



Understanding

N. E. A. R.

Neuroscience

Epigenetics

Adverse Childhood Experiences

Resilience

Dr. Todd Bloomquist

IS STORED IN OUR BODY





Peripheral
Nerves

Single
Nerve
Cell

CONCEPTION



Childhood Experience

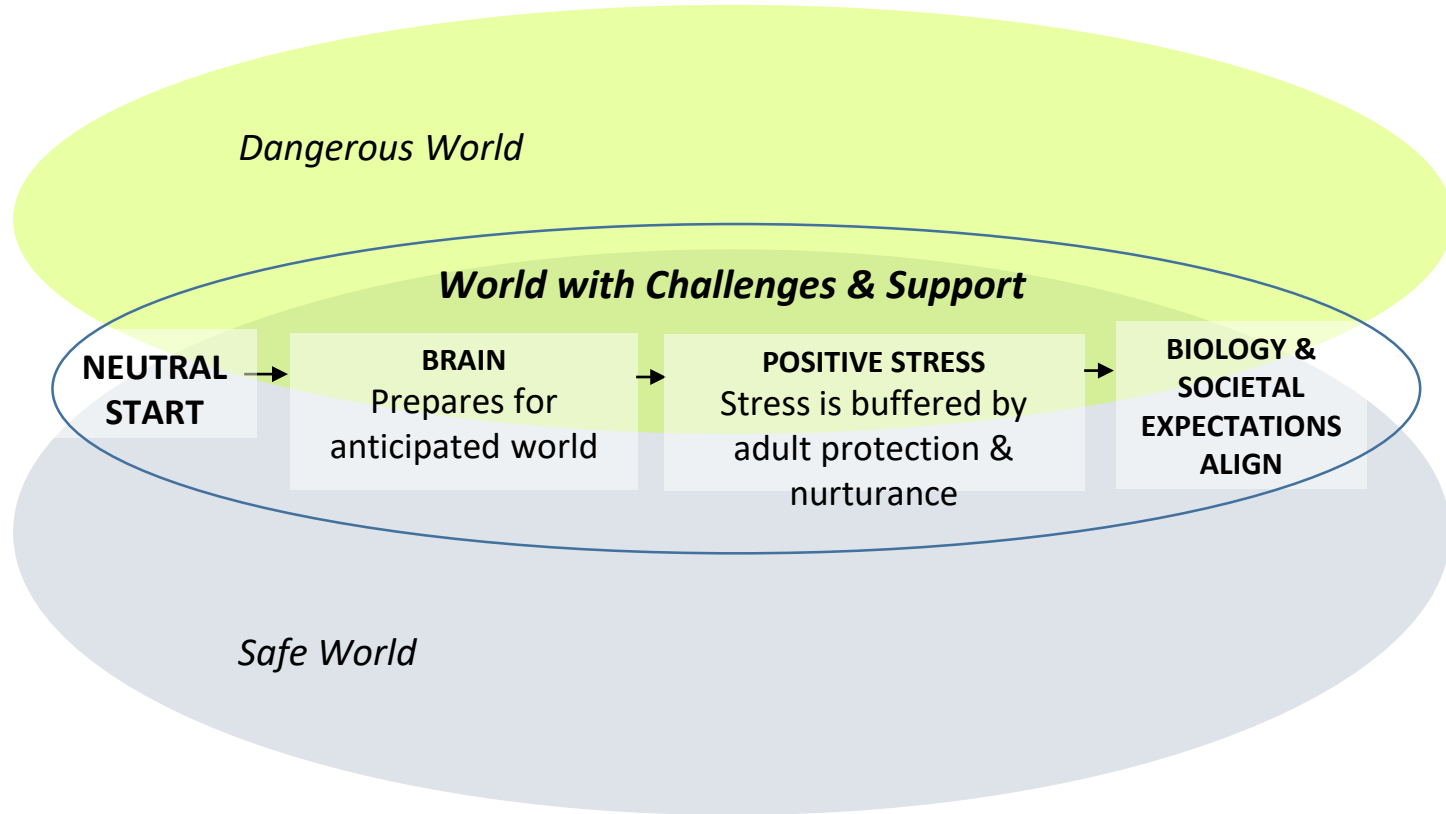
Adaptation

Adult Functioning



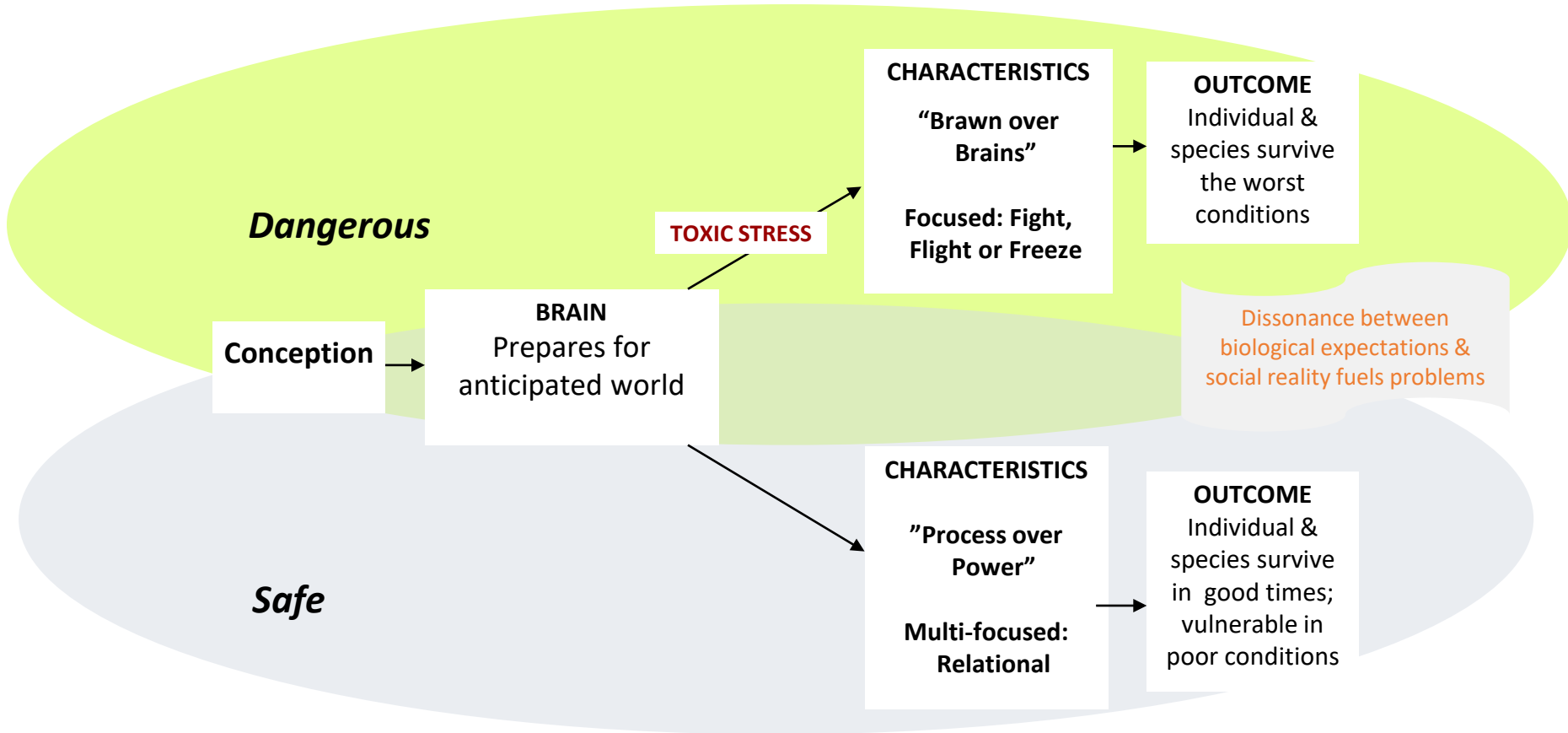
Worst
Conditions
Vulnerable to
Trauma

Experience & Adaptation



*Adapted from the research of Martin Teicher, MD, Ph.D
By Washington Family Policy Council*

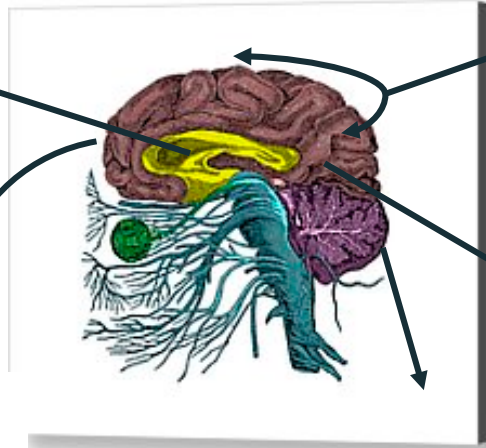
Hardwired for Anticipated World



Sequential Development

Early

Hippocampus &
Amygdala
Memory,
Learning,
Response to
Danger
Self monitoring
Delayed Effects



Early & Middle

Corpus Collosum
Language
Math
Integration of Creative &
Analytical Thought
Infant Neglect, Sexual
Abuse 9-10

Into Adulthood

Cortex
Thinking, Judgment, Long-Term
Memory, Executive Function, Hope
Multiple Sensitive Periods
All, Family Violence 8-10, Sexual
Abuse pre 12 & 15-16

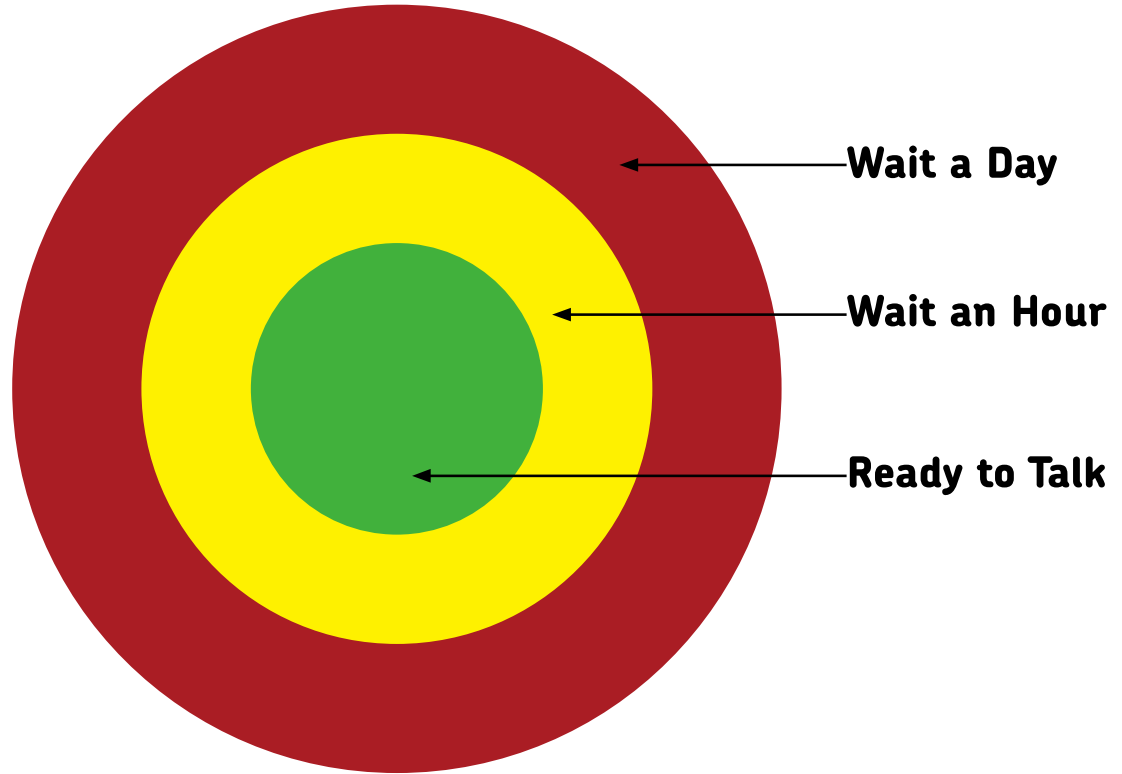
Pre-Puberty

Cerebellar Vermis
Affect, Attention,
Movement, Substance
Abuse & Mental Health
Delayed Effects

Middle

R. Temporal Gyrus
Spoken Language
Social Cognition
Profound Depression
Suicidality
Emotional Abuse, Including
Bullying

Trauma-Informed School Discipline



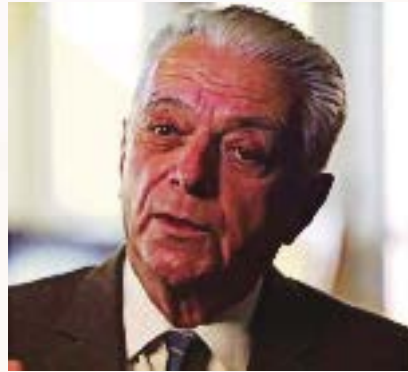
Epigenetics & Enduring Health



01/12/14

NEWS

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.

Death



Conception

Early Death
& Social Problems

Adverse Childhood Experiences **ARE COMMON**

Household Dysfunction

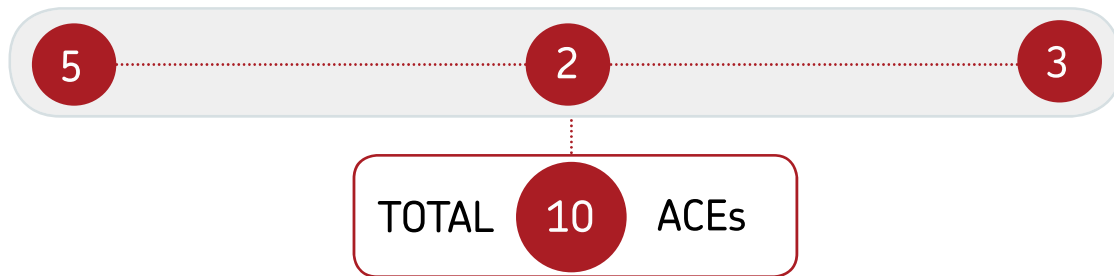
Substance Abuse	27%
Parental Sep/Divorce	23%
Mental Illness	17%
Battered Mothers	13%
Criminal Behavior	6%

Neglect

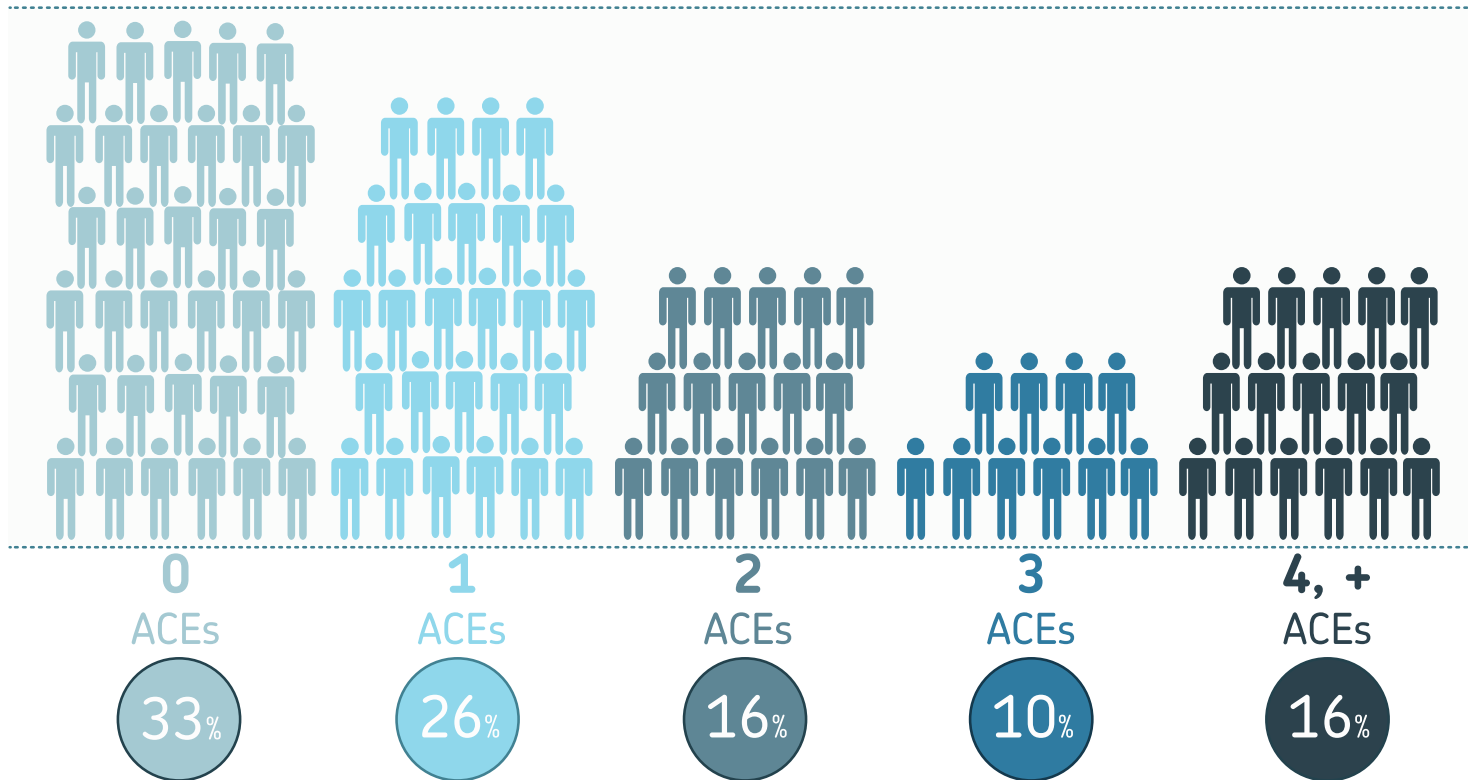
Emotional	15%
Physical	10%

Abuse

Emotional	11%
Physical	28%
Sexual	21%

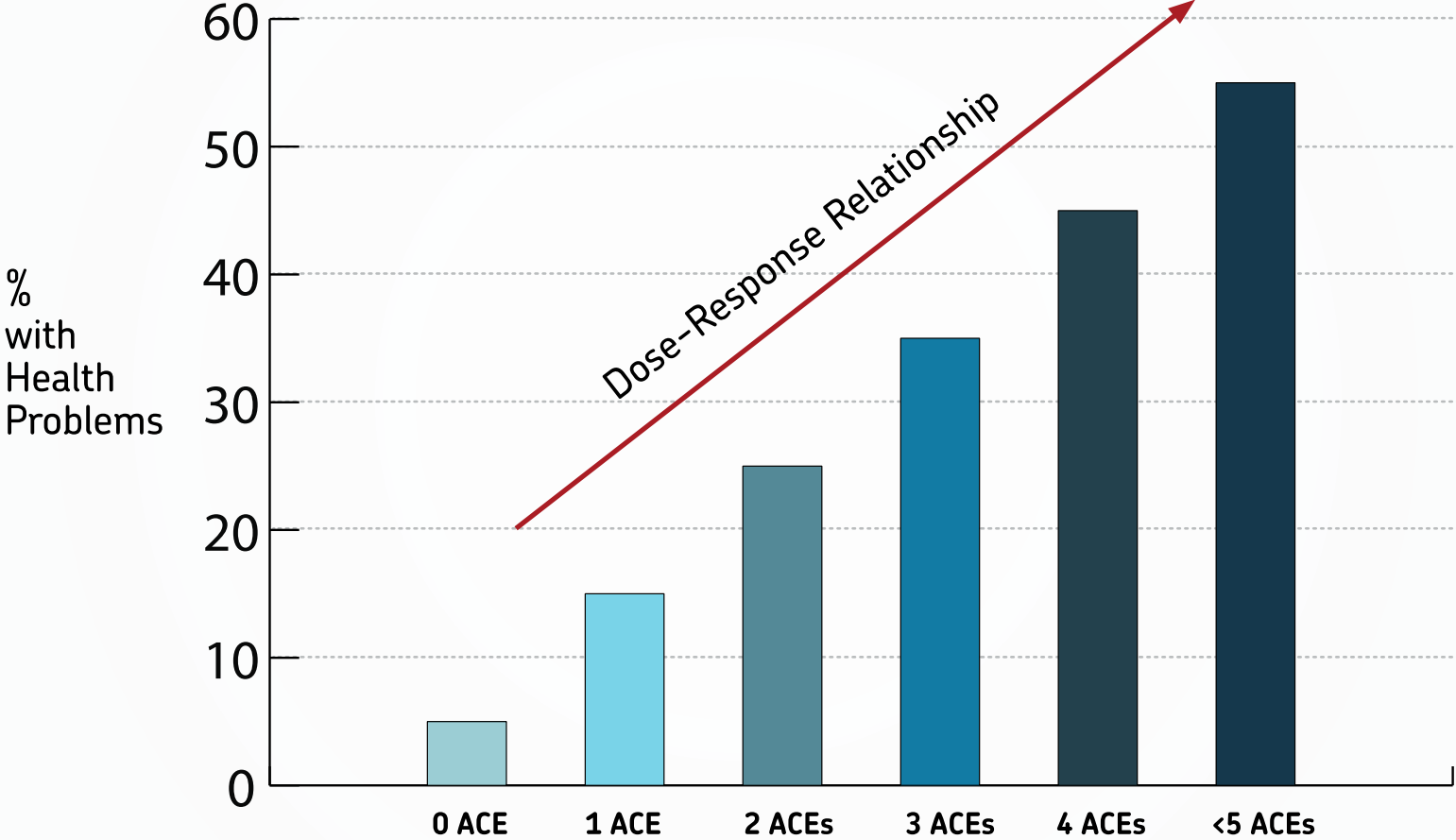


ACE Score = Number of ACE Categories

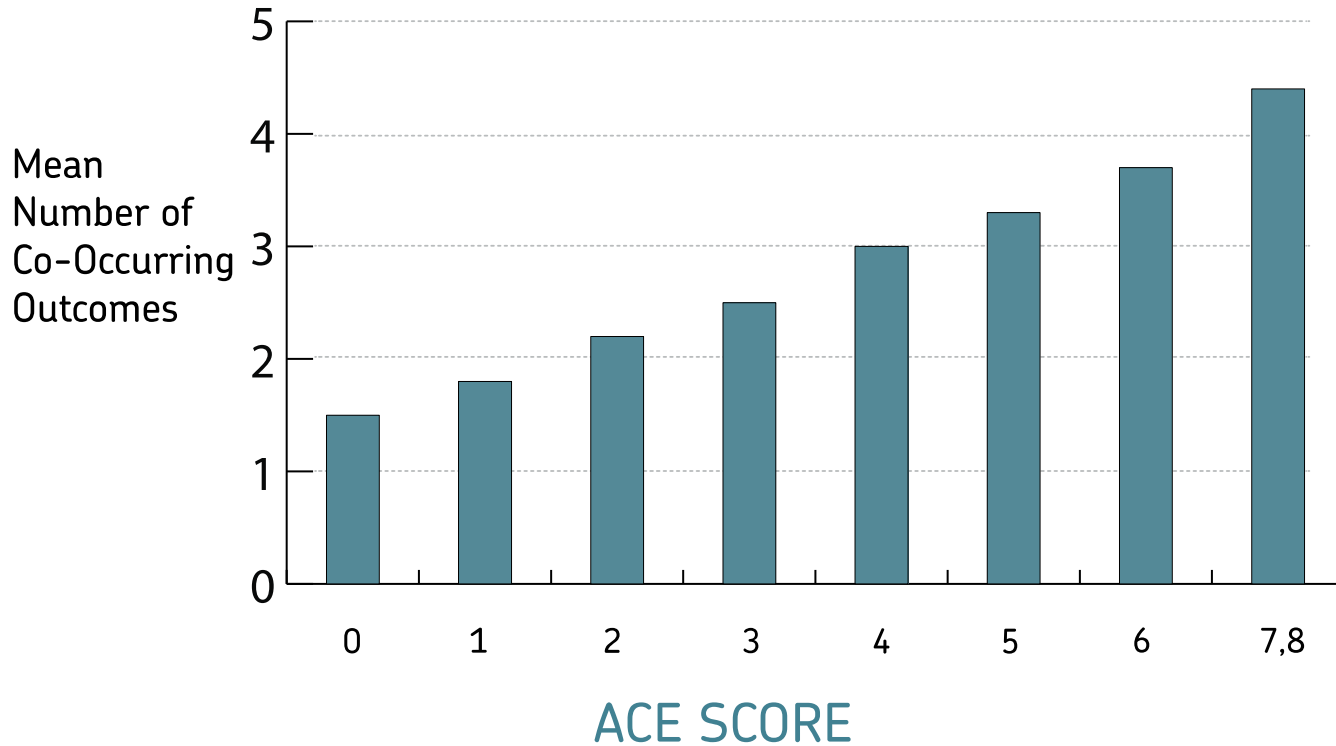


ACE Scores Reliably Predict Challenges During the Life Course

ACE Score and Health Problems

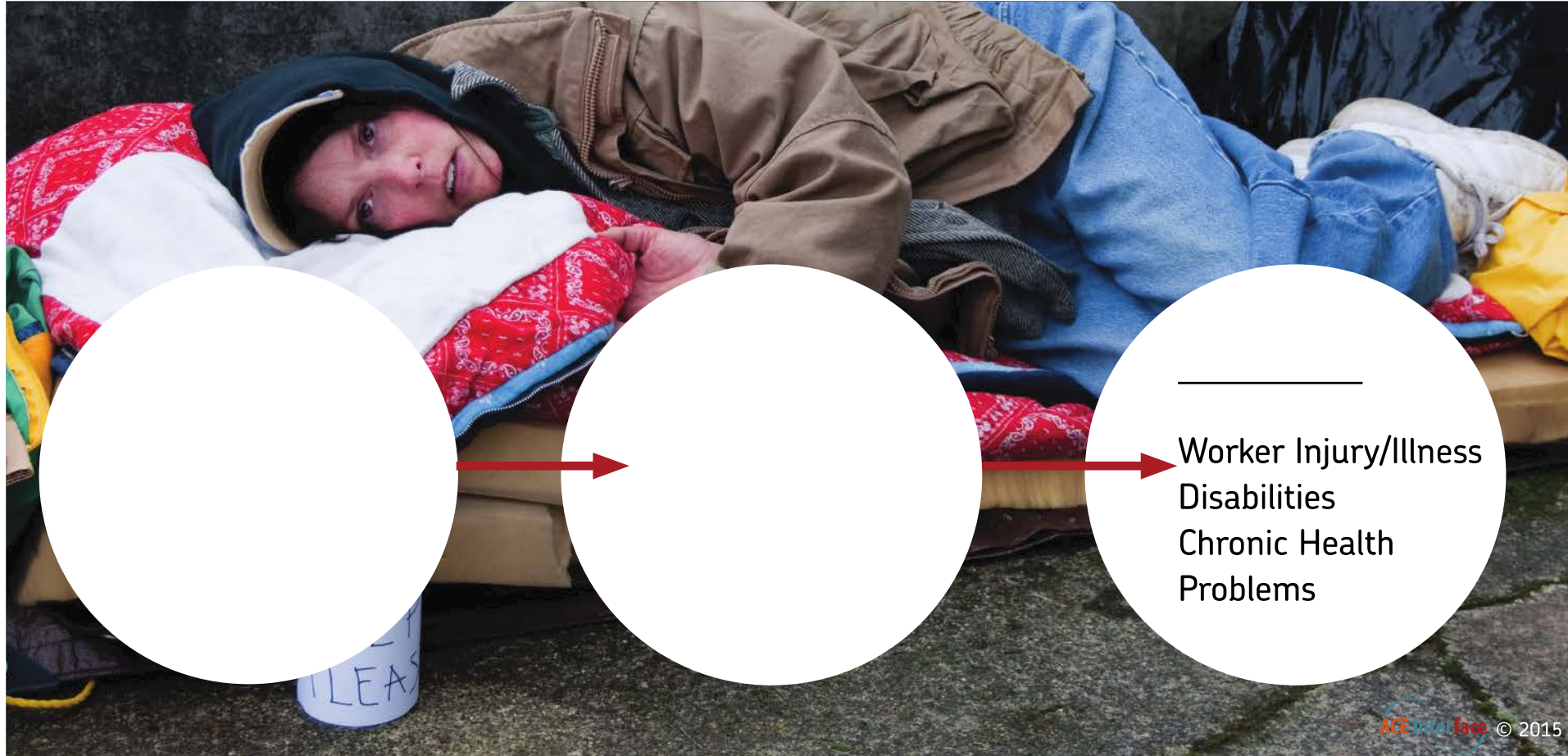


Neurobiology and Epidemiology Converge



Health and Social Problems

panic reactions
depression
anxiety
hallucinations
sleep disturbances
severe obesity
pain
smoking
alcoholism
illicit drug use
IV drug use
early intercourse
promiscuity
sexual dissatisfaction
amnesia (childhood)
high stress
problems with anger
perpetrating
domestic violence



Worker Injury/Illness
Disabilities
Chronic Health
Problems

Knocking Down ACE Scores ———— will prevent ————



3

homelessness, unemployment, incarceration

2

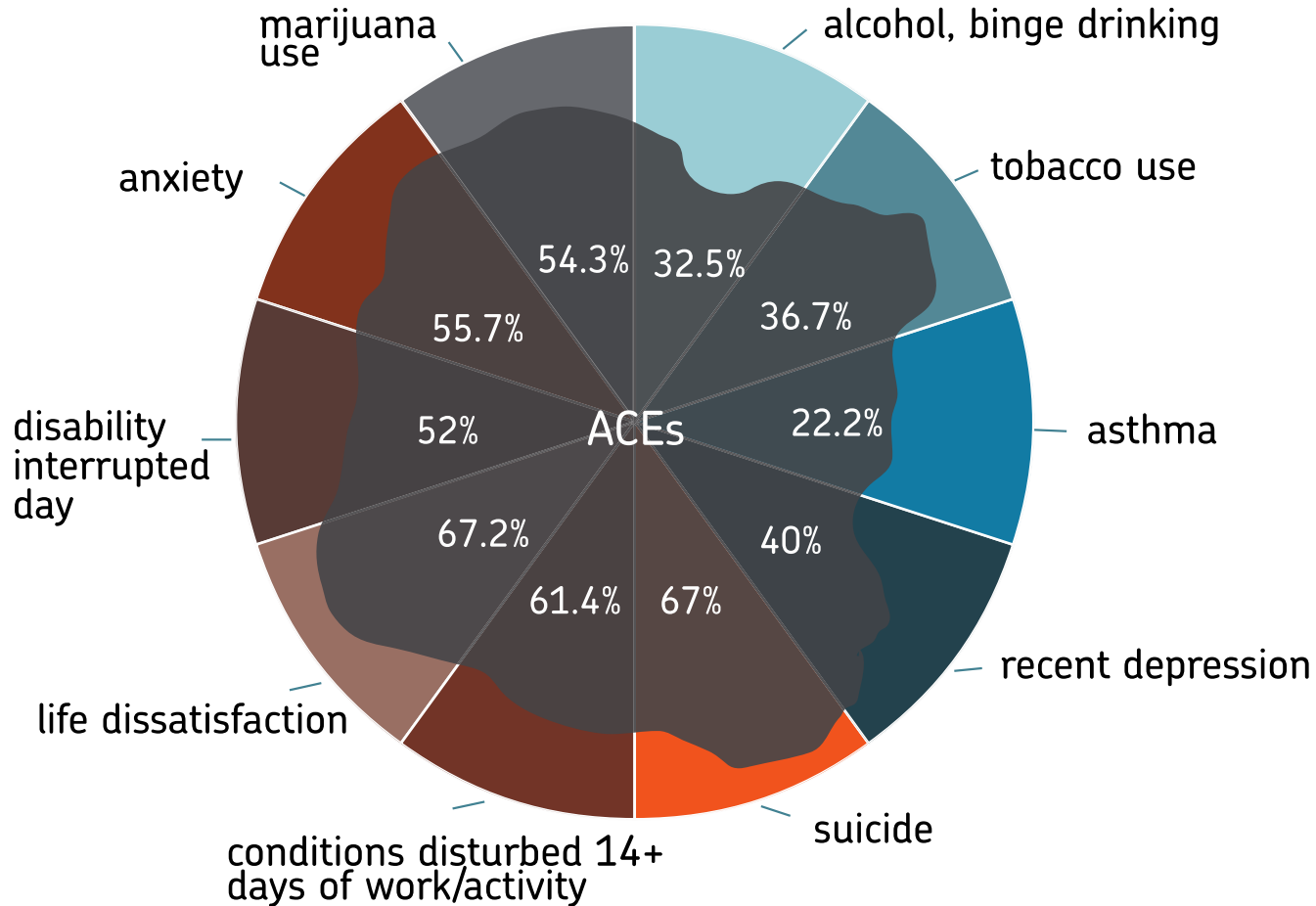
disability, learning problems

1

poverty

0

Population Attributable Risk



Controls: gender, age, income, education, race-ethnicity

IMPACT on your work



Resilience

- 2 out of 3 are impacted by adversity
- Positive Interactions Rewire
- Alignment of biology and societal expectations
- Building up of the Core Protective System

Core Protective Systems



The diagram consists of three overlapping circles arranged horizontally. The leftmost circle is orange and contains the text 'Capabilities'. The middle circle is blue and contains the text 'Attachment & Belonging'. The rightmost circle is red and contains the text 'Community Culture Spirituality'. The circles overlap in the center, creating a shared area.

Capabilities

Attachment
&
Belonging

Community
Culture
Spirituality

Individual Capabilities



Positive

view lets me know I am
important and valuable

Attachment & Belonging

RELATIONSHIPS

with caring and competent

people are

—VITAL—

contributors to
resilience & recovery





Community, Faith & Cultural Processes



**f o s t e r
t h r i v i n g
c o m m u n i t i e s**

Core Principles of a Trauma-Informed System of Care

- **Safety** – ensuring physical and emotional safety
- **Trustworthiness** – maintaining appropriate boundaries and making tasks clear
- **Choice** – prioritizing choice and control (for people who have had control taken away, having small choices makes a big difference)
- **Collaboration** – maximizing collaboration
- **Empowerment** - prioritizing empowerment and skill-building



What to Remember

- If people could act well, they would. If they are not, **something happened**.
- When the brain is “flipped” it is in its *least likely* state to resolve issues
- The brain is plastic, that is, it can **change**—but it takes time.
- Sometimes a **second** makes a difference

What to do

- ***Pause*** before reacting
- Make a ***plan*** for stressful situations
- Use a ***tool*** (like a bullseye, a stop light, hand signal)
- Create opportunities for ***positive interactions*** – every interaction rewires the brain
- Implement ***Core Principles*** in the workplace
- Get staff trained in ***ACES***

CHANGE is up to US



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



Building Self-Healing Communities

Thank YOU!

www.aceinterface.com
