ACE REDUCTION & RESILIENCE PROMOTION

A Powerful Framework for Strategic Action
Research Framework Brings Cohesion and Synergy to Multi-Sector Work

**BRAIN RESEARCH**


**EPIDEMIOLOGICAL RESEARCH**


For a full list of publications, see [http://www.cdc.gov/nccdphp/ace/publications.htm](http://www.cdc.gov/nccdphp/ace/publications.htm)

**RESILIENCE RESEARCH**


Boss, P; *Loss, Trauma and Resilience – Therapeutic Work with Ambiguous Loss*; WW Norton & Company; 2006

Longhi, D; *Community Networks – Building Community Capacity, Reducing Rates of Child and Family Problems*, 2008; *How Do High Risk Counties Protect All Youth*, 2009
FOUNDATIONS OF HEALTHY DEVELOPMENT

Genetic Predispositions  →  Experience

- Heritable Traits
  - Structure & Developmental Sequence of Brain; Baseline Intelligence
- Nutrition
- Physical, Chemical, Built Environment
- Environment of Relationships

BRAIN RESEARCH:  
THE NEUROBIOLOGY OF MALTREATMENT 


BRAIN DEVELOPMENT PATTERNS
Adapted from the research of Martin Teicher, MD, Ph.D

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

TRAUMATIC STRESS

INDIVIDUAL
• Edgy
• Hot temper
• Impulsive
• Hyper vigilant
• “Brawn over brains”

OUTCOME
Individual & species survive the worst conditions

NEUTRAL START

BRAIN
Hormones, chemicals & cellular systems prepare for life in a benevolent world

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 disorders
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.
BIOLOGICAL EFFECTS OF ABUSE & NEGLECT

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 & spatial memory

DELAYED SYMPTOMS CAN OCCUR BECAUSE:
Stress hormones are toxic to granule or “seedling” cells; their failure to grow means decreased mass in this area of the brain

Calming practices, belly breathing, martial arts, meditation...
CORPUS CALLOSUM

Integrates hemispheres & facilitates
• Language development
• Proficiency in math
• Processing of social cues, like facial expression
• Promotes learning
• Regulates negative emotions
• Protects mental health

VULNERABLE TO

Neglect in infancy
Sexual abuse at ages 9 and 10

ADAPTIVE FUNCTIONING

• Language delay
• Diminished integration & coordination
• Vulnerability to Post Traumatic Stress Disorder (PTSD)

EXPOSURE TO TRAUMA:

• Impedes cell division
• Interrupts myelination
• Disrupts electrical activity & Reduces the functionality of the corpus callosum
RIGHT TEMPORAL GYRUS
Center for spoken language
Center for social cognition

VULNERABLE TO
Emotional abuse, especially between 7 - 9

ADAPTIVE FUNCTIONING
Delays in language acquisition—both spoken and written
Profound depression, suicidality and other mental health disorders

SUPERIOR TEMPORAL GYRUS
Center for sensing sound and processing speech
Generates Aha! -insight

VULNERABLE TO
Verbal abuse in Middle childhood

ADAPTIVE FUNCTIONING
Difficulty processing and remembering verbal information
Enacting information concurrent with hearing information may help memory and meaning formation

Give physical gesture to verbal instruction. Charades!
BIOLOGICAL EFFECTS OF ABUSE & NEGLECT

CEREBELLAR VERMIS

Center for:

- Regulating affect and attention
- Regulating mental health
- Regulating movement through the physical environment
- Reacting to peripheral details in the world around us

VULNERABLE TO

All maltreatment- high levels of cortisol pre-puberty

ADAPTIVE FUNCTIONING

Higher risk for depression
Higher risk for substance abuse

DELAYED SYMPTOMS CAN OCCUR BECAUSE:
Stress hormones are toxic to granule or “seedling” cells; their failure to grow means decreased mass in this area of the brain
ADVERSE CHILDHOOD EXPERIENCE

BIOLOGICAL EFFECTS OF ABUSE & NEGLECT

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.

ADAPTIVE FUNCTIONING

Limiting Field of Vision
<table>
<thead>
<tr>
<th>CRITICAL TIME</th>
<th>BRAIN REGION</th>
<th>FUNCTION</th>
<th>AFFECTED BY</th>
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<td>First 3 years</td>
<td>HIPPOCAMPUS</td>
<td>Emotional regulation</td>
<td>All maltreatment</td>
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<tr>
<td>Ages 3-5</td>
<td></td>
<td>Verbal memory</td>
<td>Sexual abuse</td>
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<tr>
<td></td>
<td></td>
<td>Spatial memory</td>
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<td>With the <strong>AMYGDALA</strong>,</td>
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<tr>
<td></td>
<td></td>
<td>Manages fear, panic, emotional understanding</td>
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<td>Regulates emotionally-appropriate responses</td>
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<td>Puts the brakes on outbursts &amp; tantrums</td>
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<tr>
<td>Infancy</td>
<td>CORPUS CALLOSUM</td>
<td>Cross-brain function</td>
<td>Neglect</td>
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<tr>
<td>Age 8-10</td>
<td></td>
<td>Language &amp; math proficiency</td>
<td>Sexual abuse</td>
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<td></td>
<td></td>
<td>Social cues</td>
<td></td>
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<td>Age 7-9</td>
<td>RT TEMPORAL GYRUS</td>
<td>Spoken language</td>
<td>Emotional abuse</td>
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<td>Prior to puberty</td>
<td>CEREBELLAR VERMIS</td>
<td>Center for mental health</td>
<td>All maltreatment</td>
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<tr>
<td></td>
<td></td>
<td>Navigation through space</td>
<td></td>
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<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>
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<td>Age 8-10</td>
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<td>Vision</td>
<td>Witnessing Family Violence</td>
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<tr>
<td></td>
<td></td>
<td>Executive function</td>
<td>Sexual abuse</td>
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<tr>
<td>Age 15-16</td>
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<td>Long-term memory</td>
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</table>
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 EXPERIENCES STUDY
INTEGRATING BRAIN & EPIDEMIOLOGICAL RESEARCH
WHAT ARE THE ADVERSE CHILDHOOD EXPERIENCES (ACEs)?

Abuse and Neglect
1. Child physical abuse
2. Child sexual abuse
3. Child emotional abuse
4. Neglect

Indicators of Family Dysfunction
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. Parental discord – indicated by divorce, separation, abandonment
9. Incarceration of any family member

ACE Score: the number of categories of adverse childhood experience to which a person was exposed.
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.
ACE STUDY DOSE-RESPONSE FINDINGS

Adult Alcoholism

Women & Teen Pregnancy

% Reporting Alcoholism

% Ever Experiencing Teen Pregnancy

ACE Score

ACE Score
ACE STUDY DOSE RESPONSE FINDINGS

Intravenous Drug Use

- % Reporting IV Drug Use
- ACE Score

Attempted Suicide

- % Ever Attempting Suicide
- ACE Score
## Probability of Sample Outcomes Given 100 American Adults

<table>
<thead>
<tr>
<th>ACE Report</th>
<th>Number</th>
<th>Probabilities</th>
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<tr>
<td>0 ACEs</td>
<td>33</td>
<td>1 in 16 smokes, 1 in 69 alcoholic, 1 in 480 IV drugs, 1 in 14 heart disease, 1 in 96 attempts suicide</td>
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<tr>
<td>1-3 ACEs</td>
<td>51</td>
<td>1 in 9 smokes, 1 in 9 alcoholic, 1 in 43 IV drugs, 1 in 7 heart disease, 1 in 10 attempts suicide</td>
</tr>
<tr>
<td>4-8 ACEs</td>
<td>16</td>
<td>1 in 6 smokes, 1 in 6 alcoholic, 1 in 30 IV drugs, 1 in 6 heart disease, 1 in 5 attempts suicide</td>
</tr>
</tbody>
</table>
ACEs are The Most Powerful Determinate of The Public’s Health

LIFE LONG
PHYSICAL, MENTAL & BEHAVIORAL OUTCOMES

→ 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
→ Early Death

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

→ How does this information put into context your experience with people facing these kinds of health outcomes?
TO FIND DOZENS OF JOURNAL ARTICLES ABOUT ACEs & DISEASE:

Adverse Childhood Experience Study site for CDC:
http://www.cdc.gov/NCCDPHP/ACE/

or

Rob Anda and Vince Felitti’s site specific to the ACE study:
http://www.acestudy.org/
1. ACEs in Young Children & Academic, Behavioral and Health Challenges
2. ACEs in High School Sophomores and Seniors
3. ACEs in Adults Affect Lifespan and Intergenerational Health
“Understanding Adverse Childhood Experiences isn’t to know one’s life path. It is to open doors for the future you would like for yourself and for future generations.”

Dr. Ronald Voorhees, MD, PhD
Chief Office of Epidemiology & Biostatistics
Allegheny County Health Department
YOUNG CHILDREN

At Ages 5-12, Complex Trauma is Common

ACE + Homelessness; Pile-up of Toxic Stressors Predicts:

• Health, Attendance, Behavior

• Academic Failure

ACE indicators included: referral to child protective services, family violence, exposures to community violence, and residential instability (using a McKinney Vento definition)

Study findings from Spokane Elementary Schools; Blodgett & Harrington; 2010
OLDER CHILDREN - High School Sophomores and Seniors

Washington School Classroom (30 Students)
Adverse Childhood Experiences (ACEs)

- 6 students with no ACE
- 5 students with 1 ACE
- 6 students with 2 ACEs
- 3 students with 3 ACEs
- 7 students with 4 or 5 ACEs
- 3 students with 6 or more ACEs

<table>
<thead>
<tr>
<th>No ACE</th>
<th>1 ACE</th>
<th>2 ACEs</th>
<th>3 ACEs</th>
<th>4 ACEs</th>
<th>5 ACEs</th>
<th>6+ ACEs</th>
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<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

58% (17) students with no exposure to physical abuse or adult to adult violence
29% (9) of students exposed to physical abuse or adult to adult violence
13% (4) of students exposed to physical abuse and adult to adult violence

Population Average
ACEs and WASHINGTON ADULTS

INFORMATION FROM THE 2009 WASHINGTON STATE BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM SURVEY (BRFSS)
ACEs ARE COMMON IN WASHINGTON

Most Adults Have 1 or More ACE

- 0 ACE: 38%
- 1 or More ACE: 62%
ACEs ARE COMMON IN WASHINGTON

Childhood Sexual Abuse Among Women
- Yes: 17%
- No: 83%

Childhood Sexual Abuse Among Men
- Yes: 7%
- No: 93%

Grew Up With Substance Abusing Parent/Caregiver
- Yes: 33%
- No: 67%

Physical Abuse During Childhood
- Yes: 17%
- No: 83%
ACES CO-OCCUR / CLUSTER

In the lives of Washingtonians

One in four adults report three or more ACEs (26%)

5% of adults have six or more ACEs

Among adults exposed to physical abuse,
84% reported at least 2 additional ACEs

Among adults exposed to sexual abuse,
72% reported at least 2 additional ACEs
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 ACE categories.
BEHAVIORAL HEALTH

Current Smoking

<table>
<thead>
<tr>
<th>Number of ACE Categories</th>
<th>Percent of Population</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>10.4</td>
</tr>
<tr>
<td>1</td>
<td>13.2</td>
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<td>2</td>
<td>11.1</td>
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<td>3</td>
<td>16.3</td>
</tr>
<tr>
<td>4 or 5</td>
<td>20.8</td>
</tr>
<tr>
<td>6,7, or 8</td>
<td>28.5</td>
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</tbody>
</table>

Childhood Marijuana Use

<table>
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<th>Number of ACE Categories</th>
<th>Percent of Population</th>
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<tbody>
<tr>
<td>0</td>
<td>16.2</td>
</tr>
<tr>
<td>1</td>
<td>21.1</td>
</tr>
<tr>
<td>2</td>
<td>29.4</td>
</tr>
<tr>
<td>3</td>
<td>37.4</td>
</tr>
<tr>
<td>4 or 5</td>
<td>39.6</td>
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<tr>
<td>6,7, or 8</td>
<td>46.8</td>
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</table>

Heavy Drinking

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<th>Number of ACE Categories</th>
<th>Percent of Population</th>
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<tbody>
<tr>
<td>0</td>
<td>4.1</td>
</tr>
<tr>
<td>1</td>
<td>4.9</td>
</tr>
<tr>
<td>2</td>
<td>6.3</td>
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<td>3</td>
<td>6.5</td>
</tr>
<tr>
<td>4 or 5</td>
<td>6.2</td>
</tr>
<tr>
<td>6,7, or 8</td>
<td>8.4</td>
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</table>

Risk for HIV

<table>
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<th>Number of ACE Categories</th>
<th>Percent of Population</th>
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<tr>
<td>0</td>
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<tr>
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<td>3.7</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>5.1</td>
</tr>
<tr>
<td>4 or 5</td>
<td>7.3</td>
</tr>
<tr>
<td>6,7, or 8</td>
<td>10.2</td>
</tr>
</tbody>
</table>
CHRONIC DISEASE

**Obesity**

- 0: 24.2%
- 1: 26%
- 2: 23.3%
- 3: 30%
- 4 or 5: 34.5%
- 6, 7, or 8: 36.5%

**Diabetes**

- 0: 6.1%
- 1: 7.5%
- 2: 8%
- 3: 7.5%
- 4 or 5: 7.9%
- 6, 7, or 8: 11.7%

**High Blood Pressure**

- 0: 25.1%
- 1: 23.6%
- 2: 26.7%
- 3: 25.9%
- 4 or 5: 31.6%
- 6, 7, or 8: 33.2%

**Cardiovascular Disease**

- 0: 4.9%
- 1: 5.6%
- 2: 6.7%
- 3: 5.6%
- 4 or 5: 9.4%
- 6, 7, or 8: 8.1%
### MENTAL HEALTH

#### Insufficient Sleep ≥ 21 of last 30 days

<table>
<thead>
<tr>
<th>Number of ACE Categories</th>
<th>Percent of Population</th>
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<tbody>
<tr>
<td>0</td>
<td>9.9%</td>
</tr>
<tr>
<td>1</td>
<td>12.9%</td>
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<tr>
<td>2</td>
<td>15.7%</td>
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<tr>
<td>3</td>
<td>13.5%</td>
</tr>
<tr>
<td>4 or 5</td>
<td>21.2%</td>
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<tr>
<td>6,7, or 8</td>
<td>26.1%</td>
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#### ≥14 of 30 Unhealthy Mental Health Days

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<th>Percent of Population</th>
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<tbody>
<tr>
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<td>5.8%</td>
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<tr>
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<td>6.6%</td>
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<tr>
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<td>17.6%</td>
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<tr>
<td>6,7, or 8</td>
<td>20.6%</td>
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#### Treatment for Mental Health Condition

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<th>Number of ACE Categories</th>
<th>Percent of Population</th>
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<tbody>
<tr>
<td>0</td>
<td>7.3%</td>
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<tr>
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<td>14%</td>
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<tr>
<td>3</td>
<td>15.5%</td>
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<tr>
<td>4 or 5</td>
<td>19.3%</td>
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#### Hopelessness

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<tr>
<td>6,7, or 8</td>
<td>9.9%</td>
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**Activity Limitation - Mental, Physical, Emotional Problems**

Percent of Population

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<td>8.5</td>
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**Missed Work > 14 of 30 Days Due to Mental Health**

Percent of Population

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</table>

**Health Problems Require Special Equipment**

Percent of Population

<table>
<thead>
<tr>
<th>Number of ACE Categories</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4 or 5</th>
<th>6,7, or 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5.2</td>
<td>5.2</td>
<td>6.4</td>
<td>8.6</td>
<td>11.3</td>
<td>14.8</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.5</td>
<td>3.2</td>
</tr>
<tr>
<td>2</td>
<td></td>
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<td></td>
<td></td>
<td>3.2</td>
<td>5.5</td>
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<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.5</td>
<td>8.5</td>
</tr>
<tr>
<td>4 or 5</td>
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<td></td>
<td>8.5</td>
<td>11.3</td>
</tr>
<tr>
<td>6,7, or 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.3</td>
<td>14.8</td>
</tr>
</tbody>
</table>
## ACEs in Washington

### Health and Social Problems Shown to Have a Graded Relationship to the ACE Score in the 2009 Washington BRFSS

<table>
<thead>
<tr>
<th>Type of Problem</th>
<th>Outcome Associated with Adverse Childhood Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalent Diseases</td>
<td>Cardiovascular disease, cancer, asthma</td>
</tr>
<tr>
<td>Risk Factors for Common Diseases/Poor Health</td>
<td>Smoking, heavy drinking, binge drinking, obesity, high perceived risk of AIDS, taking painkillers to get high, marijuana use</td>
</tr>
<tr>
<td>Poor Mental Health</td>
<td>Sleep disturbances, frequent mental distress, nervousness, mental health or emotional problem requiring medication, emotional problems that restrict activities</td>
</tr>
<tr>
<td>General Health and Social Problems</td>
<td>Fair or poor health, life dissatisfaction, health-related quality of life</td>
</tr>
</tbody>
</table>
| Risk for Intergenerational Transmission | **Mental Illness**: depression, anxiety, emotional problems that restrict activities, medication for mental health conditions  
**Drugs and Alcohol**: Use of painkillers to get high, use of marijuana, smoking, heavy drinking, binge drinking  
**Loss of a Parent**: Divorced-widowed-separated |
ACE REDUCTION = HEALTH WELL-BEING PRODUCTIVITY
ACEs CREATE INTERGENERATIONAL RISK

ACES ARE HIGHLY INTERRELATED, SELF PERPETUATING, & HAVE A CUMULATIVE STRESSOR EFFECT

EXPERIENCING ACE

INCREASED RISK FOR INTERGENERATIONAL TRANSMISSION

TRAITS & BEHAVIORS = RISK FACTORS

$R$
POSITIVE ADAPTATION

Shifting from Deficit Oriented Models to Strengths, Health, & Thriving.
FACTORS THAT INFLUENCE HEALTH

- Environment: 22%
- Genetics: 17%
- Health Care: 10%
- How We Live: 51%

WHAT IS RESILIENCE?

The natural human capacity to navigate life well.

(HeavyRunner & Marshall, 2003)

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

(Walker et al., 2002)

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

(Kirmayer, 2009)

RESILIENCE OCCURS AT ALL LEVELS:

- Individual
- Family
- Community
- National, Global, Ecosystem
KEY COMPONENTS OF RESILIENCE

CAPABILITY
- Intellectual & employable skills
- Self regulation – self control, executive function, flexible thinking
- Ability to direct & control attention, emotion, behavior
- Positive self view, efficacy

COMMUNITY, CULTURE, SPIRITUALITY
- Faith, hope, sense of meaning
- Engagement with effective orgs – schools, work, pro-social groups
- Network of supports/services & opportunity to help others
- Cultures providing positive standards, expectations, rituals, relationships & supports

ATTACHMENT & BELONGING
- Bonds with parents and/or caregivers
- Positive relationships with competent and nurturing adults
- Friends or romantic partners who provide a sense of security & belonging
From: *Loss, Trauma, and Resilience; Therapeutic Work with Ambiguous Loss*; Dr. Pauline Boss; 2006
We celebrate the complexities of the whole of life... the interdependencies of mental, physical, spiritual, historic, and context realities of being human.

Unless one understands the world view of a people, we are unlikely to be able to understand resilience in the lives of those people.
CAUTIONS ABOUT THE RESILIENCE APPROACH

1. Expectation for Thriving Despite Oppression

2. Strength Based ≠ Solutions

3. Attending to Characteristics & Factors that Promote Resilience – Only Part of the Story
• Family Policy Council Community Capacity Dynamics model + decade of measurement quantify neighborhood/community transformation outcomes.

• One question in BRFSS indicates attachment & belonging, and gives clues about community capacity: *How often do you get your social/emotional needs met?*
ENHANCING COMMUNITY CAPACITY

A DYNAMIC PROCESS OF CONNECTION
GENERAL COMMUNITY CAPACITY DEVELOPMENT MODEL

General Community Capacity is: capacity to not only sustain programs, but also to identify new community problems as they arise, and develop ways of addressing them.

General Capacity Development is a dynamic process that enhances the infrastructure, skills, and motivation of a community – changing the way we live with one another day-to-day.

Literature strongly supports the importance of general capacity building in the process of promoting effective prevention. (Livet, 2008)
COMMUNITY CAPACITY IN WASHINGTON STATE

1. ACE Score Is Reduced from One Generation to the Next

2. Improved Social Responses to High ACE People Result in Better Life Course

3. Foundations for Healthy Development Become Stronger

General Community Capacity is: capacity to not only sustain programs, but also to identify new community problems as they arise, and develop ways of addressing them.

General Capacity Development is a dynamic process that enhances the infrastructure, skills, and motivation of a community – changing the way we live with one another day-to-day.
CAPACITY BUILDING HAS POWERFUL EFFECTS

Foundations for Healthy Development Improve

Five or more different problem rates come down
(http://www.fpc.wa.gov/publications/technicalpaper-ver3.pdf)

ACE Score Is Reduced from One Generation to the Next

The average ACE score of youth transitioning into adulthood
and parenthood is reduced in high capacity communities. Fewer people
have 3 or more ACEs, thus preventing many health problems
(http://www.fpc.wa.gov/publications/Relationship%20between%20ACEs%0PH%20%206%2024%2010.FINAL.pdf)

Improved Social Responses to High ACE People Result in Better Life Course

In high capacity communities, youth who have experienced Adverse Childhood Experiences are much
less likely to use alcohol, marijuana and tobacco; thereby dramatically reducing their risk for disease,
disability and problems at work, home and community
ACEs in WASHINGTON

Community Capacity Matters – Working Together We are Reducing ACEs

Adults with 3 or more ACE’s

In Crisis & Persistent
(n=1,537,995)

Thriving
(n=1,255,900)

65+
9.8%
15.1%

55-64
23.6%
25.9%

45-54
31.8%
33.8%

35-44
35.2%
37.9%

18-34
29.6%
38.4%
ACE DISTRIBUTION AMONG 18-34 YEAR OLDS
(Persistent & Crisis) vs. Thriving

Significant Difference = Fewer People with 6-8 ACEs
UNDERSTANDING THE IMPACT OF REDUCED ACES IN 18-34 POPULATION

- Lack of Social Support: 1888
- Limited Activity (due to disability): 5767
- Asthma: 2128
- Cancer: 2828
- Heart Disease: 1004
- Missed work due to MI: 1065
- Mental Illness (MI): 3845
- HIV: 1264
- Binge Drinking: 3727
- Smoking: 10874
ONE RESILIENCE QUESTION IN BRFSS

How often do you get the social and emotional support you need?
[NOTE: If asked, interviewers said: “please include support from any source.”]

Always or Usually – 83% of Respondents

Sometimes – 11.3% of Respondent

Rarely or Never – 5.7% of Respondents
BRFSS QUESTION RE: ATTACHMENT AND BELONGING
HOW OFTEN DO YOU GET THE SOCIAL AND EMOTIONAL SUPPORT YOU NEED?

PEOPLE WITH HIGH ACE SCORES – TWICE AS LIKELY TO HAVE NO SUPPORT
THAN PEOPLE WITH ZERO ACE

Always Get Needed Support

<table>
<thead>
<tr>
<th>Score</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>87.10%</td>
</tr>
<tr>
<td>1</td>
<td>84.50%</td>
</tr>
<tr>
<td>3</td>
<td>80.90%</td>
</tr>
<tr>
<td>4 or 5</td>
<td>74.80%</td>
</tr>
<tr>
<td>6,7, or 8</td>
<td>72.60%</td>
</tr>
</tbody>
</table>

Always or Usually – 83% of Respondents

Rarely/Never Get Support

<table>
<thead>
<tr>
<th>Score</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ACE</td>
<td>4.80%</td>
</tr>
<tr>
<td>1 ACE</td>
<td>5.80%</td>
</tr>
<tr>
<td>3 ACE</td>
<td>6.10%</td>
</tr>
<tr>
<td>4-5 ACE</td>
<td>7.10%</td>
</tr>
<tr>
<td>6-8 ACE</td>
<td>11.50%</td>
</tr>
</tbody>
</table>

Rarely or Never – 5.7% of Respondents
HIGH CAPACITY COMMUNITIES
HIGHER RATES OF SOCIAL/EMOTIONAL SUPPORT
AGES 18-34 WITH 3-8 ACE CATEGORIES

Significant differences after controlling for age, education, income, race/ethnicity, and ACE score.
DEPRESSION & SERIOUS PERSISTENT MENTAL ILLNESS

Ages 18 – 34 with 3-8 ACEs

Significant differences after controlling for age, education, income, race/ethnicity, and ACE score.
SOCIAL/EMOTIONAL SUPPORT, BEST IN HIGH CAPACITY COMMUNITIES – POWERFUL RESILIENCE FACTOR

- **Always Receive Needed Support**
  - Diabetes: 9.10%
  - Cardiovascular: 7.00%

- **Rarely or Never Receive Needed Social/Emotional Support**
  - Always: 1.40%
  - Never/Never: 15.70%
  - Sometimes: 7.20%

- **Always Receive Treatment for Mental Illness**
  - Always: 8.20%
  - Sometimes: 7.50%
• How might we systematically build on the strengths of children affected by early maltreatment?
• What academic supports might we reasonably provide?
• How might we support pathways to vocational success?
• What do we know about mitigating the effects? How might we learn more?
THANK YOU!

If you or someone you are working with has already made changes to the way you interact with others, or provide services based on ACE & resilience research,

We want to hear from you!

The Family Policy Council collects inventory of changes to practice, policy and neighborhood work that is consistent with brain science, the ACE Study, and Resilience research. You can complete a short survey online at: http://www.fpc.wa.gov/

INVENTORY OF SERVICE CHANGE

Contact us at:
Washington State
FAMILY POLICY COUNCIL
A Family, Community, State Partnership
www.fpc.wa.gov
360-902-7880
fpc@dshs.wa.gov
DO ACEs **CAUSE** PROBLEMS?

**YES – Findings Meet All 9 Criteria**

<table>
<thead>
<tr>
<th>Meets?</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A strong association between the causative agent and the outcome</td>
</tr>
<tr>
<td>2</td>
<td>Consistency of findings across research sites and methods</td>
</tr>
</tbody>
</table>
| 3 | Specificity  
*“The ACE Score is associated with numerous outcomes, so specificity is lacking, but this in no way detracts from the argument of causation. ACEs would be expected to be associated with multiple outcomes because of their effects on a variety of brain structures and functions; and this is found to be true.”* Anda, 2009 |
| 4 | Temporal sequence – ACEs occur before associated mental, physical, behavioral disorders |
| 5 | Biological gradient  
*The “dose-response” relationship between the number of ACEs and each of the outcomes (as well as the number of resulting health problems) is strong and graded.”* Anda, 2009 |
| 6 | Biological plausibility  
- strength of the convergence between epidemiology and neurobiology is most evident |
| 7 | Coherence  
- The cause and effect interpretation for an association does not conflict with what is known about the natural history and biology of the disease |
| 8 | Analogous evidence  
- We all know the analogy for exposure causing multiple outcomes: smoking causes cardiovascular diseases, neoplasms, lung disease, and more |
| 9 | Experimental evidence  
- For ethical reasons randomized experiments depend on animal studies: Evidence in rodents & primates show that stressful exposures induce neurologic differences, aggression, drug seeking |
COMMUNITIES IMPROVE CORE PROTECTIVE SYSTEMS

FAMILY POLICY COUNCIL STUDIES – ASSOCIATED RESULTS

 Capability

Academic Success

1. Intellectual & employable skills
2. Self regulation – self control, executive function, flexible thinking
3. Ability to direct & control attention, emotion, behavior
4. Positive self view, efficacy

Choosing fewer ‘best’ friends who use
Choosing to productively respond to peer pressure

Feeling that one gets the social/emotional support one needs

Less social acceptance of drug/alcohol – feeling like I’ll get caught

Less favorable attitude: drugs
Decreases in 30 day alcohol use, binge drinking, marijuana use
Decreases in rates of school drop-outs, juvenile justice involvement adult-youth violence

Attachment & Belonging

Feeling that one gets the social/emotional support one needs

Less social acceptance of drug/alcohol – feeling like I’ll get caught

Greater difficulty obtaining substances
Neighbors more supportive of better behavior
Schools more actively meeting youth’s life needs
Schools encouraging commitment to learning

Less favorable attitude: drugs
Decreases in 30 day alcohol use, binge drinking, marijuana use
Decreases in rates of school drop-outs, juvenile justice involvement adult-youth violence

Community, Spirituality, Culture

Greater difficulty obtaining substances
Neighbors more supportive of better behavior
Schools more actively meeting youth’s life needs
Schools encouraging commitment to learning

Lower rates: Diabetes & cardiovascular disease, Mental illness Risk for HIV Smoking & Binge Drinking Activity limitation due to health Missed work

High General Community Capacity

Addressing High General Community Capacity

1. Bonds with parents and/or caregivers
2. Positive relationships with competent and nurturing adults
3. Friends or romantic partners who provide a sense of security & belonging

Less favorable attitude: drugs
Decreases in 30 day alcohol use, binge drinking, marijuana use
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Addressing High General Community Capacity

1. Faith, hope, sense of meaning
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