



**August 2013:  
Adverse Childhood Experiences and Toxic Stress**

In the late 1990s, a study was done by a California health care provider asking 17,000 patients to complete a questionnaire about their negative childhood experiences - including exposure to domestic violence, abuse, and neglect. The study - now known widely as the "Adverse Childhood Experiences" study or the "ACEs" study - revealed that children with more negative experience were dramatically more likely to experience heart disease, obesity, alcohol and drug problems, suicide attempts, depression, and more as adults. (See links to the CDC below for details.) To be clear, trauma alone isn't a determining factor. Stabilizing, supportive factors in a child's environment and a host of individual traits also influence how a particular child experiences her world, but ACEs raise a child's risk of negative outcomes dramatically.

Over the past fifteen years since the study was first released, growing understanding of children's early brain development has deepened our understanding of this research. Developmental neuroscience has given us the idea of Toxic Stress. Unlike the typical stresses of a child's life that nurturing relationships can mediate - a new school, the birth of a younger sibling, even the death of a grandparent - toxic stress occurs when ongoing exposure to violence or other risk factors changes a child's brain chemistry. This stress floods the brain with stress hormones and hinders the development of regions like the hippocampus and hypothalamic-pituitary-adrenal axis that are involved in memory, emotional regulation, executive function, and learning. Toxic stress and its damaging effects on development and health have been widely covered in the news ([Poverty as a Childhood Disease](#) *NY Times*, [The Poverty Clinic](#) *The New Yorker*, [Status and Stress](#) *NY Times*, [Research Traces Impacts of Childhood Adversity](#) *EdWeek*, [Welcome to Hell: Philadelphia Has a Serious Case of Post-Traumatic Stress Disorder](#) *Philadelphia Magazine*) - but still too many children, especially Head Start children, are at risk of experiencing toxic stress.

Fortunately, improved understanding of these issues has led to efforts to document Head Start's effects on toxic stress and to develop better interventions for the most vulnerable children. Researchers in Oregon [recently found](#) that Early Head Start significantly reduces the rate of child abuse in children followed through age 14, and researchers around the country are working on studies how Early Head Start can better [buffer children from toxic stress](#). These lessons from science help us better understand how to meet the needs of the children we serve and affirm the importance of the Head Start model of comprehensive, nurturing care.

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## Resources

### Centers for Disease Control and Prevention

ACEs are such a health threat they fall under the auspices of the CDC. Visit their website to find resources including:

- A staggering [interactive infographic](#) that shows how risk increases with ACEs
- An overview of the [Adverse Childhood Experiences study](#) including data and surveys
- CDC's [resources](#) on Safe, Stable, Nurturing Relationships and Environments to prevent childhood maltreatment

<http://www.cdc.gov/violenceprevention/childmaltreatment/index.html>

### The Institute for Safe Families

The Institute for Safe Families provides a range of resources on brain development, trauma, and discipline for families and providers, including downloadable [booklets for parents](#) and extensive [content](#) from their recent national summit.

<http://www.instituteforsafefamilies.org/>

### ACEs Connection

ACEs Connection is a community of practice for those working on reducing or addressing ACEs and helping children develop resilience. If you'd like to be part of an on-going discussion, you may want to join.

<http://acesconnection.com/>

### Head Start-Trauma Smart

If you missed their session at the OHS Leadership Institute this spring, you can visit the Crittenton Children's Center's Head Start-Trauma Smart site to [learn more](#) about how they've worked with Head Start children with multiple adverse early experiences to provide cognitive behavior therapy and intervene early. You can also listen to a [podcast](#) with director Avis Smith about trauma and children's emotions.

<http://www.saintlukeshealthsystem.org/head-start-trauma-smart>

### Department of Justice

A 2009 study by the Justice Department found that "Sixty percent of American children were exposed to violence, crime, or abuse in their homes, schools, and communities...[and] almost 40 percent of American children were direct victims of two or more violent acts." To respond, they created the [Defending Childhood](#) initiative. Find [resources](#) here, as well as the [Executive Summary](#) of their Report.

<http://www.justice.gov/defendingchildhood/index.html>

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## Research

### The Lifelong Effects of Early Childhood Adversity and Toxic Stress

*by Jack Shonkoff and Andrew Garner for the American Academy of Pediatrics*

This technical report from the American Academy of Pediatrics goes in depth into the regions of the brain that are involved in stress responses and how their development interrelates with experience and environment over time. In particular, Shonkoff and Garner make the link from toxic stress to ACEs to adult health outcomes and emphasize that while supporting healthy brain development and low stress early environments is good for school readiness, it's also good for lifelong health and wellness. The authors call for health policy to consider how efforts to promote adult health should start with strengthening child health and with reducing or mediating children's toxic stress. While they make their case to pediatricians, these themes will find a broad audience in Head Start and this report provides an excellent primer to the science of toxic stress for those interested.

<http://pediatrics.aappublications.org/content/129/1/e232.full.pdf>

### **Family-based training program improves brain function, cognition, and behavior in lower socioeconomic status preschoolers**

*by Helen Neville, Courtney Stevens, Eric Pakulak, Theodore Bell, Jessica Fanning, Scott Klein, and Elif Isbell for Proceedings of the National Academy of Sciences*

Attention is a key component of early development that is essential later for school - particularly selective attention, the ability to ignore one stimulus and attend to another. Previous research had shown that children from low socioeconomic backgrounds tended to have weaker selective attention, potentially due to chaotic environments and weaker parent-child interaction patterns. The authors here set out to provide an 8-week family-based intervention to Head Start children and used brain scanning to measure changes in the children's brains. The intervention, "Parents and Children Making Connections - Highlighting Attention" is described in the appendix to their paper and focused on reducing family stress, appropriate discipline, language use, and supporting children's attention. Separate sessions engaged parents and children. Children in the PCMC-A group improved not only their attention relative to control groups but also their nonverbal IQ and receptive language abilities; effect sizes ranged from one quarter to one half of a standard deviation. Parents in PCMC-A reported reduced family stress and demonstrated better play behaviors with their children.

While the children in this study were not necessarily living in circumstances of toxic stress, these findings reflect the flexible development of young brains and the change that can be accomplished by Head Start and Early Head Start to strengthen children and families. These findings underscore the work Head Start does to engage parents and the particular intervention may inspire other programs to consider their own strategies. While this study used a limited sample, efforts are underway to track these children and to adapt the intervention for Spanish speakers. In time this work may offer a new tool for closing the school readiness gap for low income children.

<http://www.pnas.org/content/early/2013/06/26/1304437110.full.pdf+html?sid=c9f85fb5-ddd5-46e3-8d5d-69020273640b>

### **Same Place, Different Experiences: Bringing Individual Differences to Research in Child**

## Care

*by Deborah Phillips, Nathan Fox, and Megan Gunnar for Child Development Perspectives*

Practitioners know that children respond differently to early learning settings; research has long documented mixed benefits of child care on the development of social skills. In this article, the authors discuss how children's individual temperaments are rooted in their brains' sensitivity to perceiving stress and that sensitivity makes outcomes vary, especially for highly reactive children. In particular, greater hours of care have been shown to increase shyness or acting out in some children while enhancing sociableness in others, but higher quality care is shown to reduce isolation from peers for children who were more anxious or more reactive initially. Notably for Head Start staff, the features of full day care that heightened children's stress were intrusive, overcontrolling caregiver-child interactions, long periods of teacher-directed activity, and frequency whole-group transitions. While none of these are recommended practice in Head Start, this research underscores the reasons they should be avoided in the care of young children. The authors recommend much deeper research into understanding variation among children and how it interacts with different child care settings and quality levels.

<http://onlinelibrary.wiley.com/doi/10.1111/j.1750-8606.2010.00155.x/abstract>

## **The Science of Neglect: The Persistent Absence of Responsive Care Disrupts the Developing Brain**

*by the Center for the Developing Child*

Scientific research shows that chronic neglect during the early years may cause problems in a child's cognitive and executive functions, as much as, if not more than, physical abuse. The authors of this report use findings from neuroscience, biology, and other sciences to better understand neglect and have identified and described four categories of neglect to help practitioners think through interventions. The report reviews other research on neglect, mostly on cases caused by institutions, such as inexperienced staff in child-care service or foster care. Children who have suffered neglect may have difficulty recognizing emotions in others. They also suffer from poorer brain metabolism, connection failure, abnormal stress regulation and less self-control, burying the seed of later psychological and social disorders. Furthermore, chronic neglect may damage the child's ability to cope with adversity - neglected children are shown to have increased anxiety and failed cortisol regulation. They also exhibit lower IQ scores and, subsequently, worse academic performance. The good news is that such consequences can be prevented through timely interventions. Despite all these scientific findings, resources are limited to ensure the early intervention. In all, the authors recommend redirecting resources from rehabilitation to early child-care intervention targeted at neglected children.

<http://developingchild.harvard.edu/index.php?cID=476>

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View this Research Blast and an archive of others at  
[http://www.nhsa.org/research/research\\_blast\\_archive!](http://www.nhsa.org/research/research_blast_archive!)

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Do you know of other recent research that may be of interest to the Head Start field? Do you have other questions, comments or concerns? E-mail Emmalie Dropkin ([edropkin@nhsa.org](mailto:edropkin@nhsa.org)).