UNDERSTANDING
Adverse Childhood Experiences
Building Self-Healing Communities
Early Adversity Increases Physical, Mental, Behavioral Problems, Scientists Report

Centers for Disease Control & Prevention, Kaiser Permanente Study

Over 17,000 study participants

The ACE Study confirms, with scientific evidence, that adversity early in life increases physical, mental and behavioral problems later in life.

Dr. Robert Anda & Dr. Vincent Felitti
Investigators
Human Nervous System

• Orchestrates functions and perceptions

Neuroscience helps us understand why ACEs are so powerful

- Brain
- Spinal Cord
- Peripheral Nerves
- Single Nerve Cell

Nervous system orchestrates body functions & perceptions

Neuroscience helps us understand why ACEs are so powerful
SYNAPTIC DENSITY

At Birth  Elementary Age  Puberty

What kind of situations might be a good match for a person who tends to be edgy, hypervigilant, emotionally detached, or quick to act?
Adaptations vs. Expectations

When biology collides with social expectations, we run into trouble.
Experience & Adaptation

Sensitive Periods

Cause-Effect
The Limbic System

- Fight or Flight
- Vital for:
  - Learning
  - Memory
  - Reward
  - Reinforcement
- Regulates:
  - Hormones
  - Mood
  - Heartbeat
  - Sexual Behavior
THE HIPPOCAMPUS AND AMYGDALA

- Vital for relationships
- Regulate: Panic & Fear, Attention, Memory, Social Cues

Amygdala | Hippocampus

VITAL for RELATIONSHIPS
Cerebellar Vermis

POSTIVE FEELINGS
Perception
Attention

ADDITION
Attention Problems
Mental Illness
The Corpus Callosum

**LEFT HEMISPHERE**
- Spatial Patterns
- Math Calculation & Fact Retrieval
- Grammar & Vocabulary
- Processing Routine Situations

**RIGHT HEMISPHERE**
- Visual & Auditory Processing
- Prosaic Language
- Facial Perception
- Processing Novel Situations
Exposure to Maltreatment

- Male Symbol
- Neglect in Infancy

- Female Symbol
- Sexual Abuse Age 9-10

At Birth
SYNAPTIC DENSITY

Elementary Age
STRESS
Interpretations Can Differ

set points in place by
EARLY ADULTHOOD

At Birth

SYNAPTIC DENSITY

Elementary Age
We have a collective CHOICE
Trauma-Informed School Discipline

Wait a Day

Wait an Hour

Ready to Talk
Finding More Connections

how multiple forms of childhood adversity can affect many important public health problems
**Adverse Childhood Experiences**

**ARE COMMON**

<table>
<thead>
<tr>
<th>Household Dysfunction</th>
<th>Neglect</th>
<th>Abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance Abuse</td>
<td>Emotional</td>
<td>Emotional</td>
</tr>
<tr>
<td>Parental Sep/Divorce</td>
<td>Physical</td>
<td>Physical</td>
</tr>
<tr>
<td>Mental Illness</td>
<td></td>
<td>Sexual</td>
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<tr>
<td>Battered Mothers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal Behavior</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Substance Abuse**: 27%
- **Parental Sep/Divorce**: 23%
- **Mental Illness**: 17%
- **Battered Mothers**: 13%
- **Criminal Behavior**: 6%
- **Emotional Neglect**: 15%
- **Physical Neglect**: 10%
- **Emotional Abuse**: 11%
- **Physical Abuse**: 28%
- **Sexual Abuse**: 21%

**TOTAL 10 ACEs**
ACE Score = Number of ACE Categories

ACE Scores Reliably Predict Challenges During the Life Course
ACE Score and Health Problems

% with Health Problems

Dose-Response Relationship

ACE Score: 0 ACE, 1 ACE, 2 ACEs, 3 ACEs, 4 ACEs, <5 ACEs
ACEs, Smoking and Lung Disease

% with Health Problems

Early Smoking Initiation | Current Smoking | COPD

ACE Score
- 0
- 1
- 2
- 3
- 4 or more

ACE Interface © 2014
Anxiety
Depression
Difficulty Concentrating

Smoking
<table>
<thead>
<tr>
<th>Examples of ACE-Attributable Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcoholism &amp; Alcohol Abuse</td>
</tr>
<tr>
<td>Chronic Obstructive Lung Disease</td>
</tr>
<tr>
<td>Coronary Heart Disease</td>
</tr>
<tr>
<td>Depression</td>
</tr>
<tr>
<td>Drug Abuse &amp; Illicit Drug Use</td>
</tr>
<tr>
<td>Fetal Death</td>
</tr>
<tr>
<td>Intimate Partner Violence</td>
</tr>
<tr>
<td>Liver Disease</td>
</tr>
<tr>
<td>Mental Health Problems</td>
</tr>
<tr>
<td>Obesity</td>
</tr>
<tr>
<td>Sexual Behavior Problems</td>
</tr>
<tr>
<td>Smoking</td>
</tr>
<tr>
<td>Unintended Pregnancy</td>
</tr>
<tr>
<td>Violence</td>
</tr>
<tr>
<td>Workplace Problems</td>
</tr>
</tbody>
</table>
Minnesota Student Survey + ACEs
2013 Minnesota Student Survey

- 84% of public schools agreed to participate
- Across the state 66% of 5th graders, 71% of 8th graders, 69% of 9th graders, and 62% of 11th graders participated
- Some questions on adverse childhood experiences were new in 2013; some were reworded to better align with national surveys
MSS “ACE Score” (Zero to Seven)

- Students reporting that they have a parent or guardian who is currently in jail, and/or who has been in jail in the past
- Students reporting they live with someone who drinks too much alcohol
- Students reporting they live with someone who uses illegal drugs or abuses prescription drugs
- Students reporting a parent or other adult in the household has verbally abuse them
- Students reporting a parent or other adult in the household has physically abused them
- Students reporting parents or other adults in the home physical abuse each other
- Students reporting and adult or other person outside the family, and/or an older or stronger family member, has ever sexually abused them
## Distribution of ACEs

<table>
<thead>
<tr>
<th>ACE Score</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero</td>
<td>70829</td>
<td>64.4%</td>
</tr>
<tr>
<td>One</td>
<td>19945</td>
<td>18.1%</td>
</tr>
<tr>
<td>Two</td>
<td>9444</td>
<td>8.6%</td>
</tr>
<tr>
<td>Three</td>
<td>4995</td>
<td>4.5%</td>
</tr>
<tr>
<td>Four</td>
<td>2690</td>
<td>2.4%</td>
</tr>
<tr>
<td>Five</td>
<td>1258</td>
<td>1.1%</td>
</tr>
<tr>
<td>Six</td>
<td>579</td>
<td>0.5%</td>
</tr>
</tbody>
</table>
ACE Score + Race/Ethnicity

Minnesota Students' ACE Score by Race/Ethnicity, 2013

ACE Score + Race/Ethnicity
ACE Score + Past 30 Day Alcohol Use

Minnesota 8th, 9th, and 11th Graders Reporting Any Past 30 Day Alcohol Use, by ACE Score, 2013
ACE Score + Binge Drinking

Minnesota 8th, 9th, and 11th Graders Reporting Any Past 30 Day Binge Drinking, by ACE Score, 2013

- ACE Score 0: 4.9%
- ACE Score 1: 9.7%
- ACE Score 2: 13.8%
- ACE Score 3: 18.3%
- ACE Score 4+: 29.5%
Minnesota 8th, 9th, and 11th Graders Reporting Any Past 30 Day Cigarette Smoking, by ACE Score, 2013

- ACE Score 0: 3.4%
- ACE Score 1: 9.9%
- ACE Score 2: 14.6%
- ACE Score 3: 21.7%
- ACE Score 4+: 32.8%
Minnesota 8th, 9th, and 11th Graders Reporting Past Year Suicidal Ideation and Attempts, by ACE Score, 2013

- **ACE Score 0**: 4.9% seriously considered suicide, 1.0% actually attempted suicide
- **ACE Score 1**: 13.7% seriously considered suicide, 3.6% actually attempted suicide
- **ACE Score 2**: 22.5% seriously considered suicide, 7.2% actually attempted suicide
- **ACE Score 3**: 30.7% seriously considered suicide, 10.8% actually attempted suicide
- **ACE Score 4+**: 41.9% seriously considered suicide, 20.6% actually attempted suicide

Legend:
- Blue: Seriously considered suicide in the last year
- Gray: Actually attempted suicide in the last year
Minnesota 8th, 9th, and 11th Graders Reporting Having Significant Problems in the Last 12 Months with Feeling Very Trapped, Lonely, Sad, Blue, Depressed, or Hopeless About the Future, by ACE Score, 2013
ACE Score + Physical Health

Minnesota 8th, 9th, and 11th Graders Reporting They Have Any Physical Disability or Long-term Health Problems (Such as Asthma, Cancer, Diabetes, Epilepsy, or Something Else), by ACE Score, 2013

<table>
<thead>
<tr>
<th>ACE Score</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>12.6%</td>
</tr>
<tr>
<td>1</td>
<td>16.3%</td>
</tr>
<tr>
<td>2</td>
<td>18.8%</td>
</tr>
<tr>
<td>3</td>
<td>20.7%</td>
</tr>
<tr>
<td>4+</td>
<td>27.1%</td>
</tr>
</tbody>
</table>
Minnesota 8th, 9th, and 11th Graders Describing Their General Health, by ACE Score, 2013
ACE Score + Caring Relationships

Minnesota 8th, 9th, and 11th Graders Reporting Others Care About Them "Quite a Bit" or "Very Much", by ACE Score, 2013

My parents
Other relatives
My friends care about me "quite a bit" or "very much"
My teachers and other adults at school
Adults in my community

ACE Score 0  ACE Score 1  ACE Score 2  ACE Score 3  ACE Score 4+
Minnesota 8th, 9th, and 11th Graders Reporting They "Strongly Agree" or "Agree" They Feel Safe..., by ACE Score, 2013
ACE Score + Bullying Behavior

Minnesota 8th, 9th, and 11th Graders Reporting Experiencing or Exhibiting Bullying Behaviors in the Past 30 Days, by ACE Score, 2013

Experienced past 30 day bullying (victim)
- ACE Score 0: 37.3%
- ACE Score 1: 53.8%
- ACE Score 2: 64.7%
- ACE Score 3: 69.5%
- ACE Score 4+: 77.2%

Exhibited past 30 day bulling (bully)
- ACE Score 0: 21.3%
- ACE Score 1: 34.3%
- ACE Score 2: 42.5%
- ACE Score 3: 47.3%
- ACE Score 4+: 55.8%
## ACE Score + Student Engagement

### If something interests me I try to learn more about it

<table>
<thead>
<tr>
<th>ACE Score</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>0</td>
<td>98.6%</td>
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<tr>
<td>1</td>
<td>97.8%</td>
</tr>
<tr>
<td>2</td>
<td>97.2%</td>
</tr>
<tr>
<td>3</td>
<td>96.6%</td>
</tr>
<tr>
<td>4+</td>
<td>94.1%</td>
</tr>
</tbody>
</table>

### I think things I learn in school are useful

<table>
<thead>
<tr>
<th>ACE Score</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>84.9%</td>
</tr>
<tr>
<td>1</td>
<td>77.7%</td>
</tr>
<tr>
<td>2</td>
<td>73.9%</td>
</tr>
<tr>
<td>3</td>
<td>70.4%</td>
</tr>
<tr>
<td>4+</td>
<td>64.2%</td>
</tr>
</tbody>
</table>

### Being a student is one of the most important parts of who I am

<table>
<thead>
<tr>
<th>ACE Score</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>0</td>
<td>74.0%</td>
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<tr>
<td>1</td>
<td>63.9%</td>
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<tr>
<td>2</td>
<td>58.4%</td>
</tr>
<tr>
<td>3</td>
<td>54.6%</td>
</tr>
<tr>
<td>4+</td>
<td>47.3%</td>
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</table>

Minnesota 8th, 9th, and 11th Graders Reporting They "Strongly Agree" or "Agree" That..., by ACE Score, 2013
ACE Score + Grades

Minnesota 8th, 9th, and 11th Graders Describing Their Grades for the School Year, by ACE Score, 2013
Behaviors noted in school
Resiliency

• Resilience is common and... arises from ...normal **rather than extraordinary** human capabilities, relationships, and resources.

In other words, resilience emerges from **ordinary magic**.

—Ann Masten, 2009
Resiliency: The Short List

**Ordinary Magic**, Ann Masten

- Effective parents and caregivers
- Connections to other competent and caring adults
- Pro-social, competent peers and friends
- Problem-solving skills
- Self-regulation skills
- Positive beliefs about the self
- Beliefs that life has meaning
- Spirituality, faith and religious affiliations
- Socioeconomic advantages
- Effective teachers and schools
- Safe and effective communities
“Nurturing the healthy development of these protective systems affords the most important preparation or ‘inoculation’ for overcoming potential threats and adversities in human development. Similarly, damage or destruction of these systems has dire consequences for the positive adaptive capacity of individuals.”

Ann Masten, 2009
Individual Capabilities

- Positive narratives about one’s life to feel valuable
- Self-efficacy
- Self-regulation
- Beware of circular logic

**How can we assist students to build individual capabilities**

- Teach and reteach expectations for new skill development
- Address individual academic and behavioral needs through a multi-tiered system of supports
Attachment and Belonging

• Relationships with caring and competent people
• Relationships that provide security and belonging
• Relationships with people who recognize, encourage and build on our individual capabilities

• How can we foster relationships with students, parents and one another?
  • Active Supervision
  • Call students by name
  • Positive phone calls home to parents
Community

• Resilient communities are empowered communities

• Building community capacity systematically to help students learn, manage and improve their own quality of life

• *How can school as a community provide this?*
  • Predictable environment
  • Safe environment
  • Clear expectations known to all across the building
Thank You!


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Questions or Comments
Resources

• Children’s Resilience Initiative
  • http://resiliencetrumpsaces.org/

• Adverse Childhood Experience (ACE) Study
  • http://www.cdc.gov/violenceprevention/acestudy/

• ACES Too High
  • http://acestoohigh.com/

• Center on the Developing Child – Harvard University
  • http://developingchild.harvard.edu/
Resources

• Creating Trauma Sensitive Schools
  • http://sspw.dpi.wi.gov/sspw_mhtrauma

• Resources Schools Can Use to Implement Trauma-Sensitive Practices

• Child Trauma Toolkit for Educators
  • http://rems.ed.gov/docs/NCTSN_ChildTraumaToolkitForEducators.pdf
Resources

• The Heart of Learning & Teaching Compassion, Resiliency & Academic Success
  • http://www.k12.wa.us/CompassionateSchools/HeartofLearning.aspx

• Calmer Classrooms: A Guide to Working with Traumatized Children

• Making SPACE for Learning: Trauma-Informed Practice in Schools
  • http://www.childhood.org.au/~/media/Files/Fundraising%20files/Fundraising%20resource%20files/Making%20space%20for%20learning%20ACF.ashx
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