

ACEs Resource Packet: Adverse Childhood Experiences (ACEs) Basics

What are ACEs?

The term *Adverse Childhood Experiences* (ACEs) refers to a range of events that a child can experience, which leads to stress and can result in trauma and chronic stress responses. Multiple, chronic or persistent stress can impact a child's developing brain and has been linked in numerous studies to a variety of high-risk behaviors, chronic diseases and negative health outcomes in adulthood such as smoking, diabetes and heart disease. For example, having an ACE score of 4 increases a person's risk of emphysema or chronic bronchitis by 400 percent and suicide by 1200 percent.^{i ii iii iv}

What is the "ACE Study"?

Published in 1998 as a collaboration between the Centers for Disease Control (CDC) and Kaiser Permanente, the original ACE study was one of the first studies to look at the relationship between chronic stress in childhood and adult health outcomes. Data were collected between 1995-1997 from 17,000 Kaiser members who completed surveys on their childhood experiences and current health status and behaviors. Many states are now collecting state-specific ACE data through the Behavioral Risk Factor Surveillance System (BRFSS), an annual phone survey established by the CDC that collects health-related risk factors, chronic health conditions and use of preventive services on U.S. adults.

How are ACEs measured?

ACEs have been measured in research, program and policy planning contexts.^v For example, the 2011/12 National Survey Children's Health included nine ACEs items adopted from the original ACE study. Additionally, tools to assess ACEs in clinical settings are available. In the original ACE study, researchers measured 10 ACEs. Counting each ACE as one, individuals were reported as having an ACE score of 0 to 10. Measures included:

- Physical, emotional and sexual abuse
- Physical and emotional neglect
- Households with mental illness, domestic violence, parental divorce or separation, substance abuse, or incarceration

You can calculate your own ACE score here: <https://acestoohigh.com/got-your-ace-score/>

Please note that there are many other sources of childhood trauma that are not included in the above mentioned ACEs scoring tool. For example, exposure to community violence or food insecurity is not included in the ACE score.

What is the prevalence of ACEs?

ACEs are common and pervasive in our society. In the original ACE study of adults, 64% of adults reported at least one ACE. More than one in five reported three or more ACEs and 12.4% reported four or more ACEs.

In a study based on the 2011-12 National Survey of Children's Health (NSCH), researchers found that almost half (47.9%) of US children ages 0-17 have had at least one of nine key adverse childhood experiences and 22.6% have had two or more. This study also looked at the variation among states and found the prevalence of children with one or more ACEs ranges from 40.6% in Connecticut to 57.5% in Arizona. ^{vi} To learn more about racial, gender and health status differences in ACEs prevalence, please visit the CAHMI Data Resource Center and explore the NSCH data (www.childhealthdata.org)

What is the impact of ACEs?

The original ACEs study found a relationship between the numbers of ACEs and a number of high-risk behaviors and negative health outcomes across the lifespan. As the number of ACEs a person has increases, so does the risk for outcomes such as heart disease, depression, heart disease, cancer, smoking and obesity.

Additional information on ACEs and the ACE study can be found here (see also the *Resources* section):

- Centers for Disease Control and Prevention, Violence Prevention Program, ACEs Study. <http://www.cdc.gov/violenceprevention/cestudy/about.html>
- Robert Wood Johnson Foundation, *The Truth about ACEs*. <http://www.rwjf.org/en/library/infographics/the-truth-about-aces.html>
- ACEs Connection. <http://www.acesconnection.com/blog/aces-101-faqs>

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^v Bethell, C, Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., Braveman, P. *Methods to Assess Adverse Childhood Experiences of Children and Families: Toward a Life Course and Well-Being Based Approach in Policy and Practice*. *Academic Pediatrics* (forthcoming).

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ACEs Resource Packet: The Science Behind ACEs

What is the neurobiology of trauma and stress?

Stress is a normal response to challenging life events. However, when stress reaches excessive levels, it can affect how a child's brain develops. The Center for the Developing Child at Harvard University has outlined three different types of responses to stress:

- **Positive stress response** is a normal part of healthy development in response to challenges such as attending a new school or a taking a test. It is characterized by brief increases in heart rate and mild elevations in stress hormones, which quickly return to normal.
- **Tolerable stress response** results from more serious events such as a car accident and results in a greater activation of the body's alert system. When a child has sufficient support with trusted adults, the body can recover from these effects.
- **Toxic stress response** can occur when a child is exposed to severe, frequent or prolonged trauma without the adequate support needed from trusted adults. Toxic stress can result in changes in the brain's architecture and function, can affect learning and development processes and can impact long-term health outcomes.

Evidence from the field of neuroscience clearly demonstrates that ongoing exposure to traumatic events in childhood (also commonly referred to as ACEs) -- such as physical or emotional abuse or neglect, witnessing or experiencing violence in the home or community, substance abuse or mental illness in the home, the absence of a parent due to divorce or incarceration, severe economic hardship, or discrimination -- disrupts brain development, leads to functional differences in learning, behaviors and healthⁱ and is associated with both immediate and long-term impacts on health.^{ii, iii, iv, v}

What is epigenetics and how does it relate to ACEs?

Epigenetics is the study of how external factors can alter gene expression of one's DNA. Researchers are learning that environmental factors —such as the exposure to toxic stress — can influence how genes are expressed and cause changes in the body. Studies are now showing that both adverse experiences and resilience can affect gene expression.^{vi vii} Even more profound is that epigenetic changes can be passed from one generation to another.^{viii ix x}

The gift of resilience

The good news is that people can be extremely resilient in the face of adversity when provided with protective relationships, skills and experiences. Research has shown that resilience — which can be learned - can mitigate the impact of ACEs and produce better health and educational outcomes.^{xi xii} At the heart of resiliency is the need to cultivate healthy social-emotional development in children and families. This includes both intrapersonal skills — self-regulation, self-reflection, creating and nurturing sense of self and confidence — and interpersonal skills — establishing safe, stable and nurturing relationships.^{xiii xiv xv xvi}

Additional information on the neurobiology of stress and trauma can be found here (see also the *Resources* section of this ACEs Resource Packet):

- The Center on the Developing Child, Harvard University. <http://developingchild.harvard.edu/science/>
- The Community Resilience Cookbook. <http://communityresiliencecookbook.org/your-body-brain/>

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ACEs Resource Packet: What Can We Do?

What is the role of healthcare providers?

The healthcare system is a natural place to respond to ACEs and promote resilience in children, youth and families. Guidelines for well childcare are extensive in the early years – 13 visits in the first three years of lifeⁱ --, which is a crucial period of child development. Health systems, and in particular pediatric providers, are in a unique position to identify issues for both children and their families that contribute to either promoting or inhibiting healthy development. The American Association of Pediatrics (AAP) issued a policy statement in 2012 that encourages, among other things, pediatricians to take a more proactive role in educating patients and families about the impact of toxic stress and in advocating for the development of interventions that mitigate its impact.ⁱⁱ

What is trauma-informed care?

Trauma-informed care encompasses three levels of focus from a systems level: addressing policy and procedures, creating approaches for organizing and delivering services and providing specific programs or interventions for families.

The federal agency Substance Abuse and Mental Health Services Administration (SAMHSA) has outlined six principles for trauma informed care: (1) creating a culture of physical and psychological safety for staff and the people they serve; (2) building and maintaining trustworthiness and transparency among staff, clients and others involved with the organization; (3) utilizing peer support to promote healing and recovery; (4) leveling the power differences between staff and clients and among staff to foster collaboration and mutuality; (5) cultivating a culture of empowerment, voice and choice that recognizes individual strengths, resilience and an ability to heal from past trauma; and (6) recognizing and responding to the cultural, historical and gender roots of trauma.^{iii, iv}

How can I talk to my patients and families about ACEs and toxic stress?

Organizations such as The Center for Youth Wellness (CYW) screen all of their patients for ACEs. CYW has developed and made available an ACE questionnaire designed help other providers screen for trauma. The American Association of Pediatrics (AAP) has developed The Trauma Toolbox for Primary Care, a 6-part series designed to educate pediatricians about ACEs and provide tools to help providers talk to their patients about them. As part of this toolkit, the AAP has identified a 4-step process to help identify children who have experienced or are affected by trauma that is framed by the following questions:

- Why are we asking about ACEs? Why is this important?
- What are we looking for?
- How do we find it?
- What do we do once we have found it? What supports are available for patients and how do you refer them to appropriate services?

These examples from the field can be used to talk about ACEs:

- [The Resilience Project](#), from the American Academy of Pediatrics
- [Adverse Childhood Experiences and the Lifelong Consequences of Trauma](#), from the American Academy of Pediatrics
- [Addressing Adverse Childhood Experiences and Other Types of Trauma in the Primary Care Setting](#), from the American Academy of Pediatrics
- [The Medical Home Approach to Identifying and Responding to Exposure to Trauma](#), from the American Academy of Pediatrics
- [ACEs Elevator Pitches](#), from ACEs Connection
- [Iowa ACEs 360 awareness resources](#), including media guidelines, press release and letter to the editor templates
- [Iowa ACEs 360 advocacy materials](#)

These resources can be used to talk to children about traumatic events and disasters:

- [Talking to Children about Disasters](#), from the American Academy of Pediatrics
- [Tips for Talking With and Helping Children and Youth Cope After a Disaster of Traumatic Event](#), from SAMHSA
- [Helping Youth After Community Trauma: Tips for Educators](#), from the National Child Traumatic Stress Network
- [Teaching Tolerance](#), from the Southern Poverty Law Center
- [How to Talk to Your Kids about Ferguson \(Time Magazine\)](#)
- [How to Teach Kids about What's Happening in Ferguson \(The Atlantic\)](#)
- [To Talk Baltimore With Kids, Focus on the Positive \(The New York Times\)](#)

The following examples provide some specific ways to talk to different groups about ACEs:

Group	Sample Scripts
Children and Families, from The Medical Home Approach to Identifying and Responding to Exposure to Trauma	<p>“Has your home life changed in any significant way (eg, moving, new people in the home, people leaving the home)?”</p> <p>“Has anything bad, sad or scary happened to your child recently (or “to you” if it is an older child)?”</p> <p>“You have told me that your child is having difficulty with aggression, attention, and sleep. Just as fever is an indication the body is dealing with an infection, when these behaviors are present, they can indicate the brain and body are responding to a stress or threat. Do you have any concerns that your child is being exposed to stress or something that would be scary to him?”</p>

Group	Sample Scripts
Colleagues, from ACEs Elevator Pitches	<p>“As you probably know, if bad things happen to you to as a child, it can impact your health for the rest of your life.</p> <p>Research shows that kids who experience physical abuse or live with an alcoholic parent are more likely to have cancer as an adult. They are more likely to attempt suicide. And they are more likely to drop out of school or end up in prison.</p> <p>The good news is that there are doctors, teachers, social workers, judges, parents and others who are using this research (known as the Adverse Childhood Experiences Study) to create new tools to protect kids and families early, and give anyone who suffers the chance to heal.”</p>

We also recognize that asking about child abuse and neglect may trigger a need for mandated reporting. States differ on their use of mandatory reporter requirements. To find your state’s requirements, please [click here](#).

How can I help create a trauma-informed practice at my organization?

Creating a trauma-informed organization often involves a fundamental shift in culture, practices and policies throughout all levels of the practice. There are a number of existing models to help guide organizations in this transformation. One of the most well-known is the *Sanctuary Model*, an evidence-based model developed by Sandra Bloom, designed to help providers create and sustain a trauma-informed environment. This model consists of a set of tools designed to transform an organization’s culture; these tools are designed to support the development of structures, processes and behaviors for both staff and clients that are responsive to the impact of trauma. A number of organizations, such as the National Technical Assistance Center for Children’s Mental Health at the Georgetown Center for Center and Human Development and the Center for Health Strategies, have also published issue briefs on the key principles of creating trauma-informed organizations.

There are a number of training activities that can be useful for creating a trauma-informed organization and workforce. These include:

- Conducting an organizational assessment of policies, practices and capacity to implement trauma-informed care. A list of free organizational assessment tools is available at <http://www.t2bayarea.org/resource/grid/index.html>.
- Conducting training for leadership and staff on trauma-informed care;
- Undertaking a process of organizational cultural change to align with trauma-informed principles;
- Implementing or participating in a “Train the Trainer” model for enhancing and/or scaling existing efforts to provide trauma-informed care.

Core Competencies and Skills for Staff Training: Trauma-informed trainings are designed to provide a set of critical skills and competencies for staff that also result in new skills for families. Trauma-informed staff training should build skills and competencies, including the following (examples of trauma-informed training programs are shown in Table 1):

1. Understanding the neurobiology of trauma, with a subsequent shift away from “shame and blame” to a more compassionate understanding of what happened, or is happening, to them;
2. A focus on interpersonal interactions – the ability to create trust, respect and connection with others;
3. Creating safe, stable nurturing physical and social environments that can support trauma healing;
4. Deep and compassionate listening to self and others;
5. Self-reflection to develop the ability to shift perception and attitudes, release fear and promote choice and empowerment;
6. Understanding the historical trauma associated with race, culture and gender and the need for ongoing self-reflection of cultural biases;
7. Self-management of difficult emotions and behaviors; and,
8. Activation of self-care.^v

Additional information on trauma-informed approaches can be found here:

- The Substance Abuse and Mental Services Administration: <http://www.samhsa.gov/nctic/trauma-interventions>
- The Center for Youth Wellness: <http://www.centerforyouthwellness.org>
- American Academy of Pediatrics: [The Trauma Toolbox for Primary Care](#)
- National Technical Assistance Center for Children’s Mental Health’s Trauma Informed Care: Perspectives and Resources: <http://gucchdtacenter.georgetown.edu/TraumaInformedCare/Module3Resources.html#Downloadable>
- Center for Health Care Strategies, Inc: <http://www.chcs.org/project/advancing-trauma-informed-care/>

Table 1: Examples of Trauma-Informed Training Programs

Trauma-Informed Training Programs	Program Focus
Risking Connection www.riskingconnection.com	Staff training that teaches a relational framework and skills for working with survivors of traumatic experiences
Sanctuary Model and S.E.L.F. (Safety, Emotional Management, Loss, Future) www.sanctuaryweb.com	Organizational model with training to shift organizational culture and promote recovery
Trauma Center at Justice Resource Institute www.traumacenter.org	Training programs for mental health professionals

Trauma-Informed Training Programs	Program Focus
Futures Without Violence: Measuring Trauma-Informed Practice: Tools for Organizations www.futureswithoutviolence.org/measuring-trauma-informed-practice-tools-for-organizations/	Training on validated tools for measuring organizational trauma-informed care
Trauma-Informed Guide Team (TIGT) created by San Diego County ^{vi}	“Train the Trainer” program for mental health specialists. Specifies core competencies: <ul style="list-style-type: none"> • Engaging leadership at the top; • Making trauma recovery consumer-driven; • Emphasizing early screening; • Developing a trauma-competent workforce; Instituting standard practice guidelines; and • Avoiding recurrence or re-traumatization

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^v CAHMI synthesis of in-depth literature reviews, environmental scans, and expert interviews, 2015-2016.

^{vi} Leonelli, L. *Trauma-Informed Mental Health Care in California: A Snapshot*, California Mental Health Planning Council, Continuous System Improvement Committee, December 2014, p7.

ACEs Resource Packet: Resources on ACEs and Resilience

TOOLS FROM THE CHILD AND ADOLESCENT HEALTH MEASUREMENT INITIATIVE (CAHMI), JOHNS HOPKINS SCHOOL OF PUBLIC HEALTH

CAHMI's ACEs Champion's Communication Toolkit an online resource developed by the CAHMI designed to provide resources and tools to provider champions on ACEs and resilience, how to engage others and how to take action. [CAHMI's ACEs Page](#) provides a variety of resources and information on ACEs as well as an overview of the CAHMI's work in this area.

Get ACEs data at CAHMI's [Data Resource Center for Child and Adolescent Health](#): The mission of the Data Resource Center for Child and Adolescent Health (DRC) is to advance the effective use of public data on the status of children's health and health-related services for children, youth and families in the United States. The DRC provides easily accessible national, state, and regional data from large, population-based, parent-reported surveys that do not require statistical expertise to use. Users can instantly browse ACEs and resilience data from the National Survey of Children's Health (NSCH) on the DRC's [interactive data query](#).

ACES & RESILIENCE TOOLS

Individual ACEs Screening and Assessment

1. [Adverse Childhood Experience \(ACEs\) Questionnaire](#), a tool to calculate your own ACE score
2. [Adverse Childhood Experiences International Questionnaire](#), from the World Health Organization
3. [Behavioral Risk Factor Surveillance System 2014](#), from the CDC
4. [Standardized measures to assess complex trauma](#) from the National Child Traumatic Stress Network

Organizational Assessment Tools

1. [Organizational Assessment Tools from Trauma Transformed](#)
2. [Resilience Research Centre Evaluation Tool](#)
3. [Trauma Sensitive School Checklist](#)
4. [Trauma-Informed Organizational Toolkit for Homeless Services](#)

ACEs Related Toolkits

1. [A Trauma-Sensitive Toolkit for Caregivers of Children, from the Spokane Regional Health District](#)
2. [Community Conversations about Mental Health Toolkit](#) and [Brief](#), from SAMHSA
3. [Essentials for Childhood: Steps for Creating Safe, Stable, Nurturing Relationships and Environments](#), from the CDC

4. [Find Your ACE Score](#) using the original ACEs survey tool (note that a research priority is to refine the measures and metrics used to assess ACEs)
5. [Pediatric Medical Traumatic Stress Toolkit for Health Care Providers](#) by the National Child Traumatic Stress Network
6. [Resilience Research Centre Evaluation Tool](#)
7. [The Adverse Childhood Experiences \(ACEs\) Survey Toolkit for Providers](#) by the National Crittenton Foundation
8. [The Resilience Project Toolkit](#), by the American Academy of Pediatrics
9. [The Trauma Toolbox for Primary Care](#) by the American Academy of Pediatrics

Vicarious Trauma, Provider Burnout and Self-Care

1. [The Trauma Stewardship Institute](#)
2. [Vicarious Trauma Fact Sheet](#), by the American Counseling Association
3. [Joyful Heart Foundation](#)
4. [Self-Care Starter Kit](#), by the University of Buffalo Social Work School
5. American Academy of Pediatrics, Clinical Report on [Physician Health and Wellness](#)

READING LIST: SELECTED BOOKS, REPORTS AND SCHOLARLY ARTICLES

Books

1. Jackson Nakazawa, D. (2015). *Childhood Disrupted: How Your Biography Becomes your Biology and How You Can Heal*. Simon and Schuster, Inc. New York, NY.
2. Levine, Peter A. (2010). *In an Unspoken Voice: How the Body Releases Trauma and Restores Goodness*. North Atlantic Books. Berkeley, CA.
3. Porges, SW. (2011). *The Polyvagal Theory: Neurophysiological Foundations of Emotions, Attachment, Communications and Self-Regulation, First Edition*. WW Norton & Company, Inc. New York, NY. ISBN: 978-0-393-70800-7.
4. Siegel DJ and Hartzell M. (2010). *Parenting from the Inside Out: How a Deeper self-Understanding Can Help You Raise Children Who Thrive*. Mind Your Brain, Inc.
5. Van der Kolk, BA (2014). *The Body Keeps the Score: Brain, Mind and Body in the Healing of Trauma*. Penguin Random House. New York, NY. ISSN: 978-0-670-78593-3.

Reports

1. [Adverse Childhood Experiences and the Lifelong Consequences of Trauma](#), American Academy of Pediatrics (2014).
2. [Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents](#), 3rd Edition, American Academy of Pediatrics (2008).
3. [Early Childhood Adversity, Toxic Stress, and the Role of the Pediatrician: Translating Developmental Science into Lifelong Health](#), American Academy of Pediatrics (2012).
4. [Essentials for Childhood: Steps for Creating Safe, Stable, Nurturing Relationships and Environments](#), CDC (2016).

5. *Crossing the Quality Chasm: A New Health System for the 21st Century*, Institute of Medicine (2001).
6. [Adverse Childhood Experiences Reported by Adults in the BRFSS in Five States](#), CDC (2010).
7. [Skills for Social Progress: The Power of Social and Emotional Skills](#), OECD Skills Studies (2015).
8. [Safe Schools Healthy Children](#), Substance Abuse Mental Health Services Administration (SAMHSA)(2015)
9. [National Registry of Evidence-Based Programs and Practices](#), Substance Abuse Mental Health Services Administration (SAMHSA).
10. [Practice Guidelines for the Delivery of Trauma-Informed and GLBTQ Culturally-Competent Care](#), American Institute for Research (2013).

Scholarly Articles

1. Bethell C., Gombojav N., Solloway M. and Wissow L. (2015). Adverse Childhood Experiences, Resilience and Mindfulness-Based Approaches: Common Denominator Issues for Children with Emotional, Mental, or Behavioral Problems. *Child and Adolescent Psychiatric Clinics of North America*, 25(2):139-56. doi: 10.1016/j.chc.2015.12.001. Epub 2016 Jan 11.
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4. McLaughlin KA, Hatzenbuehler ML, Xuan Z, Conron KJ. (2012). Disproportionate exposure to early-life adversity and sexual orientation disparities in psychiatric morbidity. *Child Abuse & Neglect*, 36(9):645-55.
5. Schorr EL. (2015). Addressing millennial morbidities: accentuate the positive. *JAMA Pediatrics*, 169(3):202-4.
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SELECTED MEDIA: MOVIES AND PRESENTATIONS

Movies

1. [*Toxic Stress, Health, and ACEs for Two Generations*](#); by Ascend at the Aspen Institute
2. [*"Paper Tigers"*](#); a documentary about Adverse Childhood Experiences
3. [*The Science of Youth Resilience*](#); by the Resilience Research Centre
4. [*3 Ways Undiagnosed Trauma Disrupts Lives; a short video from the National Institute for the Clinical Application of Behavioral Medicine discusses signs and symptoms of childhood trauma*](#)
5. [*Childhood Trauma: America's Hidden Health Crisis*](#); a video from a national meeting sponsored by the CAHMI to begin to the design of a national research and action agenda on ACEs, summarizing the importance of looking at childhood trauma as a health issue
6. [*Resilience Among LGB Youth: Overcoming Victimization*](#); video complementing research from the IMPACT LGBT Health and Development Program at Northwestern University

Presentations

1. [*Dr. Christina Bethell: Thriving in a Changing Environment*](#); Child X Conference, Stanford University; 2016
2. [*Dr. Nadine Burke-Harris, How Childhood Trauma Affects Health across a Lifetime*](#); TED Talk; 2014
3. [*Dr. Peter Singer. Saving Brains: Innovations to Help Children Thrive*](#); Child X Conference, Stanford University; 2016
4. [*Kudler, Presley, and Savage. Trauma-Informed Care: Addressing Mental Health Risk Factors; Advancing Excellence in Transgender Health*](#); 2015
5. [*Reynolds and Tan. TIC TALK: Bringing Trauma-Informed Care to Trauma-Exposed LGBTQ Youth*](#); The Village Family Services