



**EARLY CHILDHOOD DEVELOPMENT:  
IMPACTS OF TRAUMA ON BRAIN DEVELOPMENT**



## EARLY CHILDHOOD DEVELOPMENT: IMPACTS OF TRAUMA ON BRAIN DEVELOPMENT

### WHY IT MATTERS

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According to the most recent national estimates of the age of children in foster care<sup>1</sup> children zero to five years represent 41% of the total foster care population.

The largest percentage of children entering foster care in 2016 was younger than one year old (18%) and for all children age five and under entering foster care, they represented almost half of the population of children

entering foster care (49%).<sup>2</sup> Babies are the least likely of all age groups to exit care to permanency within six months. Not only are these numbers concerning, but the vulnerability is extremely high for babies in care. Many are born low birth weight and prenatally exposed to alcohol or addictive drugs. Developmental delays occur at rates that are four to five times

greater than that of children not involved in the child welfare system.<sup>3</sup> Until recent years, most child welfare professionals believed that these children are easy to

parent, more portable and easier to place among different foster families as they do not yet have the ties to schools, peers and community.<sup>4</sup>

**Early experiences affect the development of brain architecture, which provide the foundation for all future learning, behavior, and health.**

*– Center on the Developing Child*

An understanding of brain research is vital for

serving children involved in the child welfare system. Many children impacted by abuse and neglect and removed from their parent's care have experiences that negatively affect their brain development. Understanding how the brain rewires itself, prunes unused synapses and functions during sensitive periods helps lead to specific interventions that can improve the child's chances of

educational achievement and life success. Intervening early in the lives of young children impacted by abuse and neglect is critical. As we understand the impact of the positive and negative influences on children's brain development we know what should be done to prevent and reduce these influences while supporting and facilitating the positive ones.

There are several salient aspects of early brain development and possible insults to the brain that explain why infants and young children involved in the child welfare system are particularly vulnerable. These include persistent fear and anxiety (toxic stress), prenatal exposure to substances and alcohol, poverty and attachment or lack thereof to an accessible, loving and known caregiver. Fortunately, an understanding of early learning brain science can support a child's resilience and ability to develop positively despite these negative impacts.

## ADVOCATES IN ACTION

### ACTIONS

Strategies for alleviating impacts to the developing brain of a young child impacted by abuse and neglect are identified below for toxic stress, prenatal substance exposure, and attachment. While these are addressed separately, they are naturally intertwined and one often impacts the other.

## EARLY BRAIN DEVELOPMENT – A PRIMER<sup>13</sup>

**At birth, the brain is the most undifferentiated organ in the body.** The first five years of a child's life determine the organization and function of the brain, define personality traits, develop mechanisms for coping with stress and emotions and structure the learning process. The brain of a newborn is about one quarter the size of the adult brain and has about 100 billion neurons ready and waiting to be connected to other neurons. As the infant interacts with the environment, synapses are formed between the neurons allowing areas of the brain to communicate and function together in a coordinated way. The number and organization of the connections in the brain influence everything the child does, from learning language to recognizing letters to managing complex social relationships, something that scientists refer to as "executive functioning".

**In most areas of the brain, no new neurons are formed after birth. However, the brain continues developing by wiring and rewiring; forming new connections and breaking or pruning others.** At eight months of age, a baby may have 1,000 trillion synapses in his brain, many more than will be present in adulthood. As a child becomes older, the synaptic connections that are not being used will be eliminated or "pruned" and those with a purpose will be kept. The first few years of life are the critical period of rapid proliferation and overproduction of synapses and also a time of continual pruning. By five years of age, the brain is 90% of its adult size, yet the formation of synapses continues (more slowly) into adulthood which allows the brain plasticity in development of many functions. However, some areas of the brain are less malleable over time. Scientists are discovering critical or sensitive periods in brain development, primarily associated with the child's age. At these times, specific environmental stimuli must be present for the child to develop normal capabilities for future growth and to prevent dysfunction.

## TOXIC STRESS

The human body and brain is built to respond in a self-preserving way to stress. Small amounts of positive stress are useful during the first few years of life for normal development. When stress is persistent and excessive, the human body and brain adapt and development is dramatically changed. Infants exposed to intense stress over time, such as situations of abuse, neglect, harsh or unresponsive parenting, family violence and/or parental mental illness experience long-term exposure to elevated levels of cortisol and adrenaline.<sup>5</sup> This flood of stress hormones makes it harder for the neurons to form connections in the child's brain that are necessary for continued development. Unlike peers experiencing positive and tolerable levels of stress, these hypervigilant infants and children cannot easily or quickly soothe themselves or calm down once upset. Infants under great amounts of stress may have behaviors such as apathy, poor feeding, withdrawal and failure to thrive. They may experience problems with self-regulation that caregivers may view as colic, excessive fussiness and sleeping and feeding problems.

### ACTIONS FOR SUPPORTING BABIES EXPERIENCING TOXIC STRESS:

- **Ensure that infants and young children are in placements with loving, consistent and supportive caregivers.** A powerful "stress hormone blocker" for infants and young children is a loving, supportive relationship with at least one caregiver. Ideally, this will be the primary caregiver for the baby and can include the birth parent, foster parent, or relative caregiver.
- **Educate caregivers about the impacts of toxic stress on baby's behavior.** Some babies experiencing toxic stress tune out the world around them and this translates to the caregiver as a baby who is easy to manage because they never cry or fuss. However, it is a behavior to be concerned about. The caregiver will need to know how to connect with the baby in a meaningful way – physical contact primarily. On the other hand, a fussy baby will require a lot of physical comfort as well, so they can feel safe, which will help their cortisol levels go down.
- **Connect caregivers to in-home support services** with professionals that can model for them ways to support the baby experiencing the effects of toxic stress. Home visiting programs can be very helpful in this regard.<sup>6</sup>
- **Help create a network of support for the caregiver.** Caring for a baby in general is often a stressful and isolating experience. Caring for a baby who is constantly fussy or difficult to soothe can be exhausting and frustrating. Help the primary caregiver build a network of support so they can have respite and someone to talk to when the going gets tough.
- **Support parents during visitation by modeling for them how to care for the baby and provide comfort.** Reassure them that they are important to the baby – especially babies that tend to withdraw during stressful situations. Consider having visits in the presence of the primary caregiver for the child who will lend a sense of safety and calm to the baby.
- **Encourage regular routines for caregiver and child.** Babies and children impacted by trauma and toxic stress benefit when they have predictable, regular routines. This helps them develop their self-regulation strategies, and gives them assurance of knowing what is coming next.



## IMPACTS OF PRENATAL AND ALCOHOL SUBSTANCE ABUSE

A large majority of infants are placed in foster care with a removal reason of parental substance neglect. Infants with prenatal exposure to drugs and alcohol are more likely to be born prematurely, weigh less, have smaller heads and be shorter than unexposed infants. They

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also tend to exhibit difficulties in delaying gratification, tolerating frustration and handling stress. The timing and degree of exposure may impact children's development in different areas. However, isolating the effects of one substance is often difficult as infants may have been exposed to multiple substances and live with other environmental risks such as poverty, poor maternal nutrition or inadequate postnatal care.

### ACTIONS FOR SUPPORTING BABIES PRENATALLY EXPOSED

- **If you know or suspect a baby has been prenatally exposed to drugs or alcohol** ask that they be screened for developmental delays or disorders. This is important to establish the need for early intervention services.

- **Learn about the different impacts that the child may experience** related to the substance they were exposed to. While not a lot is known about the long-term impacts of some substances to the developing child (e.g., opioids), for some, like the effects of alcohol exposure prenatally, a lot of information and recommendations are known and can be implemented right away.

- **Recognize the importance of early childhood education.**<sup>7</sup> The baby or young child may qualify for early intervention services through the *Child Abuse and Prevention Treatment Act (CAPTA)* and/or *Part C services* under the *Individuals with Disabilities Education Act (IDEA)*. Part C services may include family training, counseling, an home visits, medical services, vision, orientation and mobility services an physical therapy, to name a few.

- **Ensure that the substance issues of the parents are addressed.** Helping ensure that the parent(s) are receiving treatment for their substance use disorder is important regardless of whether the case plan is reunification or something else. Children are part of the larger family structure and when parents are supported, this in turn supports their children.

## ATTACHMENT

A strong, nurturing and consistent relationship with a caregiver(s) is the key to the overall healthy development of children. It is not the biological connection of the caregiver to the child, but the *quality of the relationship* that is most important

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in development. For a long time, developmental researchers have exemplified the positive outcomes of strong and loving relationships. Through neuroscience, they have observed that these relationships produce physiological changes in the brain resulting in stronger and more complex brain structures.

In order to create the many meaningful connections in the brain during the first few years of life, children must feel safe to explore the world, be able to manage stress, and feel some control over the world around them. Having a secure bond with a caregiver sets the stage for those tasks to be accomplished.

## ACTIONS FOR SUPPORTING ATTACHMENT

- **Provide in home supports that help with the caregiver/child attachment.** Provide role modeling of effective strategies for how to better interact with the child that are developmentally appropriate.
- **Carefully consider transitions in line with critical developmental periods.** Babies who are securely attached (generally to one preferred caregiver) at 6 to 18 months, are vulnerable to toxic stress and other trauma insults if they are abruptly removed from a preferred caregiver. If a placement change needs to occur, make sure careful transition planning occurs that will support the baby's developmental needs.
- **Make the first placement the only placement.** Stable placements are important for all children and youth in foster care, but for babies in care, they are especially important. A caregiver is the center of a baby's universe and having to change caregivers can upend that baby's world.
- **Ensure frequent and meaningful visitation** in natural, family like settings. For babies and young children, quantity is as important as quality in the visits as they cannot keep the memory of their time with parents in the same way an older child can. Meaningful visits include having the parents engage in caregiving routines with their child just as if they were caring for the child full time.

## BRIGHT SPOT

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### *EARLY EXPERIENCES MATTER: IN-SERVICE TRAINING VIDEO AND SUPPORT MATERIALS, CASA OF IOWA*

Several years ago, as a result of participating in Safe Babies Court hearings and learning about the importance of “serve and return” interactions between young children and their caregivers, Clare Gee, CASA Program Supervisor, developed a video and training materials with the purpose of educating CASA volunteers assigned to children four years old and younger. She noted that when reading observation summaries of the parent/caregiver-child interaction, the summaries weren’t useful in understanding the quality of the interaction and identifying the strengths and gaps. Educating volunteers on “serve and return” provided them with a useful and meaningful way of summarizing these observations. The 16 minute video that Gee produced describes the “serve and return” interaction and provides visual images of what these interactions look like when there are quality exchanges occurring. Gee also developed an “Infant and Toddler Observations and Warning Signs” checklist that volunteers use during their observations.

Before any CASA is assigned to a case with a child four years or younger, they watch the video and answer questions to assess that they understand the “serve and return” concepts. Gee reports that the observation summaries changed quite dramatically in terms of the specificity of detail in the interactions. So much so that the judges who were reading the summaries complained about them being too long and detailed. This led to training for judges to help them better understand the importance of “serve

and return” and how these interactions can reveal the strengths and gaps in the relationship, leading to more directed recommendations for parents. The judges also viewed the video and received similar training to the CASA volunteers’. After training, they are now more inclined to interpret the observation summaries with a strength-based lens. They are much more aware of how critical these early years are in a young child’s healthy development, and are more likely to ask for a CASA to be assigned to the babies and toddlers who come before them.

In order to ensure that observations are distributed to all team members on a case, they are provided to the child welfare agency (DHS) case workers and the Guardians ad Litem assigned to the child at least once a month. CASA volunteers are available to talk to these colleagues about their observations and recommendations.

Using a peer coordinator model, called “Coaches,” there are five coaches in all and two assigned to the Safe Babies Court to support CASAs as every case in the Safe Babies Courts has a CASA volunteer assigned. The coaches are knowledgeable in the principles of early development and provide needed guidance to CASAs and the rest of the team. Gee notes how critical the team approach is in helping to achieve the best safety, permanency and well-being outcomes for the babies and toddlers served in them.

For more information, contact [training@casaforchildren.org](mailto:training@casaforchildren.org)

*Early Experiences Matter* video link:  
<https://youtu.be/l4V7MSk2HZs>

## SELECTED RESOURCES

Name	Description
<a href="#">Attachment-Bio-Behavioral-Catch-Up (ABC) Intervention</a> <sup>8</sup>	<p>This intervention is tailored to teach birth parents and foster parents how to address attachment concerns of children who have been abused and/or neglected.</p>
<a href="#">Early Head Start and Head Start for Children in Out-of-Home Care: Q and A</a> <sup>9</sup>	<p>This Q and A provides important information on the supports and services provided by Early Head Start and Head Start programs, as well as the eligibility requirements of prioritizing serving young children in out-of-home care in these settings.</p>
HelpGuide.org, <a href="#">Building a secure attachment bond with your baby</a> <sup>10</sup>	<p>This site provides tips for parents and caregivers on how to securely attach with their babies. It also includes a section on myths and truths that can be very helpful to a new or struggling parent.</p>
<a href="#">Promoting First Relationships</a> <sup>11</sup>	<p>Promoting First Relationships (PFR) is a home-based program designed to strengthen relationships between infants and toddlers and their caregivers, to support socio-emotional development in these children, and to improve caregiver sensitivity. An experimental study found that children in the group receiving PFR had significantly higher socio-emotional competence scores than children in the control group at the post-test evaluation.</p>
<a href="#">Zero to Three</a> <sup>12</sup>	<p>This organization provides extensive resources and information on raising healthy and happy babies and children. It includes several sections addressing the needs of babies and their caregivers who have been impacted by trauma, experienced attachment disruption and are living in out-of-home care.</p>



## ENDNOTES

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- 1 U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau, <https://www.acf.hhs.gov/cb>
- 2 Ibid.
- 3 Ibid.
- 4 Ibid.
- 5 National Scientific Council, 2011. <https://developingchild.harvard.edu/science/national-scientific-council-on-the-developing-child/>
- 6 See Issue Brief "Home Visiting Programs"
- 7 See Issue Brief "Early Interventions in Child Welfare"
- 8 \_\_\_\_\_
- 9 [http://www.theotx.org/wp-content/uploads/2014/09/HeadStartEarlyHeadStart\\_OutofHome.pdf](http://www.theotx.org/wp-content/uploads/2014/09/HeadStartEarlyHeadStart_OutofHome.pdf)
- 10 <https://www.helpguide.org/articles/parenting-family/building-a-secure-attachment-bond-with-your-baby.htm>
- 11 <https://www.childtrends.org/programs/promoting-first-relationships/>
- 12 <https://www.zerotothree.org/>
- 13 <https://developingchild.harvard.edu/>