

# ACES: Adverse Childhood Experiences

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A PARTNER IN  
**NCTSN**



The National Child  
Traumatic Stress Network

ACEs are

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ADVERSE  
CHILDHOOD  
EXPERIENCES

# Adverse Child Events (ACEs)

## ABUSE



Physical



Emotional



Sexual

## NEGLECT



Physical



Emotional

## HOUSEHOLD DYSFUNCTION



Mental Illness



Mother treated violently



Divorce



Incarcerated Relative



Substance Abuse

- The listed ACEs are not the only negative experiences that can cause toxic stress. Homelessness, bullying, discrimination, community violence, and extreme poverty are other examples

- Not all adverse childhood experiences are traumatizing, but at the very least they are stressful and activate the body's stress response systems, potentially leading to the experience of “toxic stress” – excessive or prolonged activation of the stress response systems in the absence of protective relationships
- The neurohormones released during times of stress are good for short periods – but can become harmful when in the system for long periods of time.

- The way the body responds to chronic stresses depends on the presence or absence of supportive relationships
  - If stable, responsive relationships are available to help buffer the experience, the stress can be tolerable
- In the absence of supportive environments, chronic stress can be toxic to the developing brain and have long-term effects on health and wellness
  - Toxic stress disrupts the architecture of the developing brain, leading to difficulties in learning, memory, and self-regulation
  - Long term elevation of stress hormones produce wear and tear on the brain and some of the body's systems

- Chronic activation of the stress response system in childhood can cause the brain to develop in a way that will help the child survive in a dangerous world, resulting in the persistence of a fear state:
  - Hypervigilance
  - Increased muscle tone
  - Focus on threat-related cues
  - Anxiety
  - Behavioral Impulsivity

- Trauma exposed children and adolescents have been found to display changes in levels of stress hormones similar to those seen in combat veterans
- Young children who are neglected or maltreated have abnormal patterns of cortisol production that can last long after the maltreatment has ended



# Areas of Development Affected by Chronic ACES Exposure

- Attachment
- Biology
- Mood regulation
- Behavioral control
- Cognition
- Self-concept
- Development

# Long-Term Effects

- Ability to trust others
- Sense of personal safety
- Ability to manage emotions
- Ability to navigate and adjust to life's changes
- Physical and emotional responses to stress

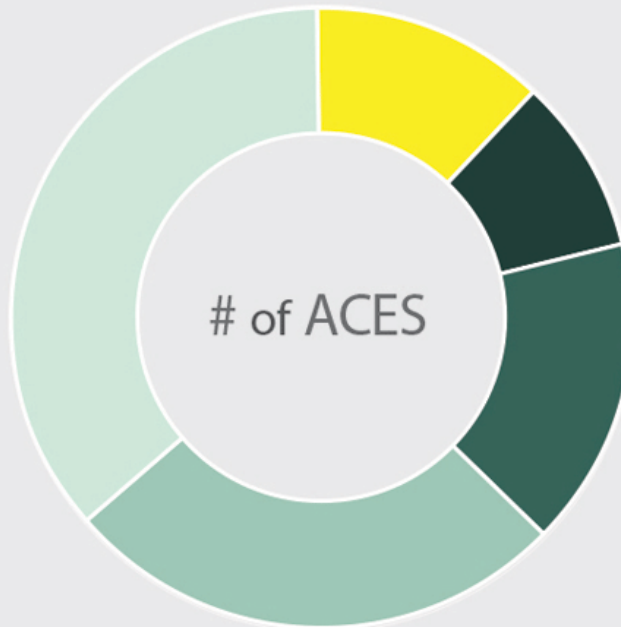
# ACES and Outcomes

- Dose-response relationships between ACEs and adult health risks, poor self-reported health, and disease conditions
- Compared to persons with no ACEs, a person with 4 or more ACEs was found to be:
  - 12.2 times as likely to have attempted suicide
  - 7.4 times as likely to consider themselves to be an alcoholic
  - 4.7 times as likely to have ever used illicit drugs
  - 3.2 times as likely to have had 50 or more intercourse partners
  - 2.3 times as likely to currently smoke
  
  - 3.9 times as likely to have chronic bronchitis or emphysema
  - 2.2 times as likely to have had heart disease
  - 1.9 times as likely to have had cancer

# How Common are ACES?

ACE Study

- ZERO **36%**
- ONE **26%**
- TWO **16%**
- THREE **9.5%**
- FOUR OR MORE **12.5%**

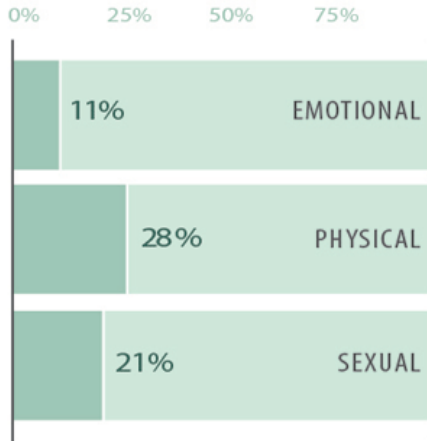




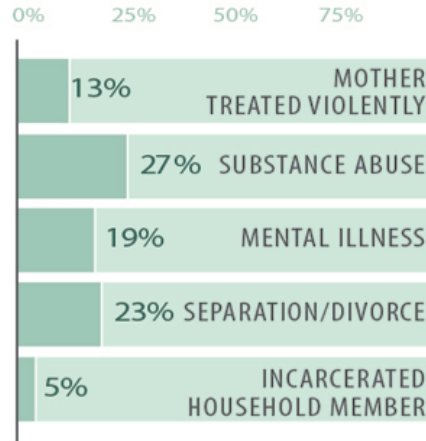
## TYPES of ACES

The ACE study looked at three categories of adverse experience: **childhood abuse**, which included emotional, physical, and sexual abuse; **neglect**, including both physical and emotional neglect; and **household challenges**, which included growing up in a household where there was substance abuse, mental illness, violent treatment of a mother or stepmother, parental separation/divorce or had a member of the household go to prison. Respondents were given an **ACE score** between 0 and 10 based on how many of these 10 types of adverse experience to which they reported being exposed.

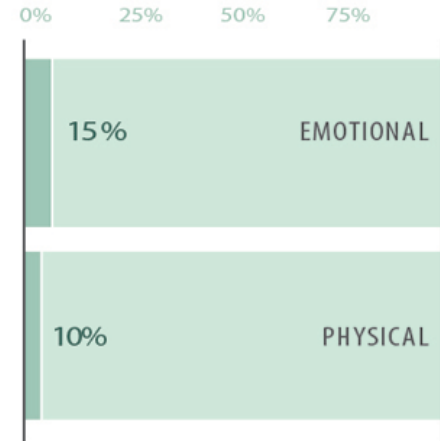
### ABUSE



### HOUSEHOLD CHALLENGES



### NEGLECT



# ACES can have lasting effects on....



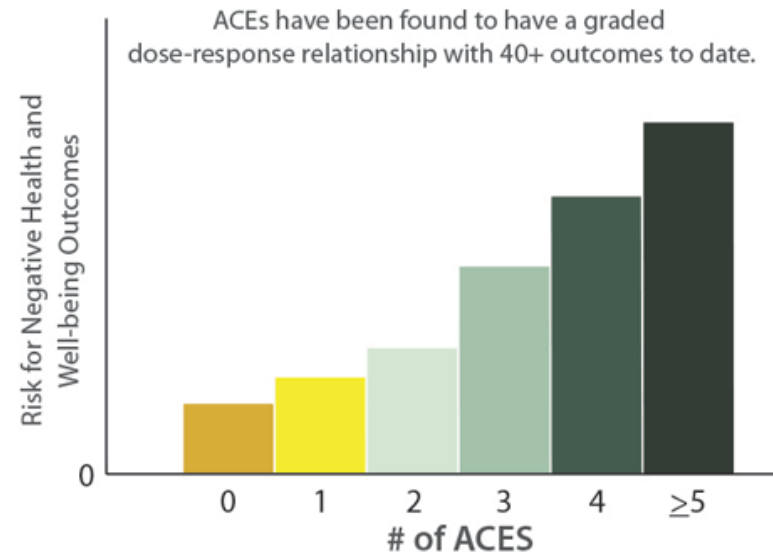
Health (obesity, diabetes, depression, suicide attempts, STDs, heart disease, cancer, stroke, COPD, broken bones)



Behaviors (smoking, alcoholism, drug use)



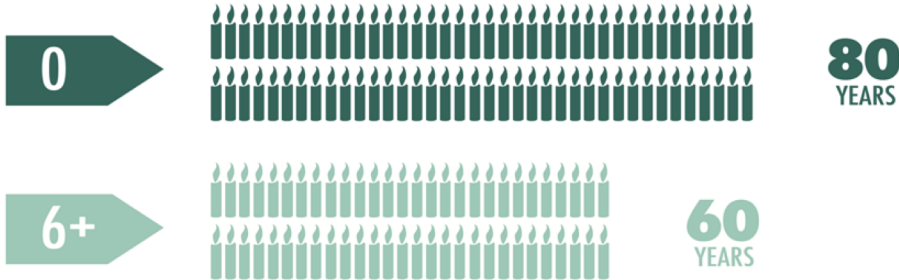
Life Potential (graduation rates, academic achievement, lost time from work)



\*This pattern holds for the 40+ outcomes, but the exact risk values vary depending on the outcome.

# LIFE EXPECTANCY

People with six or more ACEs died nearly **20 years earlier on average** than those without ACEs.

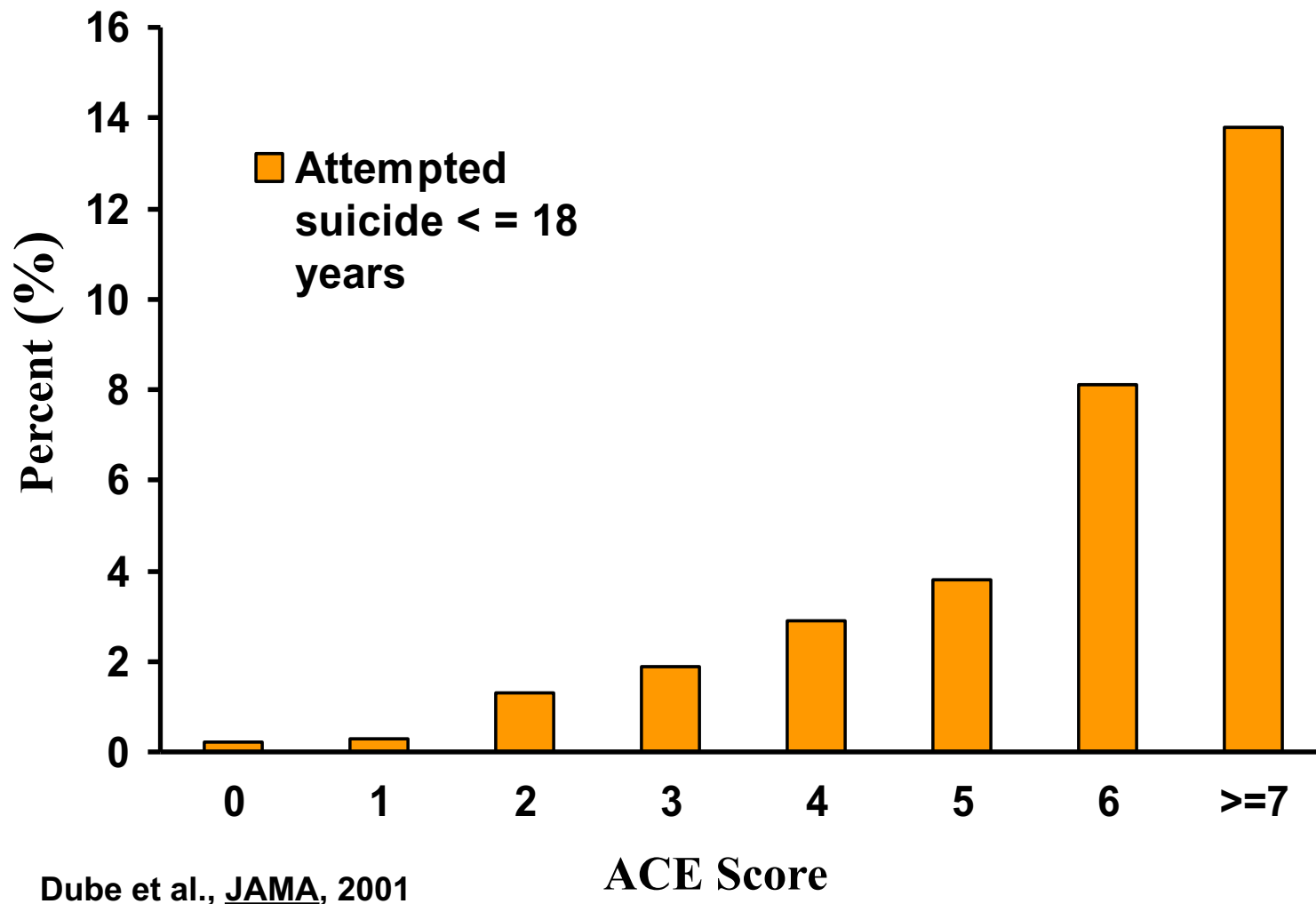


# ECONOMIC TOLL

The Centers for Disease Control and Prevention (CDC) estimates the lifetime costs associated with child maltreatment at **\$124 billion**.

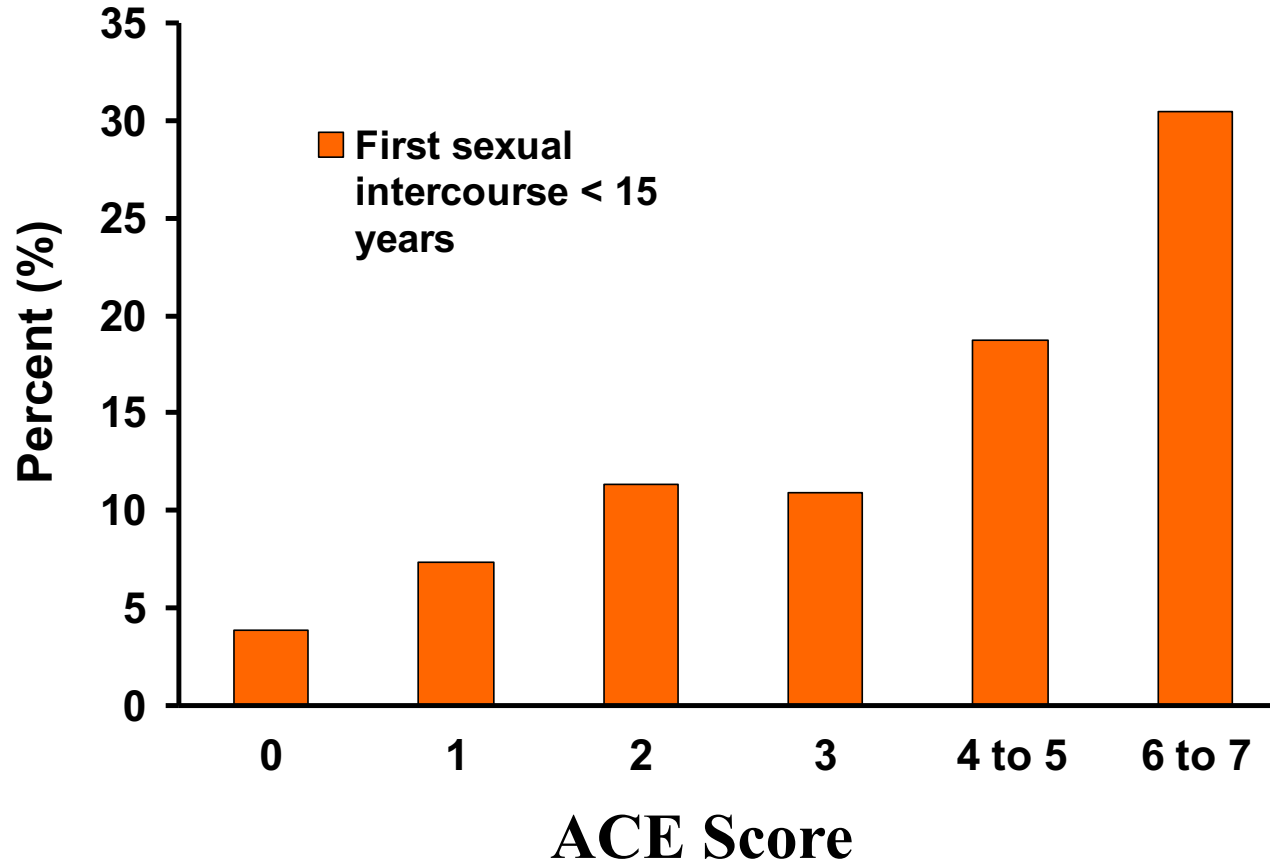


# Relationship Between ACE Score and Suicide Attempts During Adolescence



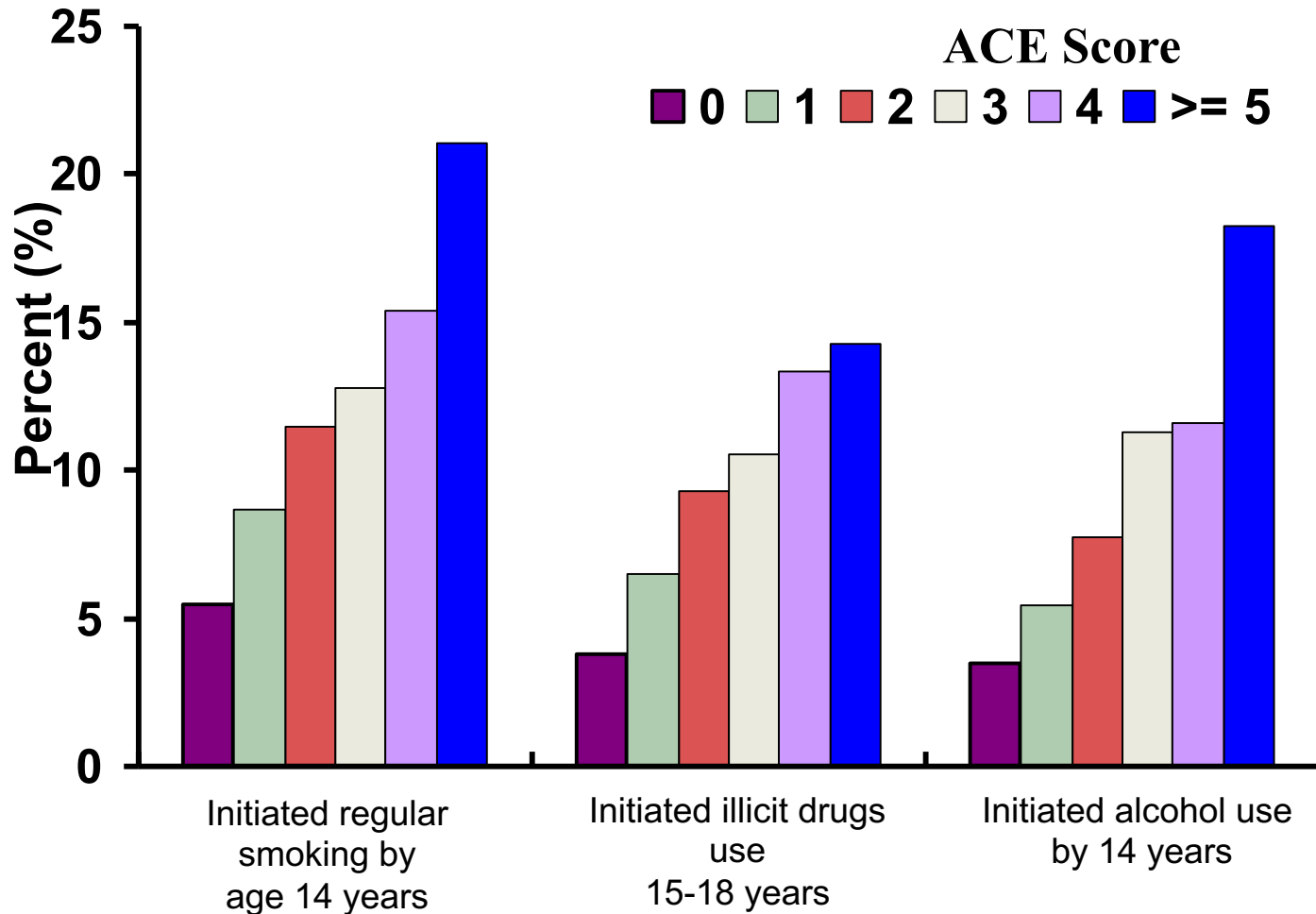


# Relationship Between ACE Score and Age of First Sexual Intercourse

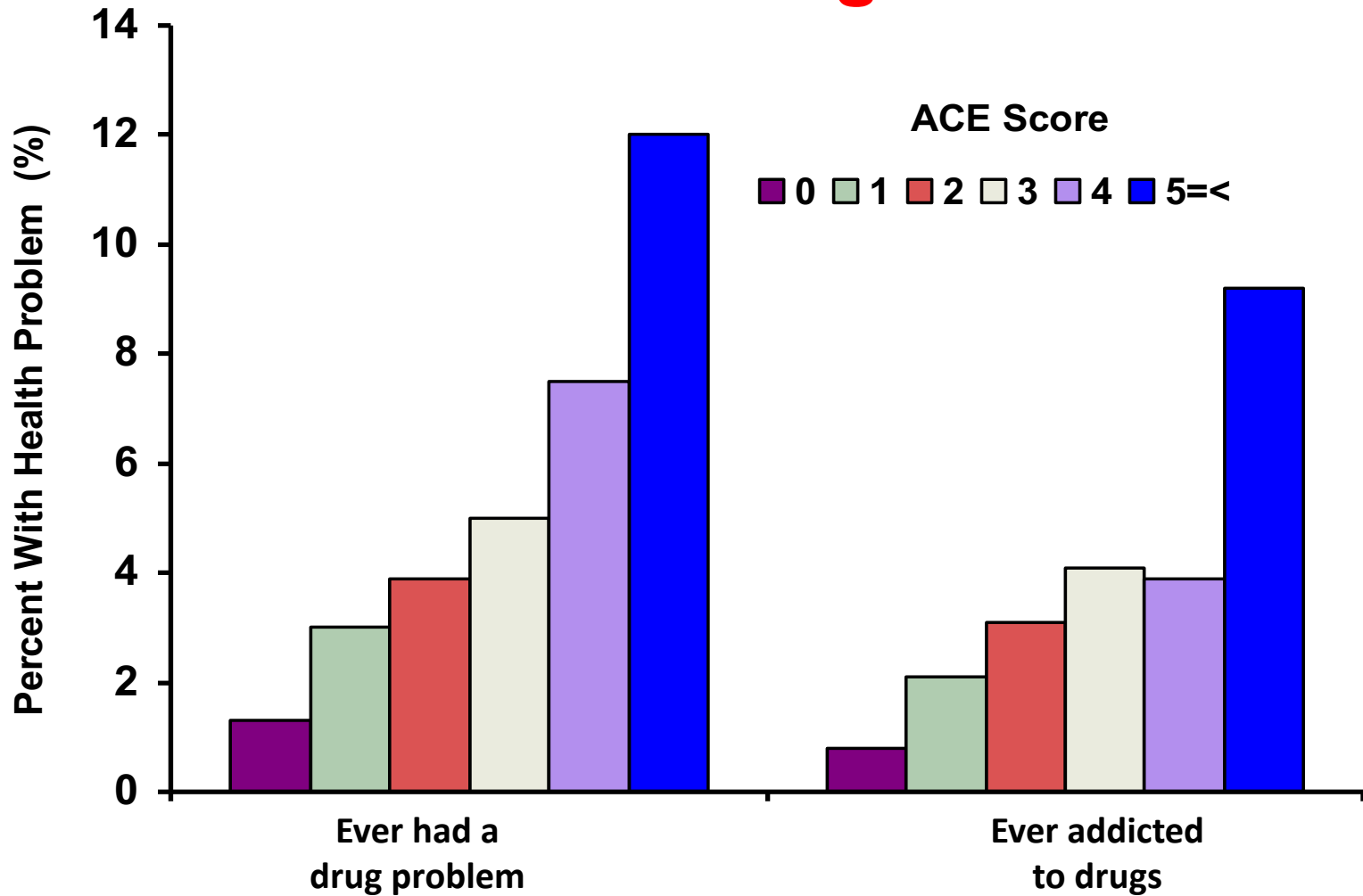


Hillis et al., Family Planning Perspective, 2001.

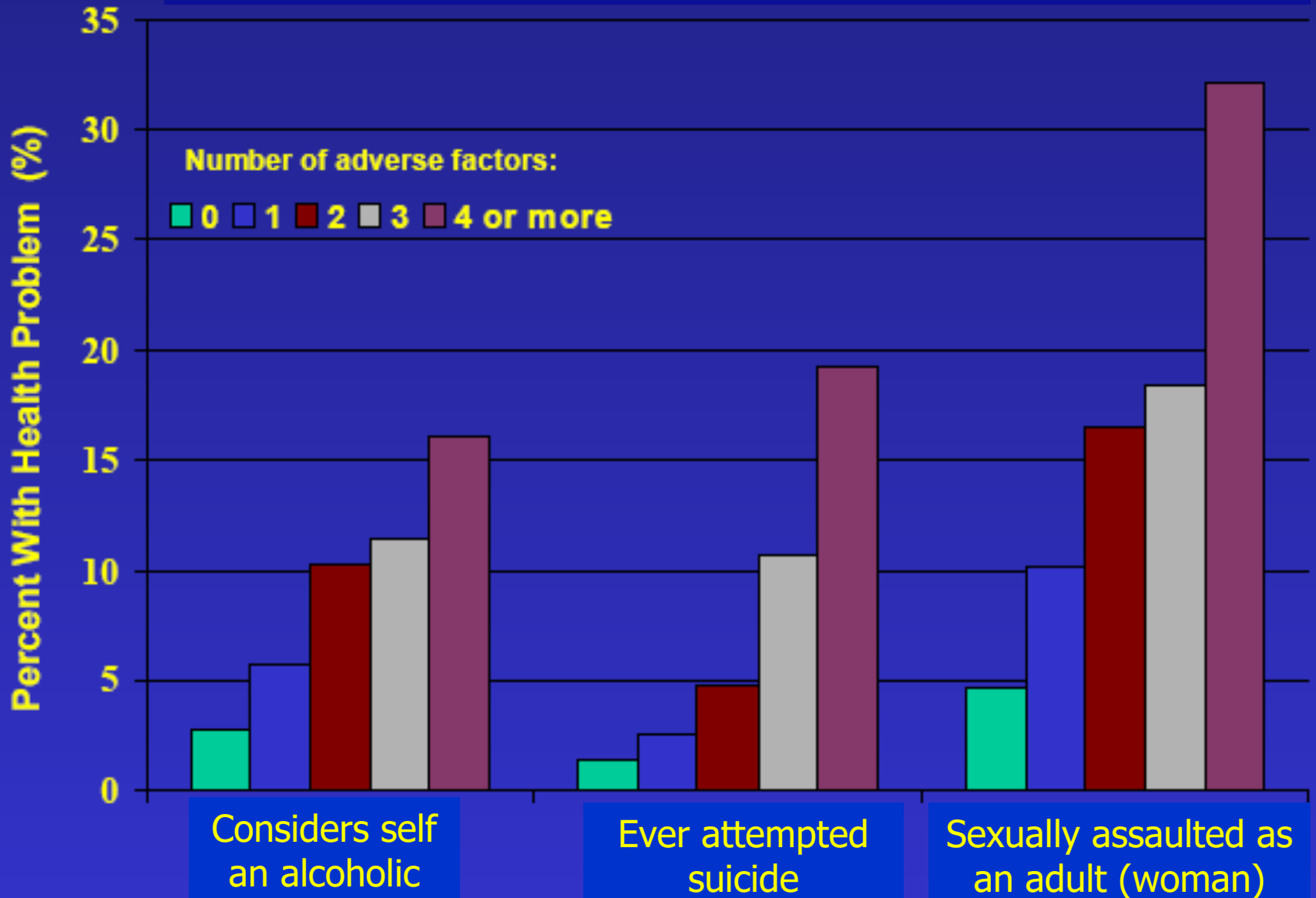
# Relationship Between ACE Score and Adolescent Substance Use



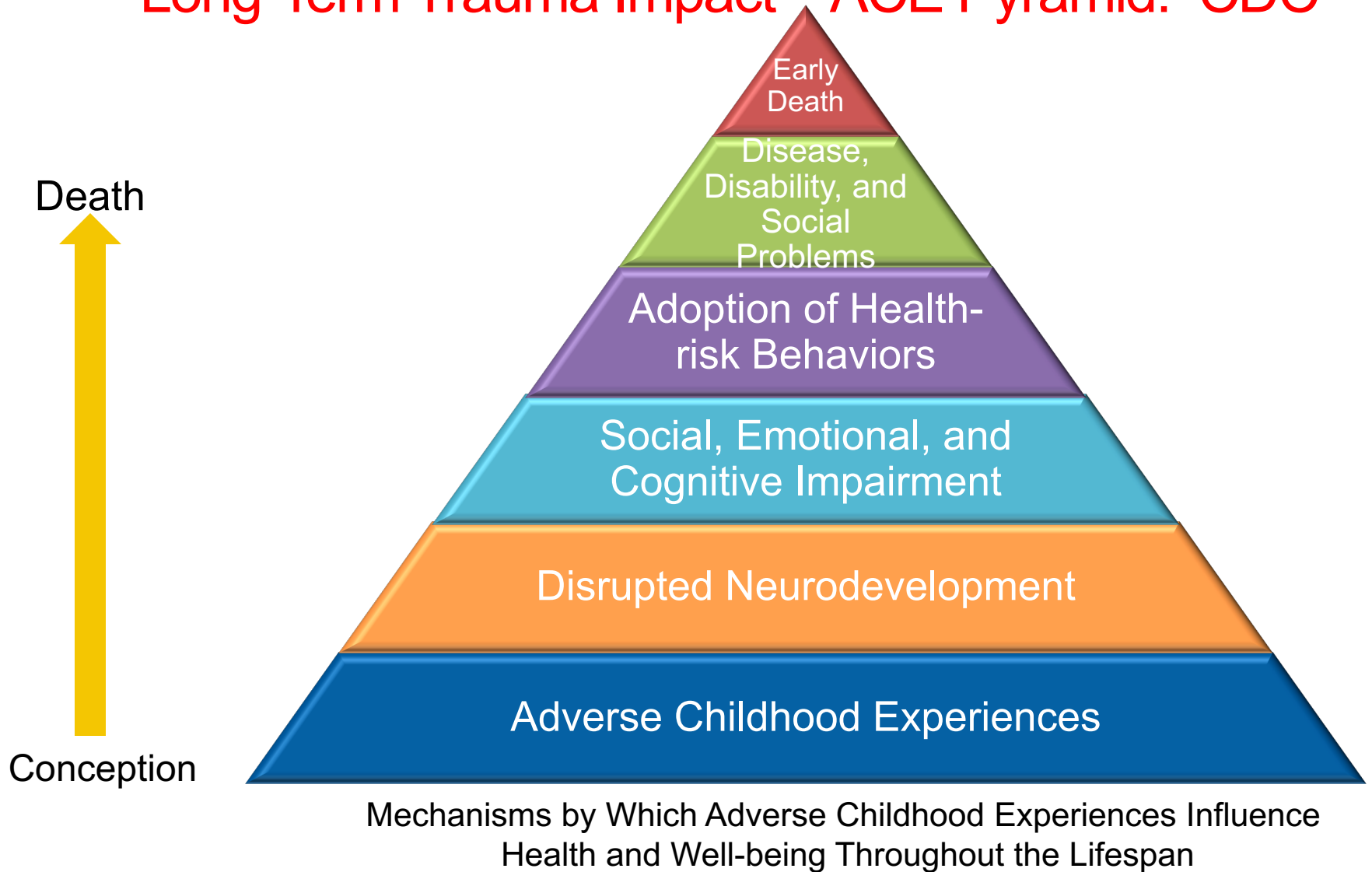
# Relationship Between ACE Score and Drug Abuse



# ACE Score and Alcoholism, Suicide Attempts, or Sexual Assault



# Long-Term Trauma Impact – ACE Pyramid: CDC



## Adverse Childhood Experiences

- Abuse and Neglect (e.g., psychological, physical, sexual)
- Household Dysfunction (e.g., domestic violence, substance abuse, mental illness)



## Impact on Child Development

- Neurobiological Effects (e.g., brain abnormalities, stress hormone dysregulation)
- Psychosocial Effects (e.g., poor attachment, poor socialization, poor self-efficacy)
  - Health Risk Behaviors (e.g., smoking, obesity, substance abuse, promiscuity)



## Long-Term Consequences

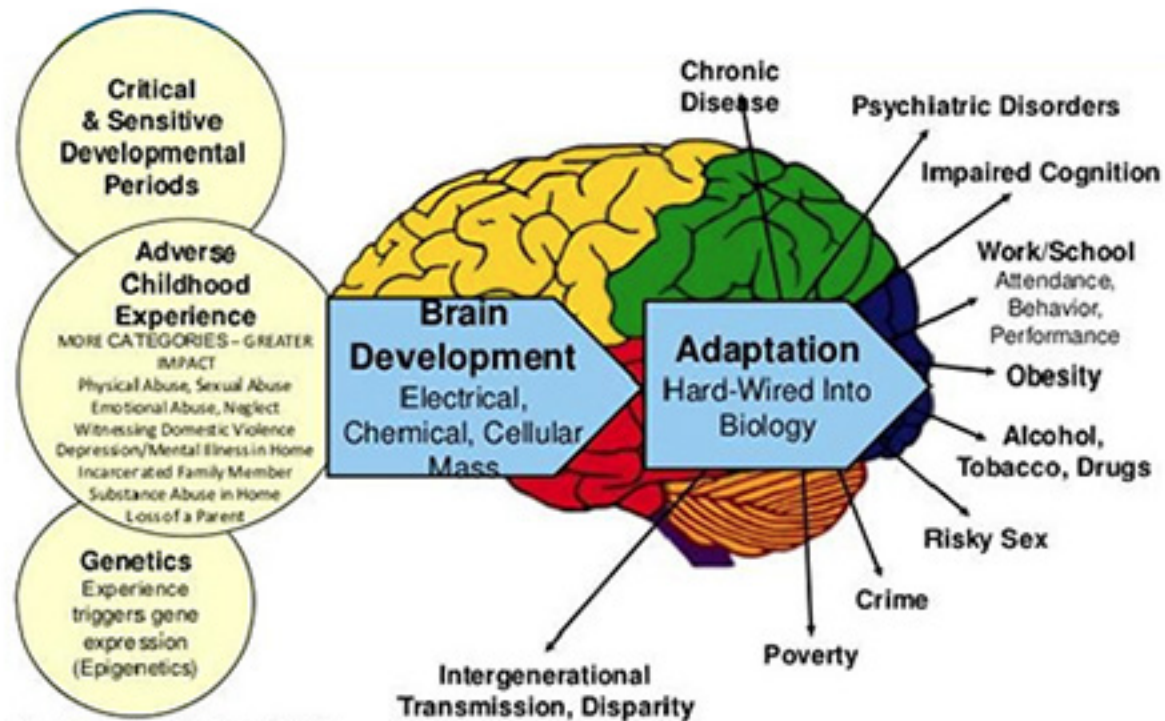
### Disease and Disability

- Major Depression, Suicide, PTSD
- Drug and Alcohol Abuse
- Heart Disease
- Cancer
- Chronic Lung Disease
- Sexually Transmitted Diseases
- Intergenerational transmission of abuse

### Social Problems

- Homelessness
  - Prostitution
- Criminal Behavior
  - Unemployment
- Parenting problems
  - Family violence
- High utilization of health and social services

## Lifespan Impacts of ACEs



Source: Family Policy Council, 2012

# The Take-Away:

- Adverse Childhood Experiences (ACEs) are common
- ACEs are associated with poor health and social functioning in adulthood
- Poor adult health and functioning may be the result of:
  - Risky behaviors associated with ACEs
  - Changes in brain structure and function associated with certain ACEs





# ACES in Shelby County, TN

- 52% reported experiencing at least one ACE
- 21% reported experiencing two or 3
- 12% reported experiencing 4 or more
  - Those living in the city of Memphis and those in poverty were more likely to report 4 or more ACEs
- The most prevalent ACE factors:
  - Household substance abuse
  - Emotional or verbal violence
  - Violence between adults in the home

- Compared to those experiencing zero ACEs, those with four or more were:
  - 2 times more likely to be unemployed
  - 3 times more likely to be problem drinkers
  - 4 times more likely to be smokers
  - 6 times more likely to be diagnosed with depression
  - 7 times more likely to have had a sexually transmitted disease
  - 20 times more likely to have tried to commit suicide

- Adults in Shelby County were more likely to experience the following ACEs than adults in the rest of Tennessee or the 5 other states assessed:
  - Sexual abuse
    - 20% in Shelby County vs. 11% in TN and 12% in other states
  - Violence between adults
    - 22% in Shelby County vs 19% in TN and 16% in other states
- Other potentially traumatic childhood experiences:
  - 37% witnessed a shooting or stabbing
  - 41% bullied as children