First 1001 Days Movement

EVIDENCE BRIEF 1

The First 1001 Days

An age of opportunity

Summary

This Evidence Brief, produced by the First 1001 Days Movement, is one of a series setting out the case for action to support babies and their families.

This Brief explains the science of early brain development, which demonstrates why it is so important to get things right for babies in pregnancy and the first years of life. The first 1001 days are a period of uniquely rapid development when children's development is strongly influenced by their environment and experiences.

Early development shapes the architecture of the brain, which in turn influences a child's ability to take advantage of other developmental opportunities. It lays the foundations for lifelong health and wellbeing.

Development begins in the womb, and foetal brain development can be influenced by maternal wellbeing, physical and mental health. Pregnancy is also a good time to engage parents and caregivers who are motivated at this time to think about the health and wellbeing of their baby.

After birth, sensitive, responsive interactions and healthy relationships with caregivers are particularly important for early brain development.

Exposure to early adversity, particularly in the absence of nurturing relationships, can have long-lasting effects on development. There is, therefore, a clear case for reducing adversity and supporting early caregiving in the earliest years of a child's life.

1. The first 1001 days is a period of uniquely rapid development when children are particularly susceptible to their environment and experiences.

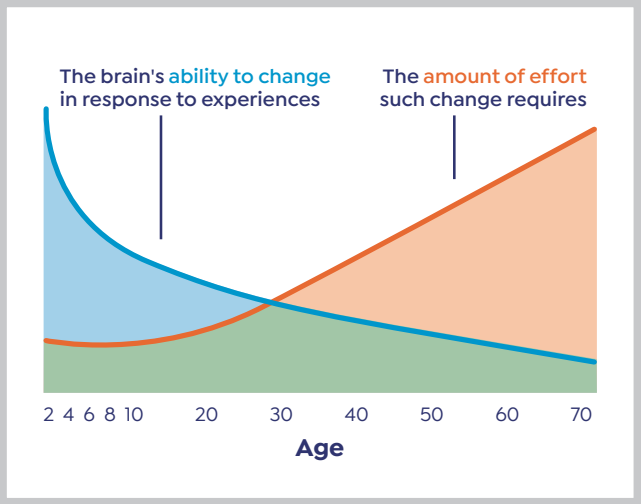
1.1. Babies' brains double in size within the first year of life[1]. One million neural connections are formed every second during this time[2]. After the age of two, some of these neural connections are pruned, allowing brain circuits to become more efficient. This process is shaped by early experience, neural connections that are used more often are strengthened and those that are used less are pruned away.

1.2. The way our brains develop is a product of the interplay between our genes and our environment. Our environments play a crucial role in shaping the developing brain in the first 1001 days. This is a period when we are particularly susceptible to positive or negative experiences, which strengthen or harm brain development. As a result, exposure to adversity during this period could have long-term implications[3,4].

> **"The early moments of life offer an unparalleled opportunity to build the brains of the children who will build the future."**
>
> UNICEF[5]

2. Early brain development lays the foundations for what happens next and influences a child's ability to take advantage of other developmental opportunities.

2.1. The brain can adapt and change throughout life, but its capacity to do so decreases with age. This means it is much easier to influence a child's development and wellbeing if we intervene earlier in life. Later interventions are also more likely to have an impact if a child has had a good start early on. Because interventions in the first 1001 days can have pervasive and long-lasting impacts on development, there is a strong case to invest in services during this period as described in the ***'Investing in Babies'*** Brief in this series.



Source: Lewitt (2009). Replicated from https://developingchild.harvard.edu/science/key-concepts/brain-architecture/

2.2. What happens in the first 1001 days does not determine a child's entire development, but getting things right in pregnancy and the first two years puts children on a positive developmental course, so they can take advantage of other opportunities.

2.3. Development builds on what went before. During the first 1001 days, babies and toddlers develop key capacities, such as language, which influence how they interact with and understand the world around them. Impairments in these early basic skills can impair other elements of a child's development.

> **"The scientific evidence on the significant developmental impacts of early experiences, caregiving relationships, and environmental threats is incontrovertible.**
>
> **Virtually every aspect of early human development, from the brain's evolving circuitry to the child's capacity for empathy, is affected by the environments and experiences that are encountered in a cumulative fashion, beginning early in the prenatal period and extending throughout the early childhood years.**
>
> **The science of early development is also clear about the specific importance of parenting and of regular caregiving relationships more generally. The question today is not whether early experience matters, but rather how early experiences shape individual development and contribute to children's continued movement along positive pathways."**
>
> National Research Council, USA[6]

3. Foetal brain development can be influenced by maternal wellbeing, physical and mental health.

3.1. During pregnancy, a baby's development is influenced by their mother's circumstances, experiences and behaviours. Research shows how exposure to risk factors in pregnancy can have a lifelong impact. We have long known that exposure to alcohol, smoking or poor nutrition in pregnancy can affect a baby's physical development. These can affect a babies' brain development too. A mother's mental health also has an important influence on foetal physical and neurological development[7,8].

- Stress and anxiety in pregnancy is associated with motor and mental delay in babies in the first year of life[9]
- Maternal distress during pregnancy is associated with an increased risk of mental health problems in children later in life[10]. One study showed that if mothers were in the 15% of the population with the highest levels of stress and anxiety in pregnancy, this doubled the chance of children having a mental health problem at age 13[11]
- Physical and mental stressors in pregnancy increase the risk that a child may be born prematurely or at low birth weight, both of which are established risk factors for later health, wellbeing and academic success[12]

3.2. Early relationships begin in pregnancy too. There is evidence to suggest that parents' perceptions of their foetus are associated with the quality of their relationships after birth[13], and that maternal-foetal attachment may be associated with later outcomes[14].

4. Pregnancy is also a good time to engage parents and caregivers who are motivated at this time to think about the health and wellbeing of their baby.

4.1. The first 1001 days involves a series of "life-changing transitions" for parents, their baby, and their relationships[15]. Not only is pregnancy an important period for early development, it is also a time of opportunity. During pregnancy, most families have contact with services and are often motivated to change and give their baby a good start. All parents, including those experiencing multiple disadvantages who may not find it easy to engage with services at other times, are likely to access maternity care.

> Research in Wales found that almost two-thirds of pregnant women at risk of their babies being removed in the first year of life made contact with antenatal services by the end of their first trimester. "Findings firmly challenge any assumptions that the majority of mothers who become involved with children's services avoid or delay contact with antenatal services; in fact, a sizeable proportion of mothers appearing to interact with antenatal services at a timely point in pregnancy"[16].

4.2. There is even evidence that parents' brains are adapting during this time, which increases the likelihood of them adopting positive changes that will enhance their babies' development[17].

> **"The first 1001 days is foundational to later good health, and a critical 'window of opportunity', when the infant brain is particularly susceptible to influences, parents are especially receptive to advice and support, and the developing child is most susceptible to harm from adverse environments."** WAVE Trust[18]

5. After birth, sensitive, responsive interactions and loving relationships with caregivers are particularly important for early development.

5.1. During the first 1001 days, nutrition, good health, safety and security are all important for early development. Nurturing interactions with a responsive caregiver are also particularly important for many aspects of a babies' development[19].

5.2. Babies need what has been called "serve and return interactions" with their caregiver. This means that when the baby's behaviour communicates something, this is met by an appropriate response from an adult. This might be looking at or naming what a baby points to; responding to their babbling with language or cuddling a baby when they cry. These sensitive responsive interactions help to build a healthy brain.

5.3. Parents who are 'tuned-in' and can respond sensitively and in a timely way, support their babies' early development in profound ways. If someone responds sensitively to a baby when they cry, for example, the baby learns that they matter, that they can rely on their parents to help them when they are upset, and that difficult emotions can be managed[i].

5.4. When babies receive comfort and care, they feel safe and can begin to explore the world around them. And when parents offer positive, playful interactions, they are providing stimulation that helps their child to learn and develop. If a parent talks to their baby, or names items that a baby sees, this helps early language development. Early interactions also shape a baby's developing sense of self, their understanding of who they are as a person.

"Some of the most important experiences that will shape the architecture of a baby's brain come from their interactions with significant adults in their lives. Babies naturally reach out for interaction through babbling, facial expressions and movements. The adults caring for them respond in kind with sounds and gestures. This back-and-forth process, known as 'serve and return', plays a vital role in developing the wiring of the brain." [20]

Center on the Developing Child, Harvard University

5.5. Early interactions shape a child's attachment style. Early attachment relationships between babies and their caregivers (the developing emotional bond between them) influence how a baby learns about himself and other people and sets a template for later relationships. If a baby develops a secure attachment, he will feel safe, able to explore the world and learn. Secure attachment is associated with a range of positive outcomes such as resilience, positive social skills, an understanding of emotions, and other aspects of human connection[21]. It is estimated that 10-25% of children experience disorganised attachment with their main caregivers, putting them at greater risk of poor social, emotional and educational outcomes[22].

"...the pathway followed by each developing individual and the extent to which he or she becomes resilient to stressful life events is determined to a very significant degree by the pattern of attachment developed during the early years."

John Bowlby[23]

i. Babies do not need their parents to be attuned all of the time. Research shows us that babies need a "good enough" parent, not a perfect one.

6. Exposure to early adversity, particularly in the absence of nurturing relationships, can have long-lasting effects on wellbeing.

6.1. Many factors can make it more difficult for parents to have the emotional capacity to provide their babies with the sensitive, responsive care they need. These might include mental health problems or the stress of living with poverty. Some parents face 'ghosts in the nursery' where unresolved trauma in their own early lives can intrude into their relationship with their baby[24].

6.2. In the absence of a nurturing relationship, emotional and cognitive development can be damaged[25]. It can be more difficult for babies who have not had responsive care to learn to regulate their own emotions, which in turn can affect their physiological responses – with long-term impacts on both their mental and physical health[26].

6.3. Chronic unrelenting stress in early childhood – such as exposure to conflict or abuse – can be extremely damaging to the developing brain, particularly if a child does not have a secure relationship with an adult who can help to 'buffer' the impact of this early adversity. This stress, known as 'toxic stress', leads to prolonged activation of the stress response systems which can disrupt the development of brain architecture and other organ systems and increase the risk for stress-related disease and cognitive impairment, into the adult years[27,28].

6.4. The evidence about the impact of childhood adversity is large and growing. It shows that early exposure to toxic stress can disrupt the building of healthy brain architecture. This, in turn, impacts physical and cognitive development, including immune system operation, memory, and emotional regulation, with widespread and long-lasting negative effects on mental as well as physical health[29]. Early exposure to adversity can also lead to changes to genes (known as epigenetic changes), which can be passed on to subsequent generations[30].

Another Brief in this series, ***the Many Benefits of Nurturing Care*** explains more about how early caregiving is related to a range of important outcomes.

The absence of nurturing interactions and the development of disorganised attachment relationships during early childhood are associated with several consequences[31-33] These include:

- A fight or flight response which is either more easily triggered or chronically dampened down
- Compromised threat and reward systems, so that one is quicker to perceive threat and less able to experience reward
- A tendency to be quick to anger, sadness and 'learned helplessness'
- A short attention span and problems concentrating
- Seeing the world as a dangerous place and being mistrustful of adults and other children
- Feelings of inadequacy and a lack of confidence
- A lack of self-belief and self-motivation
- A tendency to be over-dependent on the opinions of or support from others, while also being prone to reject help

A Call to Action

The evidence is clear: Supporting healthy development in first 1001 days is key to giving children the best start in life. The neuroscientific evidence shows us that the foundations for lifelong health and happiness are laid in the early years. Nurturing early relationships bring rewards for years to come. Conversely, early adversity can cast long shadows.

Getting things right in the first 1001 days brings significant benefits to babies, their families, and wider society over the lifetime of a child and beyond. Governments who want to be led by science must invest in babies' emotional wellbeing and development in the first 1001 days, giving every child a strong foundation in the earliest years of life.

The First 1001 Days Movement calls on national and local decision makers across the UK to value and invest in babies' emotional wellbeing and development in the first 1001 days, giving every child a strong foundation in the earliest years of life.

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