's learning, in part because children living in such conditions miss more school. There is also evidence that parents in overcrowded housing are less responsive in how they communicate with children and that they speak to them in less sophisticated ways, even after accounting for socio-economic status. The poor health referred to above as a result of cold, damp housing affects children's learning because of effects on children's attendance. Overcrowded or temporary accommodation often means that children don't have enough space to play, which in turn can contribute to mental health or behaviour problems.

In conclusion, Harker (2007) argues that "The evidence set out in this review underlines the importance of placing housing issues at the heart of policy, practice and research seeking to improve children's well-being" (p.48).

A later review by Weitzman et al. (2013) looks beyond the structural or spatial aspects of housing to consider the effects on a child's health and development of a range of physical, chemical, and biological aspects of the child's home environment. Four are elaborated here, but there are others too (e.g. cleanliness, moisture, pests, accessibility, carbon monoxide, radon, allergy triggers, changes in ambient temperature, increased humidity, poor ventilation, water quality, infectious diseases, and the presence of guns and electronic media).

First is exposure to lead, for instance through lead paint. Elevated levels of lead in children's blood are recognised as a "significant cause of decreased IQ" (p.191), with evidence of a "dose-dependent relationship between lead exposure and other neurocognitive functions and behaviors, including hyperactivity, distractibility, impulsivity, disorganization, non-persistence, inability to follow simple instructions, and overall poor functioning" (p.191). Such children are at elevated risk of problems later in childhood such as reading difficulties and increased school absence.

Second, aside from the harmful effects of smoking during pregnancy on children's development, including lower cognitive abilities and increased risk of behavioural and emotional problems (see Chapter 6 of this report), second-hand smoke exposure has been shown to contribute to impaired cognitive function, manifested in "lower scores on intelligence tests and achievement tests, and in poor school performance" (p.196).

Third, excessive noise, whether from aircraft or household appliances, can have a harmful effect on reading and school performance. This is possibly because children adapt to noisiness by filtering out sounds (irrespective of whether they are relevant), such that their attention in class is reduced.

Fourth, Weitzman et al. (2013) notes that "Children regularly exposed to television at an early age are at an increased risk for impaired vocabulary, a finding that is more pronounced if children have significant exposure before 30 months of age" (p.210). Television is also independently associated with obesity and ADHD, both of which are associated with poor education outcomes.

The final study referred to in this section used an analysis of longitudinal data from a cohort study in the US to look at the consequences of housing instability before the age of 5 years on different aspects of a child's school readiness (Ziol-Guest and McKenna 2014). There was no relationship with language and literacy, but moving three or more times was significantly associated with increases in attention and behaviour (internalising and externalising) problems, but only among poor children.

NEIGHBOURHOODS

An umbrella review by Bird et al. (2018) assessed the relationships between the built and natural environment and health. Studies in the review covered a range of population groups, including pregnant women, children and adolescents, the general population and the elderly. Exposure to air pollution was found to be linked with poorer birth outcomes. Evidence of mixed methodological quality suggested that densely populated neighbourhoods with good access to local facilities and amenities are associated with higher or increased physical activity and mobility and higher or improved mental health. In addition, improvements in housing quality, such as increased energy efficiency, were found to be associated with positive general health, mental health, asthma, and mortality outcomes, while affordable rental housing was shown to be associated with higher or improved mental health outcomes among adolescents and adults.

Regarding the food environment, there was evidence that the provision of healthier, affordable food in schools, workplaces and supermarkets is associated with higher or improved dietary behaviours, higher or improved attitudes towards fruit and vegetable consumption, healthier food purchasing, and positive associations with weight-related health outcomes. Further, the review found that "Enhancing community food infrastructure through urban food growing and provision of and access to allotments and garden space was related to positive attitudes towards healthier eating, higher opportunities for fruit and vegetable consumption, social connectivity, physical activity and engagement with healthcare" (ibid., p.8).

The authors concluded that "Findings from this review strengthen the argument for an upstream shift to address key built and natural environment obstacles to enable people to increase control over, and improve, their health. Incorporating health needs and impact into the conceptualisation, design and planning of infrastructural projects, may assist policy makers, planners and built environment professionals in the development of sustainable communities" (ibid., p.10).

A systematic review by Christian et al. (2015), involving 32 quantitative studies, looked more specifically at the association between the neighborhood built environment (e.g. residential density, safety from traffic and access to good and services), green spaces (e.g. nature access, parks) and the outdoor home area (e.g. presence of garden), and the health and development (physical health, social competence, emotional maturity, and language and cognitive skills) of children aged 0 to 7 years.

Several findings are salient to the current review. First, "[t]here was strong empirical evidence that neighborhoods which are safe from traffic and which have green spaces (i.e., nature, public open space, parks, play- grounds) are associated with behaviors (i.e., outdoor play and physical activity) that facilitate early child health and development" (p.30). Second, there is a positive association between the presence of child relevant neighbourhood destinations (e.g. libraries, schools, leisure centres) and services (e.g. for child health) and children's physical health and wellbeing and social competence, and a negative

association with children's vulnerability to developmental delay. Third, the review found "some evidence that parents' perceptions of neighbourhood safety were positively associated with young children's social-emotional development and general health" (p.30). There was some evidence for the positive impact of green spaces on young children's cognitive and motor development, although in general there were fewer studies looking at effects of aspects of the built environment on children's language, cognitive and communication skills. The authors concluded that "neighborhood physical environment may be more important for some domains of early child health and development (e.g., physical health and well-being and social competence) than others (e.g., language and communication skills)" (p.30). They also identified a clear need for more research into the impact of the built environment on children's early development, specifically "[p]opulation representative studies using objective measures of the built environment and valid measures of early child development" (p.25).

Galster (2014) identified four forces that drive the effect of neighbourhoods on life outcomes, namely:

- Social processes, such as the extent of social networks, collective socialisation around norms or role models, the influence of peers
- Environmental factors, such as exposure to violence or the area's physical fabric and surroundings
- Geographical forces, such as the distance of the neighbourhood to good jobs or its relative isolation
- Neighbourhood resources, such as early years services, schools, health clinics, and the types of shops and amenities
- Among other conclusions about the mechanisms by which neighbourhoods exert their effect on outcomes, he argued, based on the evidence, that:
  - There is a "direct line" (p.1) from exposure to neighbourhood violence and pollution to poorer health
  - The chronic stress of living in dangerous or run-down neighbourhoods can adversely affect parents' physical and mental health and their parenting, which in turn can affect children
  - Having more affluent neighbours "can help inspire more positive norms among residents, but not as much as 'bad influences' can undermine positive norms" (p.1).

A later, more in-depth review, focusing specifically on neighbourhood effects on early child development (Minh et al. .2017), drew several important conclusions. First, social inequalities between neighbourhoods are related to variability in children's early development. In particular, most of the studies reviewed found an association between neighbourhood disadvantage or poverty and poorer developmental health. Second, these effects are mediated through "social interactive mechanisms" (p.171): "a lack of safety, increased neighborhood social disorder, less belonging, less social cohesion, and a lower potential for community involvement with children (or collective efficacy), was directly related to worse language, emotional, and behavioral outcomes for children […] and in many cases, partially explained the association between early developmental health and neighborhood disadvantage" (p.166). Third, less is known about how environmental, geographical and institutional mechanisms link neighbourhood to child development; however, "higher quality child-care institutions (measured according to the quality of stimulation and support given to children in the child care setting) […] , and a stronger relationship between caregivers and children and childcare institutions […], partially explained how neighborhood disadvantage may be related to better language and cognitive development in early childhood" (p.166). Fourth, neighbourhood mechanisms are related to the

differences in children's family environments. Specifically, "[i]n the majority of studies that examined family-level variables, such as the learning environment at home or parenting practices, family-level variables [including parents' access to resources to support children's development, parental well-being, and parenting behaviours] were found to explain all or part of the association between neighborhoods and children's development. These studies underscore the importance of the environment that is most proximal to the child, the family, while recognizing that families exist in relation to the people, resources, and opportunities within their residential environments" (p.171). In short, the evidence from this review suggests that: neighbourhoods matter for early child development; it is the social aspects of neighbourhood that matter most; but the effects on child development are largely explained by the association with aspects of parent well-being and parenting.

Others have made the case for environmental effects and how these track through to the outcomes of primary interest in this review. For example, children are more likely to be physically active in more walkable neighbourhoods (e.g. well-connected streets with safe crossing points, low traffic volumes and speeds), and physical activity benefits children's cognitive and psychosocial development, therefore "it is plausible that certain neighbourhood built environment features not only benefit children's physical development but are also associated with their broader development (e.g. social, emotional, cognitive)" (Viallaneuva et al. 2016: 11).

Regarding the benefits and harms of features of the built environment for children's development, Villaneuva et al. (2016) suggest that the research relates most strongly to housing density, traffic exposure, neighbourhood destinations and green space and nature. Higher housing density, for instance, which is a feature of more compact environments, can be good for health (e.g. because they are more walkable) but bad for other aspects of child development (e.g. contributing to behaviour problems and poor academic performance). Children who live in areas with greater traffic volume and speed and insufficient or poorly designed crossings are less likely to be allowed to play and interact with others; indeed, "higher levels of traffic exposure have been associated with parents restricting children's outdoor activities, smaller social networks and poorer academic performance, and diminished social and motor skills" (p.14). Meanwhile, access to recreation venues and green spaces and nature provide opportunities for children to socialise, interact, explore and learn, thereby shaping their social-emotional and cognitive development (ibid.).

WHAT WORKS

HOUSING

No studies evaluating the impact of improving housing on children's early learning per se were identified. However, there is evidence, including from experimental and quasi-experimental studies, of the impact on health outcomes of improving housing. Given the links between children's physical health and their learning, these are worth summarising here briefly.

In particular, a recent systematic review (Thomson et al. 2013) to assess the health and social impacts on residents of improvements to the physical fabric of housing concluded that "Housing investment which improves thermal comfort in the home can lead to health improvements, especially where the improvements are targeted at those with inadequate warmth and those with chronic respiratory disease [...] Best available evidence indicates that housing which is an appropriate size for the householders and is affordable to heat is

linked to improved health and may promote improved social relationships within and beyond the household. In addition, there is some suggestion that the provision of adequate, affordable warmth may reduce absences from school or work" (p.2). This review did not focus on children specifically, but Weitzman et al. (2013) provide evidence for the effectiveness of public policies, programmes and regulations in the US that address aspects of housing and home conditions in improving children's health over recent decades. These include basic sanitation, lead poisoning prevention policies, reduced household crowding and other housing regulations.

NEIGHBOURHOODS

There is a lack of rigorous evaluation of the effect of interventions to improve neighbourhood quality on child outcomes per se. There are randomised studies in the US of the effectiveness of initiatives to move families from high- to low-poverty neighbourhoods (e.g. Chetty et al. 2016) but these tend to focus on effects on adults and on the children involved in later childhood and adulthood (often, it should be said, with positive results). However, there are studies that point to how improving neighbourhood quality contributes to health, which is important given the known effects of health on parenting and, in turn, child well-being, and studies that draw on the evidence about the links between neighbourhood and child development to make policy and practice proposals. Two reviews of such studies are considered here.

In their umbrella review, Bird et al. (2018) noted the complexity of relationships between the built environment and health, but identified a series of evidence-based and actionable planning principles related to the built and natural environment, covering:

- neighbourhood design (e.g. increase walkability, improve infrastructure to support walking and cycling, increase access to amenities, improve street connectivity)
- housing (e.g. increase energy efficient homes, remove home hazards, refurbish homes, provide affordable rental housing)
- the food environment (e.g. increase access to healthier food)
- natural and sustainable environment (e.g. increase urban food growing, reduce exposure to air pollution and excessive noise)
- transport (e.g. increase infrastructure for walking and cycling, provide traffic calming measures, promote public transport use)

Although a lack of experimental studies in this subject area limits the conclusions that can be drawn about causality, the authors advise that the clear links between planning principles and health outcomes should guide the future planning and development of built and natural environment interventions and policies. As an example of these links, they state that "neighbourhoods that enhanced walkability, were complete and compact in design, and those which enhanced connectivity through safe and efficient infrastructure were associated with better health-related outcomes relating to physical activity, social engagement, mental health, perceptions of crime, and road traffic collisions" (p.1).

In the other review, Villanueva et al. (2016) caution that while urban design and planning play an important role in developing child-friendly neighbourhoods, it can be difficult and costly to redesign the street layout or build new services and destinations, especially when trying to retrofit this to existing neighbourhoods and given constraints imposed by government policy. Accordingly, they point to the potential value of "more cost-effective and temporary site changes" (p.15),

including pop-up parks and playgrounds and temporary street closures, as well as more permanent changes, such as improving park infrastructure, installing traffic calming measures and cycle lanes and making aesthetic enhancements (e.g. public art, landscaping). Further, they advocate a more holistic 'collective impact' approach to creating healthy urban environments, with contributions from diverse stakeholders, including parents, children, public health professionals, teachers, early years services and paediatricians. For instance, health and education practitioners could educate families about the benefits of outdoor play and how these outweigh the risks. Lastly, they point to the need for stronger evidence to leverage policy change in these areas and advocate the better and more widespread use of evidence-based indicators.

CONCLUSIONS

This chapter has shown that living in poor housing or poor neighbourhoods, both of which are more likely for children from socially disadvantaged backgrounds, can have an adverse effect on children's health and development. The effects on learning tend to be indirect, for instance when poorer child health results in greater absence from school. Some of the effects of housing on children's development are indirect, as when parents living in overcrowded accommodation are less responsive in their communication with children, which is known from the evidence cited earlier in the report (Chapters 2 to 4) to adversely affect aspects of children's learning. There is less evidence for the effects of the built environment on children's language, cognitive and communication skills. However, neighbourhood effects on children's physical health (e.g. from pollutants) and social-emotional well-being (e.g. owing to a lack of safe spaces to play), and on parents' well-being (and therefore parenting) are likely influence their early learning outcomes. There is a lack of research into the effects on early learning outcomes per se of interventions to improve housing and neighbourhood quality, but there is evidence that improving both contribute to better physical and mental health, which is likely to benefit children, and scope for multiple stakeholders to create more child-friendly neighbourhoods.

SUMMARY OF KEY POINTS

Housing

It can be difficult to disentangle the effect of poor housing on child outcomes from related issues (e.g. family conflict, poor diet), but some studies have isolated a clear housing effect on children's health, safety and learning.

Living in cold, damp housing can cause respiratory problems and is also associated with mental health problems. Children in overcrowded accommodation are more likely to have respiratory problems, owing to increased incidence of infectious disease but also higher exposure to tobacco smoke.

Homelessness is harmful for children's education because it affects their access to and attendance at school. Parents in overcrowded housing are less responsive in how they communicate with children and that they speak to them in less sophisticated ways, even after accounting for socio-economic status.

Other physical, chemical and biological aspects of the child's home environment can affect their health and development, including inter alia exposure to lead, second-hand smoke, excessive noise and television.

Interventions to improve housing (e.g. appropriate size, suitable warmth) have been shown to improve health outcomes and may have positive effects on other outcomes (e.g. relationships, school attendance).

Neighbourhood

There is evidence of associations between aspects of the built and natural environment (e.g. air pollution, the presence of amenities, food availability, traffic volume and speed) and outcomes for children and adults.

Neighbourhoods which are safe from traffic and which have green spaces are associated with behaviours (i.e., outdoor play and physical activity) that facilitate early child health and development.

There is a positive association between the presence of child-relevant neighbourhood destinations (e.g. libraries, schools, leisure centres) and services (e.g. for child health) and children's physical health and wellbeing and social competence.

There is some evidence that parents' perceptions of neighbourhood safety are positively associated with young children's social-emotional development and general health.

There is less evidence for the effects of aspects of the built environment on children's language, cognitive and communication skills per se, although this may relate in part to the fact that fewer studies of this relationship have been conducted.

There is scope for multiple stakeholders to work together in place-based initiatives to create more child-friendly neighbourhoods, whether by designing better new environments or adapting existing ones. It is plausible to contend that this is likely to improve parents' and children's physical and mental health and, thereby, children's early learning.

Further reading and resources

Harker, L. (2006) *Chance of a Lifetime: The Impact of Bad Housing on Children's Lives*. London: Shelter. https://england.shelter.org.uk/__data/assets/pdf_file/0016/39202/Chance_of_a_Lifetime.pdf

Krishnamurthy, S., Steenhuls, C., Reijnder, D. and Stav, T. (2018) *Child Friendly Urban Design*. The Hague, Netherlands: Bernard van Leer Foundation. https://bernardvanleer.org/app/uploads/2018/05/Child-friendly-urban-design.pdf

CHAPTER 11.
FEATURES OF EFFECTIVE IMPLEMENTATION

OBJECTIVES

The objectives of this chapter are:

- **to outline evidence on the relationship between implementation quality and outcomes**
- **to summarise evidence on the features of effective implementation of interventions and other services**

CHAPTER 11: FEATURES OF EFFECTIVE IMPLEMENTATION

INTRODUCTION

Previous chapters have identified a variety of interventions, or types of intervention, that have been shown to be effective in either improving children's early learning outcomes or addressing factors known to be associated with early learning outcomes and related aspects of school readiness. However, even the most promising initiative will have limited impact if it is not implemented fully and effectively (Mildon and Shlonsky 2011). Identifying an effective practice or programme is not enough to achieve its successful implementation. Many efforts to implement programmes designed to improve services have not reached their full potential due to a variety of issues inherent in both the service setting and the implementation process itself (Aarons et al. 2010). Organisational characteristics and systems can be limiting because they may not lend themselves to change (Mildon and Shlonsky 2011); caseloads may be substantial or staff turnover rates high; policy agendas may change and other external factors affect organisational life.

Without addressing these larger organisational and individual practice challenges, as a planned part of programme implementation, even programmes and interventions with a strong evidence base may remain unsuccessful. Hence, understanding what characterises good implementation practice in early childhood services is crucial.

IMPLEMENTATION DEFINED

By 'implementation', we mean the active, planned and intentional use of different strategies to enable the use and integration of research evidence into practice and services that are delivered within real-world settings (Fixsen et al. 2005; Mitchell, 2011).

In active implementation efforts, managers and practitioners assess, plan, embed and maintain processes and practices that support the uptake of evidence in practice and improve services. In doing so, they enhance the likeliness for agencies and communities to yield better implementation outcomes, improve services and lead to improved outcomes for children and families (Fixsen et al. 2005; Greenhalgh et al. 2004).

A key source of insights into effective implementation practice is the field of implementation science. It draws from a multidisciplinary set of theories and methodologies aiming to bridge the gap between research and practice – with an ambition to understand how to effectively integrate empirically supported programs into real-world service and practice settings (Mildon et al. 2014). This chapter draws on a targeted selection of key implementation concepts derived from implementation research conducted in the past decade, and commonly recognised as being conducive to high-quality implementation practice.

IMPLEMENTATION MATTERS

In recent years, strong empirical evidence has emerged documenting that the quality of implementation processes matters.

One of the first and rather seminal studies was a review of over 500 child and adolescent mental health and wellbeing programme evaluations, showing that the impact of programs on child and family outcomes could be 2-3 times stronger when well-implemented (Durlak and DuPre 2008). In a similarly large sample of 361 primary studies testing the effectiveness of interventions for juvenile offenders, 'quality of implementation' emerged as one out of three factors that correlated with programme effectiveness (Lipsey 2009).

CHAPTER 11: FEATURES OF EFFECTIVE IMPLEMENTATION

In recent years, the interest in the role of implementation for client outcomes has become increasingly visible in the field of early childhood care and education. For example, in a systematic review of studies on early childhood classroom interventions (McLeod et al. 2016), the majority of common elements identified across interventions contained in 49 studies were so-called 'delivery' (= implementation) items. Of these, experts rated most as 'essential' to use in classrooms in order to achieve outcomes as intended.

Similarly, a growing number of primary studies conducted within early childhood services examines the impact of particular implementation strategies on service quality and client outcomes. Among implementation strategies in focus are both single strategies such as training and coaching (Sutherland et al. 2017) or fidelity tracking (Bywater et al. 2018; Pontoppidan 2016) but also more complex – multi-faceted – strategies containing multiple activities in their approach to enhancing implementation are increasingly tested within real-world settings (Jones 2015).

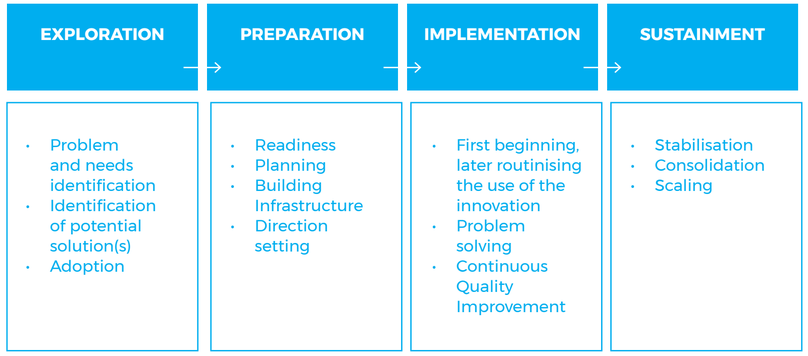
In building on this broad recognition of implementation as a key factor in ensuring service quality and client outcomes, we introduce a targeted selection of key implementation concepts in the following that have emerged within implementation science over the course of the past ten to fifteen years. While the degree to which these have been empirically tested is limited still, they represent concepts commonly referred to as key elements of good implementation practice.

IMPLEMENTATION OCCURS IN STAGES

There is broad agreement among scholars that implementation happens in stages and unfolds over a period of time. Hence, it cannot be considered as a single event taking place when the decision to adopt an intervention has been made (Mitchell 2011). Rather, local implementation begins before this adoption decision, and it lasts for a long time after this decision.

The implementation science literature has fully embraced this understanding (Aarons et al. 2010; Albers and Mildon 2016; Metz and Bartley 2012; Meyers et al. 2012) and often conceptualises implementation as a stage-based process, structured into four phases (Albers et al. 2017) as highlighted in the diagram below.

Each of these stages is characterised by focusing on different activities aiming to contribute to a systematically planned and prepared implementation process that focuses on creating positive outcomes for those, who receive human services and should benefit from them.



The key activities of each implementation stage are briefly listed under each stage label:

- The key purpose of the exploration phase is to understand the exact problem an agency or community wants to solve for its clients or members. This implies to both assess the size and intensity of the problem – e.g. based on locally available data – and to consider the outcomes the agency or community intends to achieve instead. Following this assessment, it will be possible to identify solutions potentially available to address the problem, and to select among them. When this selection has occurred – and the decision to adopt a new intervention been made – it is time to move into the preparation phase.
- The focus during preparation is on 'getting ready' for applying the new intervention and conducting its different activities. For example, new staff may need to be hired, different trainings delivered, new organisational and community structures developed, and data systems built. By covering these different aspects, an organisation will build its initial readiness to begin the implementation of the new intervention. Training in the new intervention will often indicate that an organisation is ready to begin with the implementation of the intervention.
- Implementation can be a fragile phase in the very beginning – because the new intervention will be applied for the first time, and even highly experienced clinicians, educators or administrators may feel slightly awkward about applying new behaviours and routines and 'unlearning' old habits. The focus of this phase therefore often is on providing implementation support, ensuring the quality of implementation activities and services are as intended and continuously improving the new practice. In other words, as soon as new practices and interventions are taken in use, data collection should begin, and their information be assessed regularly to understand where to find the most immediate and crucial implementation barriers and facilitators an agency or community should address. Over time, this work will lead to greater familiarity with the intervention, consolidate and help routinise its use.
- Sustainment is the state of a routine integration of the intervention into daily practice in the agency or community. While sustainment at times was treated as an issue to be addressed when full implementation is achieved, it is increasingly recognised as an issue that needs early attention (Chambers et al. 2013) as many of its preconditions – such as adequate funding; an optimal intervention-context fit; sufficient capacity to train staff, to collect data, and to provide ongoing support; or stable stakeholder commitment – will need to be created during earlier stages of the implementation process. Furthermore, constant changes are a normal component of the human service sector, making the capability to constantly adapt an intervention to changing contexts a necessity. This means sustainment should be a consideration of all stakeholders involved in an implementation process from the very beginning.

While this stage-based perspective describes implementation processes as a rather linear and well-structured process, the reality of implementation practice will often look different. Implementation is complex and challenging (Bond et al. 2009), and agencies and communities will experience both setbacks and leaps that will challenge the chronology and tidiness of implementation stages and activities. However, the concept of implementation stages can help mapping processes during planning activities and be used as a heuristic during times in which it is important to understand the state and progress of an implementation process.

IMPLEMENTATION DEPENDS ON READINESS

A key aspect of effective implementation is an agency's or community's readiness to implement innovations. While a commonly shared definition of such readiness is still missing, both the willingness and ability of an organisation to take up an innovation and integrate it into daily practice are among its typical ingredients (Office of the Assistant Secretary for Planning and Evaluation 2014), referring to motivational as well as capacity related factors needed for implementation work. This perspective is also reflected in the $R=MC^2$ approach to organisational readiness (Scaccia et al. 2015). It provides a suggestion for how to conceptualise organisational implementation readiness, based on three components:

- motivation,
- innovation-specific capacities, and
- general capacities

Each of these is briefly described in the table below.

Organisational Implementation Readiness ($R=MC^2$)

Component	**M = Motivation**	**C = General Capacity**	**C = Innovation-Specific Capacity**
Definition	'… perceived incentives and disincentives that contribute to the desirability to use an innovation…' (p. 486)	'…attributes of a functioning organisation…' (p. 486)	'…the human, technical, and fiscal conditions that are important for successfully implementing a particular innovation with quality…' (p. 487)
Influenced by	The innovation's relative advantage, compatibility, complexity, trialability, observability, priority – as perceived by stakeholders	An organisation's culture, climate, innovativeness, resource utilisation, leadership, structure, staff capacity	Innovation-specific knowledge, skills, abilities; program champion(s); specific implementation climate supports; inter-organisational relationships

The work with translating these assumptions into a standardised checklist that can be used to systematically work through an organisation's readiness is ongoing (Scott et al. 2017). In the absence of universally applicable measures, less comprehensive checklists targeting a particular aspect of readiness, such as motivation (Shea et al. 2014), can be combined with individually developed and facilitated approaches, including readiness checklists and meetings tailored to the specific requirements of locally developed interventions (Kingston 2018).

IMPLEMENTATION DEMANDS LEADERSHIP

Leaders and the influence of leaders on change processes cannot be underestimated throughout the phases of implementation (Aarons 2015; Aarons and Sklar 2014; Aarons et al. 2016). To be successful during the readiness phase and throughout the implementation of new interventions, leadership support is critical (Brimhall et al. 2015; Green et al. 2013; Hasson et al. 2014).

Leadership support is the explicit buy-in and active participation in implementation processes from senior, middle and frontline management within or across organisations that implement a new intervention (Aarons et al. 2014b). Leaders drive change efforts and align organisational goals and structures to facilitate this change. This includes the active involvement in understanding the requirements of the intervention, planning for change as needed, and the ability to solve problems as they arise. Leadership is particularly important when decisions to overcome implementation obstacles is required.

Key implementation leadership behaviours include:

- Acquiring a good working knowledge of the intervention.
- Being able to articulate an intervention's benefits to a wide range of stakeholders.
- Building initial interest and maintaining momentum and engagement for its implementation.
- Creating engagement, energy and accountability for the implementation amongst the workforce.
- Continuously communicating with key stakeholders about the implementation.

Furthermore, leaders reinforce practice by highlighting the efforts of others. They require and encourage workforce participation in the effective use of tools and the uptake of skills. They discourage poor performance and unhelpful behaviours. They seek feedback, reinforce positive staff performance, and they solve implementation problems.

The Implementation Leadership Scale (ILS) is a simple and usable tool to regularly assess the level of implementation leadership provided within an organisation or a community (Aarons et al. 2014a; Ehrhart et al. 2014). It measures the specific leadership behaviours assumed to influence staff to support the successful implementation of evidence-based practices and includes twelve items across four areas of leadership assessing the degree to which a leader is:

- proactive regarding the EBP (evidence-based practice) implementation,
- knowledgeable of the EBP and implementation,
- providing support for the EBP implementation, and
- perseverant when facing EBP implementation problems.

It was tailored to be used by frontline staff and the managers supporting them in implementing evidence-based practices within real-world service settings.

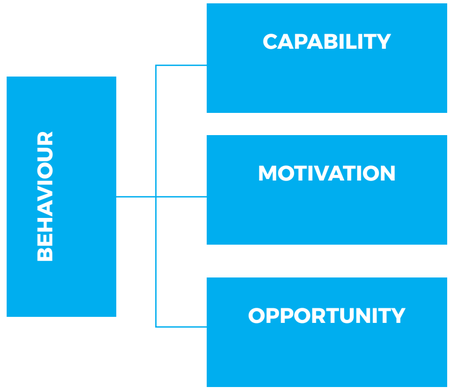
The measure was evaluated with mental health clinicians working in 93 different outpatient mental health programmes in Southern California, US. Participants came from numerous backgrounds including marriage and family therapy, social work, psychology, child development, human relations, nursing, and other areas such as drug and alcohol counselling, probation, psychiatry. The measure has good internal consistency reliability (ranging from 0.95 to 0.98.) as well as convergent (correlations ranged from 0.62 to 0.75) and discriminant validity (Correlations ranged from 0.050 to 0.406).

IMPLEMENTATION INVOLVES BEHAVIOUR CHANGE

Implementing a new intervention in a local setting implies to initiate an organisational and system change that requires individuals, teams and systems to change their behaviour (Michie and Johnston 2012).

Such behaviour change depends on the individual readiness of staff in the different organisations involved in the implementation – be they early childhood educators, general practitioners, school teachers, social workers, volunteers, or others.

The COM-B framework (Michie et al. 2011) describes the basic requirements of individual behaviour change, pointing to the simultaneous importance of capability, motivation and opportunity when working for enabling behaviour change. The framework is depicted in the diagram below and operationalised in the following.



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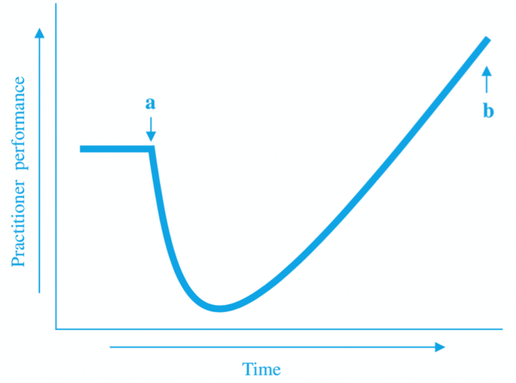
While *capability* refers to an individual's physical and psychological capability to conduct the activities required as part of a new intervention, *motivation* describes the mechanisms in an individual that energise and direct the individual towards new behaviours and towards applying the new intervention – this motivation can be of both rational and emotional nature. Finally, *opportunity* frames conditions outside of the individual that need to be in place before behaviour can change – these can be 'physical' – concrete situations need to be shaped such that an individual can use a new intervention – but can also have 'cultural' aspects in that the new behaviour has to be accepted and acknowledged as the 'new way of doing things around here'.

Based on this understanding, capabilities, motivation and opportunities interact and – together – create behaviour change in individuals. During preparation of an implementation, attention should be paid to enhancing all three preconditions of behaviour change in order to increase the likeliness of individual engagement in the many activities that lie ahead of an implementation process.

IMPLEMENTATION REQUIRES WORKFORCE SUPPORT

Research has shown that training alone does not result in the required change in practitioner behaviour (Fixsen et al. 2005; Herschell et al. 2010). Moreover, the performance of practitioners and others taking up a new practice and learning new behaviours and skills, has been described as potentially declining as part of an implementation process as indicated in the diagram below (Lyon et al. 2010). This decline is related to the discomfort professionals experience as part of taking up new and unlearning old skills and can be a key challenge during early implementation stages when the use of a new intervention has just begun.



To overcome these phases of performance loss, scholars suggest combining one-off training with strategies of on-going support such as supervision and coaching (Dorsey 2017; Schoenwald et al. 2004). Some go as far as to state, "there does not seem to be a substitute for expert consultation, supervision and feedback for improving skills and increasing adoption" (Herschell et al. 2010, p.14).

Coaching (sometimes also referred to as consultation) is one of several recognised implementation strategies designed to enhance the uptake of new skills and competencies by managers and practitioners. For the providers of evidence-based practice, the aim of receiving coaching is to ensure fidelity and thereby achieve positive outcomes as designed (Beidas and Kendall 2010; Beidas et al. 2013; Beidas et al. 2012).

Coaching takes place 'on the job' and utilises field examples of actual casework involving the use of the new intervention. Coaching activities should be

designed to increase the practitioner's mastery over the skills required to utilise the intervention and achieve its intended outcomes. Coaching reinforces information learned in the training, keeps it foremost in the minds of the practitioner, and provides timely feedback when practitioners are gaining skill in the use of the intervention and its tools and instruments. The aim is to keep the spotlight on practice, enable learning and reinforce expectations for the new intervention to be used as intended.

The regular follow-up by the coach also serves as a motivation for greater accountability by engaging practitioners and encouraging them to be prepared (Nadeem et al. 2013). Coaching should be provided in a supportive and highly engaging manner. Coaching is transparent and is not offered as a confidential process between coach and practitioner.

IMPLEMENTATION BUILDS ON STRATEGIES

While coaching is one particular implementation strategy, there are many more in the toolbox of an implementation specialist. In recent years, implementation scientists have paid increasing attention to the "methods or techniques used to enhance the adoption, implementation, and sustainability of a clinical program or practice" (Proctor et al. 2013).

These methods or techniques are commonly referred to as "implementation strategies", 73 of which were included in an expert-informed compilation aimed at enhancing the conceptual clarity, relevance and comprehensiveness of implementation strategies for use in research and practice (Powell et al. 2015b). The table below presents a selection of 10 implementation strategies with definitions tailored to early childhood contexts.

STRATEGY	DEFINITION
Assess for readiness and identify barriers and facilitators	Assess various aspects of an organization to determine its degree of readiness to implement, barriers that may impede implementation, and strengths that can be used in the implementation effort
Conduct educational meetings	Hold meetings targeted toward different stakeholder groups (e.g., providers, administrators, other organizational stakeholders, community, and family stakeholders) to teach them about the innovation
Create a learning collaborative	Facilitate the formation of groups of providers or provider organizations and foster a collaborative learning environment to improve implementation of the innovation
Develop and organize quality monitoring systems	Develop and organize systems and procedures that monitor educational processes and/or outcomes for the purpose of quality assurance and improvement
Facilitation	A process of interactive problem solving and support that occurs in a context of a recognized need for improvement and a supportive interpersonal relationship.
Inform local opinion leaders	Inform providers identified by colleagues as opinion leaders or "educationally influential" about the innovation in the hopes that they will influence colleagues to adopt it
Provide ongoing consultation	Provide ongoing consultation with one or more experts in the strategies used to support implementing the innovation
Recruit, designate, and train for leadership.	Recruit, designate, and train leaders for the change effort
Tailor strategies	Tailor the implementation strategies to address barriers and leverage facilitators that were identified through earlier data collection.
Use data experts	Involve, hire, and/or consult experts to inform management on the use of data generated by implementation efforts

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Since this descriptive mapping of implementation strategies was finalised, further progress has been made in understanding how implementation strategies can be used within local implementation processes. This evidence indicates that the use of single strategies seldom is sufficient to achieve complex implementation goals (Powell et al. 2014). Instead, the development of multi-faceted strategies has been recommended. Moreover, methods have been described that can help implementation practitioners and researchers in selecting and tailoring implementation strategies to local implementation needs and problems (Powell, Beidas et al. 2015a).

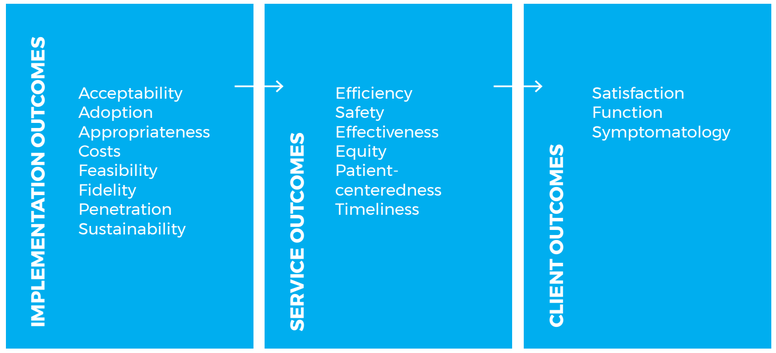
IMPLEMENTATION CAN AND SHOULD BE MEASURED

Increasing the organisational focus on implementation also implies to consider how implementation can be measured and monitored.

To establish a data-based culture in relation to not only clinical but also implementation practice implies for an agency or community to define the implementation outcomes, it assumes will contribute most to the positive outcomes it wants to achieve for children and families.

A central framework for understanding such implementation outcomes and how they relate to both the quality with which services are delivered and in the final instance client outcomes is presented in the diagram below (Proctor et al. 2010).

Its key message is that in order to achieve positive client outcomes, the quality with which services are delivered to clients needs to be high. This quality depends on diligent implementation, as reflected in different implementation outcomes, which agencies and communities can prioritise and measure.



The evaluation questions relevant to raise for each of these implementation outcomes are:

- Acceptability: Do practitioners delivering the intervention to clients perceive it as agreeable, palatable, satisfactory?
- Adoption: How extensive is the uptake of the intervention among relevant practitioners, teams, or agencies?
- Appropriateness: Do stakeholders perceive the interventions as a relevant and compatible fit for the context in which it is delivered?
- Costs: What are the true costs of implementing the intervention, when considering costs for both intervention delivery and implementation activities?
- Feasibility: Can the intervention be successfully used within the local context?
- Fidelity: Can the intervention be implemented as intended by its developers?
- Penetration: Given the number of staff trained in the new intervention, does it reach sufficient numbers of clients?
- Sustainability: Can the intervention be maintained over time and become a routine practice within the local service setting?

While the measurement of these implementation outcomes often will depend on locally available administrative data, some can also be addressed through standardised implementation measurements. A few pragmatic implementation measures usable in real-world settings have been highlighted in this section, but a far broader range of measures exists and are available for use in practice (Lewis et al. 2015; 2018).

IMPLEMENTATION CALLS FOR SUSTAINMENT

As highlighted above, sustainment implies to have fully integrated a new intervention into the daily routines of an agency or community.

In order to achieve a substantial degree of institutionalisation, questions of sustainment requires attention already during early implementation stages (Chambers et al. 2013) as many of its preconditions – such as adequate funding; an optimal intervention-context fit; sufficient capacity to train staff, to collect data, and to provide ongoing support; or stable stakeholder commitment – will need to be considered and/or created before an intervention actually is selected or taken in use.

Moreover, considering sustainment is required throughout an implementation process because this process will undergo constant changes in most human service settings. These changes will make it necessary to constantly adapt interventions to changing contexts (Chambers and Norton 2016).

This means sustainment should be a consideration of all stakeholders involved in an implementation process from the very beginning. Such sustainment can occur at three levels of a service system (Chambers et al. 2013; Moore et al. 2017). It may imply to:

1. Continue to deliver the intervention to clients (an individual level of analysis);
2. Maintain the intervention and/or its activities in an identifiable form, even if modified (an organisational level of analysis);
3. Maintain the capacity of a community to deliver intervention activities within a community coalition or similar structure (community level of analysis).

CHAPTER 11: FEATURES OF EFFECTIVE IMPLEMENTATION

The evidence on the effectiveness of specific interventions and strategies successfully supporting sustainment over time is scarce. However, qualitative knowledge about factors that make it easier to maintain practices exists and points to a broad variety of factors as crucial, existing in the inner, and outer setting of the implementation or related to the intervention and/or the practitioners delivering the intervention (Hunter 2016; Rodriguez et al. 2018).

Moreover, conceptual models are available for agencies and communities to consider when assessing the potential sustainability of an intervention (Hodge and Turner 2016; Lennox et al. 2018).

IMPLEMENTATION INVOLVES ENABLING ACCESS TO SERVICES

There is a danger of focusing so much on what services are to be delivered and how they are delivered that less attention is given to ensuring that the right people actually get to receive the service. This concerns both recruitment and retention – in other words, helping people to access the service in the first instance and then continue to receive it. This issue is particularly salient for families from more socially disadvantaged backgrounds, who tend to be less likely to access many of the kinds of intervention described in earlier chapters.

In order to help address this concern, Boag-Munroe and Evangelou (2012) undertook a systematic review of the literature on hard-to-reach families in relation to education, health and social care services. First, they identified two main organisational barriers to families using services: (i) setting; and (ii) communications, which may relate to a range of factors, including culture, language, literacy, use of professional jargon, difficulty in asking for help or articulating need and services not being interested or not being sufficiently visible. They suggest that these barriers require a range of creative response, including: parent ambassadors, new forms of media, advertising services in places frequented by families, translating promotion materials into languages of the communities one is seeking to reach, making services responsive to users' needs (e.g. flexible in location and timing), making services welcoming and less intimidating, being aware of the stigma attached to a service or setting and possible re-presenting or re-branding the service accordingly, and addressing barriers associated with lack of effort or perceived inadequacy of resources. At the heart of all of these is building relationships of trust.

Boag-Munroe and Evangelou (2012) also identified reasons why families might be hard to reach. One concerns involuntary isolation, in other words, families whose social contacts might be constrained because they are from minority ethnic groups, young mothers, single mothers, fathers and prisoners' families, or because they lack financial resources. Services for fathers might need to employ dedicated male staff or put on activities that with which many men are more likely to engage (e.g. sport, trips, DIY). Home visits and outreach services might be necessary for families who lack transport or live in rural areas. At all times it is necessary to work with families holistically, removing barrier(s) to access and deploying a range of tools, including human (e.g. other members of the community), material (e.g. transport), language (e.g. interpreters) or new ways of thinking. Poor health can also make it harder to access services, whether it is chronic and life-threatening illness or less serious but temporarily incapacitating conditions. In such cases, there might be a need for home-based services, and in the case of mental health provision, it can be helpful to introduce self-help and informal social support.

The review also noted that some families are hard to engage because of voluntary isolation – for instance because engagement with services would be threatening or stigmatising (e.g. the person wants to hide something about themselves or their lives, or they do not share value system of the services concerned). This can affect a range of groups, from asylum-seekers to people abusing alcohol or substances. Strategies that might be suitable in these circumstances include snowball or chain referral, outreach at places where such groups congregate, the use of appropriate buildings and a willingness to make repeated attempts to reach the families concerned followed by sustained involvement. Other families might have reservations about service engagement because they feel anxious about what might happen, are reluctant to ask for help (perceived weakness, failure), do not have a perceived need, consider services unresponsive to their need, or feel that past expectations of services were not fulfilled. Some of the strategies mentioned earlier might be suitable as might the use of parent ambassadors.

Boag-Munroe and Evangelou (2012) advised that policy-makers need to recognise that engaging hard-to-reach families is a complex challenge that requires complex solutions. An implication of this is that staff need to be trained and supported adequately and able to build sustained relationships with families (because short-term work often leads to disillusionment and weariness with services and initiatives). From a practice perspective, interagency work is necessary to support families in a holistic way, and the available support needs to be diverse (e.g. outside regular office hours and away from a central geographic setting) if it is to meet the needs of families who are geographically isolated or work office hours. Services need to be alert to multiple complex reasons why families do not engage and take responsibility for reaching them in innovative ways (including via technology). Amongst other things there is a need for "outreach and specialist workers; careful, active, attentive listening skills; contextualized, holistic, community-based work; and the provision of appropriate buildings and facilities" (p.234). Underpinning all of these is the importance of building relationships of trust (which requires adequate and sustained funding). Key skills needed within services are: communication; flexibility; adaptability; contextualised and community-based work; careful design of appropriate settings; and relationship building. Many of these themes are echoed in a literature review published in the same year but with a particular emphasis on engaging parents in parent training programmes (Axford et al. 2012).

Flanagan and Hancock (2010) explored qualitatively how to make health services more accessible for the so-called 'hard-to-reach', a contested definition but taken to include drug users, people living with HIV, people from sexual minority communities, asylum seekers, refugees, people from black and ethnic minority communities, and homeless people. Among the barriers they identify to engaging in mainstream services are location and opening times of services, bad experiences in the past, how services are funded and managed (meaning that services may not make people aware of or refer them to other services), and the narrow demographic of existing service users (making potential new users feel like 'outsiders'). According to the authors, the primary means of helping the 'hard-to-reach' to access services include: respectful treatment of service users, establishing trust with service users; offering service flexibility, including flexible opening hours and outreach services to encourage engagement; partnership working with other organisations (so that information is shared); and harnessing service user involvement (e.g. having member helpers on the team).

CHAPTER 11: FEATURES OF EFFECTIVE IMPLEMENTATION

CONCLUSION

This chapter has described a range of elements of good implementation practice. Although there will be more detailed requirements for effective implementation of specific initiatives, the vast majority of these will be covered by the main categories covered here. It is clear that effective implementation also requires a supportive and enabling system, which is the subject of the next – and penultimate – chapter.

SUMMARY OF KEY POINTS

Earlier chapters of this report have identified types of intervention that are effective in improving early learning outcomes and related aspects of school readiness. However, even the most promising initiative will have limited impact if it is not implemented fully and effectively. Without addressing larger organisational and individual practice challenges, as a planned part of programme implementation, interventions with a strong evidence base may remain unsuccessful.

The following are commonly regarded as key elements of good implementation practice:

- **Approaching it as a staged process rather than a single event, moving from exploration and preparation through to implementation and sustainment**
- **Building an agency's or community's *readiness* i.e. the willingness and ability to take up an innovation and integrate it into daily practice implement innovations**
- **Providing *leadership* i.e. the explicit buy-in and active participation in implementation processes from senior, middle and frontline management within or across organisations that implement a new intervention**
- **Getting individuals, teams and systems to change their behaviour by nurturing capacity and motivation and creating opportunities**
- **Offering *workforce support* through a combination of one-off training sessions and ongoing support such as supervision and coaching (also for the early years workforce specifically there is a need to promote working in early childhood care and education as a desirable profession, which includes developing more rigorous qualifications and applying higher entry criteria).**
- ***Monitoring* implementation outcomes such as acceptability, appropriateness, fidelity and sustainability**
- **Considering *sustainability* throughout the implementation process**
- **Enabling access to services, especially among so-called 'hard-to-reach' families, by taking practical and relational measures.**

Further reading and resources

Early Intervention Foundation (2019) *How to Engage Disadvantaged Parents in Parenting and Parental Conflict Programmes and Services: An Evidence Review.* London: Early Intervention Foundation.

Sharples, J., Albers, B. and Fraser, S. (2018) *Putting Evidence to Work: A School's Guide to Implementation*. London: Education Endowment Foundation. https://educationendowmentfoundation.org.uk/tools/guidance-reports/a-schools-guide-to-implementation/

CHAPTER 12.
SYSTEM CHANGE

OBJECTIVES

The objectives of this chapter are:

- **to outline evidence on the relationship between implementation quality and outcomes**
- **to summarise evidence on the features of effective implementation of interventions and other services**

ENABLING THE SYSTEM-WIDE UPTAKE OF EVIDENCE

For a number of years, the debate about how to best enable the uptake of research evidence into routine early childhood practices was primarily 'programme-focused'. Driven by aspirations to examine the effectiveness of these practices with greater scrutiny, a range of programmes were designed that underwent the testing procedures known primarily from the medical sciences. Following initial efficacy trials, many were implemented in real-world settings, where they were further tested for their effectiveness under the less ideal circumstances of budget constraints, regular staff turnover, lack of stakeholder buy-in and other challenges integral to routine service settings. Examples of internationally developed programmes that have been – and still are – part of these processes, and which focus at least in part on young children and their families, include the Australian Positive Parenting Programme Triple P (de Graaf et al. 2008; Hahlweg et al. 2010), programmes of US origin such as Incredible Years (Menting et al. 2013) and Nurse-Family Partnership (Mejdoubi et al. 2015; Robling et al. 2016) but also UK based programmes such as the Family Links Nurturing Programme (Simkiss et al. 2013). By testing, trialling and implementing these types of programmes at a larger scale the hope was to increase the routine use of evidence in daily service delivery and thereby facilitate a comprehensive turn of the early years service system towards establishing evidence-based practices.

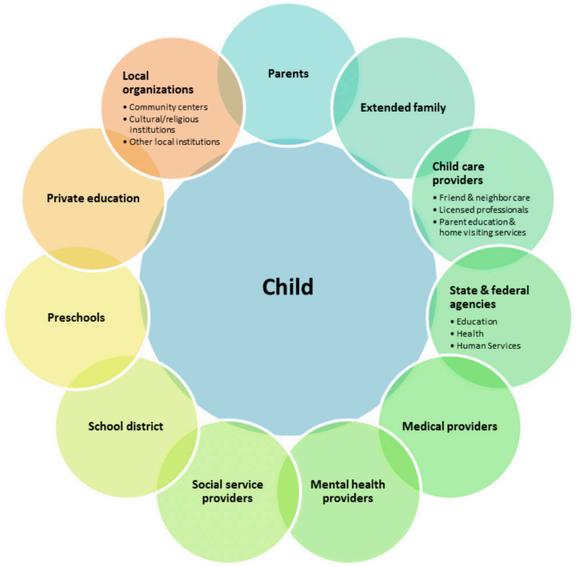
This optimistic belief in the transformational power of the commissioning of programmes has since decreased (Ghate 2015). This is partly because the pathway towards replicating positive outcomes achieved in clinical settings under less ideal – real-life – circumstances has been shown to be complex, leaving considerable room for improving the evidence base for their use and adaptation (Baumann et al. 2015; Carnochan et al. 2017) and leading to a realisation that evidence-based practice depends on more than the pure and technical transfer of programmes to new contexts (Löfholm et al. 2009; Robling et al. 2016; Sundell et al. 2015). The change in climate around evidence-based programmes is also partly because of their limited uptake, despite widespread attempts to promote their use (Horwitz et al. 2014), the effect being to narrow their reach to a comparatively small number of children and families overall. Hence, the 'evidence-based movement' that has emerged in the past two decades (Axford and Morpeth 2013) appears to leave many early childhood services untouched.

In recent years, scholars operating in the field of evidence-based human services have therefore turned towards systems theory to better capture the conditions under which the uptake of evidence in daily practice may occur and to identify alternative pathways for increasing this uptake (Atkinson et al. 2013; Ghate 2015; Paina and Peters 2012) – based on principles and practices rather than on programmes, and on entire systems rather than on single teams and agencies. This view is also represented in this report.

The following therefore provides suggestions for how systems will need to change in order to enable the uptake of current best evidence in service delivery. In providing these suggestions, systems are viewed as being formed by individuals, groups, agencies and organisations, who – in order to achieve positive service outcomes for children and families – need to initiate or contribute to joint efforts. The system of early childhood services may therefore include the following actors (FSG n.d.) : [24]

[24] Retrieved from: https://www.fsg.org/blog/innovating-align-early-childhood-services

CHAPTER 12: SYSTEM CHANGE



Within systems, actors' actions and decisions cannot be made in isolation – they often depend upon and affect each other and therefore require actors to coordinate or collaborate. Within this complexity, it is far more challenging than in single organisations to work towards positive outcomes for children. Merely agreeing on a range of goals and the selection and adoption of single programmes – even those highly tailored to the needs of users – will not be sufficient because it would mean to ignore or underestimate the dynamics of the system into which they are to be embedded (Conway et al. 2017) – where they are therefore at risk of having no impact.

As a response, place-based approaches informed by the concept of collective impact (Kania and Kramer 2011) have been developed, representing efforts to acknowledge system dynamics and providing a framework for facilitating collective improvement work at a system level. While these have been embraced with great enthusiasm across multiple human service sectors, and here have demonstrated promising results (e.g. Crimeen et al. 2017; Lankelly Chase 2017; O'Dwyer et al. 2007), few high-quality evaluations exist that could provide clear guidance on how to best prepare a system and its overarching infrastructure to successfully facilitate and support collective change efforts. However, the learning about key challenges in previous attempts to work in a place-based manner includes insights into why place-based initiatives have often not met the expectations of transformational change that motivated their development, thereby pointing to areas likely to require the particular attention of all stakeholders engaged in a place-based initiative. Amongst these challenges are the following (Mechur Karp and Lundy-Wagner 2016):

1. **Developing a shared understanding of collective impact work** – with differences in interpretations leading to differing expectations around what the joint efforts should entail;
2. **Maintaining organisational competencies in a coordinated system** – where stakeholders struggle with aligning the commitment to shared missions and goals with a commitment to their own organisational missions and goals; and
3. **Using data to support collective impact work** – with substantial gaps existing between 'ideal data use' on the one hand and the knowledge, capacities and infrastructure available across participants in a place-based initiative on the other.

The above illustrates how the 'system as is' will continuously challenge the strategies planned and used in a place-based initiative to achieve a different, desired state of change. It provides a sense of the complexity of collaborative systems change – one which is underestimated still (Clarke and Healy, 2018) and therefore requires an explicit approach to leading and facilitating change.

The following sections outline the key features of this approach to system change. In doing so, they combine insights from implementation science with those from systems thinking, thereby keeping a focus on enabling the uptake of evidence in practice and policy (the core perspective in implementation) but moving it to a wider systems level.

SYSTEM CHANGE VIEWED THROUGH AN IMPLEMENTATION LENS

Viewing the requirements of high-quality implementation practice through this system lens raises a number of questions for system leaders, with the requirements for system leadership and capacity building for implementation and continuous learning and improvement at the forefront of concerns that need to be addressed.

System implementation leadership

With implementation science being a relatively new discipline within human services, many of its key concepts – such as implementation leadership – target an individual or organisational level of analysis. The degree to which these have been translated to apply at a system level or empirically tested within studies conducted in larger service delivery settings is still limited.

However, it is a reasonable assumption to view system implementation leadership as being exercised by system-level leaders heading government and non-government entities (Aarons et al. 2014a). These are administrators from organisations operating at the local, regional or state level, including policy developers, who often take part in processes occurring within both the inner and outer context of implementation efforts. In recent years, there has been an increasing interest in understanding what factors these leaders describe as decisive for the implementation and long-term sustainment of evidence-based practice (Aarons et al. 2016; Rodriguez et al. 2018; Willging et al. 2015; Willging et al. 2018). Across these studies, the following characteristics of system implementation leadership emerge:

- Ongoing championship of a change, i.e. acting in a supportive fashion and in favour of the innovation, continuously 'selling' it to decision-makers
- Strategically and proactively institutionalising the change locally, i.e. securing funding; navigating funding interruptions; buffering the innovation from outer context changes; embedding the change in planning processes and contractual arrangements
- Continuously collaborating across funders, agencies and other key system actors to ensure there is
    - trust, openness, respect;
    - a productive working relationship; and
    - collective responsibility
    - amongst system actors.

Based on the above system qualities, system implementation leaders are assigned the following tasks to enable system change and long-term sustainment of this change:

- Establishing a mission and vision for the change,
- Early and ongoing planning for sustainment,
- Developing and following a realistic project plan,
- Using multiple implementation strategies to overcome implementation barriers and ensure change sustainment even during threats and crises.

The above describes system implementation leadership as a process which, rather than relying on the formal authority of single individuals, is a *collective* capacity developed through a shared understanding of common goals and principles. Moreover, due to the complexities of the system itself and the implementation process in focus, system implementation leadership requires an adaptive capacity (Heifetz et al. 2009) that enables a system to navigate challenges and solve problems. Such capacity is not developed overnight. It requires systems to move beyond letting leaders gather in steering groups and towards a teamed approach enabling system leaders to genuinely collaborate.

The literature on systems leadership echoes this understanding (Ghate et al. 2013; Welbourn et al. 2013) and describes system leaders as individuals who are able to:

- expand their views and activities beyond the traditional boundaries of single roles and organisations;
- use a dynamic and adaptive learning approach to leadership, helping them to navigate ambiguity, complexity, uncertainty and risks; and
- emphasise relationships that build on shared visions and responsibilities as a way to exercise leadership throughout a system.

This view implies that implementation leadership at a system level cannot rely on formal leadership roles alone. Rather, leadership is viewed as a shared practice amongst everyone involved and as a quality of the system as a whole – with leadership being embraced as an attitude towards the collective work to be accomplished.

This capacity can then be used to create an authorising environment for developing the infrastructure required to jointly progress towards shared outcomes for children, their families and communities. In doing so, system leaders can apply multiple strategies, as outlined in the following.

BUILDING IMPLEMENTATION CAPACITY

In acknowledging that the implementation of evidence-based practice is a complex process depending on a broad range of skills and knowledge and on the willingness of organisations and systems to invest in building capacities, implementation scientists have worked to identify strategies that can assist in these processes. While training and consultation are among the traditional approaches at the organisational level, system-focused strategies include the use of implementation teams, the forming of coalitions and the provision of technical assistance or implementation support through so-called intermediary organisations. Each of these strategies is unpacked in the following.

Developing implementation teams

Implementation teams are units that function as a "support structure to move selected programs and practices through the stages of implementation in an early childhood organization or system" (Metz and Bartley, 2012). They can – as single and small teams – support the implementation of just a single programme within an organisation. They can also be integrated into multi-tiered structures of multiple teams that support the implementation of several interventions across a number of entities (Barwick et al. 2011; Brown et al. 2014; Chaffin et al. 2015; Metz et al. 2015).

With a literature on implementation teams that is still relatively young, there is no single, uniform approach to describing the key functions of implementation teams. Of the teams described, some served the implementation of highly specialised manualised evidence-based programmes and therefore had a focus on ensuring fidelity and avoiding practice drift (Brown et al. 2014). Other teams supported the implementation of a more mixed portfolio of evidence-informed programmes and practices and therefore also focused on improvement processes (Metz et al. 2015). With these differences in mind, an overview of potential implementation team functions is provided in the table below. This table contains functions defined for three different types of implementation teams identified through the child welfare literature:

- The Community Development Team (CDT) (Saldana and Chamberlain 2012) originally developed to support the implementation of Treatment Foster Care – The Oregon Model (Chamberlain 2003), a manualised evidence-based programme;
- The Active Implementation Teams (AIT) (Metz et al. 2015), which is one of the five frameworks contained in the Active Implementation Frameworks (Metz and Bartley 2012); and
- The Interagency Collaborative Team (ICT) (Hurlburt et al. 2014) used as part of improvement initiatives that build on the use of evidence-based treatments (Chaffin et al. 2012).

When reviewing core functions identified across all three teams, a picture emerges that presents implementation teams as a resource to implementing agencies utilising four types of expertise:

- **Programme / practice / intervention expertise** – including know-how on the role of fidelity for practice outcomes. The different aspects of this type of expertise have been highlighted in the table below in green.
- **Implementation expertise** – including knowledge and skills to support providers in their implementation practice through active problem-solving. The different aspects of this type of expertise have been highlighted in the table below in red.
- **Improvement expertise** – including how to build and maintain systems to monitor and improve service delivery with a focus on outcomes. The different aspects of this type of expertise have been highlighted in the table below in blue.
- **Systems change expertise** – including an ability to map the local / system context of the implementation process [25] and to identify and engage its key stakeholders. The different aspects of this expertise have been highlighted in the table below in yellow.

[25] Supported by instruments such as: Risks and Protective Factors named by CoLab in Australia; the Evidence2Sucess Readiness Assessment developed by the Annie E. Casey Foundation in US; and Are you Ready? by Communities that Care in Australia.

No	Community Development Team (CDT)	Active Implementation Teams (AIT)	Interagency Collaborative Team (ICT)
1	**Needs-benefit analysis**: Promote enthusiasm for adopting and implementing the intervention with fidelity	• **Develop Team Structure** o Represent the system o Provide an accountable structure for moving change forward o Develop MoU, communication protocols etc.	**Initial EBP Education**: Understand details about the practice, including outcomes, time and staffing requirements, training costs etc.
2	**Planning**: Assist sites in overcoming implementation barriers specific to the intervention / enhancing fit between the intervention and local systems and structures	• **Know and Apply the Intervention** o Assess the fit between intervention and local context o Demonstrate fluency in strategy o Operationalise intervention as needed	**Stakeholder Development / Alignment**: Identifying and convening relevant stakeholders to discuss the change initiative
3	**Ongoing monitoring and support**: Promote site advancement and motivate persistent implementation effort	• **Know and apply implementation** o Develop infrastructure o Conduct stage-appropriate work o Use adaptive leadership skills	**Solidifying Resource Supports**: Ensure resources – finances, leadership support, space etc. are available to support the implementation
4	**Fidelity framing**: Frame recommendations regarding a site's current practices to prevent program / practice drift	• **Know and apply improvement cycles** o Institutionalise feedback loops o Use data for decision-making, problem solving and action planning o Ensure leaders are functionally engaged	**Focus on Fidelity**: Ensure an understanding of and commitment to fidelity
5	**Procedural skill development**: Provide guidance / technical assistance on skills required to implement the intervention	• **Know and apply systems change** o Demonstrate knowledge of system components o Use skills for system building and increased cross-section collaboration	**Skill Development**: Train providers and provide ongoing support
6	**Peer-to-peer exchange and support**: Promote engagement, commitment and the sharing of concrete strategies to overcome implementation barriers and enhance intervention maintenance		**Process Monitoring and Feedback**: Monitor and continuously discuss the quality of service delivery and of outcomes achieved.

With these four types of expertise in mind, forming implementation teams requires a multidisciplinary approach aimed at involving clinical, therapeutic and educational experts with specialist knowledge and skills as well as experts in, for instance, facilitation, change management, project leadership and other generalist knowledge and skills (Metz et al. 2018).

When multiple teams collaborate to facilitate a change process across different levels of a system – for example, the central, local and practice level; or the leadership, management and frontline level – different implementation teams may have different roles and therefore require different sets of knowledge and skills (Barwick et al. 2011; Metz et al. 2015). Moreover, while guiding an implementation through different stages, teams will need to emphasise different sets of knowledge and skills because the implementation process changes character over time (Brown et al. 2014; Chaffin et al. 2015).

Forming coalitions

There is an increasing interest in understanding how community coalitions or partnerships can help to build system capacity for the uptake of evidence across multiple practice settings and contribute to improved outcomes for children, adults, families and entire communities. The labels used to describe these approaches are diverse and include "collective impact", "place-based interventions", "multi-stakeholder alliances", "systems of care", or "community collaboratives", some of which may be more linked to social welfare whereas others are more commonly used in health. What they have in common is the assumption that by bringing multiple community stakeholders together around a shared agenda focused on addressing complex socio-economic challenges collaboratively, a greater impact may be achieved – an impact that is expected to be reflected in positive outcomes at scale.

While this assumption informs a broad range of publications advocating for community coalitions (Kania and Kramer 2011), the evidence testing this assumption is still relatively weak (Hearld et al. 2016; Roussos and Fawcett 2000; Zakocs and Edwards 2006). While this evidence acknowledges the potential for increased information exchange and resource pooling (Palinkas et al. 2012), it does not allow for assigning community coalitions a clear and direct effect on the outcomes achieved for the recipients of services within a community. The lack of this evidence may be due to multiple factors: the interest in community coalitions is relatively new still, and evidence production has therefore been limited. Furthermore, existing studies point to multiple methodical and methodological barriers that will have to be removed before robust evidence can be produced: the range of existing theoretical models explaining the linkages between collaborative structures at a community level and changes in outcomes is still limited (Hearld et al. 2016; Trujillo 2018), and further theory development is required to sufficiently test the basic assumptions that underpin the advocacy for coalition building. Research taking place at the community level also presents challenges for clearly defining the intervention to be tested, and the unit of analysis, and for maintaining internal validity while involving community partners as stakeholders in the research process (Belin et al. 2018). Moreover, measuring community changes depends on agreements on indicators to be measured. Often, such indicators are lacking and require collective effort before they can be identified and agreed upon (Roussos and Fawcett 2000). Finally, outcomes achieved at a community level will often first emerge after relatively long periods of time (Hearld et al. 2016; Roussos and Fawcett 2000) and at times outlive the partnerships that were formed to work towards them.

The above limitations notwithstanding, there is some agreement across the community coalition literature on the factors that contribute to the *operational functioning* of these coalitions. These factors should not be interpreted as factors that will enhance service and clinical outcomes – instead, they should be understood as characteristics and activities that will help to build and sustain a community coalition successfully over time. They were derived from multiple sources (D'Aunno et al. 2017a, 2017b; Ferdinand et al. 2013; Hearld et al. 2016; Towe et al. 2016) and while representing a shared understanding present across publications, they may not represent a fully exhaustive list of factors.

Factors contributing to the successful development and sustainment of community coalitions

- A clear vision / mission for the coalition is defined.
- Appropriate and diverse funding helps to develop and sustain the coalition – this includes in kind resources.
- The coalition is effectively led.
- The coalition has developed (a) a clear plan, and (b) clear indicators for its successful operation and monitors progress against this plan and these indicators continuously.
- The coalition develops a coalition infrastructure – in the form of organizational capacity and support systems used to enhance collaborative communication, effectiveness, and efficiency
- The coalition is growing its human capital over time – the knowledge, skills and abilities of coalition partners and their staff
- The coalition maintains and expands the diversity of its partners in a way that represents key population demographics / characteristics
- Coalition partners perceive a positive relative influence on the coalition's decision-making processes

While these operational success factors may appear simple, their implementation often presents challenges – this is partly because coalition building requires resources in the form of time, staff and know-how (Towe et al. 2016) and partly because coalitions typically operate in an unregulated inter-organisational domain in which, for example, governance structures and collaborative cultures are not well-established and have to be developed first (Glisson and Schoenwald 2005). The latter means that 'coalition leadership' can be challenging to establish among coalition partners because in most cases they would be used to locate this leadership in single entities rather than utilising it as a shared capability (Towe et al. 2016). Moreover, inter-organisational collaboration taking place within coalitions may be hampered by role ambiguity, power struggles and competing priorities (Aarons et al. 2014b), and the term 'coalition' may, therefore, be an oversimplification of often highly complex processes that require skilful negotiation and facilitation.

Finally, coalitions – just like organisations – depend on continuity and stability but often face vulnerabilities when experiencing staff turnover, shifting policy agendas and other factors that interrupt their functioning (Towe et al. 2016). It may therefore be of value to examine frameworks and conceptual models developed to guide coalition partnerships in maintaining their efforts over time, and the tools that exist to support this coalition building.

In a recent realist review (Crimeen et al. 2017) that focused on place-based interventions in health, four frameworks were identified aimed at enabling the creation of coalitions and development of partnerships for the implementation of place-based interventions. These are briefly characterised in the table below, together with three approaches known to support a coalition-based approach in the field of social care. As highlighted previously, while the evidence on the effectiveness of these frameworks for positive end-user outcomes is limited, they may still provide valuable guidance for the formation, operation and maintenance of community coalitions. For example, the extensive efforts in the US to establish systems of care led to the production of comprehensive manuals aimed at guiding multiple service agencies and other stakeholders through the multiple steps involved in building such systems (DeCarolis et al. 2007; Pires et al. 2008).

In addition, the literature on learning collaboratives when used at a community level (Bunger et al. 2014; Hanson et al. 2016) may provide further insights into the processes needed for community coalitions to be successful. Preliminary evidence from the first community-wide studies testing learning collaboratives' potential to change practitioner behaviour indicates that these structures may help in improving the quality of implementation processes (Bunger et al. 2014; Nadeem et al. 2016).

CHAPTER 12: SYSTEM CHANGE

FRAMEWORK	BRIEF CHARACTERISTIC	RELEVANT LINKS / LITERATURE SOURCES
Systems of Care (SoC)	Systems of care is a service delivery approach developed in the U.S. that relies on building partnerships to create a broad, integrated process for meeting families' multiple needs.	• A broad range of resources is available through multiple organisations in the U.S. One of the main gateways into the SoC literature is the U.S. Department of Health and Human Services: https://www.childwelfare.gov/topics/management/reform/soc/ • A separate guide on community coalitions related to SoC is accessible here: https://www.childwelfare.gov/pubs/usermanuals/partners/
Communities that Care (CTC)	CTC is an "operating system" that takes communities through a structured process to prevent child problem behaviors and promote positive child development. CTC communities form a broad-based coalition and then collect local data on risk and protective factors shown by research to be associated with identified problems.	• While developed in the U.S., the most comprehensive website-based presentation of CTC is hosted by the Australian CTC purveyor: https://www.communitiesthatcare.org.au/ . • A detailed introduction to CTC is provided by (Hawkins, Catalano, & Kuklinski, 2014). • CTC has been assessed in numerous studies (Kuklinski, Fagan, Hawkins, Briney, & Catalano, 2015; Oesterle et al., 2018) but no systematic review could be identified for this approach
The Availability, Responsiveness and Continuity Organisational and Community Intervention Strategy (ARC)	The ARC uses intervention strategies at two levels, the organizational level and the interorganizational domain level, to cultivate social contexts that complement and support the implementation of effective mental health services within communities.	• An introduction to the ARC is included in (Glisson & Schoenwald, 2005). • The ARC intervention was empirically tested in combination with the implementation of Multisystemic Therapy (Glisson, Hemmelgarn, Green, & Williams, 2013; Glisson et al., 2012; 2010) but not within a context of broader coalitions aimed at improving outcomes for multiple target populations at a community level.
THRIVE	THRIVE aims to support communities in determining how to improve health and safety and promote health equity. It is a framework for understanding how structural drivers, play out at the community level and a tool for engaging community members and practitioners in assessing the status of community determinants, prioritizing them, and taking action to change them in order to improve health, safety, and health equity.	• This framework was identified through Crimeen et al. (2017) and has a public health focus. • https://www.preventioninstitute.org/tools/thrive-tool-health-resilience-vulnerable-environments
Community Engagement Framework (CEF)	The CEF is based on a modified MAPP process that incorporates new developments and opportunities from the ACA, public health accreditation, and collective impact. Engagement binds the five components of the CEF: Organize, Assess, Prioritize and Align, Act, and Evaluate.	• This framework was identified through Crimeen et al. (2017) and has a public health focus. • A detailed introduction to the CEF is provided by (Smith, 2017).
Mobilising for Action through Planning and Partnerships (MAPP)	MAPP is a community-driven strategic planning process for improving community health. Facilitated by public health leaders, this framework aims to help communities apply strategic thinking to prioritize public health issues and identify resources to address them.	• This framework was identified through Crimeen et al. (2017) and has a public health focus. • https://www.naccho.org/programs/public-health-infrastructure/performance-improvement/community-health-assessment/mapp
Mobilise-Assess-Plan-Implement-Track (MAP-IT)	A framework that can be used to plan and evaluate public health interventions to achieve particular health objectives	• This framework was identified through Crimeen et al. (2017) and has a public health focus. • https://www.healthypeople.gov/2020/tools-and-resources/Program-Planning

Utilising intermediary organisations

A third approach to building system-wide implementation capacity is to utilise the knowledge and expertise of intermediary organisations. In occupying a brokering role between policy, practice and science, intermediaries constantly translate, transport and transfer best evidence across these three systems (Albers and Mildon, 2017).

The interest in bridging the gap between science and practice and enhancing the uptake of evidence in community services has risen substantially across different areas of the social service sector in the past decade. As the number of evidence-based programmes and practices available to practitioners and organisational leaders has grown, the need to identify mechanisms that can support and facilitate the implementation of these programmes and practices in real-world settings has become more prevalent. One such mechanism is the 'intermediary organisation'. While the evidence base for these organisations is still sparse, and the terminology used to describe them not always clear and aligned, the emerging literature about intermediaries provides initial insights into their types, functions and roles.

Different terms describe different types of intermediaries, with the most common being 'backbone organisation', 'purveyor' and 'intermediary'. While backbone organisations are an integral part of the 'collective impact' framework developed by Kania and Kramer (2011), the term 'purveyor' is closely linked to the move toward evidence-based practice that has taken place in human services since the 1990s and therefore can be found in some of the early publications within implementation science (Fixsen et al. 2005). The term 'intermediary' itself has a longer history and a broader use, in that literature dating back to the 1980s discusses these organisations as key players in corporatism (Müller-Jentsch 1988; Grant 1989) and in society by enhancing the opportunities of civic engagement (Weiss, 1990). Later publications emphasise the role of intermediaries for capacity building through partnerships in multiple ways (Oudshoorn 1997; Lopez et al. 2004; Sanyal 2006; Mitra et al. 2010), whereas their role for an increased uptake of evidence in policy and practice has become more prominent in recent years both in the peer-reviewed (Albers and Mildon 2017; Bell and Head 2017; Dixon 2017; Franks and Bory 2015, 2017; Haynes et al. 2018; Howe et al. 2017) and the grey literature (Franks 2010; O'Connor and Walker 2012; Schorr et al. 2010).

This more recent literature also includes first attempts to describe and survey intermediary activities, with research by Franks and Bory (2015) providing the most current information. Their work is based on an intermediary framework that includes seven core functions:

- Consultation activities
- Best Practice Model development
- Broker / facilitator of evidence-based practice
- Quality assurance and continuous quality improvement
- Outcome evaluation
- Training, public awareness and education
- Policy and systems development

This description mirrors the five core functions of Centres of Excellence (COE) identified by Mettrick and colleagues (2015), who summarised the conversations from a learning community of representatives from 11 COEs established in the US by different states in recent years. This group highlights: (1) Implementation Support for EBPs/Promising Practices/Service Delivery Models; (2) Research, Evaluation, and Data Linking Capacity; (3) Partnership Engagement and

Collaboration; (4) Workforce Development Activities (including training and coaching); and (5) Policy and Finance Expertise as the most characteristic functions of a COE.

Empirical studies of the value that intermediaries add to the quality of service implementation and outcomes is in its infancy, with few study protocols indicating that research in this area might be underway (Chuang et al. 2011). In the absence of such evidence, the development and/or utilisation of intermediaries should be based on the definition of clear goals for their role and use and on continuous monitoring of their contribution to the implementation of services and client outcomes (Franks and Bory 2017).

ENABLING CO-CREATION

Embedding the uptake of evidence within systems rather than in single organisations also implies that all steps involved in an implementation process need to be taken based on the involvement of multiple individual and organisational actors collaborating based on trusting relationships. This realisation has led to a growing interest in co-creation, co-design or co-production in implementation and the mechanisms that help to facilitate such processes across different parts of an implementing system. Co-creation belongs to a range of community engagement strategies that often are presented in the form of a hierarchy ranging from 'informing communities' at the bottom level to full 'community control' at the top level of the hierarchy. Within this understanding, co-creation is located at the medium level. While earlier systematic reviews assigned community engagement positive effects on social capital and community empowerment but less on health outcomes (Milton et al. 2012), more recent systematic reviews identify clear indications of community engagement also affecting health behaviours, health consequences, self-efficacy and perceived social support outcomes (O'Mara-Eves et al. 2013) and thereby make a clear case for the benefits of community engagement. However, similar to other concepts that have emerged across systems and implementation science, the literature on co-creation is ambiguous, and a large part of the most recent research activity in the field is still focused on clarifying key terminology and defining streams and boundaries.

The most prominent trend in this research is to view co-production as an activity that engages consumers, clients or service recipients in the development of products or services (Galvagno and Dalli 2014; Voorberg et al. 2014). The focus here is on providing end-users with participatory access to intervention design. Principles that have been shown to be of importance to this type of engagement are as follows (De Weger et al. 2018):

- Ensure staff provide supportive and facilitative leadership to citizens based on transparency;
- Foster a safe and trusting environment enabling citizens to provide input;
- Ensure citizens' early involvement;
- Share decision-making and governance control with citizens;
- Acknowledge and address citizens' experiences of power imbalances between citizens and professionals;
- Invest in citizens who feel they lack the skills and confidence to engage;
- Create quick and tangible wins;
- Take into account both citizens' and organisations' motivations.

Less prominent is the literature that presents research as the key focus of co-production and which relies on the engagement of a broader set of stakeholders, in other words not only end-users but also providers and others involved in the research process (Greenhalgh et al. 2016).

Even more sparse is the literature discussing the processes of co-creation related to system-wide implementation and improvement processes in real-world settings and including provider organisations, other community stakeholders and the end users of services. In this sparse knowledge base, co-creation is described as taking place when stakeholders are deeply involved in identifying all dimensions of service challenges and in designing and implementing solutions that address these challenges. In this scenario, co-creation builds on mutual accountability, the triangulation of resources, and purposeful, transparent communication among those involved in the uptake of evidence in practice, be it programme purveyors, service providers, funders or policymakers. The focus – rather than on products or research – is on developing, installing and maintaining the infrastructure that is necessary for enabling evidence-based practice at the system level (Metz 2015; Metz and Albers 2014). Clear guidance on how to achieve this type of co-creation is yet to be developed. Some insights may be gained from previous efforts to conceptualise and facilitate systematic system-wide collaboration. For example, in 2010, the US Office of Planning, Research and Evaluation (OPRE), part of the Administration for Children and Families at the Department of Health and Human Services, initiated work focused on state-level collaborations in early education, particularly collaborations among child care, Head Start, pre-kindergarten (pre-K), early intervention, and early childhood special education (Chien et al. 2013). This led to the development of a theoretical framework (presented below) describing how collaboration might contribute to improved outcomes at different levels of a service system.

A: Inputs to Collaboration	B: Process Components	C: Collaborative Outcomes—State Level	D: Collaborative Outcomes—Service Level	E: Collaborative Outcomes—Family and Child Level
Stakeholder Inputs—Organizational time and resource commitment to the collaboration; sending a powerful agent (see definition); level of commitment to the collaborative mission (e.g. buy-in, ownership, stewardship) Design Components—Correct number and representation of stakeholders, clear decision-making rules, delineated roles and responsibilities, (including such roles as manager to provide administrative support, facilitator, and entrepreneur who is championing the collaborative effort), clear meeting design, and explicated purpose for the collaboration	• Norms • Inclusion • Authenticity • Equality • Problem Focus • Support • Identification • Facilitation • Generative Purpose	• Changes to understandings of the policy problem—policy learning, shared problem definitions, consensus around key data elements • Reduced fragmentation • Improved relationships and trust between the stakeholders • Increased collaborative activity—for stakeholders and for the policy field • Increased adaptive capacity for stakeholders • Access to new resources—for stakeholders and for the policy field • Increased political will • Explicit goals of the collaboration achieved • Changes to stakeholder organizations	• Shared professional knowledge in the field • Shared problem definition and shared goals and desired outcomes • Improved quality of services provided, including higher quality staff • Improved consistency in care delivery • Improved care infrastructure in a community—service coordination • Better communication with the state level; establishment of a feedback loop from service delivery level	• Improved outcomes for children—better status re service, improved child well-being • Improved outcomes for families—stability, improved family well-being • Improved ability to track outcomes for children and families

Moderators of Collaboration →

Note that while 'collaboration' is not identical with co-creation, its features overlap to a degree that makes it relevant to consider the contributions of this framework to an enhanced understanding of how shared efforts to create system-wide change may affect the different levels of this system and thereby lead to changes in end-user health and wellbeing.

Within the field of implementation science, implementation teams have been described as instrumental to co-creation because a key part of their role is the coordination and management of implementation stakeholders at multiple levels of a service system (Metz et al. 2015). However, it remains unclear how these responsibilities are best fulfilled (Albers et al. 2017). The guidance provided in a systematic review focused on co-creation related to research practice (Greenhalgh et al. 2016) may therefore represent the current best evidence on key characteristics of successful co-creation:

1. A systems perspective: Research takes place between multiple interacting entities that are emergent, adaptive, and operate in non-linear, at times unpredictable, ways
2. Research is viewed as a creative enterprise oriented towards design and with human experience at its core
3. Research is a dialectical process that integrates competing perspectives into
    a. the programme frame,
    b. stakeholder relationships,
    c. programme governance (including power-sharing measures),
    d. programme facilitation.

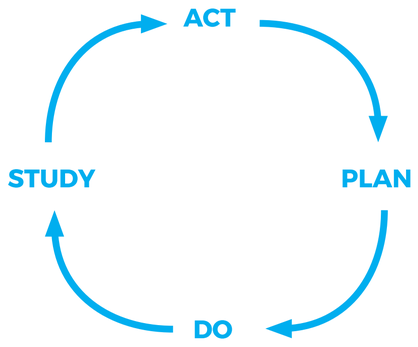
Within this framework, the harnessing of conflict is recommended to be viewed as a positive and engaging force. Whether this framework can be directly translated to operational implementation settings is unclear. However, in the light of previously highlighted challenges integral to coalition formation and collaboration, the above principles of successful co-creation appear relevant to consider also in non-research settings.

ESTABLISHING A DATA-INFORMED IMPROVEMENT CULTURE

Continuous Quality Improvement (CQI) has been a standard in healthcare since the 1990s and has slowly gained attention in other human service sectors in recent years. CQI is a process characterised by three key features: 'systematic data guided activities', 'designing with local conditions in mind' and 'iterative development and testing' (Rubenstein et al. 2014: 8). Its purpose is to identify and analyse strengths and weaknesses / barriers and facilitators that exist within a given service setting and to use a structured and data-informed approach to problem solving and the removal of barriers.

CHAPTER 12: SYSTEM CHANGE

Several frameworks and models have been developed to support the continuous cycles of CQI (Taylor et al. 2014), one of which is the well-known and widely used Plan-Do-Study-Act (PDSA) cycle, at times also named the Deming Cycle (Kahan and Goodstadt 1999). Its basic structure is depicted below.



While CQI has long been applied to well-defined work processes within organisational settings, such as hospitals, GP clinics and similar health service settings, it is less common to see it applied from a systems perspective. This is reflected in a recent systematic review of studies assessing the impact of CQI processes when applied in child welfare and protection (Zuchowski et al. 2017). This review included eight studies, all of which reported CQI outcomes at the organisational rather than the system level, albeit some of the initiatives reported related to large-scale systems reform in especially the US. At this level, included studies consistently reported improvements, especially for organisational implementation processes, pointing to the potential of CQI for service enhancement. The review also concludes that for CQI processes to be successful, its application depends on "a clear articulation of aims/objectives, proposed mechanisms of change, and short-, medium-, and long-term outcomes" (ibid., p.7).

While these requirements can often be met fairly easily at the level of the single organisation, it is far more complex to transfer them to the processes and interactions taking place across multiple agencies that are part of a service system and often also include policy organisations. Currently, scholars aim to facilitate this transfer through theoretical / conceptual studies that involve the development of frameworks suggested to be of support when building system-wide CQI structures (McCalman et al. 2018; Schalock and Verdugo 2012). Empirical examples of the effects that a system-wide CQI model might have when applied to the existing services embedded into a given community are rare still – especially in child welfare where the move towards evidence-based practice has so far been driven by programme implementation rather than systematic efforts to improve existing (and often home-grown) practices and services.

Applying CQI at a system level will therefore depend on a community's ability to jointly articulate:

- goals/aims for practice and service improvement processes
- the mechanisms of change anticipated to contribute to implementation, service and outcome improvements in the short and long term
- shared implementation, service and clinical outcomes
- indicators at different levels of the service system that can adequately inform key stakeholders about progress made
- ways to measure these indicators based on existing data and new data to be collected
- structural and other changes that will need to be made to support the development and maintenance of a system-wide CQI system (e.g. sharing of data, pooling of resources)
- processes for regularly monitoring data and integrating data into decision making
- strategies for troubleshooting and problem-solving required as a consequence of regular data monitoring (at the individual, organisational and system level)

In addition to the above 'hard aspects' forming systems of continuous quality improvement, communities will also need to consider the 'soft aspects' required for all stakeholders to enable system change (Hart et al. 2015). Data will only make a difference when they can contribute to a change of behaviour in individuals, groups, organisations and the entire system. Data – and the expectation for these to be actively used in all aspects of service delivery – therefore depend on strong facilitation through change management, a data-informed culture and proactive, knowledgeable, supportive and perseverant leadership (Aarons and Sklar 2014).

WIDER SYSTEM CONDITIONS SUPPORTIVE OF THE UPTAKE OF EVIDENCE

A transformation like the one described above is only possible under highly supportive broader system conditions that include cultural as well as structural factors.

Viewed from a cultural perspective, a place-based initiative will need to take into account the norms, beliefs, values and basic assumptions present within a system and its different individual and organisational stakeholders (Easterling and Millesen 2015). This means that, as part of a community intervention, culture will inescapably immerse into and affect all processes, including the building of relationships, the forming of coalitions and partnerships, the development of visions and goals and the meaning assigned to constructs – such as 'outcomes', 'evidence', 'implementation' – to name just a few examples. Under ideal circumstances, the dominant culture within a diverse community already is aligned with the goals and ambitions driving a place-based initiative. However, experience from previous initiatives document that this is not always the case (Pettman et al. 2013) and that substantial work has to be put into influencing and forming culture such that norms and values can change towards supporting local innovation (Easterling and Millesen 2015). To enable such change, scholars warn against viewing interventions as something that can be 'tailored to' the culture of a community. Instead, they recommend taking a "culturally situated" perspective through which culture is understood as "a fundamental set of defining qualities of community life out of which interventions flow" (Trickett et al. 2011). Hence, any approach taken at the local level should reflect both the needs but also the expertise, resources and aspirations of individual communities.

This requires a culture of *patience* – because in order to address disadvantage and achieve positive long-term population-level outcomes, time and commitment is needed to enable communities to own problems and have the support to address them. Furthermore, it requires a culture of *courage* because system-wide innovation, i.e. initiating and doing something that is new, unfamiliar and challenging, will inevitably lead to mistakes and a temporary decrease in efficiency that systems have to accept and embrace as learning opportunities that can help them progress towards their shared goals.

Viewed from a structural perspective, a place-based initiative needs to be embedded within and supported by a wider infrastructure (the 'macro context' or 'outer setting') that includes funding and extended governance at regional and central levels. This learning is mirrored in multiple publications that – based on year-long experience with place-based initiatives – have summarised key learnings for governance, including considerations for the funding and sustainment of place-based initiatives (Australian Social Inclusion Board 2011; Ferris and Hopkins 2015; Walsh 2017). Together they reflect that the maintenance of system-wide change and community-wide transformation

- Hinges on a willingness and ability of government(s) to break down silo-based operations and coordinate efforts across jurisdictions, departments and units
- Is more likely when vertically integrated into government policies that create conducive environments and supportive conditions for place-based initiatives, including through policies and regulations, funding streams and commissioning and procurement practice
- Requires collaborative structures that also enable the combining, aligning, blending or braiding of different funding streams, be these public, philanthropic or corporate.
- Depends on more than philanthropic and public funding – in order to be sustained, it needs to also include addressing barriers to local economic growth and be connected to larger economies and market forces.

CONCLUSION

This chapter has identified five key ingredients of system change efforts designed to enable the uptake of current best practice in service delivery: system leadership; building implementation capacity; involving multiple individual and organisational actors; a data-informed improvement culture; and highly supportive broader system conditions that include cultural as well as structural factors. These will need to be addressed by actors embarking on efforts to change the local service system so that, in line with evidence marshalled in earlier chapters, it better supports the early learning of young children living in poverty. In addition, stakeholders involved in place-based initiatives have to pay attention to cultural and structural factors present in the wider system surrounding their initiatives. Meaningfully re-designing these, integrating them with local contexts and utilising them as opportunity structures, will be important for community transformation that benefits children and their families.

SUMMARY OF KEY POINTS

Optimism about the transformational potential of commissioning evidence-based programmes has decreased, leading to a focus on how systems need to change in order to enable the uptake of current best evidence in service delivery.

One response to the complexity of the issues that interventions for children and families often seek to address, and the multiple actors (parents and service providers) involved in pre-empting or responding to those issues, has been the emergence of place-based initiatives to achieve collective impact. Initial evidence for their impact is promising but also highlights challenges that need to be addressed if they are to function optimally.

A key factor is *system leadership*, which needs to have several characteristics, including:

- **ongoing championship of change, and**
- **strategically and proactively institutionalising the change locally**

System leadership is thus a collective capacity rather than relying on the formal authority of single individuals and is more about an attitude towards collective work than a formal role.

Another key factor in enabling the uptake of evidence-based practice in service delivery is *building implementation capacity*. System-focused strategies for doing this include:

- **the use of implementation teams**
- **the forming of coalitions, and**
- **the provision of technical assistance or implementation support through intermediary organisations.**

Embedding the uptake of evidence within systems rather than in single organisations implies that all steps involved in an implementation process need to be taken based on the *involvement of multiple individual and organisational actors*. This has led to a growing interest in:

- **co-creation, co-design or co-production, and**
- **the mechanisms that help to facilitate such processes across different parts of an implementing system.**

A *data-informed improvement culture* is needed to support the update of evidence-based practice in service delivery through a continuous quality improvement approach. Until now, this has been applied less commonly at a systems level, but it is possible to identify factors that will facilitate it, both:

- **'hard' (e.g. shared implementation, service and clinical outcomes), and**
- **'soft' (e.g. supportive leadership when it comes to data-driven behaviour change).**

Finally, stakeholders involved in place-based initiatives need to *pay attention to the cultural and structural factors* present in the wider system surrounding their initiatives.

Further reading and resources

Ghate, D., Lewis, J. and Welbourn, D. (2013) *Systems Leadership: Exceptional Leadership for Exceptional Times*. London: Virtual Staff College.

Kania, J. and Kramer, M. (2011) *Collective Impact*. Stanford Social Innovation Review. https://ssir.org/articles/entry/collective_impact

Lewing, B., Asmussen, K., Ford, J. and Gross, J. (2018) *EIF Maturity Matrix: Speech, Language and Communication in the Early Years*. London: Early Intervention Foundation. https://www.eif.org.uk/resource/eif-maturity-matrix-speech-language-communication-early-years

CHAPTER 13.
TOWARDS AN EARLY YEARS TOOLKIT

OBJECTIVES

The objectives of this chapter are:

- **to draw on evidence from the report and set out how the early learning of children in poverty can be improved by addressing proximal and distal factors, and by addressing the effects of poverty directly and indirectly**
- **to summarise important implementation and system change considerations that will affect the success of efforts to improve children's early learning**
- **to draw the key messages together in a simple theory of change that is designed to inform local place-based efforts to improve the early learning of children in poverty**

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INTRODUCTION

Chapter 1 set out the four main questions that this report seeks to answer:

1. What are the *factors* that affect the chosen early learning outcomes for children growing up in poverty?
2. What *interventions* (or types of intervention) best improve the chosen early learning outcomes for children growing up in poverty?
3. What are the *implementation considerations* that best improve the chosen early learning outcomes for children growing up in poverty?
4. What are the *systems considerations* that best improve the chosen early learning outcomes for children growing up in poverty?

This chapter summarises the main messages for these questions, focusing in turn on how the effects of poverty can be addressed both directly and indirectly – in the case of the latter, separated into proximal and distal factors – and then addressing implementation and system considerations. It concludes by drawing the main messages together in a simple theory of change that can be used to underpin place-based strategy aimed at improving the early learning of children in poverty. It goes without saying that, as this review has shown, there are no quick fixes and more research is needed in a range of areas but in particular on how interventions that address some of the distal factors identified in this review benefit children and specifically their early learning outcomes. An important task in the Early Learning Communities will be to monitor activity and outcomes.

POVERTY

About one in three children in the UK live in poverty. There is strong evidence that children from poorer backgrounds do worse than their better-off peers on a range of early learning and development outcomes, including language, communications and numeracy specifically but also related elements of school readiness that help children to be effective learners, notably social-emotional skills. This makes them less ready to start school, a gap in attainment that – left unaddressed – only widens as they get older.

Poverty needs to be addressed *directly* because it has direct effects on children's early learning and development, whether by making parents more stressed or by making it harder for parents to afford things (such as learning opportunities). This primarily requires policy-level responses, such as introducing a proper living wage or welfare-to-work initiatives. There is good evidence that child well-being is better in countries with more generous welfare systems and a more equal distribution of income and wealth, and some evidence that policy-level anti-poverty measures reduce poverty and improve children's life chances. While more local actions, such as debt counselling, are also considered to be desirable, there is less evidence for their effectiveness in reducing poverty *per se* (in part owing to a lack of relevant studies), although they may help to alleviate the stress associated with poverty.

The harmful effects of poverty on children's early learning and development can also be addressed *indirectly*. This can be achieved in part by pulling levers that are *proximal* to children's early learning and development: what parents do with their children in the home setting, what early childhood education and care settings do with children, and the interaction between these contexts. In other words, it is necessary to support the adult caregivers with whom children spend

most time interacting in the early years, since it is through such interactions that they learn. Other indirect means of addressing the effects of poverty are *distal* to children's early learning and development, meaning that their effect on outcomes is mediated by their effect on parents, whether *in utero* or via parenting practices. The following two sections explore these sets of factors respectively. In all instances, there is a socio-economic gradient to these factors, such that poorer children are disadvantaged relative to their better-off peers.

PROXIMAL FACTORS

The effect of poverty on children's early learning can be moderated to some degree by seeking to improve aspects of parenting.

There is strong evidence that the way in which parents think of and interact with their children from the perinatal stage onwards affects children's development, in particular their behaviour and social-emotional competencies, both of which affect their ability to be successful learners, especially on reaching school. This is because children who become securely attached have a strong base from which to explore the world, which is foundational to early learning. A variety of interventions have been shown to be effective in robust studies in promoting more sensitive and responsive parent-child interactions, especially in at-risk families, and in turn improving attachment, attachment-related outcomes and various social-emotional competencies. However, additional elements specifically to promote children's cognition may be needed to have an effect on cognitive outcomes.

There is strong evidence that parents' engagement in their children's learning contributes to positive early learning outcomes. Aspects of this include having high expectations, talking with children about what they are doing in early years provision and school, reading with and to them, and introducing mathematical concepts into everyday activities. There is also strong evidence that the home learning environment, which includes parent-child interactions but also material learning resources, has an effect on children's early learning outcomes over and above the effect of parent education and family income. As one study put it, what parents do matters more than who they *are*.

Evidence for how to support parent engagement and the effects on children's early learning outcomes is weaker by comparison but there are areas of promise. For example, when parents are given tips and support with how to support their children's learning, including via text message and over the summer holidays, it can have positive effects on what they do with their children but also their children's learning outcomes. Home visiting or group parent education can be an effective adjunct to pre-school, but it needs to be sufficiently intensive and focus on active learning rather than simply conveying information. Other interventions shown in robust studies to be effective in improving parent-child interactions and children's language development, in particular, include family literacy interventions. There is also evidence for the effectiveness of group-based interventions to help parents support their children's learning, and parent-implemented language interventions for young children with language impairments. Further, some group-based interventions for parents are effective in improving parenting skills and in turn the behaviour of children with difficulties in this respect.

There is also strong evidence that early childhood education and care can improve children's early learning and development, especially for those from disadvantaged backgrounds. Crucially, its positive effect on these outcomes is independent of the home learning environment (although of course it can

and should support the latter). However, the effectiveness of such provision is positively associated with its quantity and quality. It is better, assuming the quality is at least adequate, for children to spend longer in early childhood care and education (measured in months rather than sessions or hours). Children also do better in high-quality settings, which relates to both structure and process.

Regarding *structural* quality, it is better if there are low staff-to-child ratios, smaller class sizes and staff who are suitably qualified and trained (especially in the curriculum and how children learn). In turn, getting the elements of structural quality right supports process quality, in other words the *modus operandi* of provision. Important cross-cutting features of this include: building warm, interactive relationships with children; offering instructed learning; high engagement with parents (see above); and viewing educational and social development as complementary. But there are also aspects of process quality specific to given early learning outcomes. For instance, communication, language and literacy outcomes benefit from a rich language environment and a dual emphasis on language comprehension and decoding, while numeracy and pre-numeracy skills are more likely to improve when practitioners understand young children's mathematical development and are better able to help them as a result.

There is also promising evidence, mostly from the US, for two-generation programmes in which children receive high-quality early child education and care and parents are supported to promote their children's early learning and development – effectively addressing both proximal factors in tandem. A significant number of centre-based interventions that can be implemented in pre-school or school settings have also been shown to improve social-emotional skills, which, as shown in Chapter 1, are important for the more cognitive and academic learning outcomes.

DISTAL FACTORS

A number of distal factors affect the well-being of parents and their children, with the cumulative effect of adversities proving particularly harmful.

There is strong evidence that a mother's physical health during pregnancy affects the developing foetus in multiple ways, with behaviours such as smoking and alcohol and substance use potentially contributing to poor birth outcomes, which in turn are related to later health and development (cognitive and social-emotional) difficulties. Several forms of intervention (psychosocial and pharmacological) are recommended to address these problems, with varying levels of evidence for their effectiveness on the issue in question (but a lack of evidence on how children benefit from them).

There is strong evidence that maternal *mental* health difficulties during pregnancy can have similarly harmful effects, while depression and anxiety after the baby is born can adversely affect both a mother's and a father's interaction with their baby (with harmful effects on child outcomes as seen above). Although there is a lack of evidence for how to prevent perinatal maternal mental health problems, various forms of early intervention have been shown through robust studies to improve maternal mental health in the perinatal period, including home visiting, telephone peer support, web-based interventions and interpersonal therapy. If the mental health problems are known to be adversely affecting parent-child interaction, then intervention to support that relationship is important too (it cannot be assumed that improving mental health on its own will be sufficient).

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Healthy children are better learners, so it is also important that children receive good nutrition. There is strong evidence that for the youngest this means breastfeeding as far as possible, with a variety of individual, group-based and online interventions shown through robust studies to be effective in supporting breastfeeding. Promoting children's healthy nutrition as they get older requires a multidimensional and holistic approach involving both behavioural and environmental support.

There is strong evidence that violence at home, whether from domestic abuse or child maltreatment, can be very harmful for children's early learning and development, whether through poor birth outcomes, neurocognitive deficits (for instance to executive functioning or self-regulation) arising from stress, or via its adverse effects on parents' capacity to interact positively with their children. A range of interventions have been found through studies of varying degrees of robustness to be effective in preventing domestic abuse but also – more so – helping mothers and children who have been exposed to such violence to be safe and addressing the adverse psychological effects they have experienced (albeit there is less evidence pertaining to pre-school children). There are also interventions proven to help prevent or intervene early in child maltreatment and address its adverse consequences, although the evidence is stronger for effects on risk and protective factors rather than abuse per se.

Beyond services there are also more contextual factors that affect children's early learning and development, whether directly or, again, via their impact on parents. For instance, there is strong evidence that poor housing has harmful effects on children's learning, health and safety directly, while overcrowding can adversely affect parents' mental health and, in turn, their interaction with children. The wider environment, or neighbourhood, also affects children's well-being (its effect on language, communication and other cognitive outcomes is less clear owing in large part to a lack of relevant studies). There is less evidence on the effectiveness of interventions to address these kinds of problems, to a large degree because they necessarily require policy-level responses which are harder to evaluate, and there is little if any evidence on how addressing such issues affects children's early learning outcomes specifically. However, initiatives to improve housing quality have been shown to improve health outcomes, and there are evidence-informed approaches to planning and developing child-friendly and/or health-promoting neighbourhoods.

IMPLEMENTATION

Several interventions with evidence of effectiveness in addressing proximal and distal factors relating to children's early learning have been identified, and in some cases – more so for the proximal factors – there is evidence that interventions can improve early learning outcomes. However, in order to have positive effects, there is strong evidence that interventions generally need to be implemented well. This applies to any of the aforementioned means of supporting children and parents in the early years. Put another way, unless concerted efforts are made to, for example, secure agency and practitioner buy-in to an intervention, provide strong leadership for the new initiative, train and support practitioners in delivery of the intervention, and monitor implementation outcomes such as acceptability, appropriateness and fidelity, the effectiveness will be diminished or even lost altogether.

It is therefore critical that proper attention is paid to the implementation processes described in Chapter 11. Although empirical testing of such efforts is limited still, they are commonly referred to in the implementation science

literature as key elements of good practice. Moreover, these facets of good implementation dovetail to a large degree with aspects of structural and process quality in early years settings (see above) and commonly accepted features of nurseries and schools that are adept at supporting parents' engagement in their children's learning, for instance a leader who prioritises such activity and integrates it into setting improvement plans, and training for staff in how to work with parents.

It is also important that careful attention is paid to enabling families to access and engage fully with services, especially for those who are sometimes regarded as 'hard to reach', many of whom will be from disadvantaged backgrounds. Failure to do this will result in poor take-up of the service, or take-up by the 'wrong' people (i.e. those who do not really need the service in question, or at least who need it less), both of which lessen the possible impact, waste precious resources and, potentially, further widen existing socio-economic inequalities. Concerted practical and relational strategies are therefore needed to support the participation in services of families in poverty and those who are otherwise socially disadvantaged. It is worth noting that whereas there is good evidence of the barriers to engagement in services experienced by such families, there is less evidence on the effectiveness of approaches to addressing those barriers, suggesting that there is scope for evidence-informed innovation in this area.

SYSTEM CHANGE

While much of the evidence for effectiveness concerns evidence-based programmes, it is important that rather than focus on how to implement discrete programmes the emphasis is on how the early learning system needs to change in order to enable the uptake of current best evidence in service delivery. This is not to say that programmes should not be implemented, but rather that doing so should not be the overriding goal. Indeed, the report points to a range of ways in which existing practice could be improved, as well as to areas where there is scope for innovation.

In order to enable change in the early learning system, it is important that there is strong collective leadership, championing change and proactively seeking to institutionalise the change locally. It is also necessary to build implementation capacity, for instance through implementation teams or coalitions, or by using intermediary organisations to provide technical assistance and implementation support. Changes will often need to be co-designed, or co-produced, with multiple individual and organisational actors, including actual or potential service users but also practitioners, managers and commissioners. A continuous quality improvement approach needs to be embedded, such that changes to practice and systems are driven by local data but also those changes are monitored and adjustments made as necessary. Finally, actors involved in place-based system change initiatives need to pay attention to the structural and cultural factors present in the wider system.

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A THEORY OF CHANGE

It will be clear from the report as a whole and this chapter thus far that there is no silver bullet to improve the early learning of young children in poverty. The factors that contribute to poverty and poor early learning outcomes for children in poverty are complicated and interacting. In addition, the known effectiveness of interventions varies. Add to this the difficulties of implementing services well, and doing this in the context of a service system populated by multiple players who often have competing interests, not to mention the vagaries of different contexts in which this work needs to happen, and it becomes clear that the challenge addressed in this report is complex.

For these reasons, there are no easy answers to deceptively simple questions such as 'What is the one thing we should do?' or, equally challenging, 'Should we do this or this?'. To give an example, if someone asks 'Should we focus on home learning environment or domestic abuse?', it might seem obvious to advise the former: the evidence is clear on the benefits or a positive home learning environment for children's early learning, and there is some evidence that interventions can help to improve what parents do with their children at home and, in turn, those children's early learning outcomes. In contrast, there are no known studies that demonstrate how addressing domestic abuse improves children's early learning outcomes. So far, so simple. However, what if it is pointed out that: domestic abuse contributes to poor maternal mental health, which in turn makes it harder for mothers to interact sensitively with their children; and both domestic abuse and mental health problems are associated with poverty, which in turn has a direct impact on children's cognitive and other outcomes; and there is evidence for the effectiveness of certain interventions to prevent or address domestic abuse? It quickly becomes apparent that focusing exclusively on promoting a positive home learning environment without attending to wider issues would be short-sighted and arguably achieve less than a more holistic, system-wide, approach (see also Center on the Developing Child 2016). Based on the evidence reviewed, therefore, an attempt is made in what follows to sketch out a theory of change to improve early learning outcomes for children in poverty. It comes with the important caveat that this will need to be applied – and therefore adapted – in context according to local needs, priorities and resources.

EARLY LEARNING OUTCOMES

The ultimate outcomes of interest are speech, language and communication, literacy and pre-literacy, and numeracy and pre-numeracy of children in the early years (defined here as 0 to 8 years), with a particular focus on children who are living in poverty. Children from poor or disadvantaged backgrounds are less likely to do well on these outcomes, a gap that only widens as they get older. The aim is to reduce this attainment gap.

These outcomes are connected, and they also connect with a wider set of child outcomes, including social-emotional skills and physical well-being (again, there is a socio-economic gradient for these). For example, children who have better social-emotional skills are more likely to do well academically. Collectively, these outcomes are regarded as key elements of school readiness.

INTERMEDIATE OUTCOMES AND ACTIVITIES

In relation to the early learning outcomes cited above, young children's development occurs primarily through interaction with others, in particular parents and other adult caregivers. In order to improve those outcomes, therefore, considerable effort needs to be invested in two main areas. These might be considered to be proximal factors given their proximity to the early learning outcomes.

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The first is what parents do with their children in order to support their learning. If children's caregivers interact with them in a responsive and sensitive way they are more likely to become securely attached and to develop strong social-emotional skills, both of which provide them with a firm foundation for exploring the world and learning. Moreover, if they grow up experiencing positive interactions with their parents in a stimulating home learning environment, in which they are read to regularly, exposed to mathematical concepts and given access to material leaning resources, they are more likely to develop well in terms of their language, literacy and numeracy. Various types of intervention have been shown to be effective in averting or addressing problems with attachment (e.g. video feedback, parent-infant psychotherapy), promoting children's social-emotional skills (e.g. targeted group-based parent interventions) and supporting parents with their children's learning (e.g. intensive home visiting, family literacy programmes, sending tips and advice via text message, and extra support for families who need it most).

The second area for investment concerns what happens in early childhood education and care settings. Children are more likely to develop well on the outcomes of interest if they spend a considerable amount of time (measured in number of months rather than number of sessions per month) in settings where:

- day-to-day activities are characterised by:
  - warm, interactive relationships between staff and children
  - instructed learning (for example, in vocabulary, reading and writing)
  - high engagement with parents (see above)
  - a complementary emphasis on educational and social development
- the organisational infrastructure supports and enables such provision, through:
  - low staff-to-child ratios
  - smaller class sizes
  - staff who are suitably trained (especially in the curriculum and how children learn)

Early childhood education and care settings also need to exhibit features of practice associated with positive outcomes for:

- Communication, language and literacy, such as:
  - prioritising high-quality interactions with children
  - using stories or characters to encourage children to articulate their own thinking
  - promoting shared reading and helping parents to read effectively with their children
- Numeracy and pre-numeracy, such as:
  - small group work
  - balancing guided instruction with direct teaching and child-led activities
  - helping early years professionals to understand and assess children's mathematical development so that they can intervene better

Investing in both of these areas – support for parents and centre-based activities – is important because the home learning environment and high-quality early childhood education and care both exert an effect on children's learning that is independent of the other. While all children stand to benefit, there is some evidence that the most disadvantaged children benefit the most. Moreover, interventions for both can improve the social-emotional competencies that are associated with positive learning outcomes. Parents of children from socially disadvantaged backgrounds are less likely to take up free part-time early

education, so efforts are needed to help such families access provision. Efforts are also needed to improve the pay, status and qualifications of the early years workforce, as doing so will enhance the quality of provision.

The early learning of children in poverty can potentially be further promoted by attending to a set of *distal* factors (named as such because they are more distant from the outcomes in that their effect on children is mediated by parents). These factors are important because, when ignored, they make it more likely that children have a poor start in life and/or they adversely affect parents' care for and interaction with their children, particularly if they accumulate. Both can have adverse effects on children's early learning that are direct or indirect (i.e. through their effect on children's physical health and social-emotional well-being). In all cases the factors have a socio-economic gradient, such that each one is more likely when the family is disadvantaged.

These distal factors fall into three broad categories. The first category concerns *parent well-being and parenting*. Thus, children will get off to a better start in life, and/or parents will be better able to support their children's learning, if the parents:

- Have good physical and mental health (including avoiding unhealthy behaviours)
- Have positive relationships with their respective partner (including no domestic abuse)
- Parent positively (including sensitive and responsive interaction in infancy, and providing good treatment and care)
- Provide suitable nutrition, both in infancy (breastfeeding and suitable weaning) and as children grow older (breakfast and a healthy balanced diet) and encourage physical activity

There is a mixture of universal and targeted interventions with evidence of effectiveness in terms of preventing or addressing problems in all of these areas, even if intervention effects on early learning outcomes are not necessarily known.

The second category of distal factors concerns the *economic situation* of the child's family. In particular, poverty has an adverse effect on children's early learning (covering all aspects of school readiness) both *directly* – through its effect on what parents can afford for or do with their children – and *indirectly* – through its effect on parents' stress and, in turn, aspects of their parenting (see above). Important indirect means of addressing poverty have been outlined above, but it can also be addressed directly through national policy and, albeit to a lesser extent, local initiatives.

The third category of distal factors concerns the *physical environment* in which children grow up, in particular their house and neighbourhood. Improving the quality of both of these has the potential to impact positively on children's early learning and related aspects of their well-being *indirectly* – through its effect on children's health and parents' well-being and interaction with their children – but also potentially *directly*.

In part owing to the status of the evidence, the activities outlined in this section are likely to involve a mix of evidence-based interventions, evidence-informed improvement of existing services, and local evidence-informed innovation. Changes will be needed to both the early learning system and the wider system.

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INPUTS: IMPLEMENTATION AND SYSTEMS CHANGE

All of the services provided in order to address the factors identified above are more likely to be effective if they are implemented well, which will require attention to issues such as:

- building readiness for implementation
- providing strong leadership
- offering workforce training and support
- monitoring implementation outcomes.

Since more disadvantaged families are more likely to find it hard to access or engage with services, concerted practical and relational strategies will be needed to support the participation of these parents and their children.

Finally, in order to enable the uptake of evidence in daily practice the system needs to enable and support change, which will require attention to the following:

- analysis of local needs and services
- strong collective leadership
- building implementation and workforce capacity
- involving multiple individual and organisational actors (including partnership arrangements and co-designing changes)
- developing a data-informed improvement culture
- local cultural and structural factors

SUMMARY OF KEY POINTS

There is strong evidence that children from poorer backgrounds do worse than their better-off peers on a range of early learning and development outcomes, including language, communications and numeracy specifically but also related elements of school readiness that help children to be effective learners.

The harmful effects of poverty on children's early learning need to be addressed both *directly* – which primarily requires policy-level responses, such as introducing a proper living wage or the introduction of welfare-to-work initiatives – and *indirectly*.

The latter can be achieved in part by addressing *proximal* factors: what parents do with their children in the home setting, what early childhood education and care settings do with children, and the interaction between these contexts.

Other indirect means of addressing the effects of poverty are *distal* to children's early learning, meaning that their effect on outcomes is mediated by parents, whether in utero or via parenting practices.

Addressing distal factors can give children a better start in life and have a positive impact on parenting and the home environment, although more overt efforts to address parent-child interaction are also likely to be needed.

There is evidence for the effectiveness of various types of intervention in addressing the identified proximal and distal factors and, in some cases, improving children's learning outcomes. However, in order to have positive effects interventions generally need to be implemented well. Moreover, considerable efforts are needed to enable families from disadvantaged backgrounds to engage fully with services.

In order to enable change in services for children in the early years such that they better reflect evidence of what is effective in improving learning outcomes for children in poverty, there is a need for strong collective leadership, greater implementation capacity, co-production with multiple individuals and organisational actors, and mechanisms that enable continuous quality improvement.

A theory of change explaining how evidence-based activities can contribute to children's early learning outcomes if supported by appropriate systems change is presented with a view to informing local strategic efforts in this space.

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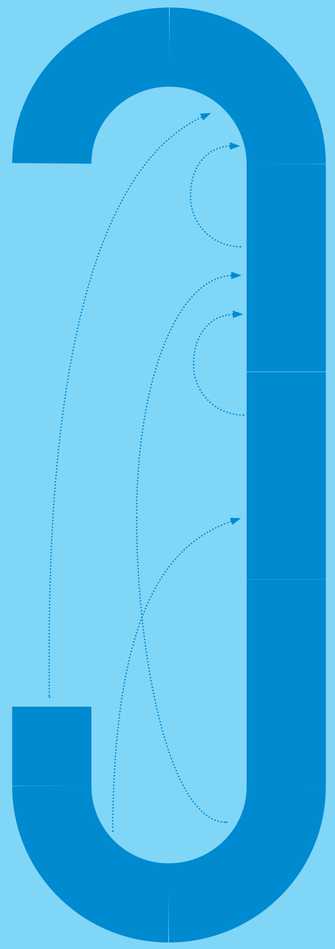

EVIDENCE REVIEW

IMPROVING THE EARLY LEARNING OUTCOMES OF CHILDREN GROWING UP IN POVERTY:
A RAPID REVIEW OF THE EVIDENCE