IS STORED IN OUR BODY
SYNAPTIC DENSITY

At Birth  |  Elementary Age  |  Puberty

Neuron

© 2015 ACE Interface
ADAPTATIONS VS EXPECTATIONS
Cause-Effect
THE HIPPOCAMPUS AND AMYGDALA

Amygdala  Hippocampus

Panic & Fear | Attention | Memory | Social Cues
Cerebellar Vermis

POSITIVE FEELINGS

Perception

Attention

ADDITION

Attention Problems

Mental Illness
ONNECTIONS
between trauma-induced adaptations in the Vermis and serious and persistent 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
01/12/14

Early Adversity Increases Physical, Mental, Behavioral Problems, Scientists Report

Dr. Robert Anda & Dr. Vincent Felitti Investigators

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.
### 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>
</tr>
<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: 15%
- Physical: 10%
- Emotional: 11%
- Physical: 28%
- Sexual: 21%

**TOTAL 10 ACEs**
ACEs are Highly Interrelated:
Where One ACE Occurs, There are Usually Others

87% occur together

ONE type of ACE

2nd type of ACE
ACE Score = Number of ACE Categories

ACE Scores Reliably Predict Challenges During the Life Course

- 0 ACEs: 33%
- 1 ACE: 26%
- 2 ACEs: 16%
- 3 ACEs: 10%
- 4+ ACEs: 16%
Data

- In Wyoming in 2016 we had 974 substantiated cases of abuse and neglect.
- Of the substantiated cases, the three top reasons for entry into the system are:
  - Substance abuse by adult caregivers
  - Domestic Violence
  - Mental health issues of the adult care giver
ADVERSITY
Difficulty Concentrating
# EXAMPLES OF ACE-ATTRIBUTABLE PROBLEMS

<table>
<thead>
<tr>
<th>Alcoholism &amp; Alcohol Abuse</th>
<th>Liver Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Obstructive Pulmonary Disease</td>
<td>Mental Health Problems</td>
</tr>
<tr>
<td>Coronary Heart Disease</td>
<td>Obesity</td>
</tr>
<tr>
<td>Depression</td>
<td>Sexual Behavior Problems</td>
</tr>
<tr>
<td>Drug Abuse &amp; Illicit Drug Use</td>
<td>Smoking</td>
</tr>
<tr>
<td>Fetal Death</td>
<td>Unintended Pregnancy</td>
</tr>
<tr>
<td>Intimate Partner Violence</td>
<td>Violence</td>
</tr>
<tr>
<td></td>
<td>Workplace Problems</td>
</tr>
</tbody>
</table>
Population Attributable Risk

- Alcohol, binge drinking: 32.5%
- Tobacco use: 36.7%
- Anxiety: 54.3%
- Disability interrupted day: 55.7%
- ACEs: 52%
- Life dissatisfaction: 61.4%
- Conditions disturbed 14+ days of work/activity: 67%
- Suicide: 67%

Controls: gender, age, income, education, race-ethnicity
Risk and Protective Factors
Cartoon
Communities in Wyoming

Community Cafe Barrier Trends

Number of counties with each particular barrier (out of 8 total counties)
Strengthening Families Protective Factors

- Parental Resilience
- Concrete Supports in Time of Need
- Social and Emotional Competence of Children
- Social Connections
- Knowledge of Parenting and Child Development
We have a collective CHOICE
H.O.P.E.  
Health Outcomes from Positive Experiences

- Dr. Robert Sege from Boston
  - Building Strong Connections for Families based on positive experiences
  - Two main points of his findings
    - Communities need to accept mutual responsibility
    - At some point we all need help and empowering people to ask for it
CHANGE is up to US

the way we relate with one another in relationships, in families, and in communities.
Thank You!!

QUESTIONS