Adverse Childhood Experiences: A Powerful Determinant of Lifelong Health and Wellness in Tennessee

Lorraine Lucinski, Deputy Director of Child Health, Division of Family Health and Wellness, Tennessee Department of Health

THE WARM AND FUZZY

Change the First Five Years and You Change Everything

First 5 Years Video
A baby's brain doubles in size during the final 6 weeks of pregnancy. By age 3, a child's brain is already 80% of its adult volume.
Neural Synapses over the Lifespan

Early Period Sets the Trajectory

Example: Language Trajectory

Experience Alters Brain Development
Normal vs. Neglected Brain

As cited by Felitti & Anda, 2003; source CDC

Experience Alters Brain Development

Hubel & Wiesel (kittens) – visual input important for proper segregation of fibers & visual function
Kemperman (mice) – enriched environments increased brain size and ability to learn new tasks
Knudsen (barn owls) – enriched environments increased auditory-visual neuronal adaptation to altered visual input

THE SCIENCE
Toxic Stress
Impacts:

Brain Architecture
Gene Expression
Biology and Physiology

Toxic Stress Changes the Brain

Source: Harvard University Center on the Developing Child

Available at: http://developingchild.harvard.edu/index.php/resources/briefs/inbrief_series/inbrief_the_science_of_ecd/
Executive Function Skills are Compromised by Toxic Stress

- **Impulse Control**
  - Filter distractions
  - Resist temptation
  - Maintain focus
  - Persist
  - Think before acting

- **Working Memory**
  - Hold onto info while working on something else
  - Follow multi-steps

- **Mental Flexibility**
  - Easily switch gears
  - Multitask
  - Alter strategies
  - Innovate

Toxic Stress Changes Gene Expression

Intergenerational Transmission of Stress Response in Male Rats
Toxic Stress Changes Biology

BUILDING BETTER BRAINS

http://www.albertafamilywellness.org/building-better-brains

THE RESEARCH
The Original ACEs Study
Adverse Childhood Experiences (ACE) Study
A Collaborative Effort of Kaiser Permanente and the CDC

“Findings suggest that certain experiences are major risk factors for the leading causes of illness and death as well as poor quality of life in the United States.”

ACE Study

Participants were mostly white, middle-aged, college educated, and insured.

Source: Centers for Disease Control and Prevention. Available at: http://www.cdc.gov/ace/about.htm

Types of Adverse Childhood Experiences (ACES)

- Physical Abuse
- Emotional Abuse
- Physical Neglect
- Emotional Neglect
- Sexual Abuse
- Mental Illness
- Parental Death
- Parental Incarceration
- Household Violence
- Substance Abuse

Source: Kaiser Permanente Health

ACE Study Findings

Of the 17,337 individuals:

• ~2/3 had at least 1 ACE
• ~1/5 reported 3 or more ACEs

Source: Centers for Disease Control and Prevention. Available at: http://www.cdc.gov/ace/about.htm

3:1 ODDS OF ADULT HEART DISEASE AFTER 7-8 ADVERSE CHILDHOOD EXPERIENCES

ACE Study Findings

Health-risk Behavior
- Sexual promiscuity
- Sexual perpetration
- Alcohol abuse
- Illicit/injected drug use
- Smoking
- Physical Inactivity

Disease and Injury
- STDs, including HIV
- Gynecological problems
- Heart disease
- Diabetes
- Cancer
- Suicide
- Obesity and Overweight

Mental Health and Well-being
- Depression, PTSD
- Aggression
- Anxiety
- Somatic complaints
- Attempted suicide
- Social exclusion
- Anxiety
- Academic achievement
- Re-victimization
- Unwanted pregnancy

Job Problems
- Absenteeism/Lost time from work
- Impaired productivity
ACE Study Findings

“When we as children encounter sudden or chronic adversity, excessive stress hormones cause powerful changes in the body, altering our body chemistry. The developing immune system and brain react to this chemical barrage by permanently resetting our stress response to “high,” which in turn can have a devastating impact on our mental and physical health.”

Childhood Disrupted, 2015

Magnitude of the Solution

ACE reduction reliably predicts simultaneous decrease in all of these conditions.
Opportunities for Future Studies of ACEs

- Intensity and Duration
- Death of a Parent
- Bullying and Community Violence
- Institutional Racism
- Poverty

THE RESEARCH
The Tennessee Study
2012 Tennessee Specific ACEs Data

ACE Module added to the Behavioral Risk Factor Surveillance System (BRFSS) in 2012

BRFSS Sample = 7,056 non-institutionalized adults in Tennessee with either a land line or cellular telephone. Those answering at least one question in the ACE module were included in the analysis (n=6,918).

Results of ACEs Data Collection at The Family Center

74% • Have 4 or more ACEs
• Results in 5–10 years earlier death
• Compare to 13% from original ACE study

44% • Have 7 or more ACEs
• Results in 20 years earlier death

ACEs in TN (2012)

Prevalence of Adverse Childhood Experiences in Tennessee, 2012

Source: Tennessee Behavioral Risk Factor Surveillance System (BRFSS), 2012

Prevalence of Adverse Childhood Experiences in Tennessee by Category, 2012

Slide courtesy of Jennifer Drake Croft—The Family Center
Figure 2: Prevalence of Specific ACEs in TN by Gender

Geographic Distribution
*Percentage of population that has 2 or more ACEs

Association of Health Outcomes and Behaviors by ACE Score*

* = All significant p≤0.05
THE OPPORTUNITIES

Reasons to Hope

• Resiliency buffers the effects of trauma.
• Social support and resources are protective factors that build resiliency at any age.
• Safety can be created from multiple sources and a little may go a long way.
• Brain development is far more dynamic than we used to think.
Moving the Needle

Focus has to shift from remediation to prevention and not just “prevention,” but primary prevention.

Primary prevention: Preventing a disease from ever occurring.

Overall Focus is to Implement Recommendations to Prevent and Respond to Toxic Stress from the CDC.

One Step Further: ACEs and Public Health

Public Health Approach

Primary Prevention
Creating safe, stable, nurturing relationships and environments as well as community infrastructures that promote social cohesion.

Secondary Prevention
Services for those “at risk.”

Tertiary Prevention
Treatment Services

Raise Awareness

Policy Change

Norms Change
**Public Health Approach**

1. **Primary Prevention**
2. **Raise Awareness**

---

**Presenting Information to raise awareness**

- [Image of flyers and information sheets]

---

**Collecting Tennessee-Specific Data**

- [Image of data collection flyers and information sheets]
Knowledge Mobilization Movement

“A talent for speaking differently, rather than arguing well, is the chief instrument of cultural change.”

-Richard Rorty

The FrameWorks Mission:
To advance the nonprofit sector’s communications capacity by identifying, translating and modeling relevant scholarly research for framing the public discourse about social problems.

Here’s the master “how it works” story we’re telling about ACES

www.Frameworksinstitute.org
A Public Health to Address ACEs

Public Health Approach

Primary Prevention → Policy Change

Changing Policy Requires...

- Many Champions
- Common Message
- Right Opportunity

TENNESSEE WILL BE THE FIRST STATE TO IMPLEMENT A GOVERNOR LED MULTI-YEAR KNOWLEDGE MOBILIZATION MOVEMENT 😊

Adverse Childhood Experiences Study: Translation to Policy Change

Governor Haslam and First Lady kick off ACEs Summit to launch statewide initiative

Over 500 leaders from state government, health care, private industry, academia and philanthropy gathered for the summit, which was prompted by the first Tennessee ACE Study conducted in 2015. The study revealed the impact ACEs have on young people. Governor Haslam noted prevention is the key to the effort to help young Tennesseans have healthier lives.

More than 200 leaders from state government, health care, private industry, academia and philanthropy gathered for the summit, which was prompted by the first Tennessee ACE Study conducted in 2015. The study revealed the impact ACEs have on young people. Governor Haslam noted prevention is the key to the effort to help young Tennesseans have healthier lives.

Adverse Childhood Experiences Study: Translation to Policy Change

Governor Haslam and First Lady kick off ACEs Summit to launch statewide initiative

Over 500 leaders from state government, health care, private industry, academia and philanthropy gathered for the summit, which was prompted by the first Tennessee ACE Study conducted in 2015. The study revealed the impact ACEs have on young people. Governor Haslam noted prevention is the key to the effort to help young Tennesseans have healthier lives.

More than 200 leaders from state government, health care, private industry, academia and philanthropy gathered for the summit, which was prompted by the first Tennessee ACE Study conducted in 2015. The study revealed the impact ACEs have on young people. Governor Haslam noted prevention is the key to the effort to help young Tennesseans have healthier lives.
Major Emphasis on Supporting Community Innovations focused on Prevention as well as Mitigation.

Prevention, Mitigation, and Treatment of Adverse Childhood Experiences
Anticipated Multi-Sector, Multi-Level, Public and Private Impacts

Components of the Building Strong Brains Initiative include...
Cross Sector Involvement

- Local Government Entities
- State Government Entities
- Local Nonprofit Leaders
- Healthcare Leaders
- Business Leaders
- Parents and Caregivers

A Public Health to Address ACEs

“Parents deserve to know the largest public health discovery of our time. They should have the opportunity to talk about their own life experiences and consider how they might like to use new scientific discoveries to give their children greater health, safety, prosperity and happiness than they had.”

Neuroscience, Epigenetics, Adverse Childhood Experiences and Resilience (NEAR@Home Toolkit)  
March 2015
The New Norm: Shifting the Conversation...

What is wrong with you?

TO

What has happened to you?

What are you going to do to become a champion?

In seven days from now....
In one month from now...
In six months from now...