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The Best Start in Life: what do we know about the impact of early interventions on children’s life chances?

Evidence Symposium Briefing Paper

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The Case for Early Intervention

“If the race is already halfway run even before children begin school, then we clearly need to examine what happens in the earliest years” (Esping-Anderson 2004).

1. Research has shown that there are clear and substantial income-related gaps in children’s health, social and emotional wellbeing, and cognitive abilities before they enter school (Kelly et al 2011; Waldfogel and Washbrook 2011). Furthermore these income-related gaps in child development have been shown to persist or worsen over time, and are often strongly associated with substantial negative outcomes in later life (Kelly et al 2011). Consequently, there is increasing focus amongst policy-makers to identify and develop interventions targeting the early lives of children from disadvantaged backgrounds to improve their life chances (see Allen 2011, Waldfogel and Washbrook 2011, for recent reviews).
2. Generally, we would say, interventions have been developed to address or combat particular features associated with children living in poverty. For example, these include: parenting style; the home learning environment; maternal health; maternal health behaviours; early childhood care and education; maternal education; and maternal mental health. Some interventions attempt to address these features individually; others are designed to address them in combination with one another.
3. The assumption underpinning many early years interventions is that the factors they are designed to address are considered to be the *causes* of inequalities in child development, which in turn leads to greater levels of hardship in later life. Of course there are many factors associated with child development not covered here, as the focus tends to be on what are commonly seen as the strongest policy levers.
4. However, despite the strong associations often found between individual characteristics and child development, there is significantly less clarity with regards to their *causal* relationships, and, critically, the degree of collinearity between factors and their relative importance in determining adverse outcomes is often not known. It is important to note, we would suggest, that there are significant limitations to the evidence base in this area. Not only does that mean our understanding of the ‘problem’ is not as great as is often assumed, but the same could also be said of the rationale for the interventions themselves, and the way they are subsequently evaluated.
5. It is not within the scope of this briefing paper to evaluate the evidence base from which the following discussion is derived. Neither is it possible to try to fully conceptualise the relationships between early childhood conditions and child development, which in turn includes a wide range of possible outcomes. It is further complicated by the inclusion of interventions that are designed to address particular disadvantageous conditions and only are intended to have an ‘indirect’ impact on child development. Another issue relates to the transferability of evidence and the transportability of interventions from one country to another.
6. These are important considerations. However, rather than address these issues, the briefing paper concentrates instead (as a starting point) on some of the most prevalent and dominant forms of interventions being used in Westernised countries. We also tend to focus our review on evidence from longitudinal research, since this is often the most useful way of evaluating the impact of policy interventions on child development. With this in mind we also try to draw on some evidence of child development in Wales, much of which is based on current analyses of the Millennium Cohort Study, a large birth cohort study of children born in 2000-2001.

7. The term 'early years intervention' is used in this briefing paper to refer to interventions designed to improve the cognitive, social or emotional well-being of disadvantaged 0-5 years old (either directly, or indirectly via their parents/carers). This is not an exhaustive review, but will focus on key policy levers: paternity leave; support to parents during pregnancy and early childhood; early child care/education; and programs that combine parent support and early child care/education. General outcomes of interest tend to be cognitive ability, social/emotional wellbeing, health and later-life outcomes (e.g. employment, crime, education). Much of this briefing paper is based on major reviews of evidence in this area, such as those recently commissioned by the National Institute for Health and Clinical Excellence (NICE 2012). Although primarily focused on social and emotional wellbeing in the early years, the reviews commissioned by NICE inevitably also considered child cognitive development.

The Evidence for Early Years Childhood Interventions

Paternity leave

8. Although difficult to measure, several studies have suggested that longer paid parental leave is associated with lower rates of maternal depression (Chatterji & Markowitz 2004), lower rates of infant mortality (Ruhm 2000; Tanaka 2005), and more use of preventive health care (Berger et al 2005). However, research suggests that *unpaid* leave does not have the same beneficial effect, because parents are less likely to use it (Ruhm 2000; Tanaka 2005).

Programs that Provide Support to Parents during Pregnancy and Early Childhood

9. Some research suggests that the quality of a child's relationships and learning experiences in the family have the greatest impact on child development – more so than innate ability, material circumstances or pre-school care (Sylva et al 2004). Indeed, despite some disagreement in the academic literature, there is now growing evidence for the effectiveness of interventions designed to support parents during pregnancy and early childhood. For example, a recent international systematic review commissioned by NICE (Baxter et al 2011) found evidence of the following:
- postpartum home visiting may be effective in improving parental outcomes for at-risk families (e.g. reducing postnatal depression, intimate partner violence and child abuse potential; increasing maternal self-esteem, psychological status and quality-of-life);
 - more general home visiting interventions improve outcomes for at-risk families (e.g. reduced potential abuse; and improved maternal sensitivity, parent–child interaction, attachment security, cognitive development, socio-emotional development, parenting behaviour, parenting attitudes and maternal lifecourse education); and
 - the key characteristics of successful interventions of this kind were often the use of video feedback and keeping the number of sessions below 16.
10. A UK-specific review (Blank et al 2011a) , also commissioned by NICE, found that:
- some home visiting programmes in the UK may be effective in improving the social and emotional wellbeing of vulnerable children;
 - a focus on mother-child interaction during the first 18 months was found to be associated with more positive outcomes (e.g. the Family Partnership Model); and
 - better results are found in more structured and intensive interventions delivered by specially trained family nurses.

11. Although this suggests that home visiting interventions can have positive effects on the social and emotional well-being of children and their families, there is less evidence on the direct impact these types of intervention can have on cognitive outcomes (Waldfoegel 2004), although there may be exceptions in the area of early literacy, language and communication (e.g. the PEEP programme).
12. The Nurse-Family Partnership (NFP), as it is known in the US, is often seen as the leading and best-evaluated model of home visiting (Olds 2006; Olds et al 2007b; Eckenrode et al 2010). The NFP is targeted at disadvantaged young first-time mothers and their partners, and offers intensive and structured home visiting from early pregnancy until the child is two years of age. The intervention is delivered by a specially trained nurse, and much of the focus is on building a relationship between the nurse and the family to facilitate behaviour change. It has been shown in a series of randomised trials to improve a whole host of health, parenting and family functioning outcomes (Olds et al 2007). In contrast to some other interventions of this type, children have also demonstrated improved cognitive outcomes from as young as four years of age, and socio-emotional improvements by age six (Olds et al 2004). Longitudinal research also suggests a 28% reduction in depression and anxiety by age 12 (Kitzman et al 2010) and a 59% reduction in arrests by age 15 (Eckenrode et al 2010). Cost-benefit analyses have also been very positive, with larger effects for high-risk families (Aos et al 2004). Early findings from England are encouraging (e.g. Barnes et al 2010), where a large-scale trial is currently being undertaken.
13. In terms of 'parenting programmes', the Incredible Years model – which uses videotapes to demonstrate to parents how to manage difficult behaviour – also has a substantial evidence-base (e.g. Bywater et al 2009). In addition to general findings showing that this intervention can help parents to manage their children's behaviour better (e.g. Webster-Stratton 1994), specific findings also suggest that it can lead to improvements in both child conduct disorder and attention (e.g. Jones et al 2007). Indeed, it has been identified by NICE as one of two parenting interventions thought to be cost-effective in reducing conduct disorder. The programme has been adopted in Wales through the Centre for Evidence Based Early Intervention at Bangor University who deliver parent training interventions across Wales. The other parenting intervention identified by NICE as being cost-effective in reducing conduct disorder is the Triple P Parenting Program.
14. The comprehensive UK review of early years interventions carried out by Blank et al (2011) has also identified an evidence-base for the following 'parent-support' programmes: Starting Well; Home Start; the Family Partnership Model; the Avon Premature Infant Project; and Social Support and Family Health. There is also international evidence for the following: Play and Learning Strategies (Landry et al 2006; 2008; 2008); Peers Early Education Partnership (Evangelou et al 2005; 2003); Parent-Child interaction Therapy (Aos et al 2004; Goldfine et al 2008); Families and Schools Together (C4EO 2010); Community Mothers' Programme – Ireland (C4EO 2010); Parents as First Teachers Programme (C4EO 2010); Multidimensional Treatment Foster Care (Fisher & Kim 2007); and the Special Supplemental Program for Women, Infants, and Children (Currie 2003; 2006).
15. In Wales however, an evaluation of the Family Links Parenting Programme (FLNP), which has much in common with Incredible Years and Triple P, but focuses more on the quality of the parent-child relationship and parents' well-being, found mixed results (Simkiss et al 2012). Differences between the intervention and control group were often non-significant, but qualitative evidence suggested there were some positive effects. The evaluation of different types of early parenting intervention in Wales focussing on families experiencing substance

misuse has also helped develop further understanding in this area (Wright et al 2010; Thom 2012).

16. Breastfeeding is also considered to have a key role in early child development, and multi-faceted approaches to increase breastfeeding are considered to be the most effective. For example, successful Scandinavian breastfeeding programmes combine access to problem-based information packs and mother-to-mother support groups with attending health workers (Protheroe et al 2003). However, recent analysis of the MCS found little evidence that breastfeeding was associated with children's cognitive development at age seven (Taylor and Joshi *forthcoming*). Instead, the mother's age at birth, often associated with levels of breastfeeding, would appear to be more important in determining child development.
17. In the UK there is considerable focus on the Home Learning Environment (HLE) of a child, and Melhuish et al (2008) find evidence that this is associated with favourable educational pathways amongst children, particularly at school entry age. Analysis of the same MCS data reveals that after controlling for socio-economic background characteristics the HLE is generally 'better' in Wales than England. However the same analysis suggests that for children in Wales most of the 'benefits' of the HLE are realised by the age of three years and have little further impact as children grow up (Taylor et al *forthcoming*).

Early Child Care and Education

18. A major international systematic review of interventions delivered in educational or care settings found moderate evidence that they have an effect on child development (Baxter et al 2011). Most of the positive effects reported were for cognitive outcomes (e.g. vocabulary, school readiness), and programme effectiveness was found to vary, with one review indicating that 53% of the studies yielded no effect. Beneficial outcomes for socio-emotional development included reduced anxiety, the ability to externalise behaviour problems, and improvements in mother-child interaction. According to one review of eight care interventions in the US (Zoritch et al 2009), more positive results were found when the intervention started at age three rather than age four. In terms of long-term efficacy, two international meta-analyses provide evidence of lasting impact in adolescence – e.g. educational success, reduced social deviance, and increased social participation (Manning et al 2010; Nelson and Westhues 2003).
19. In terms of economic evaluation, an independent review has estimated the average economic benefits of early education programmes for disadvantaged 3- and 4-year-olds to be approximately 2.5:1 (see Allen 2011).
20. Much of the UK evidence in this field has come from the Effective Provision of Pre-school Education (EPPE) study (<http://eppe.ioe.ac.uk>), which has found benefits of high-quality pre-schooling for children's cognitive, social and emotional development at school entry, at the end of Key Stage 1 (age 7) and at the end of Key Stage 2 (age 11). Indeed, the single most important finding, which cuts across virtually all studies of this kind, is that quality matters – in particular, sensitivity and responsiveness to the child (Shonkoff and Phillips 2000; Smolensky and Gootman 2003). More positive outcomes are generally seen when children have access to a trained teacher and a more qualified workforce (Schrader-McMillan et al 2011).
21. In terms of pedagogy, one review paper (Manning et al 2010) found that programmes that included direct teaching components in pre-school often had the greatest cognitive impact. Indeed, the EPPE study qualitative evaluation (Siraj-Blatchford 2010) highlighted the importance of interaction traditionally associated with the term "teaching", as well as the provision of instructive learning environments, and 'sustained shared thinking'. The Neighbourhood Nurseries Initiative Evaluation (Mathers and Sylva 2007) also found evidence for the importance

of an appropriate daily routine, free play, high quality group play activities and appropriate physical space.

22. Generally speaking, UK research supports the development of larger centres because these have been found to offer high quality provision (Mathers and Sylva 2007). Evidence from the US also indicates that centre-based programs for young children help improve maternal education opportunities, employment, and income (Waldfogel 2004). As with programmes aimed to support parents during pregnancy and/or during the first few years of a child's life, research suggests that the largest effects of good quality early childhood care and education are seen for the most disadvantaged (Waldfogel 2004). However, as a caveat, it should be noted that some studies have found associations between early and extensive child care and behaviour problems, particularly when the care is judged to have been of low quality (Waldfogel 2006). Although the UK EPPE study found a general advantage for staying in pre-school for longer, this was not the case for children who began before the age of two. Indeed, Mathers and Sylva (2007) found more anti-social behaviour the longer children had been attending their Neighbourhood Nursery.
23. In terms of transitions into early childhood care, there is a paucity of research, but the relationship between the child and the caregiver is often seen as paramount (Datler et al 2012). Indeed, Bowlby (2007) stresses the importance of providing sufficient opportunity for the child to develop a lasting attachment to one carer who is consistently accessible to them (sometimes referred to as the 'key worker' model). Good practice for transition into primary school should involve ensuring strong links to the child's home and pre-school (if appropriate), consistency in social norms, and sufficient training for staff to make sure they understand the needs of the child during what can be a disorientating and stressful time (Fabian and Dunlop 2007).
24. In terms of specific programmes, Bright Beginnings (a language and literacy curriculum for children in early childhood settings) has been positively evaluated with regard to reading ability (see Axford et al 2011). Two RCTs have been conducted on the Carolina Abecedarian programme, which is a pre-school educational programme for 2-5 year-olds from disadvantaged families, and it was found to increase goal-directed behaviour and social confidence at 18 months (see Axford et al 2011). Evaluations of the Routes of Empathy programme, which aims to promote pro-social behaviour through classroom experience with a real-life baby, have also found increased understanding of emotions and pro-social behaviour compared to control classes (C4EO 2010). Finally, the High/Scope Perry Pre-School programme has been well cited as yielding a number of desirable outcomes (see Axford et al 2011).
25. In Wales, the relatively new early years educational programme for three to seven year olds, the Foundation Phase, was established to provide a developmentally appropriate curriculum that is designed to meet the needs of the individual. This also includes more favourable adult-to-child ratios in schools and funded non-maintained settings (Maynard et al 2013). Evaluation of the Foundation Phase is currently underway, and although there is little evidence that children's cognitive abilities are improved by age seven (Taylor and Joshi *forthcoming*), literacy and numeracy skills by age eleven may be improved (Davies et al 2013).
26. With regard to early language development, children from low SES backgrounds are often found to have delayed language development (Bickford- Smith et al 2007) because of fewer opportunities to use language in the environment they grow up in. Early years researchers have found that quality adult-child language interactions within early childhood education can have a positive effect on children's language skills. Indeed, children in Wales have, on average, greater language development by age three than children in England, most likely because of the greater frequency for grandparents to be the main carers prior to school age entry (Taylor et al *forthcoming*). Although the evidence from interventions that promote oral language skills has

traditionally been limited, Fricke et al (*in press*) have recently reported on a successful 30-week nursery-based intervention.

27. In Wales, an evaluation of the Language and Play programme, a six-week programme for parents/carers and their children (0-3), found support for the programme amongst parents and professionals but did not measure the children's language development (CRG 2004). Similarly other evaluations, such as that of Pori Drwy Stori, tend not to measure children's language skills and instead rely on the attitudes and perceptions of their parents/carers.

Programmes that Combine Parent Support and Early Child Care and Education

28. *Sure Start* is a community-based program that combines core services such as home visiting and child care to low-income families with children aged 0-3. However, significant flexibility is given to local providers to tailor provision according to the needs of the local community. Evaluating the impact of combination programs such as *Sure Start* is difficult, and results have not always been consistent. However, some success has been evidenced in improving child health in particular, and also in improving child development at age 3 (NESS 2008), although this was not the case when children were assessed again at age five (NESS 2010). Indeed, no 'effects' of *Sure Start* on school readiness at age 5 have been found, but this may have been because a very high proportion of the comparison group were also taking up similar free early years learning opportunities. The most recent evaluation of *Sure Start* found that most of the positive effects were related to the parents, in terms of life satisfaction and the home learning environment (NESS 2010).
29. *Flying Start* is more prescriptive than *Sure Start* in terms of service provision, but is also a community-based program targeted at the most disadvantaged 0-3 year olds (in Wales). Core components include free quality part-time childcare for 2-3 year olds, an enhanced home visiting service by health visitors, and access to parenting programmes and Language and Play sessions. An initial qualitative evaluation of *Flying Start* (*Flying Start* 2009) has indicated good engagement with families traditionally more difficult to reach, and generally high levels of satisfaction. There is also some tentative evidence for improvements in children's emotional and social development, as well as parent's confidence, self-esteem and child interaction (*Flying Start* 2010). Ford (2009) also evaluated the "Let's Play in Tandem" *Flying Start* home educational activity programme, which involves a project worker helping parents to deliver an educational programme aimed to improve school readiness. Ford found positive effects for cognitive development, and teacher ratings of listening skills, communication skills and inhibitory control.
30. Finally, it is worth noting that a simple cost-benefit analysis of *Head Start* in the US suggests that the programme would only need to deliver on a quarter of the long-term gains of model programs to pay for itself (Currie 2001). The Early Training Project in the US has also been favourably evaluated, especially with regard to reducing special educational needs (Currie 2001).

Discussion

31. Generally speaking, the research reviewed above suggests that some early years interventions can help to reduce income-related gaps in child development and school readiness. In particular, there is now growing evidence for the effectiveness of interventions designed to support parents during pregnancy/early childhood and also early education/care interventions.

32. Overall, it seems that more intensive interventions have stronger effects, and the quality of the program is very important. According to Waldfogel and Washbrook (2011), some of the best evidence is for interventions that combine/affect multiple areas (e.g. health and social care; emotional and cognitive development; children and parents). International research also suggests that targeting specific populations and focussing on behaviour leads to the best results (C4EO 2010).
33. However, the literature has not always been consistent, and questions remain regarding which approaches will work best under what conditions. In particular, there is still uncertainty surrounding the measurement and promotion of quality in pre-school education and care settings, and generally speaking, more research is also required to explore the influence of intensity and duration of programmes on outcomes (e.g. length of care/education). Although the National Service Framework in Wales aims to improve quality of standards, universally agreed definitions of quality are still lacking.
34. One of the problems encountered when evaluating early years interventions is often the lack of 'program fidelity' (i.e. implementation true to the programme model). Other problems include difficulties determining which elements of an intervention are causing what effects. For example, with regard to home visiting services, it is difficult to know for sure what happens when a home visitor is in the home, and many intangible factors such as the personality and attitude of the home visitor may influence outcomes, but not be measured (C4EO 2010).
35. However, better more informed evidence is now becoming available. For example, the Social Research Unit at Dartington is developing clear standards of evidence and starting to assess specific interventions against these standards (Axford et al 2011). There are also more recent review papers assessing the general factors responsible for early years intervention uptake and ongoing engagement (e.g. Blok et al 2005; Blank et al 2011), and this needs to be considered when designing and implementing new policies.
36. Questions also remain about how different agencies can best liaise to provide combined interventions. Successful early years interventions bring savings to many different agencies, meaning that pooled budgets need to be negotiated. As noted by Frank Field MP (Field 2010), allowing local authorities to pool data and track the children most in need will support identification and targeting. The Allen (2011) and Munro (2011) reviews both argue for holistic multi-agency assessments of children and young people. Indeed, Allen (2011) recommends that regular assessments of social and emotional development should be carried out before children start school and throughout their early years. The Common Assessment Framework is one potential method for addressing this.
37. Existing indicators often used to target interventions include: low socioeconomic status, lack of maternal educational qualifications, young maternal age, mother has been looked after, single parent, marital discord, and partner criminality and/or substance abuse (Schrader-McMillan et al 2011). But the problem remains that the people most in need of early years interventions are often the most difficult to find and engage.
38. Despite these issues, Allen (2011) argues for more investment in early years intervention, and particularly for: (i) a long-term plan to give all vulnerable first-time mothers access to Family Nurse Partnerships; (ii) a national parenting campaign; (iii) high-quality, benchmarked pre-school education for 2 to 4-year-olds; (iv) improved paternity and maternity leave; and (v) more coherent assessments for 0 to 5 year olds to detect and resolve social and emotional difficulties before they become intractable. The comprehensive C4EO review (2010) also suggests that spending on speech, language and communication should be prioritised.
39. In terms of how all of this relates to current Welsh Government policy needs to be considered and discussed further, but there are clear links to the Welsh Government Child Poverty Strategy

(2011) and other related policies including the national breastfeeding programme, the Healthy Start Scheme, Integrated Family Support Services, Families First and Communities First.

40. Within the context of Wales, it is also worth noting that there are many early years interventions currently being undertaken at a local level, some of which have been evaluated. For example, the Family Intervention Team / 5+ project in Caerphilly was found to improve the emotional and social development of children and families (Action for Children and NEF, 2009). Indeed, the New Economics Foundation claimed that for every £1 invested in the FIT project, £7.60 worth of social value was generated via reduced costs of crime and antisocial behaviour (NEF, 2009). Nevertheless there would appear to be a need to review what other early years interventions are already happening in each of the Local Authorities in Wales, and what evaluations have been undertaken of these. This may help the Welsh Government to decide where further evaluation is needed, and ultimately help develop early years interventions in Wales that 'work'.

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