



ANYTHING THAT IS AN  
INTERGENERATIONAL  
TRANSMISSION  
OF RISK CAN BE  
TRANSFORMED INTO AN  
INTERGENERATIONAL  
TRANSMISSION OF  
OPPORTUNITY.

**Dr. Sarah Watamura**  
Ascend Fellow and  
Associate Professor,  
University of Denver

# EMERGING BRAIN SCIENCE INFORMS NEW INTERVENTIONS — AND EMPOWERS PARENTS

Over the last decade, research has emerged on the powerful connections among adverse childhood experiences (ACEs), toxic stress, and long-term health outcomes for children. Adverse childhood experiences, which include exposure to trauma and toxic stress, are not income-dependent conditions — they occur in the lives of families across the economic spectrum.

But we know that children who are exposed early to violence, homelessness, food insecurity, and neglect are at a high risk for developing physical, emotional, and behavioral problems later in life. Toxic stress can occur when a child experiences strong, frequent, and/or prolonged adversity—such as physical or emotional abuse, chronic neglect, caregiver substance abuse or mental illness, exposure to violence, and/or the accumulated burdens of family economic hardship—without adequate adult support.<sup>7</sup> Without early intervention, exposure to ACEs and toxic stress can lead to an intergenerational cycle of instability and poor outcomes in core areas such as education, health and well-being, and economic security.

## EDUCATING TWO GENERATIONS

Caring, responsive adults play a crucial role in protecting young children from the damaging effects of toxic stress. Too often, however, parents themselves have been exposed to ACEs and experience resulting

educational and economic struggles that make it challenging to manage the stresses of parenting, working, and building stability for his or her family. Understanding the impact of ACEs in their own lives is an important starting point for these mothers and fathers.

“The ACE survey and tool is so concrete that it has dramatically helped us to communicate that we work with young women who find themselves in circumstances over which they have no control and have made the best choices they could,” says Jeannette Pai-Espinosa, president of The National Crittenton Foundation (TNCF), which leads a group of agencies supporting marginalized girls, mothers, and their families through supportive care, education, and housing. The ACE Survey, which was piloted in the mid-1990s by Kaiser Permanente, “is a quick yes-or-no instrument that asks you about your exposure to 10 forms of childhood adversity. ACE does not cover every experience that could be trauma-producing for a child, but it is a place to start and is valuable because of the amount of data available,” explains Pai-Espinosa.

The ACE survey uses a scoring system of 0 to 10. With scores of 4 or greater, there is an exponential increase in one’s likelihood for a range of potential challenges, from being diagnosed with a chronic disease to serious problems at work (absenteeism) to early onset of sexual activity, which puts young women at risk of unintended pregnancy.<sup>8</sup> Since the survey covers things that happen at work, it has significant

impact on two-generation approaches to move families beyond poverty, says Pai-Espinosa. “A parent’s ACE score doesn’t have to be passed onto the child, but it most often does without some form of intervention.”

## ACE SURVEY: EMPOWERING FAMILIES AND PROVIDERS

TNCF has found the ACE survey, developed by Dr. Vincent Felitti, to be an empowering tool to help women understand the cause of their current mental state and economic circumstances, giving them a place of clarity from which to start moving forward. Through the Ascend Network partnership, Pai-Espinosa has led the development of a toolkit that will be released in 2015 and will highlight intervention opportunities based on ACE scores, such as intensive mental health treatment. Elsewhere, Ascend Fellow Katie Albright, executive director of the San Francisco Child Abuse Prevention Center (SFCAPC), has led an effort to integrate the Strengthening Families Framework, which identifies five protective factors for promoting two-generation health and well-being, into SFCAPC’s interventions.

Given the concrete evidence it provides, the ACE survey can serve as a rallying point for cross-sector players to come together to create innovative interventions for young children and their parents. Staff at the Children’s Home Society of Washington State (CHSW), which provides center-based early childhood services, home visiting, mental health services, and policy work, among other things, use the survey, along with an

understanding of the mechanics behind ACE trauma, to activate a broad new partnership for families.

“Toxic stress and early brain development gave us a mechanism for why a score of 5 predicted what it did: over-activation of the developing nervous system in the absence of buffering relationships with responsive, caring adults. This gave us something to really think about,” says Jason Gortney, director, Catalyst for Kids at CHSW. Gortney and his colleagues gathered experts from across disciplines — implementation science, intervention science, neuroscience, and psychology — to develop a series of “cheap, rapidly prototyped” pilots that increase the buffering, or supportive relationships, in the lives of low-income children. Two examples include:

- **FIND (Filming Interactions to Nurture Development):** This video coaching model is designed to build on the innate responsiveness that is in every parent-child relationship. In the video, the parent and child engage in a “serve and return” exchange, in which the young child sends out a cue and the adult returns the serve with an appropriate, supportive, encouraging, meaning-giving response. Afterward, providers create a highlight reel for the parent, demonstrating what worked and what could be improved upon in the parents’ supportive reactions to the child’s needs.
- **Partnering early learning and child welfare experts:** Gortney and his team have brought early learning providers, including infant mental health providers and the early intervention system, together with child welfare to create a case planning process for children coming into the child welfare system, while determining which services best meet the needs of these children and how partnerships between organizations could improve the services provided.

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– Jeannette Pai-Espinosa, president,  
The National Crittenton Foundation



(from left to right) Jeannette Pai-Espinosa, The National Crittenton Foundation; Ascend Fellow Katie Albright, San Francisco Child Abuse Prevention Center

## UNDERSTANDING STRESS AS A RISK FACTOR

The ACE Study advances understanding of and provides evidence for new policies around early life stresses and long-term outcomes. Emerging science that builds on this and other research is also an important resource. As Sarah Enos Watamura, PhD, associate professor of psychology at the University of Denver and Ascend Fellow points out, “there is 40 years of literature connecting ‘early-life stress’ to all kinds of outcomes.” Through this literature and her own work, Watamura has identified a range of stressor impacts:

- Stress influences the risk of metabolic syndrome, risk of obesity, immune system function (better able to handle wounds, less able to fight off sickness).

- Stress changes cognitive priorities — focuses attention on determining danger and focuses memory on keeping track of where you are not safe.
- Long-term, elevated stress increases anxiety, accelerates aging.

Stress systems are designed to protect us in the event of danger — but over-activation of stress systems can be damaging to health. This is why, says Dr. Watamura, managing stress at the earliest moments has significant implications for a child's long-term outcomes.

“Babies’ brains are not predefined: They are ready for new experiences that will shape development. Open, plastic, underdeveloped brains are also very open to negative experiences,” Dr. Watamura notes. “Babies who had higher stress

indicators during pregnancy take longer to recover from potent stressors — babies learned to be vigilant and watch for danger during pregnancy.”

This relates, too, to “epigenetic transmission,” which in this context means that the way people are parented influences the way their brain responds when they are a parent. Dr. Watamura’s research has found that “mothers who report better parenting when they were children have brains that are more responsive to their children’s cries — this indicates the quality of care they will provide that child.”

For organizations working with families struggling with the effects of poverty, homelessness, violence, and trauma, these findings reinforce ongoing work and also underscore opportunities to innovate in areas such as pre-screening for enrollment in mental health services, policy advocacy for home visiting resources, and increased support for student parents. “Knowing how something functions allows for more potential intervention and for the possibility of assessment,” says Dr. Watamura. “Knowing where someone starts gives you better information to work with.”

website. Direct-service providers may want to consider testing the survey through their mental health services.

- **Examine existing levers to intervene with parents and children, and consider how emerging brain science may bolster evidence to support increased funding:** In Washington state, home-visiting services are being used to increase mental health support for parents. With the emerging evidence around brain science and the efficacy of home-visiting interventions, the Children’s Home Society was able to augment its budget for this program.
- **Educate parents and providers on what toxic stress and ACEs mean to them:** Understanding the long-term impact of events and stressors that were beyond a parent’s control as a child can be clarifying and therapeutic, and set him or her on a better path to parenthood. Provide literature and tools for families on the impact of trauma and issues like food insecurity, and then provide opportunities for those families to access resources like housing, food assistance, and mental health services.

## TAKE 2-GEN ACTION

- **Learn more about brain science:** Identify key resources to equip you and your team with an understanding of the correlations among brain science, toxic stress, and poverty. Consider partnering with local experts or researchers to increase professional development and learning about why strengthening understanding of ACEs can improve service delivery or policy development in your work.
- **Adapt and implement the ACE Survey:** The ACE Survey is available for adaption and implementation through an open-source website at the Centers for Disease Control and Prevention

## RESOURCES TO TAP

- Mind in the Making, Ellen Galinsky ([www.mindinthemaking.org](http://www.mindinthemaking.org))
- Center on the Developing Child, Harvard University ([developingchild.harvard.edu](http://developingchild.harvard.edu))
- Child Health and Development Lab, University of Denver ([www.du.edu/psychology/child\\_health\\_and\\_development/Home.htm](http://www.du.edu/psychology/child_health_and_development/Home.htm))
- “Innovation in Washington State,” Frontiers of Innovation ([developingchild.harvard.edu/activities/frontiers\\_of\\_innovation/foi\\_activities/innovation\\_in\\_washington\\_state](http://developingchild.harvard.edu/activities/frontiers_of_innovation/foi_activities/innovation_in_washington_state))