THE HIGH COST OF ADVERSE CHILDHOOD EXPERIENCES

Washington State
FAMILY POLICY COUNCIL
A Family, Community, State Partnership
www.fpc.wa.gov
360-902-7880
Educational Service District 105
Susan.martin@esd105.org

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ADVERSE CHILDHOOD EXPERIENCE

Today We Will:
Present emerging research so new & powerful that, when understood, it transforms mental models …

So that
You create transformative conversations and processes

So that
Leaders throughout the state act most effectively to support thriving families

ADVERSE CHILDHOOD EXPERIENCE

BRAIN RESEARCH
Dr. Martin Teicher

EPIDEMIOLOGICAL RESEARCH
Dr. Robert Anda and Dr. Vincent Felitti

RESILIENCY RESEARCH
Dr. Amy Masten

For a full list of publications, visit
www.cdc.gov/nccdphp/ace/publications.htm
Or
www.googlescholars.com

ADVERSE CHILDHOOD EXPERIENCE

CHANGE THE FIRST 5 YEARS
and YOU CHANGE EVERYTHING
UNDERSTANDING
SCIENTIFIC
DISCOVERIES
SOMETIMES REQUIRES

UNLEARNING
WHAT WE ONCE BELIEVED TO BE TRUE

What does the prevalence data tell us?…

- Many people with trauma histories have overlapping problems with mental health, substance abuse, physical health and are victims or perpetrators of crime.
- Victims of trauma are found across all systems of care.

Therefore…..

- We need to presume the students we serve have a history of traumatic stress and exercise “universal precautions.”

Trauma and the Brain

- Trauma disrupts the chemistry of the brain and predispose people to alcohol and drug use, eating disorders, self-injuring behavior and mental health problems.
- When Trauma occurs in childhood, it can have lasting effects on brain development.
Trauma Informed

A shift from asking, “What is wrong with you?”

To

“What happened to you?”

Carol Ackley LADC, River Ridge Treatment Center

Trauma Informed Teaching

- A school where staff and students learn to be aware of the challenges faced by others.
- They respond to the physical, emotional, and social challenges faced by students and families by offering support to remove barriers to learning.
- They do not judge the situations or responses to others. They seek to understand and support.

The Heart of Learning and Teaching: Compassion, Resilience, and Academic Success, Wilpow, Johnson, Hertel, Kincaid

Foundations of Healthy Development

- Genetic Predispositions
  - Determines function & specialty of cells exposed to certain hormones
  - Activate systems prematurely & makes them more sensitive to future stressors
  - Regulates the development of receptor cells—the decoder rings of the brain
  - Determines how brain cells network with each other, shaping mass & function of the brain at maturity
  - Regulates myelination—the coating of nerves with fat
  - Stress-related chemicals kill off baby brain cells

EXPERIENCE DRIVES DEVELOPMENT
Adverse Childhood Experience

Consequences of Biological Outcomes

Adapted from the research of Martin Teicher, MD, PhD

Neutral Start vs. Traumatic Stress

Brain Hormones, chemicals & cellular systems prepare for a tough life in an evil world.

Neutral Stress

Individual
- Edgy
- Hot temper
- Impulsive
- Hyper vigilant
- “Brawn over brains”

Outcome
- Individual & species survive the worst conditions.

Traumatic Stress

Individual
- Laid back
- Relationship-oriented
- Thinks things through
- “Process over power”

Outcome
- Individual & species live peacefully in good times, vulnerable in poor conditions.

Dissonance between biological expectations & social reality fuels psychiatric/health disorders.

Adverse Childhood Experience

Half Full or Half Empty?

- Do we see strengths or deficits?
- Do we help families “frame” childhood characteristics?
- Do we look for clues in behavior?
- Do present openness for learning?

→ In your experience, how do our major social services, health, justice, education and/or mental health systems respond to young people who act on “brawn over brains”?

→ How do these systems’ responses work for children and families?
KEY VARIABLES IN BRAIN OUTCOMES

CRITICAL TIME: AGE OF MALTREATMENT
The brain develops over time. The effects of maltreatment correspond to the region and/or function that is developing at the time of maltreatment.

TYPE OF ABUSE
Different types of maltreatment activate different processes that shape the brain, such as chemicals & hormones, electrical activity, cell growth, & specialization of cells.

GENDER
Although both boys & girls are affected by maltreatment, the effects of sexual abuse are more profound in girls while the effects of neglect are more profound in boys.

CONSEQUENCES OF BIOLOGICAL OUTCOMES

COGNITIVE
- Slowed language development
- Attention problems (ADD/ADHD)
- Speech delay
- Poor verbal memory/recall
- Loss of brain matter/IQ

SOCIAL
- Aggression & violent outbursts
- Poor self-control of emotion
- Can’t modify behavior in response to social cues
- Social isolation—can’t navigate friendship

MENTAL HEALTH
- Poor social/emotional development
- Alcohol, tobacco & other drug abuse—vulnerable to early initiation
- Adolescent & adult mental health disorders—especially depression, suicide, dissociative disorder, borderline personality disorder, PTSD

ADVERSE CHILDHOOD EXPERIENCE

HIPPOCAMPUS
The center for:
- Controlling emotional reactions
- Constructing verbal memory
- Constructing spatial memory

VULNERABLE TO:
All forms of maltreatment in the first 2-3 years of life
Sexual abuse at ages 3-5

ADAPTIVE FUNCTIONING
- Emotionally reactive
- Poor regulation of behavior
- Difficulty with verbal and spatial memory.

CORPUS CALLOSUM
Integrates hemispheres & facilitates:
- Language development
- Proficiency in math
- Processing of social cues, such as facial expression

VULNERABLE TO:
Neglect in infancy
Sexual abuse in the elementary school years
ADVERSE CHILDHOOD EXPERIENCE

BIOLOGICAL EFFECTS OF ABUSE & NEGLECT

RIGHT TEMPORAL GYRUS
Center for spoken language

VULNERABLE TO:
Emotional abuse, especially between ages 7 and 9

CEREBELLAR VERMIS
Center for:
• Regulating mental health
• Regulating movement through the physical environment
• Reacting to peripheral details in the world around us

VULNERABLE TO:
High levels of cortisol prior to puberty

CORTEX
Center for:
• Thinking & judgment
• Executive function
• Long term memory
• Vision

VULNERABLE TO:
Trauma in the first several years of life affecting pre-frontal cortex
Witnessing domestic violence in the elementary school years affecting visual cortex
Sexual abuse at 15-16 affecting executive function
### BRAIN EFFECTS BY CRITICAL PERIODS

<table>
<thead>
<tr>
<th>CRITICAL TIME</th>
<th>BRAIN REGION</th>
<th>FUNCTION</th>
<th>AFFECTED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 3 years</td>
<td>HIPPOCAMPUS</td>
<td>Emotional regulation</td>
<td>All maltreatment</td>
</tr>
<tr>
<td>Ages 3-5</td>
<td></td>
<td>Verbal memory</td>
<td>Sexual abuse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spatial memory</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>With the AMYGDALA, manages fear, panic, emotional understanding</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Regulates emotionally appropriate responses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CORPUS CALLOSUM</td>
<td>Cross-brain function</td>
<td>Neglect</td>
</tr>
<tr>
<td>Infancy</td>
<td></td>
<td>Language &amp; math proficiency</td>
<td>Social cues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All maltreatment</td>
<td>Sexual abuse</td>
</tr>
<tr>
<td>Age 6-10</td>
<td></td>
<td>Social cues</td>
<td></td>
</tr>
<tr>
<td>Ages 7-9</td>
<td>RT TEMPORAL Cortex for mental health</td>
<td>Emotional abuse</td>
<td></td>
</tr>
<tr>
<td>Prior to puberty</td>
<td>CEREBELLAR VERMIS</td>
<td>Navigation through space</td>
<td>All maltreatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Track periphery</td>
<td></td>
</tr>
<tr>
<td>First 2-3 yrs</td>
<td>CORTEX</td>
<td>Thinking and judgment</td>
<td>All maltreatment</td>
</tr>
<tr>
<td>Age 8-10</td>
<td></td>
<td>Vision</td>
<td>Witnessing Family</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Executive function</td>
<td>Violence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long-term memory</td>
<td>Sexual abuse</td>
</tr>
<tr>
<td>Age 15-16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ADVERSE CHILDHOOD EXPERIENCE

**DISCUSSION**

→ In what ways does the finding that trauma is woven into our bodies and cells challenge your mental models about biology? Behavior? Psychology?

→ Collectively, how might we deal with the challenges to our mental models that come with this new science?

### WHAT ARE THE ADVERSE CHILDHOOD EXPERIENCES (ACEs)?

1. Child physical abuse
2. Child sexual abuse
3. Child emotional abuse
4. Neglect
5. Mentally ill, depressed or suicidal person in the home
6. Drug addicted or alcoholic family member
7. Witnessing domestic violence against the mother
8. Loss of a parent to death or abandonment, including abandonment by divorce
9. Incarceration of any family member
ADVERSE CHILDHOOD EXPERIENCE

A CLASSIC CAUSAL RELATIONSHIP
MORE ACEs = MORE HEALTH PROBLEMS

Dose-response is a direct measure of cause & effect.
The "response"—in this case the occurrence of the health condition—is caused directly by the size of the "dose"—in this case, the number of ACEs.

LIFE LONG PHYSICAL, MENTAL & BEHAVIORAL OUTCOMES OF ACEs

- Alcoholism & alcohol abuse
- Chronic obstructive pulmonary disease & ischemic heart disease
- Depression
- Fetal death
- High risk sexual activity
- Illicit drug use
- Intimate partner violence
- Liver disease
- Obesity
- Sexually transmitted disease
- Smoking
- Suicide attempts
- Unintended pregnancy

The higher the ACE Score, the greater the incidence of co-occurring conditions from this list.

ACE STUDY DOSE-RESPONSE FINDINGS

- Adult Alcoholism
- Women & Teen Pregnancy
- Intravenous Drug Use
- Attempted Suicide
### ADVERSE CHILDHOOD EXPERIENCE

**PROBABILITY OF SAMPLE OUTCOMES GIVEN 1,000 AMERICAN ADULTS**

<table>
<thead>
<tr>
<th>330 Report No ACEs</th>
<th>510 Report 1-3 ACES</th>
<th>160 Report 4-8 ACES</th>
</tr>
</thead>
<tbody>
<tr>
<td>WITH 0 ACEs</td>
<td>WITH 3 ACEs</td>
<td>WITH 7+ ACEs</td>
</tr>
<tr>
<td>1 in 16 smokes</td>
<td>1 in 9 smoking</td>
<td>1 in 6 smoking</td>
</tr>
<tr>
<td>1 in 69 are alcoholic</td>
<td>1 in 9 are alcoholic</td>
<td>1 in 6 are alcoholic</td>
</tr>
<tr>
<td>1 in 480 uses IV drugs</td>
<td>1 in 43 uses IV drugs</td>
<td>1 in 30 use IV drugs</td>
</tr>
<tr>
<td>1 in 14 has heart disease</td>
<td>1 in 7 has heart disease</td>
<td>1 in 6 has heart disease</td>
</tr>
<tr>
<td>1 in 96 attempts suicide</td>
<td>1 in 10 attempts suicide</td>
<td>1 in 5 attempts suicide</td>
</tr>
</tbody>
</table>

**DISCUSSION**

→ In what ways does this study affirm or challenge your life experience and/or professional understanding of mental, behavioral & physical health outcomes?

### ACE DATA IN CONTEXT & ACTION:

*Pierce County Juvenile Court Improvement Project*
ADVERSE CHILDHOOD EXPERIENCE

PREVALENCE of ACEs
COURT INVOLVED YOUTH vs. ADULTS IN ACE STUDY

<table>
<thead>
<tr>
<th>0-1 ACEs</th>
<th>2-3 ACEs</th>
<th>4+ ACEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>56%</td>
<td>25%</td>
<td>16%</td>
</tr>
<tr>
<td>Juvenile</td>
<td>Adult</td>
<td></td>
</tr>
</tbody>
</table>

DISTRIBUTION OF ACEs AMONG JUVENILE OFFENDERS IN PIERCE COUNTY, WASHINGTON

17 OFFENDERS Report 0-1 ACEs
50 OFFENDERS Report 2-3 ACES
33 OFFENDERS Report 4+ ACEs

OFFENDERS WITH 1 ACE REPORT:
- Loss of a parent

OFFENDERS WITH 3 ACEs REPORT:
- Loss of a parent
- Incarcerated family member
- Threats/intimidation (Emotional abuse)

OFFENDERS WITH 5 ACEs REPORT:
- Loss of a parent
- Incarcerated family member
- Substantial abuse in the home
- Physically Abused

ADVERSE CHILDHOOD EXPERIENCE

JUVENILE OFFENDERS:
ACES & SCHOOL EXPERIENCE

4+ Suspensions
- 43% 61% 64%
2-3 ACEs
- 23% 42% 85%
0-1 ACEs
- 33% 41% 51%

Early Suspension
- 56% 69% 74%

Special Education
- 33% 41% 51%
Below 2.0 GPA
- 56% 69% 74%
Significant risk of early use/abuse of:
- Alcohol, tobacco, illicit & prescription drugs
- Slowed language & reading
- Diminished IQ
- Poor decision making skills
- Attention problems
- ADD
- ADHD
- Aggressive behavior
- Social isolation among peers
- Poor understanding of social cues = conflict

Special education
School failure
Suspension
Expulsion
Delinquency
Chronic health problems
Low-wage jobs
Unemployment
Public Assistance
Prison
Debilitating mental health
Low-wage jobs
Unemployment
Public Assistance
Prison
Debilitating mental health

EARLY TRAUMA & STRESS
Predictable patterns of brain development, traits & behaviors

ADVERSE CHILDHOOD EXPERIENCE
THE FAST TRACK TO POVERTY

ADVERSE CHILDHOOD EXPERIENCE
DISCUSSION
→ In what ways does the complexity of this data—of the cases that the data represents—raise leadership questions for you?

WHAT IS RESILIENCE?
The natural human capacity to navigate life well.

The capacity to absorb disturbance and reorganize while undergoing change, yet still retain essentially the same function, structure, identity, feedbacks.

The ability of an individual, system or organization to meet challenges, survive, and do well despite adversity.

Resilience occurs at all levels:

Free Write
I'm doing well when . . . .
PHASES IN RESILIENCE RESEARCH

Descriptive – What do resilient individuals have in common?

Predictive – How questions: identify and understand processes that might lead to resilience, including risk and protective factors.

Contextual – Why ages, stages, personal and family history, community context matter for promotion of resilience.

Integrative – Encompasses rapid advances in the study of genes, developmental neurobiology, neural plasticity, and the conditions, contexts, and processes that affect positive adaptation throughout the lifespan.


RESILIENCE AS A DEVELOPMENTAL PROCESS

• We develop competencies & characteristics that prepare us to be effective in the world we’re growing into

• We develop the capacity to adapt in the face of challenges

• None of us is perfect—we’ll all have moments when we don’t appear to be very well adapted to the conditions we’re facing

• Resilience is complex; it is possible to be resilient in one setting and not in another

KEY COMPONENTS OF RESILIENCE AS A DEVELOPMENTAL PROCESS

Recent studies with diverse approaches point to a short list of global factors associated with resilience:

• Cognitive & self-regulation skills

• Positive view of self

• Motivation/ability to be effective in the environment

• Connections/attachment to competent & caring adults in family & community

• Relational experience that supports the process of finding meaning from experience; tempering mastery to fit time & place; constructing identity; building hope

• Community context and functionality
What do we value as a community?
What structures do we have in place to address adverse childhood experiences & the problems they cause?
How well do our structures reflect our values?

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Cathy Kelley (509) 454-3104
Cathy.kelley@esd105.org
Susan Martin (509) 454-3127
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