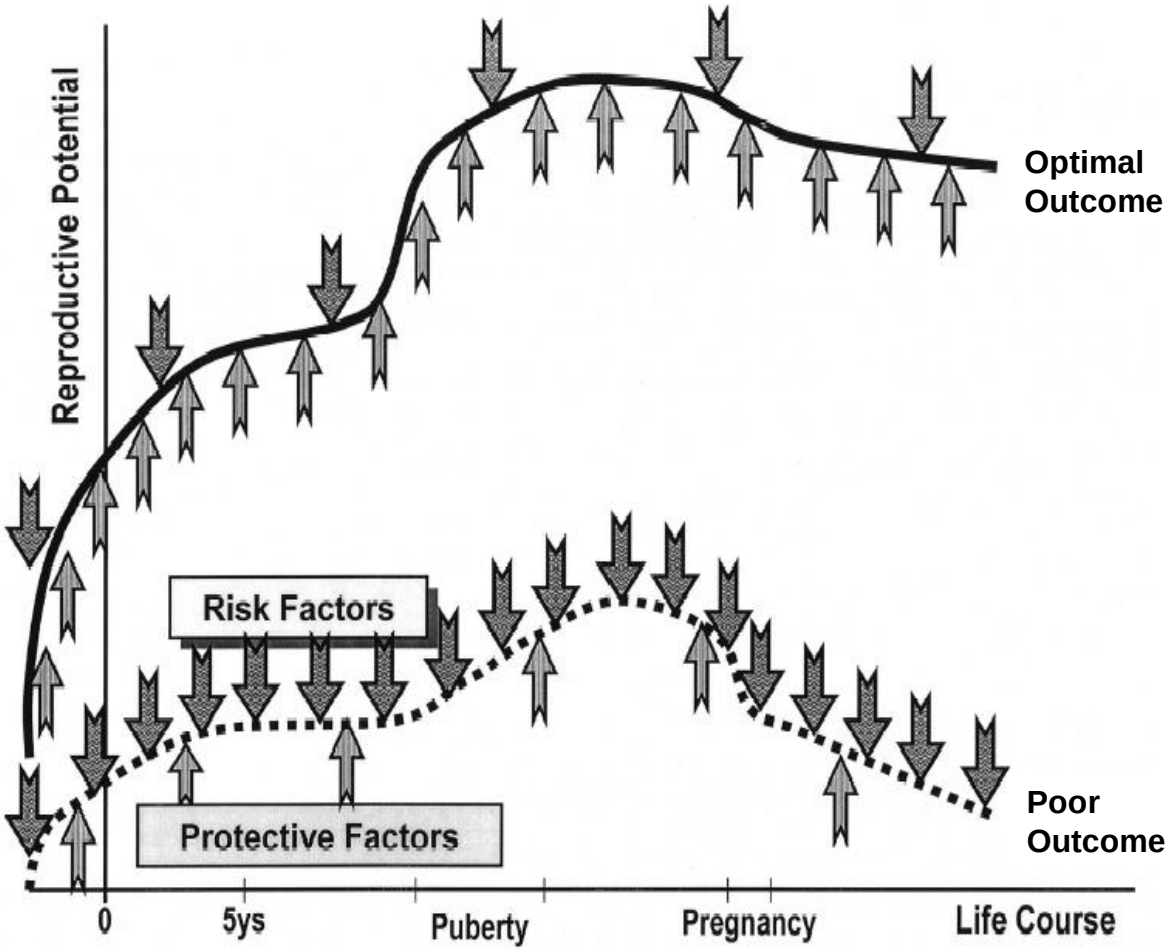
What Happens in Early Childhood Matters for a Lifetime

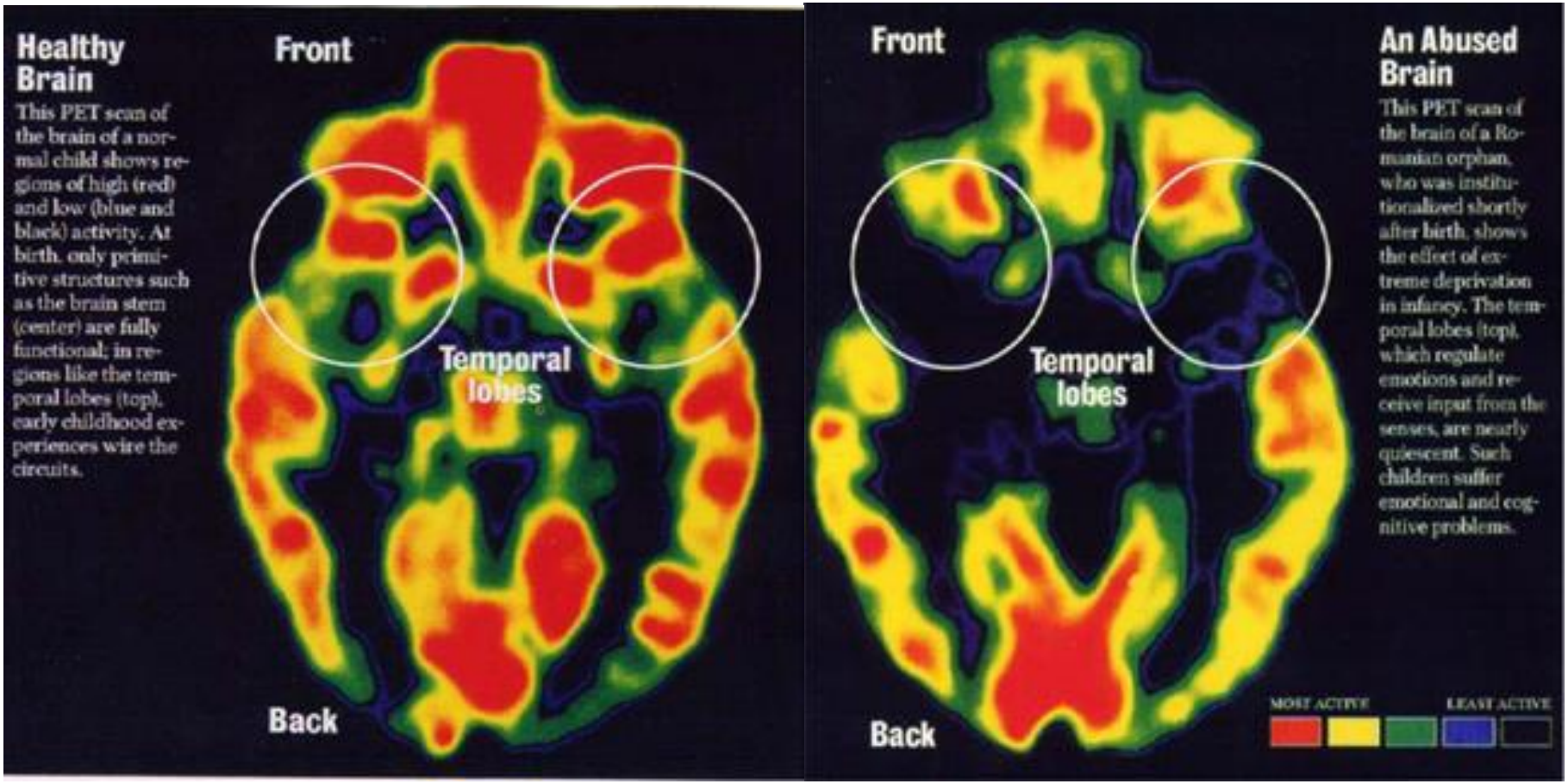
What the science of early childhood development and toxic stress tells us and why it gives us hope

Life Course of Health Development



Lu and Halfon, 2003

Structural Brain Changes due to Early Experiences



Healthy Brain

Deprivation

"The Two Year Window"

Life Course Health Development
Critical Period of Brain Development

Birth – 2 years; critical window for hardwiring the brain for social-emotional development.

- Social-Emotional development is based on **secure attachment** and becomes the foundation for cognitive development and sense of self-identity.
- Attachment comes from a **nurturing relationship** with a caregiver that is consistent and caring.

Building Social-Emotional Skills



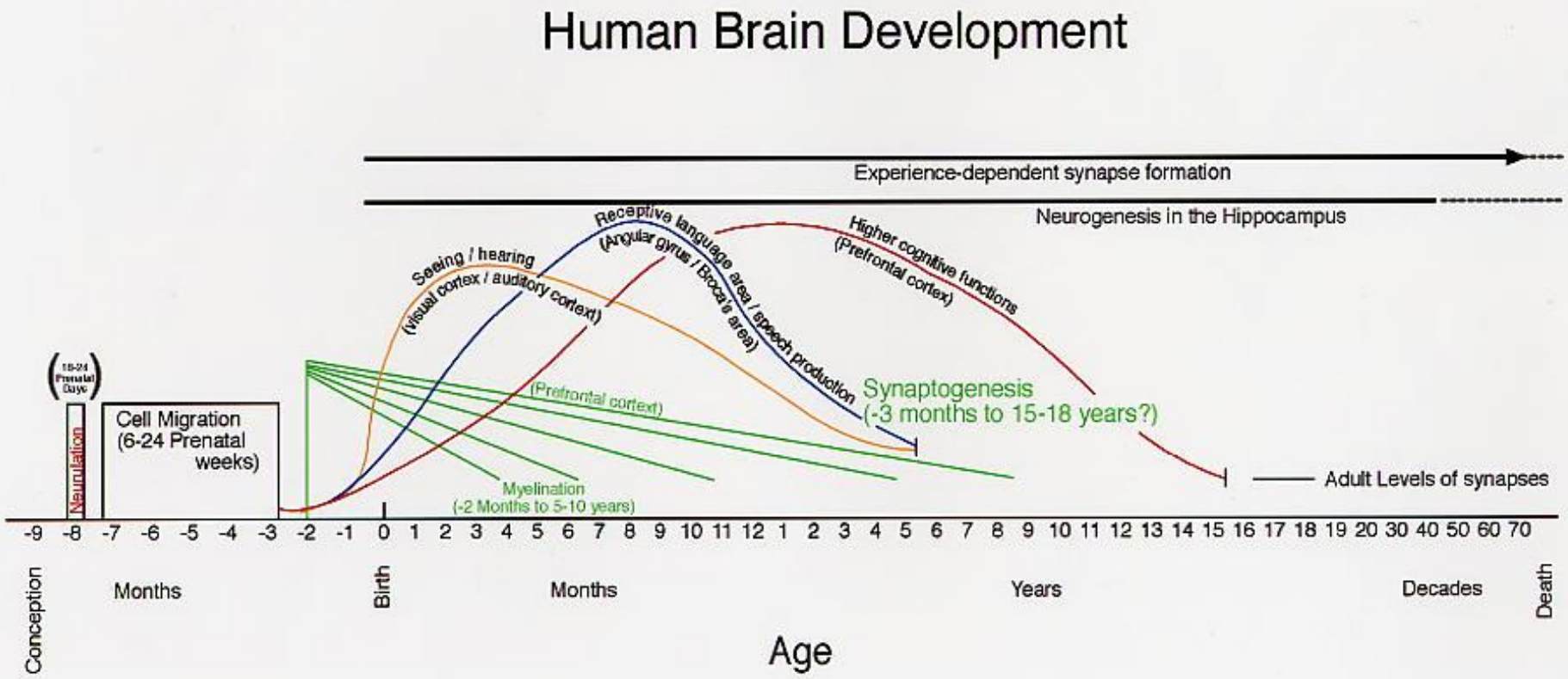
We are not born with the skills that enable us to make plans, control impulses, and stay focused. We are born with the potential to develop these capacities…

Nurturing and stable relationships with caring adults are essential to healthy human development. Early, secure attachments contribute to the growth of a broad range of competencies, including love of learning, sense of one's self, positive social skills, successful relationships at later ages, and an understanding of emotions, commitment, morality, and other aspects of human relationships."

Emotional well-being and social competence provide a strong foundation for emerging cognitive abilities, and together they are the bricks and mortar the comprise the foundation of human development.

The emotional and physical health, social skills, and cognitive-linguistic abilities that emerge in the early years are all important pre-requisites for success in school and later in the workplace and community."

Harvard Center for the Developing Child

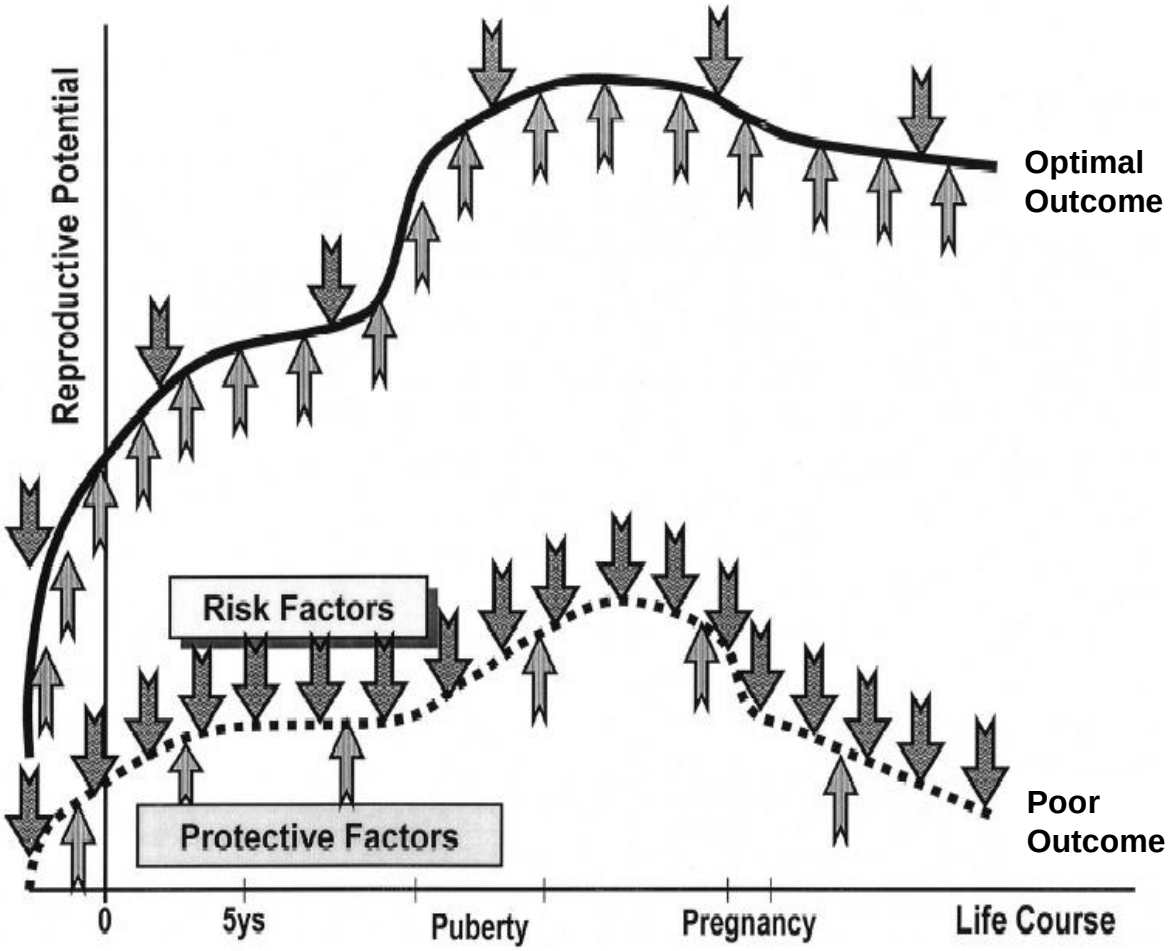


Thompson, R. A., & Nelson, C. A. (2001). Developmental science and the media: Early brain development. *American Psychologist, 56(1),* 5-15.

The Plasticity of Brain Architecture *Decreases* Over Time

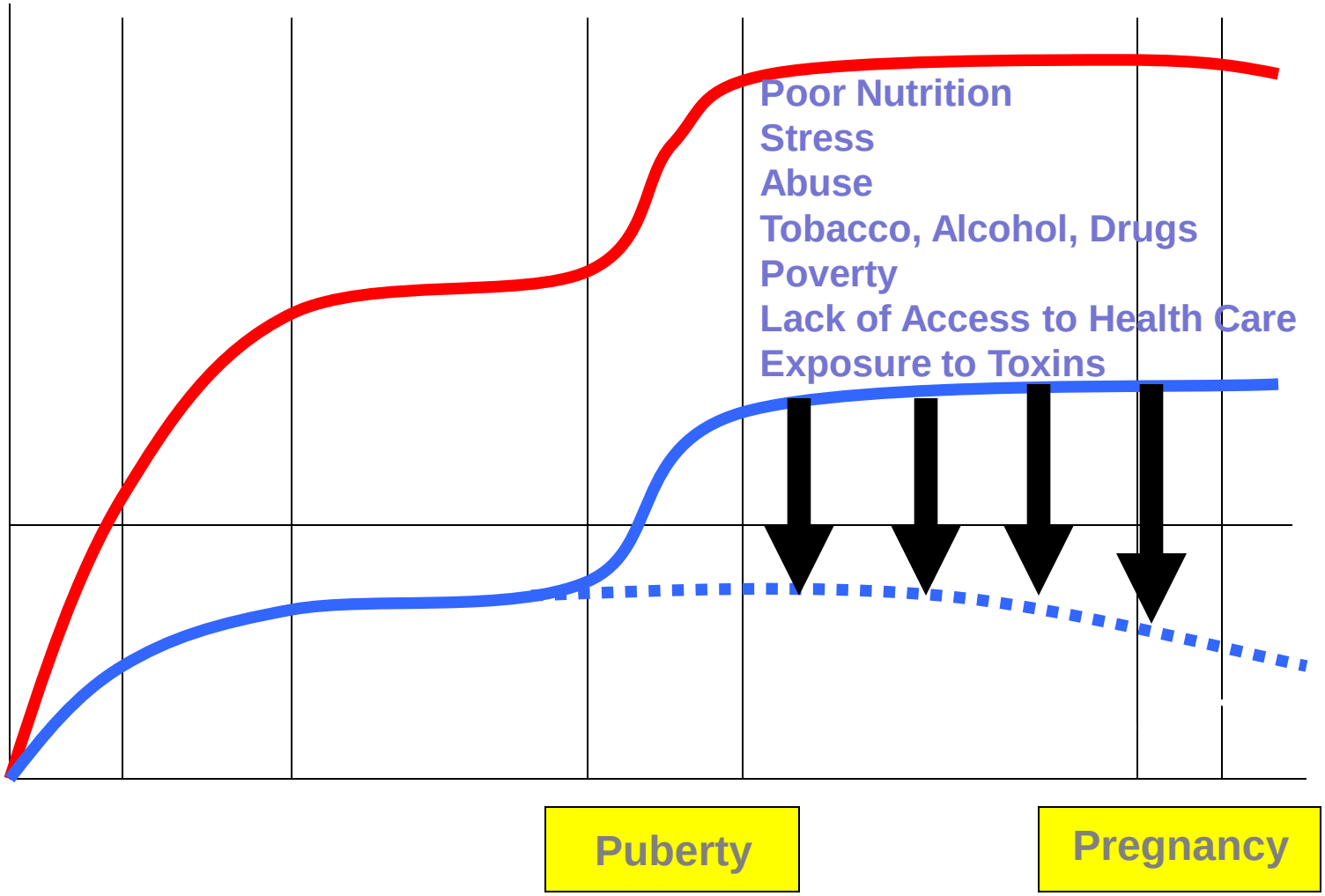
- Brain circuits consolidate with increasing age, making them more difficult to rewire
- The timetable of brain plasticity varies: it is narrow for basic sensory abilities, wider for language, and broadest for cognitive and social-emotional skills
- Early plasticity makes the young brain *both* more vulnerable to harm and more capable of recovery
- At all ages it is more efficient – biologically and economically – to prevent later difficulty than to try to remedy problems that emerge

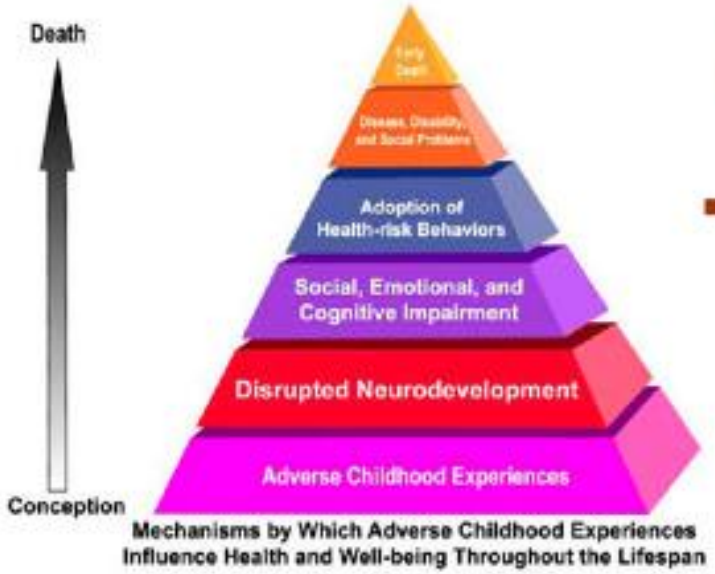
Life Course of Health Development



Lu and Halfon, 2003

Life Course Health Development - Environmental interaction and Disparities





Mechanisms by Which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan

Adverse Childhood Experiences (ACE Study)

- Public/Private Partnership
- Started in 1985 – Ongoing
- 1995 CDC Partnership - Ongoing
- Largest of kind – 17,000

Changed Nation's Views on Children's Behavioral Health

Dr. Vincent J. Felitti, MD
Internist, Kaiser Permanente

Dr. Robert F. Anda MD (plus MS in Epidemiology)
Centers for Disease Control (CDC) & Prevention

The Adverse Childhood Experiences

When you were growing up, during your first 18 years of life, did you experience:

- Physical abuse
- Emotional abuse
- Sexual abuse
- Domestic violence
- Substance abuse in home
- Mental illness in parent
- Lost parent due to separation or divorce
- Household member in jail

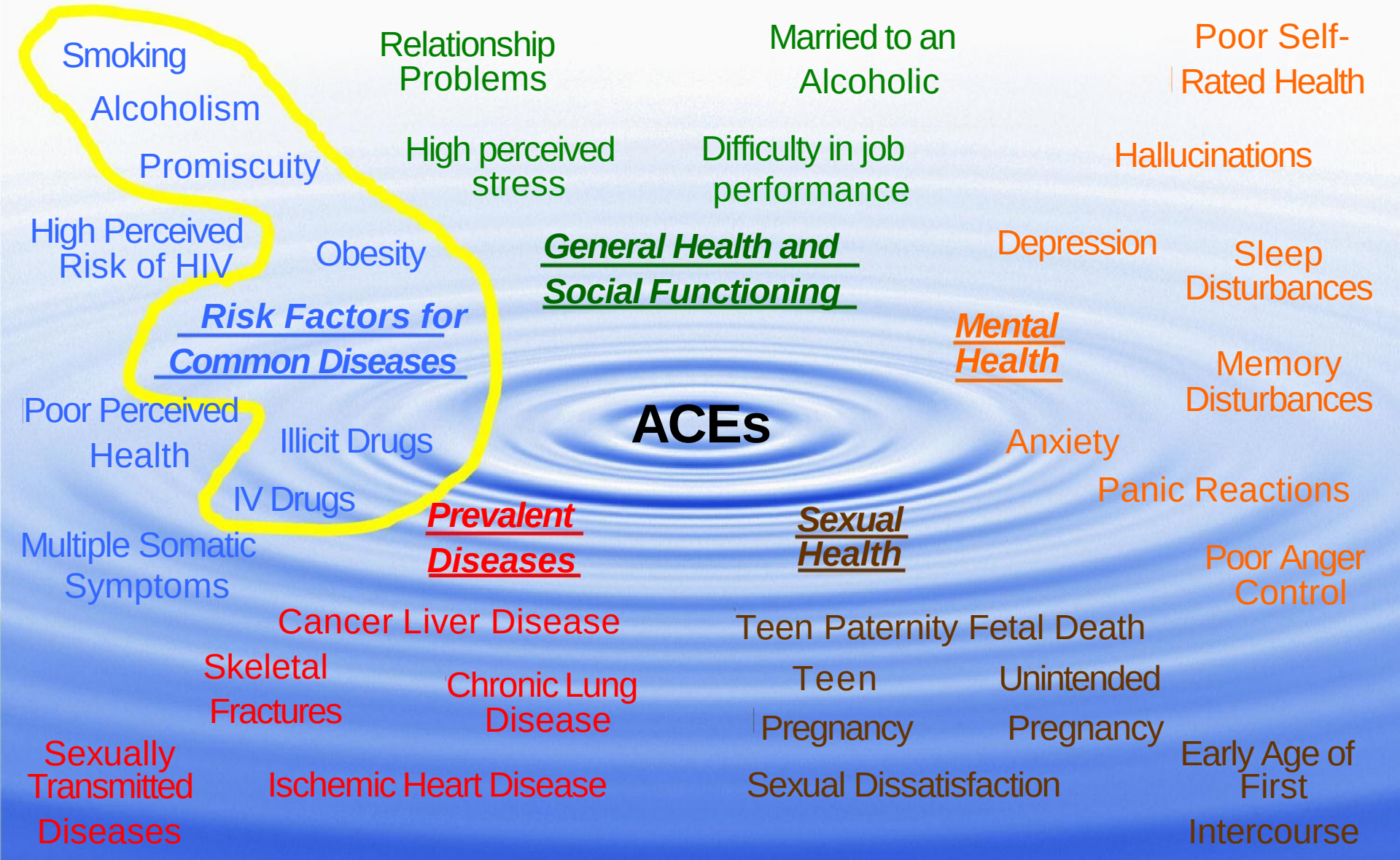
Adverse Childhood Experiences (ACE) Score

Number of individual adverse childhood experiences were summed……

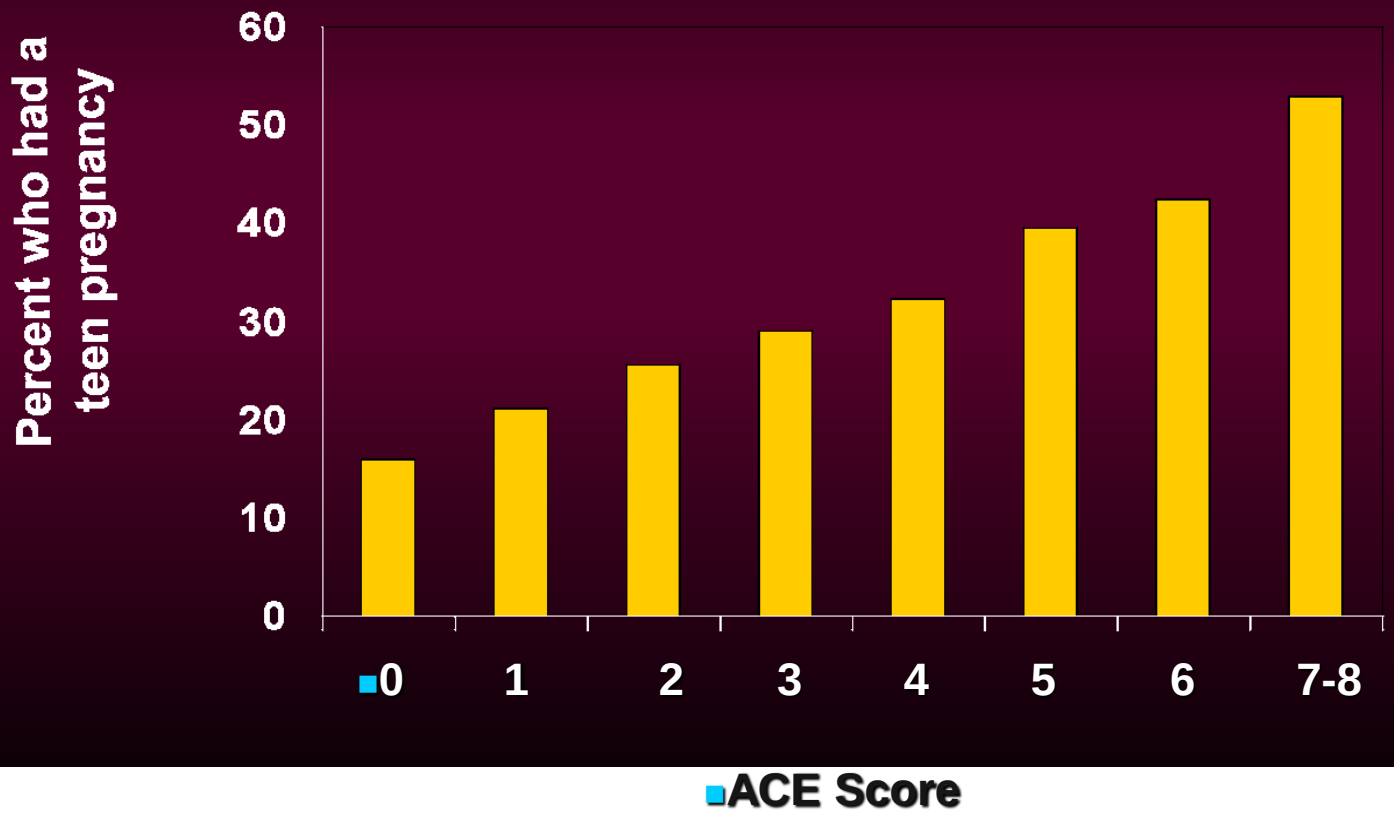
ACE score	*Prevalence*
0	36.4%
1	26.2%
2	15.8%
3	9.5%
4	6.0%
5	3.5%
6	1.6%
7 or more	0.9%

64% reported experiencing one or more
37% reported experiencing two or more

ACEs Influence Multiple Outcomes

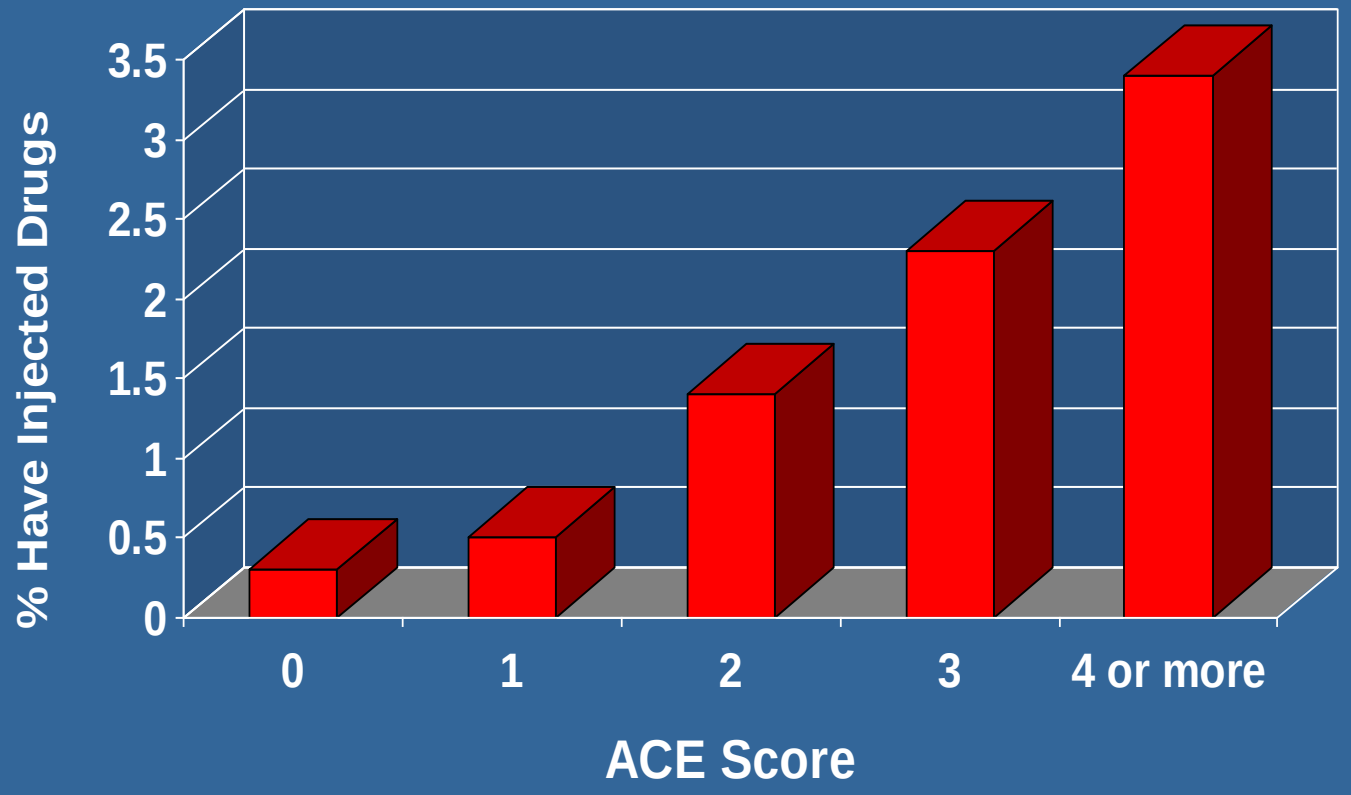


Adverse Childhood Experiences and Adolescent Pregnancy



Slide from Dr. Robert Anda

ACE Score and Intravenous Drug Use



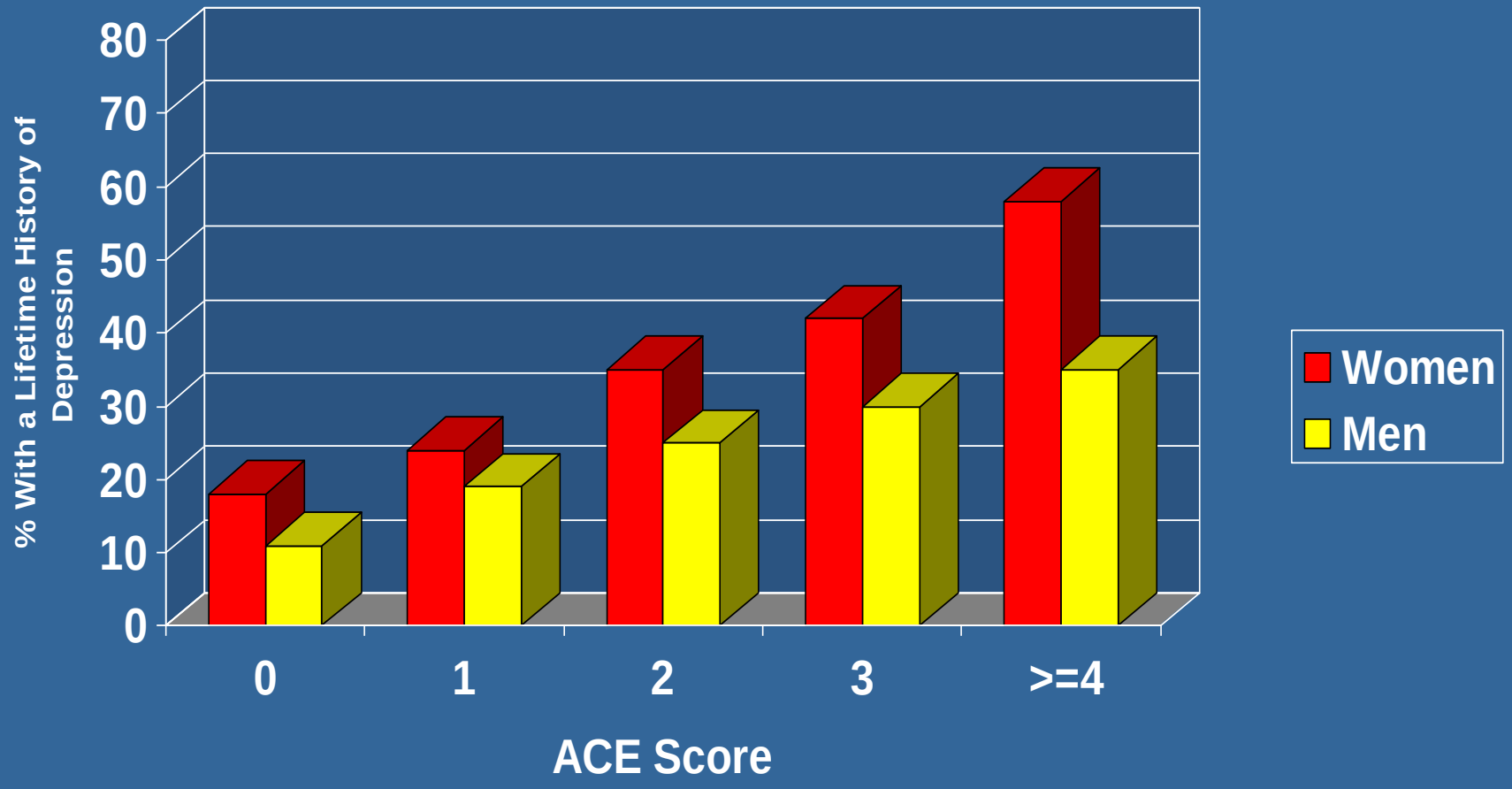
N = 8,022 p<0.001

Seeking to Cope

- The risk factors/behaviors underlying these adult diseases are actually effective coping devices.
- What is viewed as a problem by the health care provider is actually a **solution** to bad experiences for the patient.
- Dismissing these coping devices as "bad habits" or "self destructive behavior" misses their source of origin.

Mental Health Problems

Adverse Childhood Experiences And **Chronic Depression** as an Adult



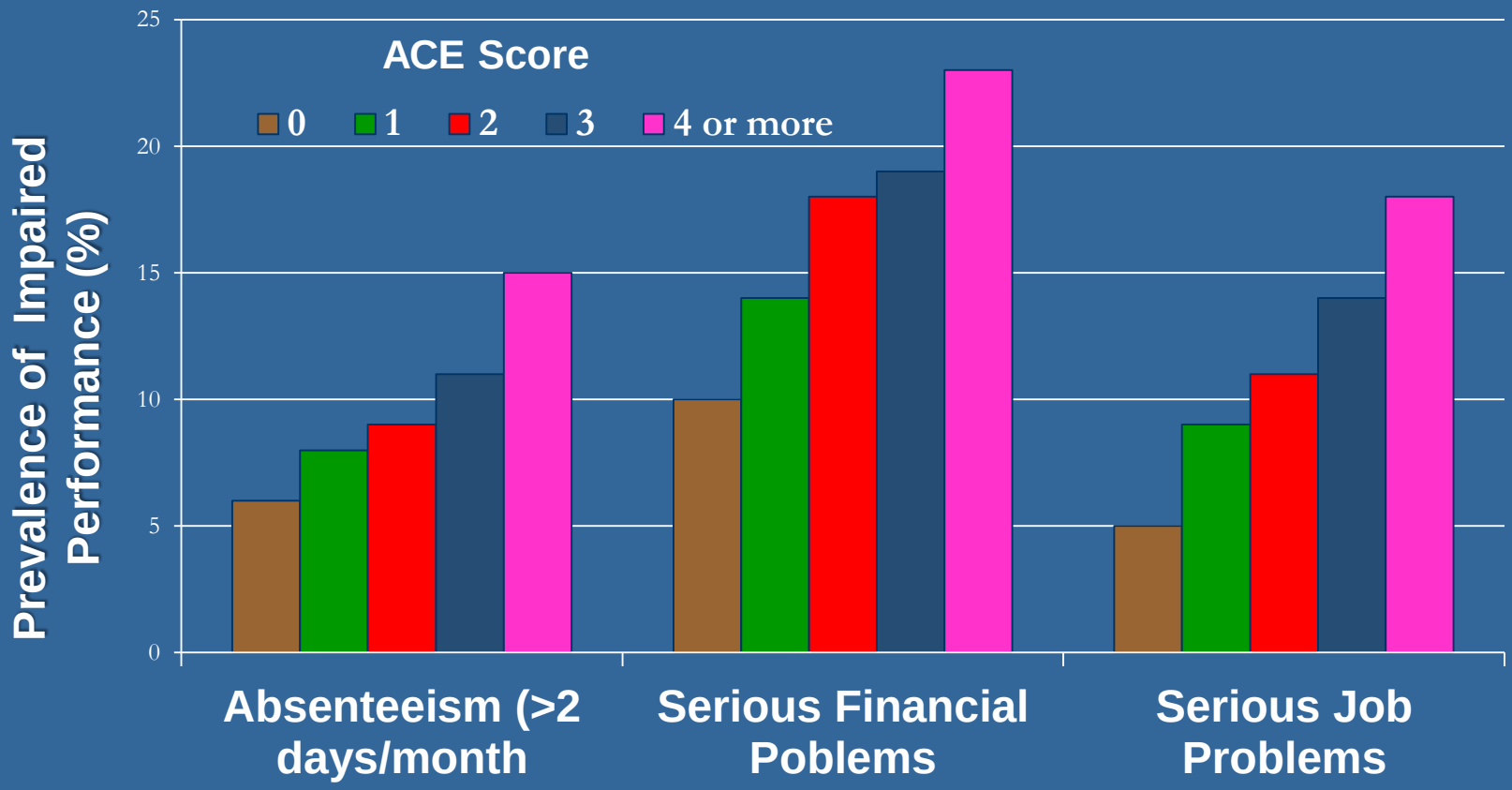
Adult Disease and Disability

Higher ACE Score = significant rise in chronic health conditions:

- Obesity
- Sexually Transmitted Disease
- Liver Disease
- COPD
- Ischemic Heart Disease
- Autoimmune Disease
- Lung Cancer

Serious Social Problems

ACE Score and Indicators of Impaired Worker Performance



ADVERSE CHILDHOOD EXPERIENCES AND ADULT DISEASE:

54% of depression
58% of suicide attempts
39% of ever smoking
26% of current smoking
65% of alcoholism
50% of drug abuse
78% of IV drug abuse
48% of promiscuity (>50 partners)

are attributable to ACE's.

Dr. V. Felitti. 2011

The ACE Study is evidence that….

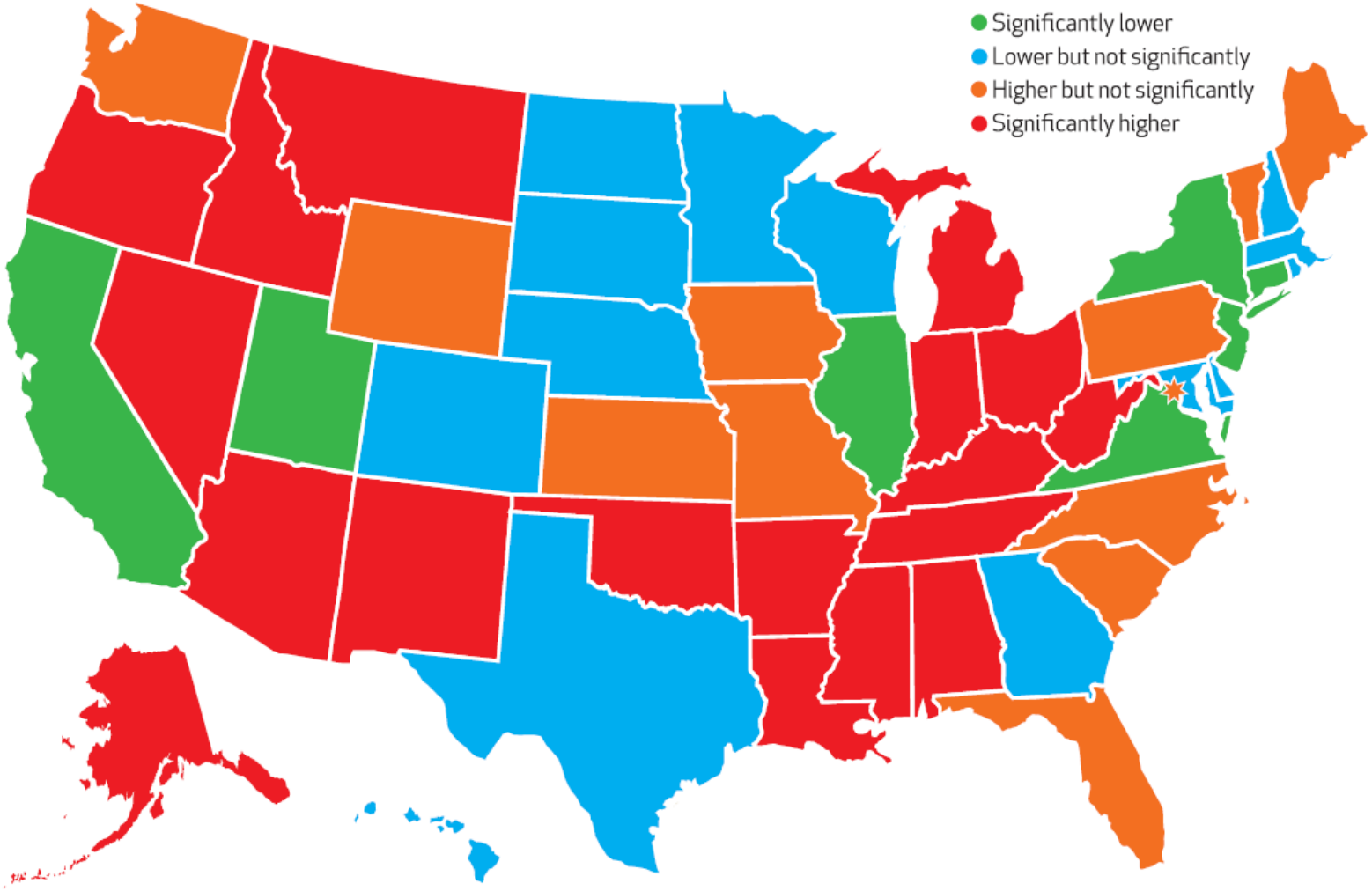
ADVERSE CHILDHOOD EXPERIENCES are the most basic and long lasting cause of :

- **health risk behaviors,**
- **mental illness,**
- **social malfunction,**
- **disease, disability, death,**
- **and healthcare costs**

Dr. V. Felitti. 2011

EXHIBIT 1

Prevalence Of Children Ages 0–17, By State, Who Experienced Two Or More Of The Nine Adverse Childhood Experiences Evaluated In The 2011–12 National Survey Of Children's Health



SOURCE Authors' analysis of data from the 2011–12 National Survey of Children's Health. **NOTES** The map shows prevalence in each state compared to the US average. In the key, lower indicates better performance. Nationwide, 22.6 percent of children experienced two or more of the nine adverse childhood experiences. The state with the lowest percentage of such children (16.3 percent) was New Jersey; the state with the highest percentage (32.9 percent) was Oklahoma. Statistical significance indicates $p < 0.05$.

National and Kentucky Prevalence of Adverse Childhood Experiences Among Children Age 0-17

Adverse Child or Family Experiences	Kentucky Prevalence	National Prevalence	State Range
Child had ≥ 1 Adverse Child/Family Experience	55.3%	47.9%	40.6% (CT) – 57.5% (AZ)
Child had ≥ 2 Adverse Child/Family Experiences	30.0%	22.6%	16.3% (NJ) – 32.9% (OK)
Extreme economic hardship	29.6%	25.7%	20.1% (MD) – 34.3% (AZ)
Family discord leading to divorce or separation	28.9%	20.1%	15.2% (DC) – 29.5% (OK)
Having lived with someone who had an alcohol or drug problem	14.4%	10.7%	6.4% (NY) – 18.5% (MT)
Having been a victim or witness of neighborhood violence	9.3%	8.6%	5.2% (NJ) – 16.6% (DC)
Having lived with someone who was mentally ill or suicidal	11.1%	8.6%	5.4% (CA) – 14.1% (MT)
Witnessing domestic violence in the home	9.7%	7.3%	5.0% (CT) – 11.1% (OK)
Parent served time in jail	13.2%	6.9%	3.2% (NJ) – 13.2% (KY)
Treated or judged unfairly due to race/ethnicity	3.7%	4.1%	1.8% (VT) – 6.5% (AZ)
Death of parent	4.2%	3.1%	1.4% (CT) – 7.1% (DC)

Science Tells Us that Early Life Experiences Are Built Into Our Bodies

Research on the biology of stress illustrates how threat raises heart rate, blood pressure, and stress hormone levels, which can impair brain architecture, immune status, metabolic systems, and cardiovascular function.

Center on the Developing Child
HARVARD UNIVERSITY

Three Levels of Stress

Positive

Brief increases in heart rate,
mild elevations in stress hormone levels.

Tolerable

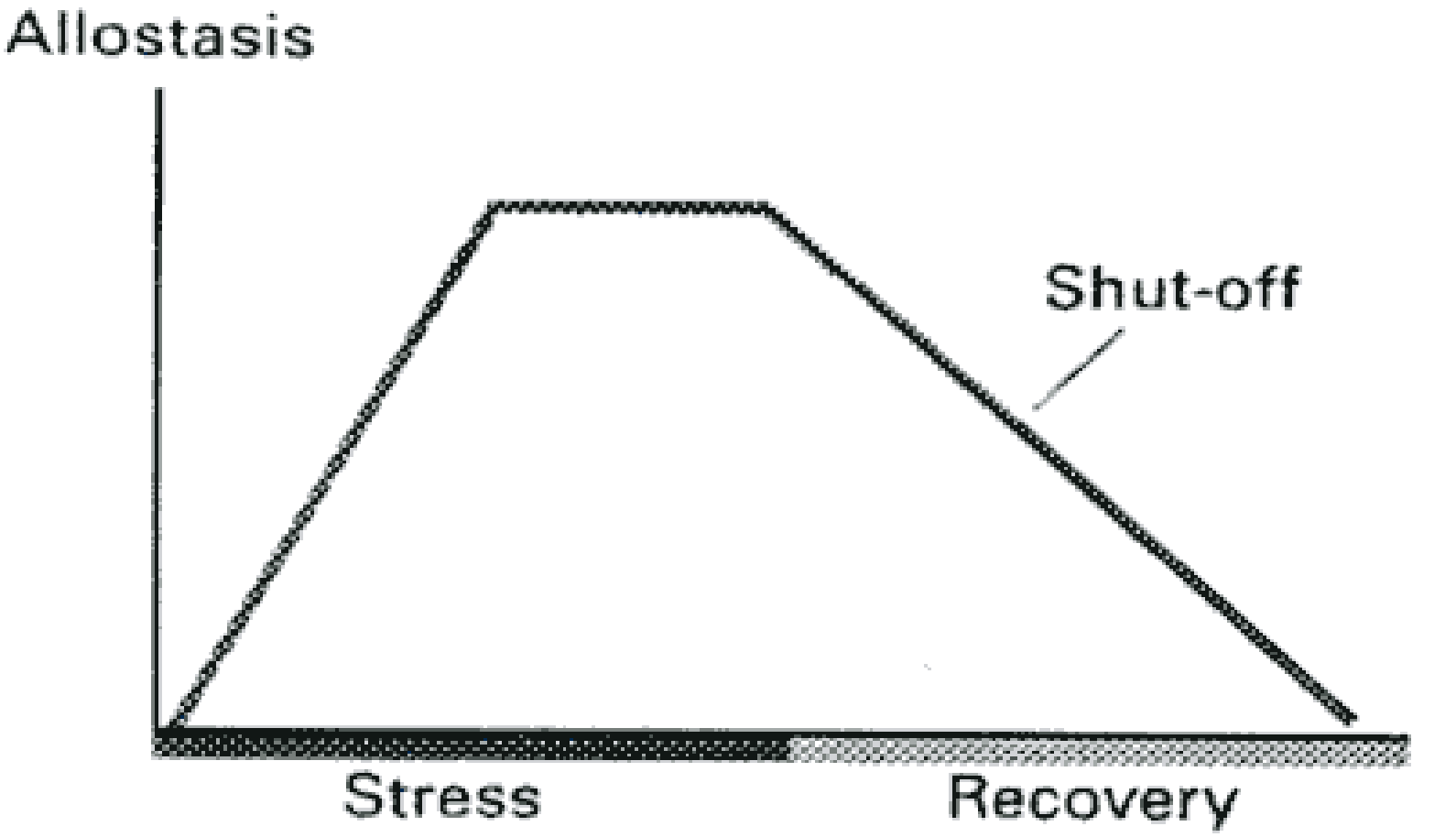
Serious, temporary stress responses,
buffered by supportive relationships.

Toxic

Prolonged activation of stress response systems
in the absence of protective relationships.

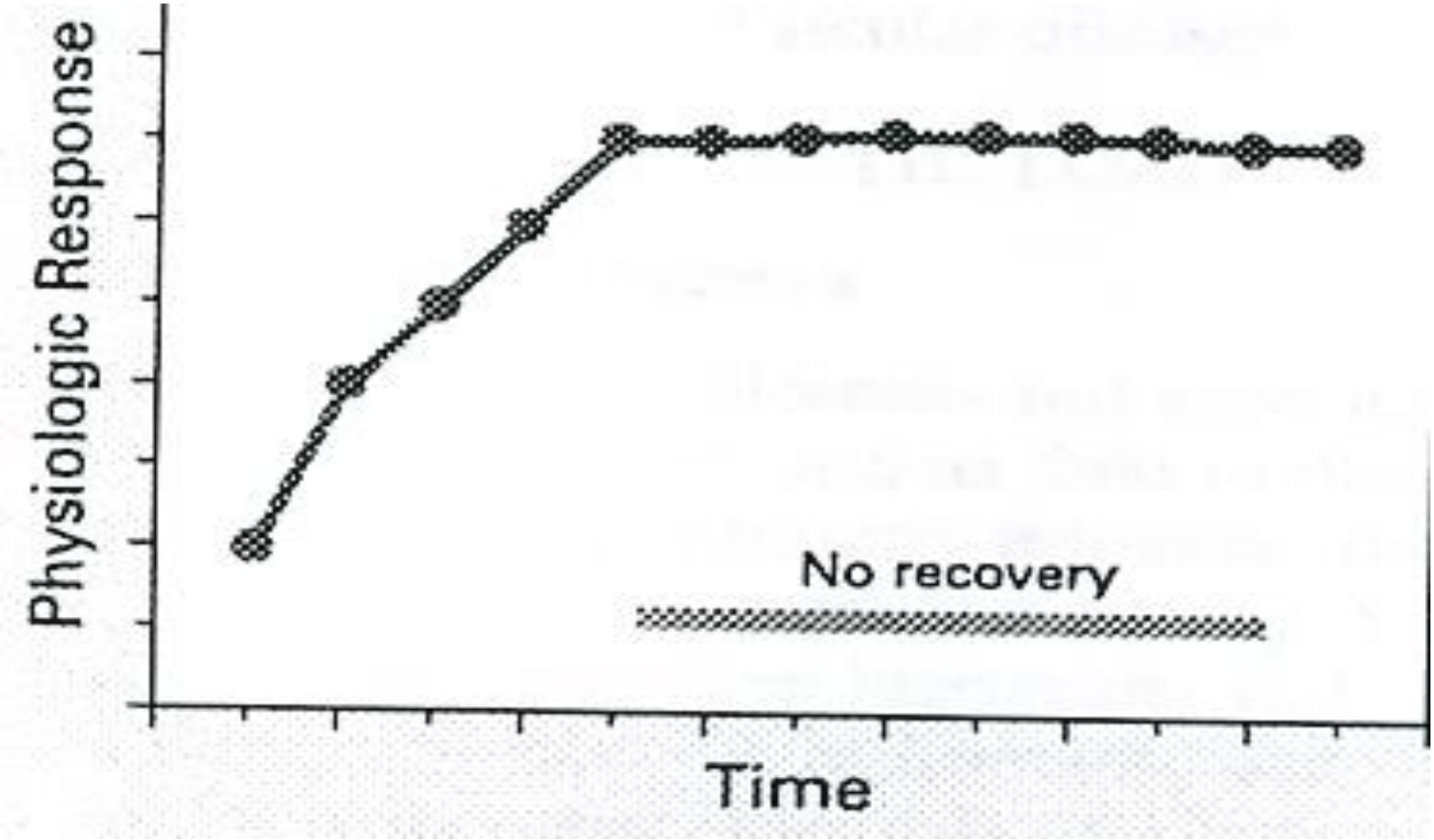
Allostasis:

Maintain Stability through Change



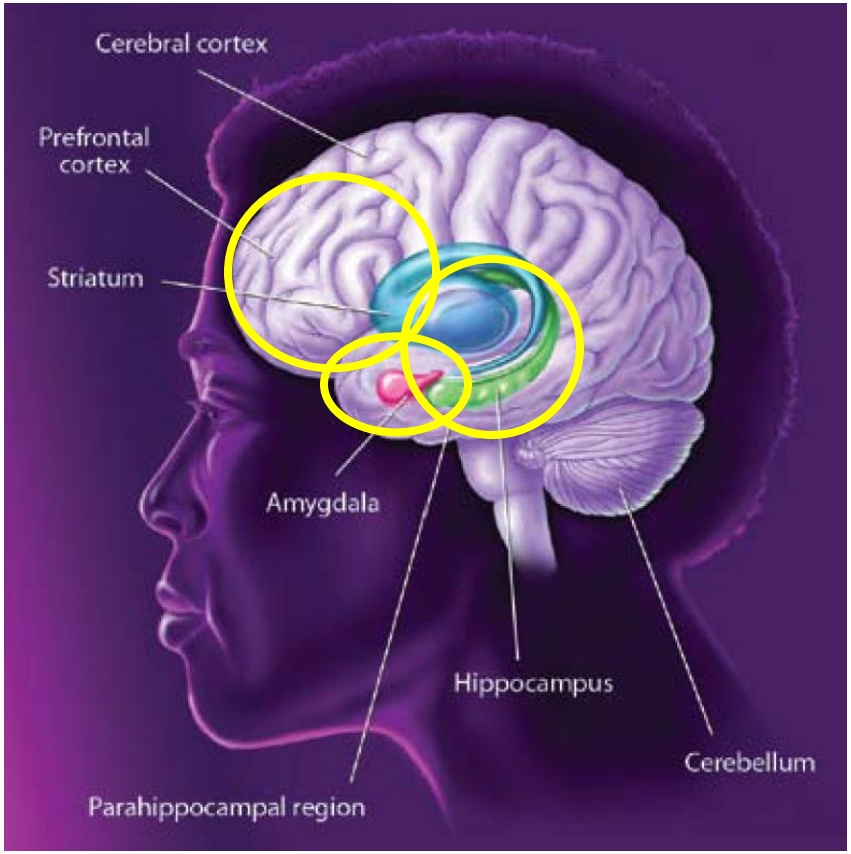
McEwen BS. Protective and damaging effects of stress mediators. N Eng J Med. 1998;338:171-9.

Allostastic Load



McEwen BS. Protective and damaging effects of stress mediators. N Eng J Med. 1998;338:171-9.

The Brain Architecture of Anxiety and Fear



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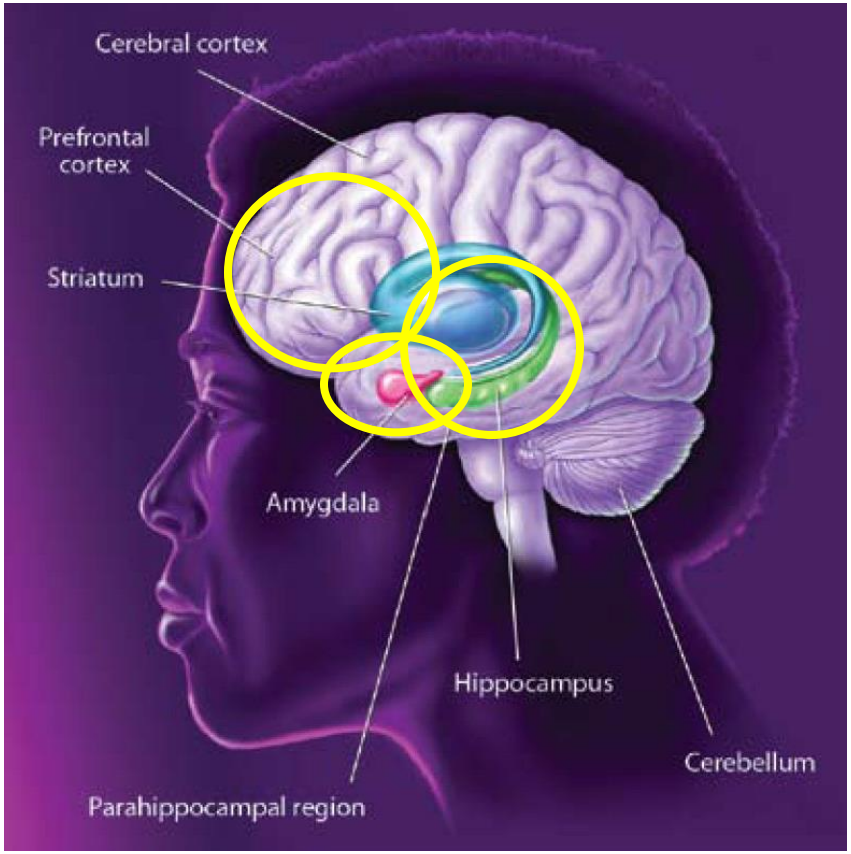
The Brain Architecture of Memory and Learning



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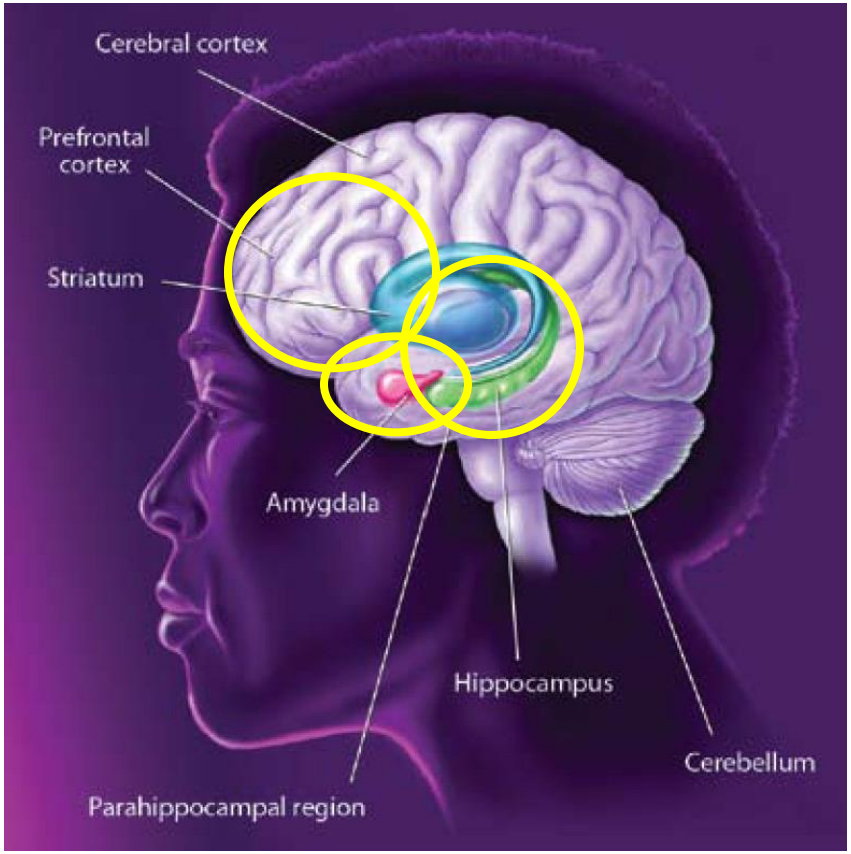
Cognitive, Emotional, and Social Capacities Are Inextricably Intertwined Within the Architecture of the Brain



Toxic Stress and Teen Risky Behaviors

Teens 'more likely to engage in risky sex' if they have weak working memory

Last updated: Wednesday 17 June 2015 at 9am PST

f 31 93

Sexual Health / STDs

Pediatrics / Children's Health

Psychology / Psychiatry

Neurology / Neuroscience

MNT featured

Academic journal

Individual differences in working memory may predict early sexual activity and unprotected sex during adolescence, according to a study of impulse control and risky sexual behavior among 12-15-year-olds.

Previous studies have found that adolescents who have problems regulating impulse control are more likely to engage in risky sexual behavior, putting them at increased risk for **sexually transmitted diseases** and unintended pregnancies.

In the new study - published in *Child Development* - researchers

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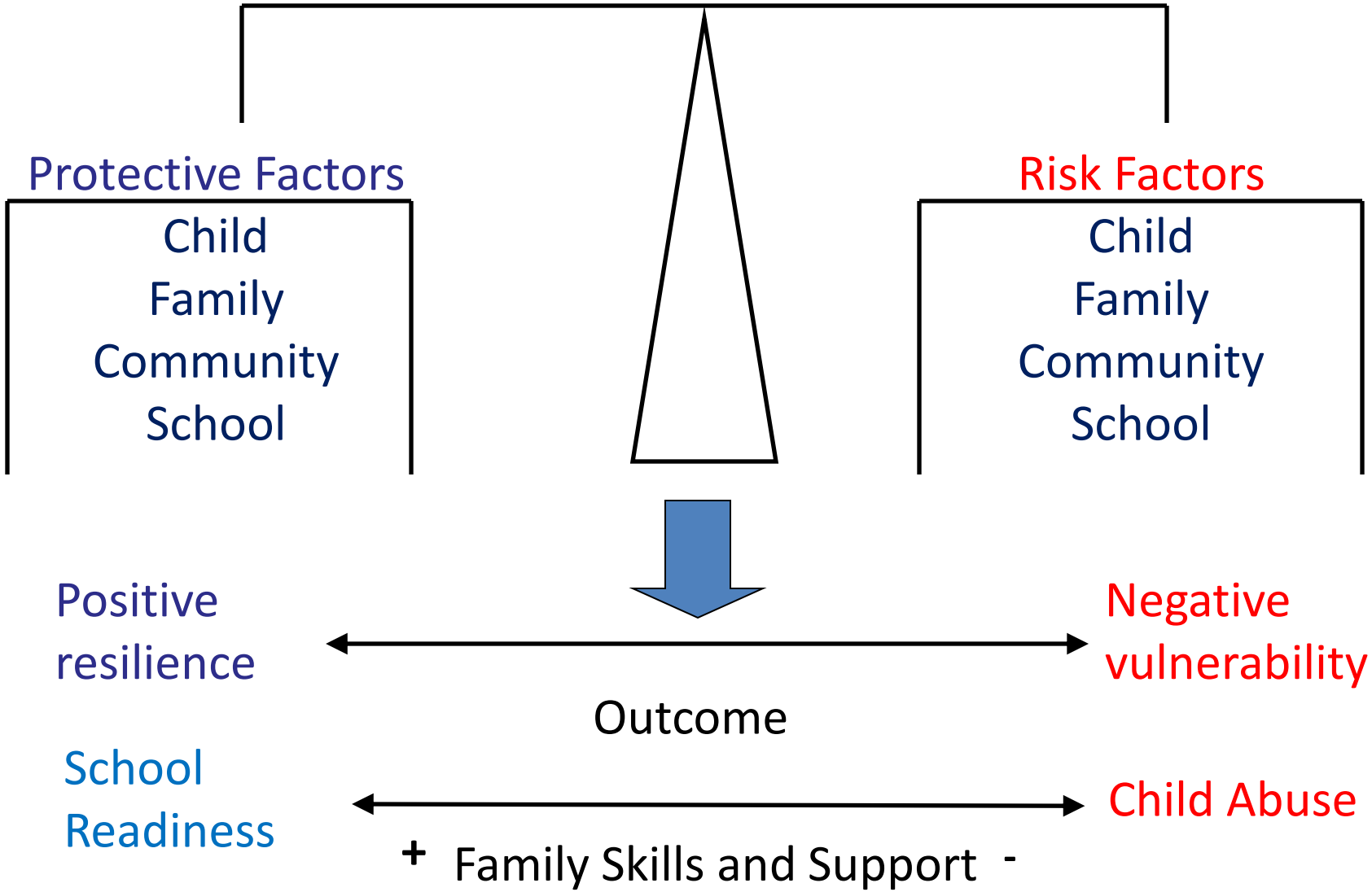
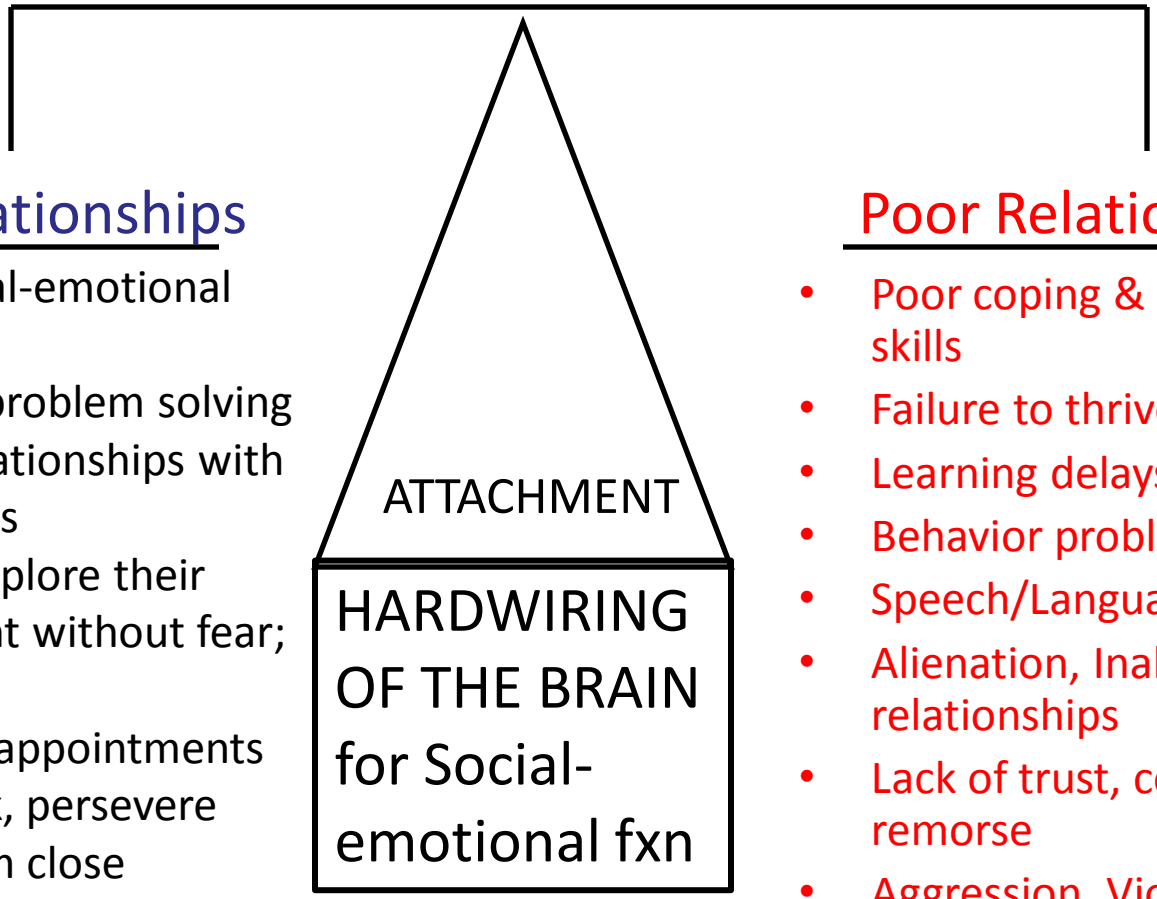
Life Course Trajectory:
A Balance of Risk and Protective Factors



Life Course Trajectory:
A Balance of Risk and Protective Factors



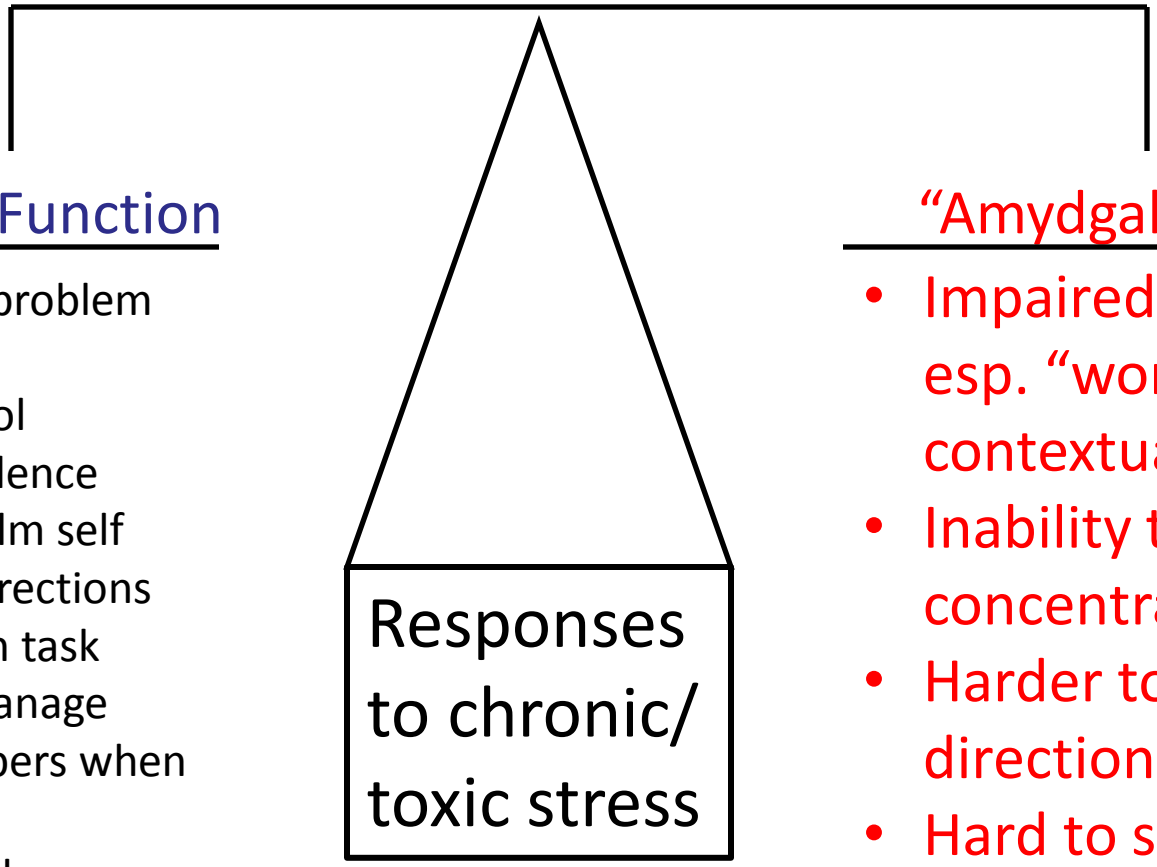
Secure Relationships

- Strong social-emotional pathways
- Cognition, problem solving
- Trusting relationships with caring adults
- Ability to explore their environment without fear; curiosity
- Tolerate disappointments
- Stay on task, persevere
- Able to form close friendships, networks of support

Poor Relationships

- Poor coping & problem solving skills
- Failure to thrive > Chronic illness
- Learning delays / Devel. delay
- Behavior problems
- Speech/Language delays
- Alienation, Inability to form relationships
- Lack of trust, compassion, remorse
- Aggression, Violence, Anti-social behavior
- Eating disorders
- Misdiagnosed as bipolar / severe depression

Life Course Trajectory:
A Balance of Risk and Protective Factors



Executive Function

- Ability to problem solve
- Self-control
- Self confidence
- Able to calm self
- Follows directions
- Persists on task
- Able to manage their tempers when provoked
- Able to delay gratification
- Able to plan

"Amydgala Hijack"

- Impaired memory, esp. "working" and contextual memory
- Inability to concentrate
- Harder to follow directions
- Hard to sit still
- Constantly on edge
- Easily provoked
- Impulsive

The New Science → the New Paradigm

American Academy of Pediatrics: The Lifelong Effects of Early Childhood Adversity and Toxic Stress

PEDIATRICS 2012 129(1):E232-E246

- *This growing scientific understanding into causal mechanisms that link early adversity into later impairments in learning, behavior, and both physical and mental well-being are potentially TRANSFORMATIONAL.*

- *Toxic stress in young children can lead to less outwardly visible yet permanent changes in brain structure and function.*

- *Altered brain architecture in response to toxic stress in early childhood could explain, at least in part, the strong association between early adverse experiences and subsequent problems in the development of linguistic, cognitive, and social-emotional skills, all of which are inextricably intertwined in the wiring of the developing brain.*

Adverse Childhood Experiences Create Toxic Stress that Influences Developing Brain Architecture

Research on the biology of stress responding shows that chronic, severe, and/or uncontrollable stressful experiences disrupt developing brain architecture and can lead to stress management systems that respond at lower thresholds

❖ ***The availability of a <u>caring and responsive adult</u> greatly reduces the risk that circumstances will lead to excessive activation of stress response systems that lead to physiologic harm and long-term consequences for health and learning.***

Ways to Make a Difference

- 1. Build caring relationships

"The same neuroplasticity of the brain that leaves the pathways vulnerable to stress, also enables their facilitation during sensitive developmental periods."

- 2. Support parents by improving their skills.

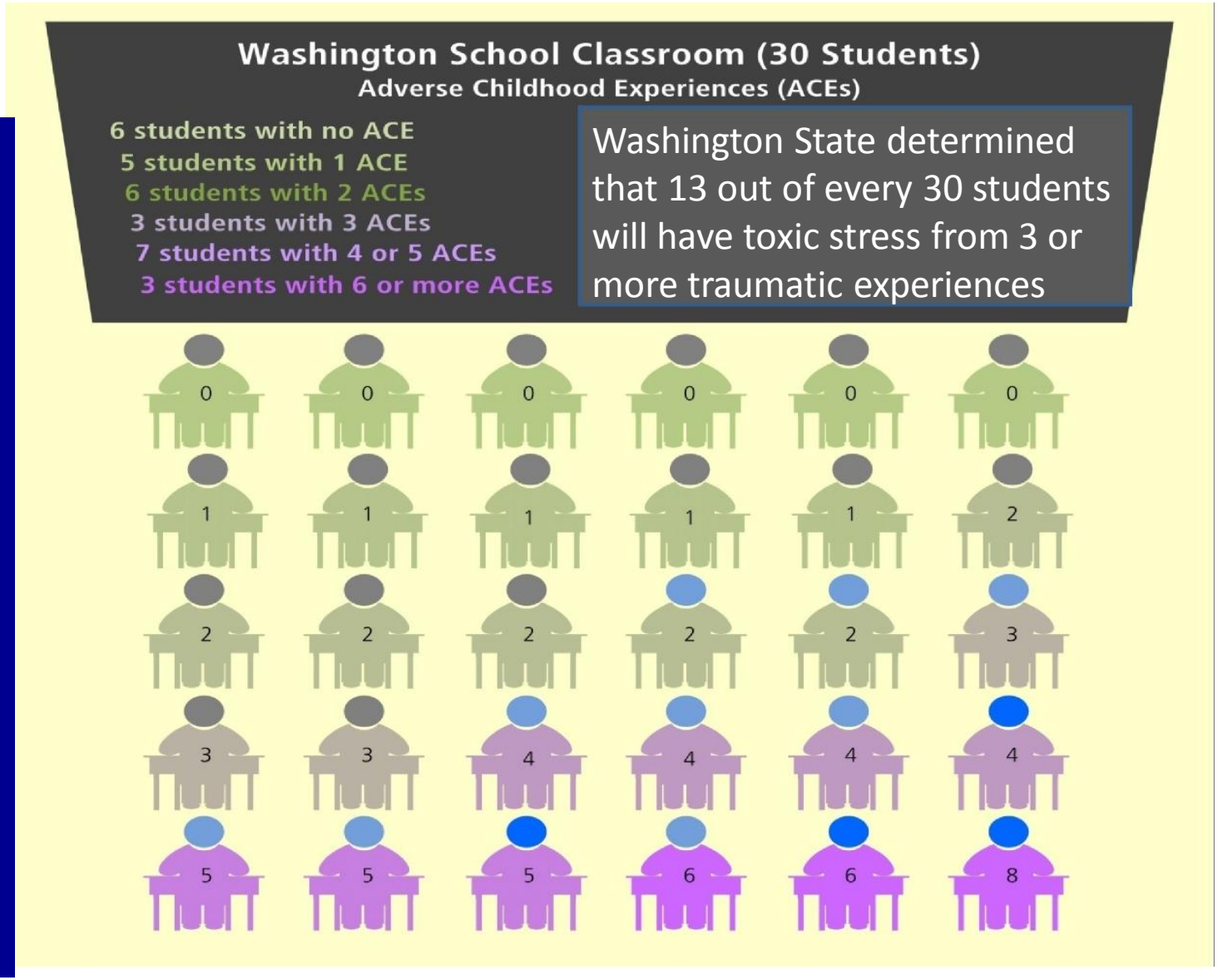
"Interventions and services that enhance the mental health, executive function, and self-regulation of vulnerable mothers suggest promising strategies to protect their children's developing brains."

- 3. Support professionals by improving their skills.

  "Large numbers of vulnerable children with highly stressed staff are engaged in dysregulatory interactions that may compromise learning and the ability to manage routines."

ACEs and High School Sophomores and Seniors

Population Average



Trauma-Sensitive Schools- Trauma-informed classrooms (Compassionate Schools)

- “It all boils down to this: Kids who are experiencing the toxic stress of severe and chronic trauma just can’t learn. It’s physiologically impossible.”
- In trauma-sensitive schools, teachers don’t punish a kid for “bad” behavior– they don’t want to traumatize an already traumatized child. They did deeper to help a child feel safe. Once a child feels safe, she or he can move out of stress mode, and learn again.
- Children with toxic stress live much of their lives in fight, flight, or fright (freeze) mode. They respond to the world as a place of constant danger. With their brains overloaded with stress hormones and unable to function appropriately, they can’t focus on school work. They fall behind in school or fail to develop healthy relationships with peers

The Protective Factors Approach

CENTER FOR THE STUDY OF SOCIAL POLICY'S
strengthening families™
A PROTECTIVE FACTORS FRAMEWORK

- Benefits ALL families –
  - All families go thru times of stress and should be able to ask for help without stigma
  - Every parent should feel supported by their community in their efforts to be a good parent
- Builds on family strengths, buffers risk, and promotes better outcomes
- Can be implemented through small but significant changes in everyday actions
- Builds on and can become part of existing programs, strategies, systems and community opportunities
- Is grounded in research, practice and implementation knowledge
- Creates a common language and approach among agencies so that communities can meet the diverse needs of their families

What Are the Six Protective Factors?

1. Parental Resilience
" Families are strong and can cope in good times and bad"

2. Social Connection
" Families have people they can count on"

3. Knowledge of Child Development
" Families help their children grow and learn"

4. Concrete Support in Times of Need
" Families get the help they need from caring communities"

5. Social and Emotional Competence of Children
" Families help their children manage feelings and relationships"

6. **Nurturing & Attachment**
" Families create secure bonds with their children"

SERVICES IN PERSPECTIVE

THE PARADIGM SHIFT FOR FAMILY SUPPORT

- "At risk" families → All families
- Risk factors → Protective factors/ buffers for toxic stress
- Deficit based → Strengths Based
- Family inadequacies → Skill building
- Prevention → promoting strong families and healthy development

Decades of Science from Many Disciplines All Point to the Same Conclusion

The healthy development of children provides a strong foundation for

- healthy and competent adulthood,
- responsible citizenship,
- economic productivity,
- strong communities, and
- a sustainable society.