Trauma, ACEs, and Toxic Stress: Fostering Healthy Early Brain Development Through Prevention and Protective Factors

May 31, 2018
2:00- 3:00pm ET
For Audio: 866-519-2796, ext. 647716 #
Webinar Objectives

• Explore the science behind trauma’s effects on the developing brain and its implications for public health programs and policy

• Hear from state officials who will share lessons learned and implementation recommendations from their own work
Agenda

2:00   Welcome and Introductions
2:05   Moira Szilagyi, MD, PhD
2:25   Tennessee Department of Health
2:45   Tennessee Commission on Children and Youth
3:05   Closing and Adjourn
Federal Agency Support for Early Brain Development

Charisse Walcott
Public Health Advisor, Health Department and Systems Development Branch
Division of Public Health Performance Improvement, Office for State, Tribal, Local, and Territorial Support, CDC
Moira Szilagyi, MD, PhD
Center Associate Faculty Member, Center for Healthier Children, Families & Communities
Professor of Pediatrics, David Geffen School of Medicine at UCLA, Department of Pediatrics, Division of General Pediatrics
Resilience and Attachment: Pathways to Healing from Trauma

Moira Szilagyi, MD, PhD
Professor of Pediatrics
Section Chief Developmental Behavioral Pediatrics
University of California Los Angeles
Mattel Children’s Hospital
Outline

• Overview of ACEs and Outcomes
• Trauma symptoms in children
• Adaptive mechanisms that promote resilience: Ordinary Magic
• Evidence-Based Practices: What you do matters!!!
The Adverse Childhood Experiences (ACE) Study

<table>
<thead>
<tr>
<th>ABUSE</th>
<th>NEGLECT</th>
<th>HOUSEHOLD DYSFUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Physical</td>
<td>Mental Illness</td>
</tr>
<tr>
<td>Emotional</td>
<td>Emotional</td>
<td>Incarcerated Relative</td>
</tr>
<tr>
<td>Sexual</td>
<td></td>
<td>Mother treated violently</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Substance Abuse</td>
</tr>
</tbody>
</table>

Robert Wood Johnson Foundation, 2013
From The Adverse Childhood Experiences Study.
http://www.acestudy.org/ace_score, 2015
Cumulative ACES & Mental Health\(^1,2\)

Data from the National Comorbidity Survey-Replication Sample (NCS-R).

Cumulative ACES & Chronic Disease

Prevalence %

- Ischemic Heart Disease
- Stroke
- COPD
- Diabetes
- Sexually Transmitted Disease

ACES: 0, 1, 2, 3, ≥ 4


CANarratives.org
• Maltreatment and household dysfunction associated with poor health as an adult

Toxic stress triggers potentially permanent changes thru 3 mechanisms

Brain connectivity

Immune system

Epigenetics
Resilience

Positive
Brief increases in heart rate, mild elevations in stress hormone levels.

Tolerable
Serious, temporary stress responses, buffered by supportive relationships.

Toxic
Prolonged activation of stress response systems in the absence of protective relationships.
Significant Adversity: Less than optimal outcomes in childhood & decades later
Childhood Adversity NOT Destiny
Orchids and Dandelions: Differential Sensitivity to Context

Resilience

• **Definition** (courtesy of Anne Masten, PhD): *Dynamic* process of *positive adaptation* to or in spite of significant adversities; can be applied to a child, family, system or community, or ecosystem.

  • Implies: good outcomes
  • Derived from “resilare”: to rebound
  • Dynamic
  • Developmental: occurs over time
Ordinary Magic

• Anne Masten
Resilience: Ordinary Magic

• For children, the pathways to resilience are rooted in:
  • Safe, stable and nurturing relationships, the give and take of that are continuous over time (attachment)
Resilience: Ordinary Magic

- And the growth that occurs through play, exploration and exposure to a variety of normal activities and resources
Research has shown that:

• Characteristics that distinguish resilient from maladaptive children and youth are consistent across studies worldwide
Factors that correlate with resiliency in individuals:

On the Personal Level

- Attachment with parent, close relatives or other caregivers (in the context of Capable parenting)
- A Learning and thinking brain
- Mastery of age salient developmental tasks
- Self-efficacy
- Self-regulation (of emotions and behavior)
- Hope, optimism, faith
Factors that correlate with resiliency in individuals:

**In the Greater Ecology**

- Effective culture
- Effective communities
- Effective education
- (Effective work)
- (Effective policies that support all the preceding)
Resilience

Adapted from: http://developingchild.harvard.edu/science/key-concepts/resilience/
THREADS

- Thinking & learning brain
- Hope
- Regulation
- Efficacy
- Attachment
- Development
- Social Networks
Ordinary Magic

• Attachment
The first most important relationship we have
Exploration and Play
Self-Regulation
Executive Function Skills

- Planning
- Attention
- Cognitive flexibility
- Inhibitory control or self-regulation
- Organization and prioritization
“Duh!”
Trauma disrupts adaptive mechanisms:

- **Thinking and learning brain** – shuts down
- **Hope** – busy dealing with present danger, not looking ahead
- **Regulation or self control** – shuts down - Impulsive response needed to deal with current threat
- **Efficacy** – busy reacting to the situation, not controlling it
- **Attachment** – not available in toxic stress, acting alone
- **Developmental skill mastery** – learning shut down
- **Social connectedness** – alone with threat
The THREADS become FRAYED

- Fits, Frets and Fear
- Restricted development
- Attachment disorders
- Yelling and yawning
- Educational/developmental delays
- Defeated, detached, dysregulated
“It is easier to build a strong child than to fix a broken man” - Frederick Douglass
In every interaction with families

• Intervening early:
  • During most rapid stages of brain development
  • Formative time in parenting
  • Biggest bang for the $

• Focusing on their strengths: which THREADS are still intact?

• Linkages to evidence-based or informed programs
Evidence-Based Programs or Interventions

- Nurse-family partnership
- Evidence-based parenting education: Triple P, Incredible Years, Strong African-American Families
- Quality childcare: PERRY preschool project
- Lifting people out of poverty: SNAP, EIC, etc.
- Effective communities and schools
- Effective culture
- Literacy promotion: libraries, Reach Out and Read
- WIC
Questions?
Carla Snodgrass, BSW, MPA
Section Chief
Family Health and Wellness Division
Tennessee Department of Health
Partnering to Reduce and Mitigate ACEs in Tennessee

May 31, 2018
Number of ACEs Experienced by Adult Tennesseans, 2016

61% had at least 1 ACE

27% had 3 or more ACEs (that’s 1 in 4)

Percentage of Adult Tennesseans Experiencing Individual ACEs

Association of ACEs with Unemployment

Substance Use (Tobacco)

Association of ACEs with Having Ever Smoked >100 Cigarettes (Adjusted for Age)

* Indicates statistical significance

<table>
<thead>
<tr>
<th>Number of ACEs Experienced</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.00</td>
</tr>
<tr>
<td>1</td>
<td>2.10*</td>
</tr>
<tr>
<td>2</td>
<td>1.89*</td>
</tr>
<tr>
<td>3</td>
<td>2.37*</td>
</tr>
<tr>
<td>4+</td>
<td>3.09*</td>
</tr>
</tbody>
</table>
Substance Abuse (Alcohol)

Association of ACEs with Binge Drinking in Past 30 days
*(Adjusted for Age)*

Source: BRFSS 2014*Indicates statistical significance
Association of ACEs Experienced with Obesity

Adjusted for Age

* Indicates statistical significance
What can be done about ACEs?

- Home visiting to pregnant women and families with newborns
- Parenting training programs
- Parent support programs for teens and teen pregnancy prevention programs
- Mental illness and substance abuse treatment
What can be done about ACEs?

- Intimate partner violence prevention
- Social support for parents
- Preschool enrichment
- Sufficient income support for lower income families
TDH: Leveraging funding to address ACEs

- Data collection and dissemination
  - BRFSS, NSCH, EBHV data
- Workforce training
  - Central office, all TDH staff, EBHV, DHS/child care centers
- Assuring supportive infrastructure for families
  - WIC food security, family planning, built environment
  - Positive youth development (RPE funding, Adolescent Pregnancy Prevention)
TDH: Leveraging funding to address ACEs

- Specific programs targeted at addressing SDH, parenting, and connectedness:
  - EBHV, HUGS/CHANT
  - Talk with Me Baby
- Participation in interagency collaborations
  - Single Team Single Plan
  - Three Branches Institute
  - Young Child Wellness Council
  - Early Success Coalition
TDH: Leveraging funding to address ACEs

- Title V/ Maternal Child Health Block Grant
- Evidence Based Home Visiting (MIECHV federal and Healthy Start state)
- WIC
- Family Planning (Title X, MCH, and state)
- Adolescent Pregnancy Prevention Funding (federal)
- Rape Prevention Education
- Interagency funding for care coordination and outreach
MCH Priorities by Domain

**Women’s and Maternal Health**
- Preventive care increase

**Perinatal and Infant Health**
- Infant mortality reduction

**Child Health**
- Developmental screening increase
- ACEs reduction
- Overweight/Obesity reduction
- Injury reduction

**Adolescent Health**
- Overweight/Obesity reduction
- Injury reduction

**CYSHCN**
- Medical home
- Transition services

**Crosscutting/Life Course**
- Tobacco use reduction
Addressing ACEs with Home Visiting

**INCREASED**
Kindergarten readiness, Economic independence of mothers, Education rates of mothers

**REDUCED**
Child maltreatment, Preterm births, Injury-related visits to the ER, Closely spaced 2\textsuperscript{nd} births, Youth crime, Low birth weight infants
ACEs in Home Visiting Population

Number of ACEs Experienced by Newly Enrolled Evidence Based Home Visiting Participants
January 1, 2016-June 30, 2017

Experienced at least one ACE:
- 60% of US women
- 71.2% of TN women
- 78.9% of TN EBHV women

Evidence Based Home Visiting Benchmarks

<table>
<thead>
<tr>
<th>BENCHMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved maternal and newborn health</td>
</tr>
<tr>
<td>Improved school readiness and achievement</td>
</tr>
<tr>
<td>Improved family economic self-sufficiency</td>
</tr>
<tr>
<td>Reduced child injuries, abuse, and neglect</td>
</tr>
<tr>
<td>Reduced crime or domestic violence</td>
</tr>
<tr>
<td>Improved coordination and referrals for community resources</td>
</tr>
</tbody>
</table>
# Home Visiting Funding

## Home Visiting Funding SFY 17-18

<table>
<thead>
<tr>
<th>Funding Type</th>
<th>Funding Source</th>
<th>Recurring/ Non-Recurring State Funding</th>
<th>Funding Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIECHV</td>
<td>Federal</td>
<td>NA</td>
<td>$10,366,741</td>
</tr>
<tr>
<td>Healthy Start</td>
<td>State</td>
<td>$3,292,500 Recurring</td>
<td>$3,292,500</td>
</tr>
<tr>
<td>Nurse Home Visitor</td>
<td>State</td>
<td>$345,000 Recurring</td>
<td>$345,000</td>
</tr>
<tr>
<td>CHAD</td>
<td>State</td>
<td>$450,000 Non-Recurring $107,500 Recurring</td>
<td>$557,500</td>
</tr>
<tr>
<td>Total</td>
<td>Total Federal</td>
<td>Total Federal: $7,247,133 Total Non-Recurring: $1,950,000 Total Recurring: $845,000</td>
<td>$14,561,749 (72% Federal)</td>
</tr>
<tr>
<td></td>
<td>Total State</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(72% Federal)
<table>
<thead>
<tr>
<th>Evidence Based Home Visiting Model</th>
<th>Local Implementing Agencies</th>
</tr>
</thead>
</table>
| ![healthy families america](image) | • Prevent Child Abuse TN  
• The Center for Family Development  
• Centerstone  
• University of TN, Martin  
• Helen Ross McNabb  
• The Exchange Club/ Stephense Center  
• Metro Nashville Public Health Department  
• LeBonheur’s Children Hospital |
| ![Nurse-Family Partnership](image) | • LeBonheur’s Children’s Hospital  
• East TN State University School of Nursing* |
| ![Parents as Teachers](image) | • Chattanooga-Hamilton County Health Department  
• Family Cornerstones/ Starfish*  
• Knox County Schools*  
• Porter Leath |

*Not funded by TDH
Home Visiting Return on Investment

Every Dollar Invested

Returns $1.80 to $5.70

*2017 National Home Visiting Yearbook from the National Home Visiting Resource Center
Too Few Families Receive Home Visiting Services

- **Total Number of Medicaid Births**: 45,824
- **Not Served**: 44,603
- **New Families Served by EBHV**: 1221

* 2014 Data; TennCare NAS Data [http://tn.gov/assets/entities/tenncare/attachments/TennCareNASData2014.pdf](http://tn.gov/assets/entities/tenncare/attachments/TennCareNASData2014.pdf)
** New families are defined as those who did not receive services in the prior year
*** Tennessee Department of Health, Starfish PAT Program, Knox County PAT Program
Evidence Based Home Visiting Programs
In Fifty Counties

Claiborne, Cocke, Coffee, Cumberland, Davidson, DeKalb, Dickson, Dyer, Grundy, Hamilton, Hardin, Haywood, Hardeman, Henderson, Johnson, Lake, Lauderdale, Lawrence, Madison, Marion, Maury, McMinn, Monroe, Polk, Rhea, Scott, Sevier, Scott, Sequatchie and Shelby

Notes:
Includes Nurse Home Visitor, Healthy Start and Healthier Beginnings (MIECHV) Funding
Expect to serve approximately 2,000 families per year
ACEs Informed Approach to Program Administration

Separate Programs

Help Us Grow Successfully
Interagency/Medicaid funding Care Coordination

Children’s Special Services
CYSHCN payer of last resort, care coordination
MCH Block Grant funding

TennCare Outreach
Interagency/Medicaid funding

CHANT Integrated Services

Pathways
- Child Health Development
- Behavioral Health
- Children and Youth with Special Health Care Needs
- Dental Home
- Employment
- Insurance
- Housing
- Family Planning
- Immunization
- Medical Home
- Prenatal
- Postnatal
- Smoking Cessation
- Social Services Referral
- Transition

How: comprehensive screening – SDH, behaviors, development, medical risk
Who: Interprofessional teams statewide
What: AHRQ pathways model
Measurable outcomes
Language Nutrition

*Are You Talking to Me?*

*Talk with your baby.*

The more words you speak, sing or read to your baby the faster they will learn to talk and read.

Learn more at dph.georgia.gov/talkwithmebaby.
THANK YOU

Carla Snodgrass
Section Chief, Early Childhood Initiatives, Division of Family Health & Wellness
carla.snodgrass@tn.gov
Questions?
Linda O’Neal
Executive Director
Tennessee Commission on Children and Youth

Richard Kennedy
Associate Director
Tennessee Commission on Children and Youth
Concurrent Developments on ACES

Three Branches Institute

• Initiated in August, 2012, to form common agenda to advance child welfare and juvenile justice
• Growing awareness of ACEs activities across Tennessee 2013/2014
• Call for Summit, July 2015
• Established ACEs as lead agenda, November, 2015

ACE Awareness Center

• Shelby County, 2014
• ACEs in Shelby County Survey, January 2015: Getting To Our Roots: Transforming Our Community Through Families
• Universal Parenting Places begun
• ACE Awareness Foundation established, 2015
ACEs Summit: A Call to Action

- November 2015 by invitation of Governor and First Lady Haslam and Deputy Governor Jim Henry
- Attended by Leaders of Government, Communities, Philanthropy, Academia, Faith Organizations & Providers
- Structured around the “Two Sciences”: Brain Science and Communication Science
- Presentation of the “Brain Architecture Game”
- Concluded with Tennessee ACEs panel and Call To Action.
The Inception of Building Strong Brains—Three Key Factors

• Consensus that ACEs prevention and mitigation must be community-based and community-developed

• Proposal from FrameWorks Institute for Knowledge Mobilization

• Deputy Governor’s directive for all child-serving agencies to identify two leaders each with the authority to help guide the project. This became the Public Sector Steering Group.
Infrastructure Already in Place

• Tennessee Commission on Children and Youth
• Department of Health focus on ACEs
• The Children’s Cabinet co-chaired by the Governor and First Lady
• Increasingly Trauma-informed Service Systems
Building Strong Brains
Public Private Partnerships

State-level Coordinating Team

Guided by:
• Public Sector Steering Group

Balanced by:
• Private Sector Steering Group

Supported by:
• Foundations and In-kind Resources
Tennessee State Government
Building Strong Brains Mission

*Building Strong Brains Tennessee* works to change the culture of Tennessee so the state’s overarching philosophy, policies, programs and practices for children, youth and young adults utilize the latest brain science to prevent and mitigate the impact of adverse childhood experiences.
BSB Intentions: Transform the “4 Ps”

Adverse Childhood Experiences: Prevention, Mitigation, and Recovery
Anticipated Multi-Sector, Multi-Level, Public and Private Impacts

2-29-16
Building Strong Brains TN Goals

1. Increase the potential that every child born in Tennessee has the opportunity to lead a healthy, productive life.
2. Raise public knowledge about ACEs.
3. Impact public policy in Tennessee to support prevention of ACEs and to reduce community conditions that contribute to them.
5 Seek sustainable funding to ensure the state maintains a long-term commitment to reduce the impact of adverse childhood experiences.

6 Embrace open, responsive governance through the Three Branches Institute (3BI) and statewide planning groups.
What Makes *BSB* Unique?

**Integration of Two Sciences**

Brain Science

and

Communication Science
Communication Science 101

Fundamentals of Complex Communication

• VALUES—Why does it matter?
  What is at stake?

• What are the Values?
  • Prosperity
  • Ingenuity
  • Fairness Across Places
How Are the Values Communicated?
The “Core Story”

• **METAPHORS**—What are the solutions?
  
  • **Brain Architecture**—A metaphor for sensitive periods of development [early years and adolescence]
  
  • **Serve and Return**—A metaphor for essential responsive interactions between children and adults
  
  • **Toxic Stress**—A metaphor for how adverse experiences can influence biology and development
How Are the Values Communicated?
The “Core Story”

• **MORE METAPHORS**—What are the solutions?
  • Air Traffic Control—A metaphor for executive function.
  • Resilience Scale—A metaphor for social determinants of wellbeing and resilience as outcome
  • Levelness—A metaphor for child mental health
  • Charging Stations—A metaphor for opportunity and access to services and supports.
The Knowledge Mobilization Path

Three Scientific Symposia

- The Science of Biology/Physical Science
- The Science of Programmatic Innovations
- The Science of Policy Innovation
The Knowledge Mobilization Path

Four “FrameLabs”

- A deep dive into the application of Communication Science to Brain Science
- Cohorts of 35-40 people with diverse professional perspectives brought together over three days to develop a common lens through which to view and language with which to communicate consistently about early childhood and adolescent brain development
- A foundation for improving all communications: verbal, narrative, op/ed, social media, multi-media presentations and informal conversations
The Knowledge Mobilization Path: Major State Agency Partners

- Department of Children’s Services
- Department of Correction
- Department of Education
- Department of Health
- Department of Human Services
- Department of Mental Health and Substance Abuse Services
- Office of Criminal Justice Programs
- TennCare (state Medicaid program)
- Tennessee Commission on Children and Youth
- University of Tennessee College of Social Work
Community Innovations

Funds support Innovations in these sectors

• Medical
  • Baptist Memorial Health Care
  • ETSU Department of Pediatrics
  • Frontier Health
  • VU Medical Center Pediatrics

• Education
  • Gibson County Special School District
  • Metro Nashville Public Schools
  • Murfreesboro City Schools

• Justice/Courts
  • Davidson County Infant Court (now included in the DCS cohort of Infant Courts)
Community Innovations

Funds support Innovations in these sectors

- Early Childhood/Childcare
  - UT Extension Services

- Community
  - ACE Nashville
  - ETSU/Boys and Girls Clubs
  - Grundy County Discover Together
  - UT Health Sciences Center
  - United Way of Greater Chattanooga

- Media
  - WCTE Upper Cumberland

- Academia
  - Belmont University
  - MTSU College of Education
  - TSU Center of Excellence in Learning Science
Conclusion

With this Initiative, there is Confidence in Ability to Change the Culture in Tennessee

from

What is wrong with you?

to

What happened to you?
Questions?
Next Steps

ASTHO’s Early Brain Development Strategic Guide and Technical Assistant Framework

• ASTHO developed resources that are intended to help state and territorial health leaders consider and translate early brain development science into evidence-based policies and practices that promote and protect brain health and optimal development. These resources will be available on the ASTHO website in the coming weeks.
Evaluation

Please fill out our evaluation!

http://astho.az1.qualtrics.com/jfe/form/SV_54J3LFZbP79w1A9