

Adverse Childhood Experiences and their Relationship to Adult Health and Well-being

A collaborative effort of Kaiser Permanente and the Centers for Disease Control

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The Adverse Childhood Experiences (ACE) Study

- **The largest study of its kind ever done to examine the medical, social, and economic effects of adverse childhood experiences over the lifespan (18,000 participants)**



What do we mean by Adverse Childhood Experiences?

- Experiences that lead to medical and social problems of national importance.
 - childhood abuse and neglect
 - growing up with domestic violence, substance abuse or mental illness in the home, parental loss, or crime



ACE Study Design

Survey Wave 1 -- complete
71% response (9,508/13,454)

n=13,000
71% response
*All medical evaluations
abstracted*

vs.

*Present
Health Status*

& →

Mortality

National Death Index

Morbidity

Hospital Discharges
Doctor Office Visits
Emergency Room Visits
Pharmacy Costs

Survey Wave II

n=13,000
*All medical evaluations
abstracted*

ACE Study Findings

Adverse childhood life experiences affect adult:

- **Disease burden and medical care costs**
- **Well-being, depression, and suicide rates**
- **Alcoholism and drug use**
- **Job performance and disability**
- **Subsequent generations.**

Categories of Adverse Childhood Experiences

**Category
Prevalence (%)**

Abuse, by Category

Psychological (by parents)	11%
Physical (by parents)	11%
Sexual (anyone)	22%

Household Dysfunction, by Category

Substance Abuse	26%
Mental Illness	19%
Mother Treated Violently	13%
Imprisoned Household Member	3%

Adverse Childhood Experiences Score

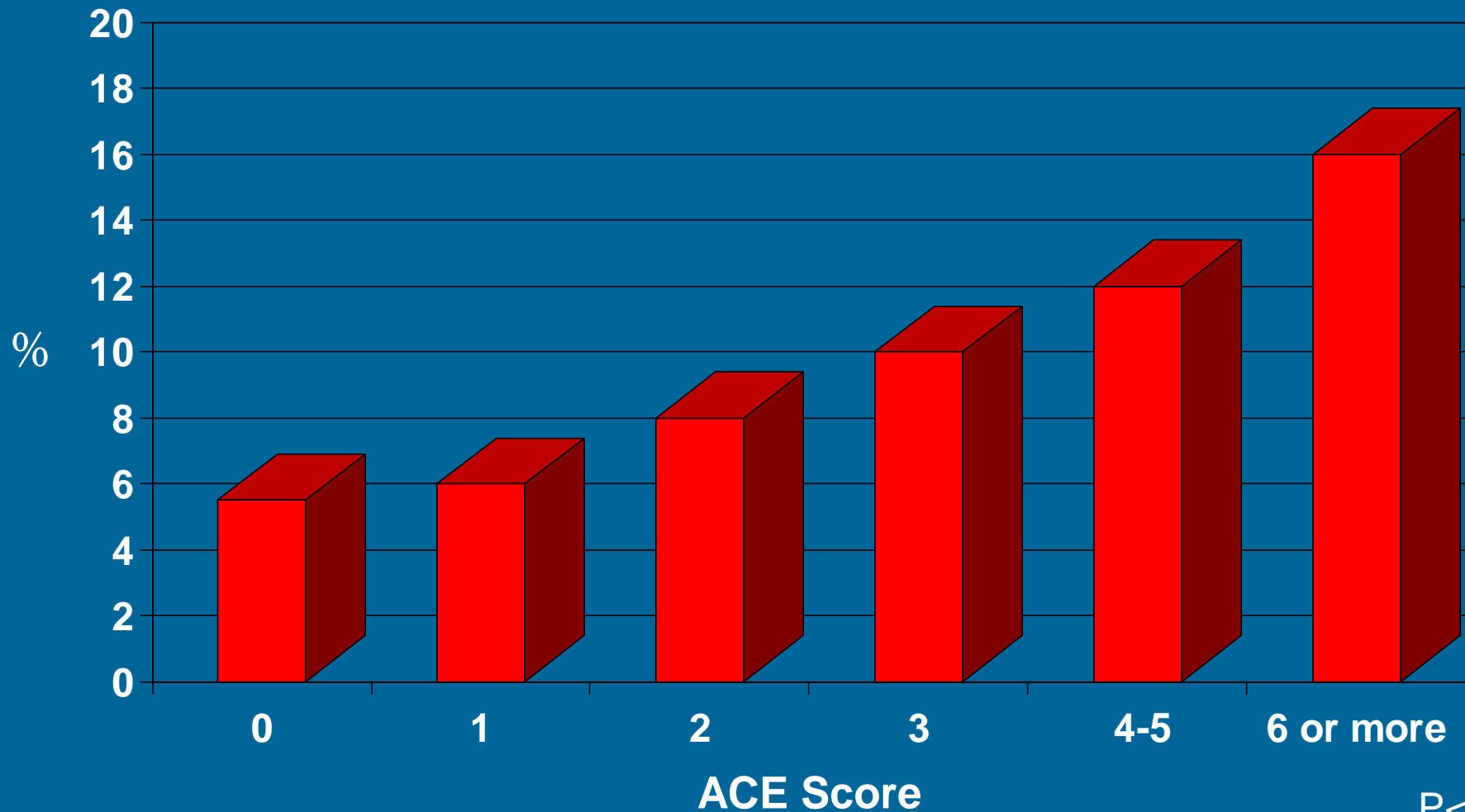
Number of categories of adverse childhood experiences are summed ...

<i>ACE score</i>	<i>Prevalence</i>
0	48%
1	25%
2	13%
3	7%
4 or more	7%



- More than *half* have at least one ACE
- If one category of ACE is present, there is an 86% likelihood of additional categories being present.

Adverse Childhood Experiences vs. Current Smoking



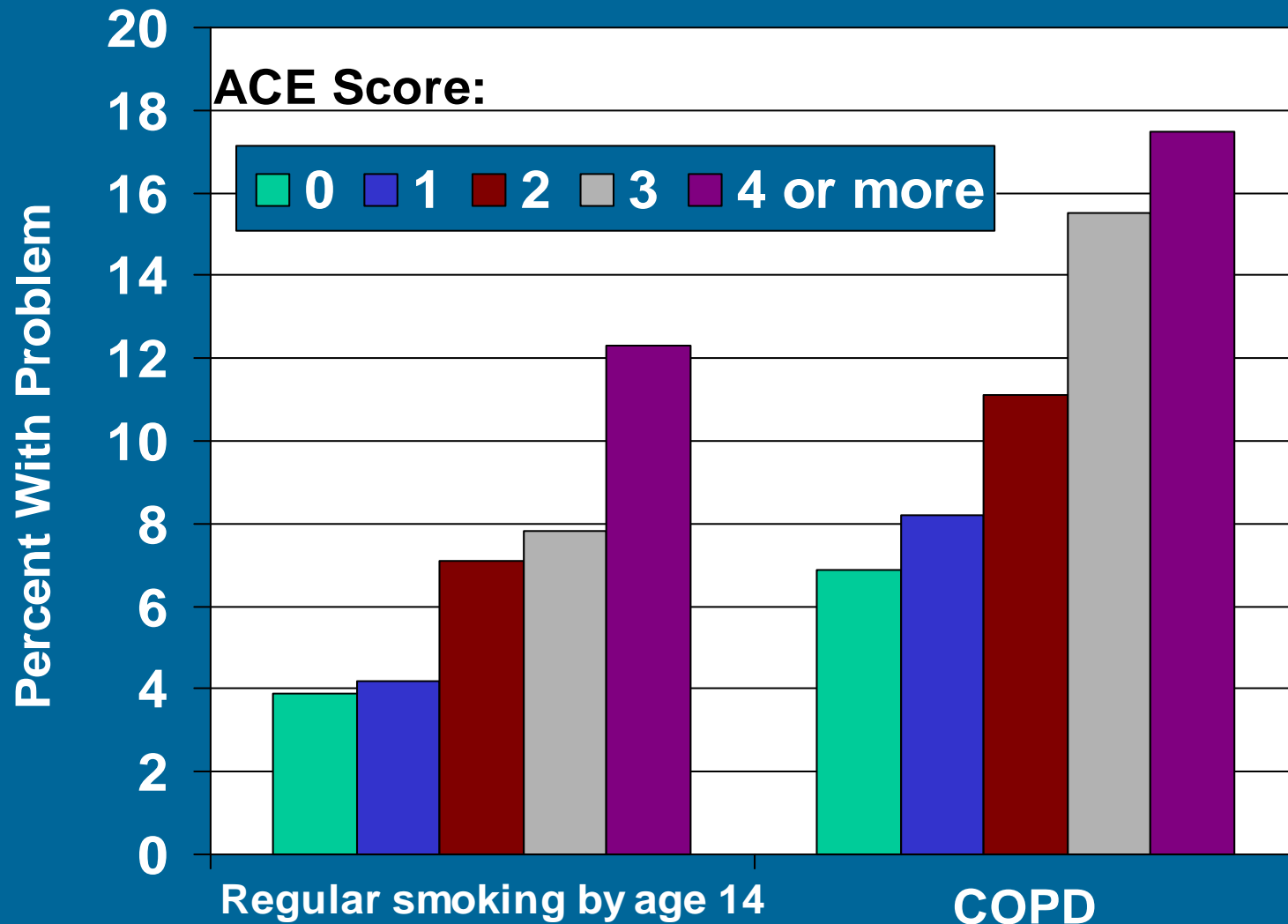
$P < .001$

Smoking to Self-Medicate



Smoke3-28comp.avi

ACE Score vs. Smoking and COPD



Childhood Experience and Later Organic Disease

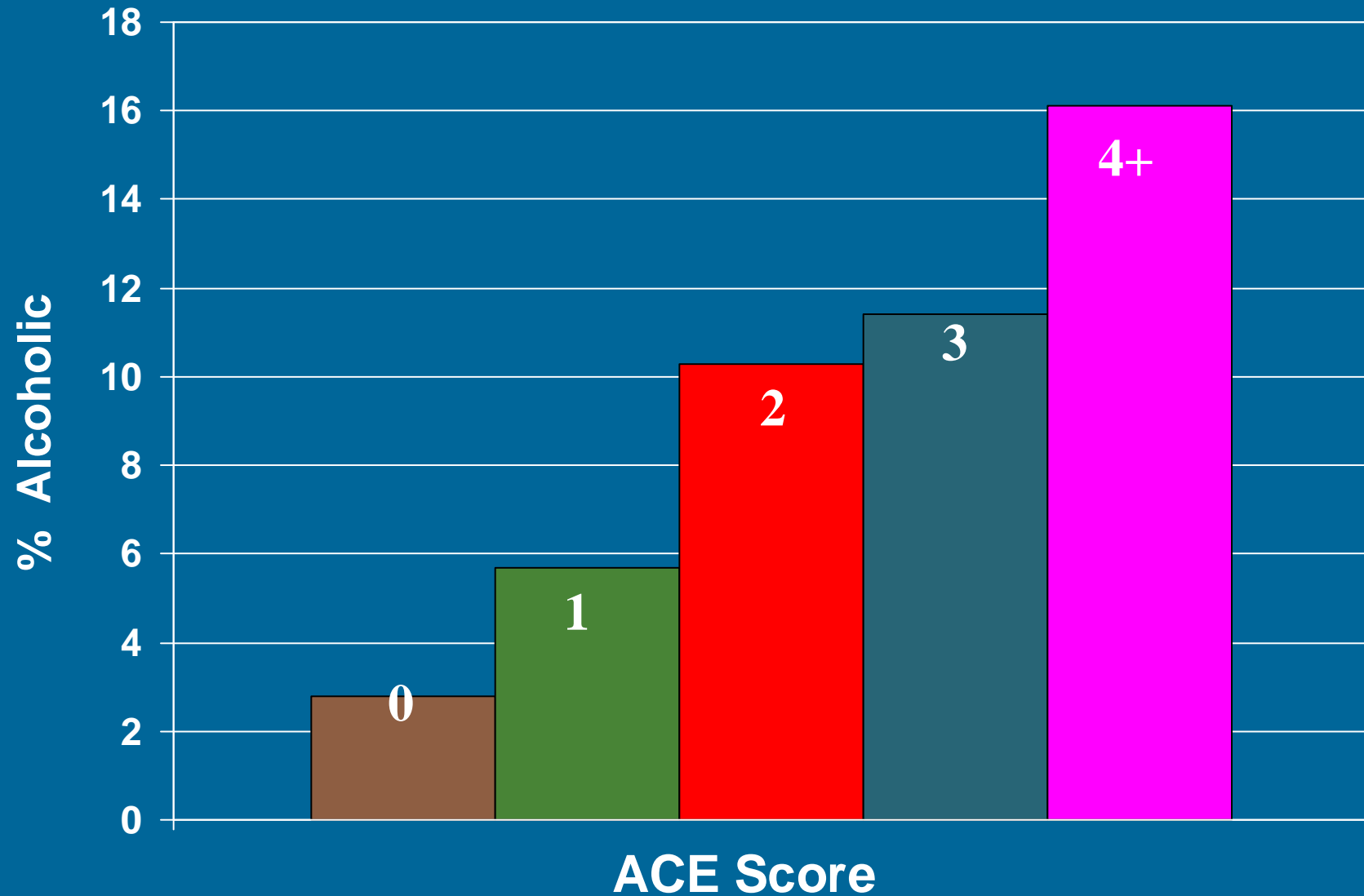
ACEs Increase Likelihood of Heart Disease*

- Emotional abuse 1.7x
- Physical abuse 1.5x
- Sexual abuse 1.4x
- Domestic violence 1.4x
- Mental illness 1.4x
- Substance abuse 1.3x
- Household criminal 1.7x
- Emotional neglect 1.3x
- Physical neglect 1.4x



*After correction for age, race, education, and conventional risk factors like smoking and diabetes.
Circulation, Sept 2004.

Childhood Experiences vs. Adult Alcoholism



Molestation in Childhood



Molest3-28comp.avi

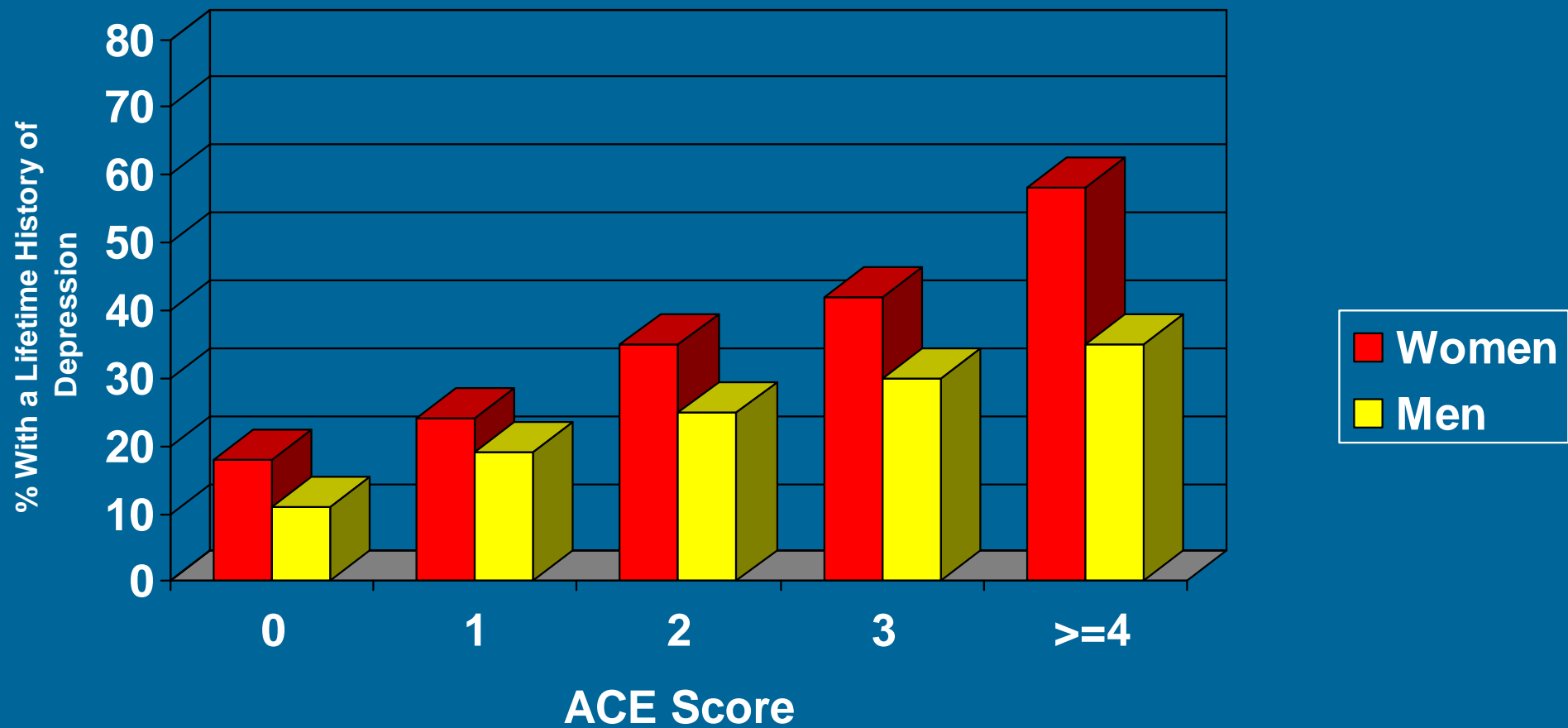
Some say depression is a disease.
Some say depression is genetic.
Some say depression is due to a chemical imbalance.



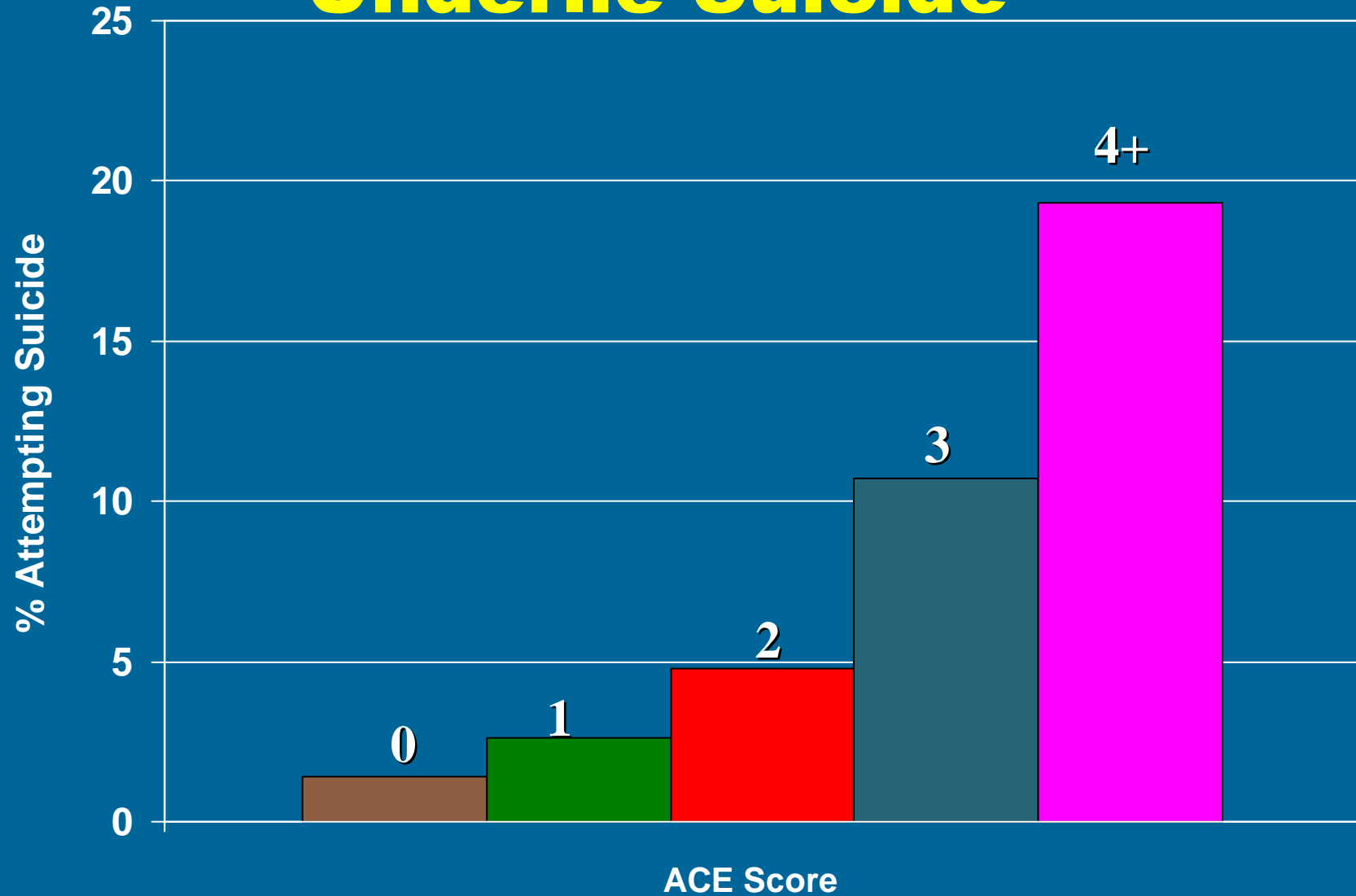
Might depression be a *normal* response to *abnormal life experiences*?



Childhood Experiences Underlie Chronic Depression



Childhood Experiences Underlie Suicide

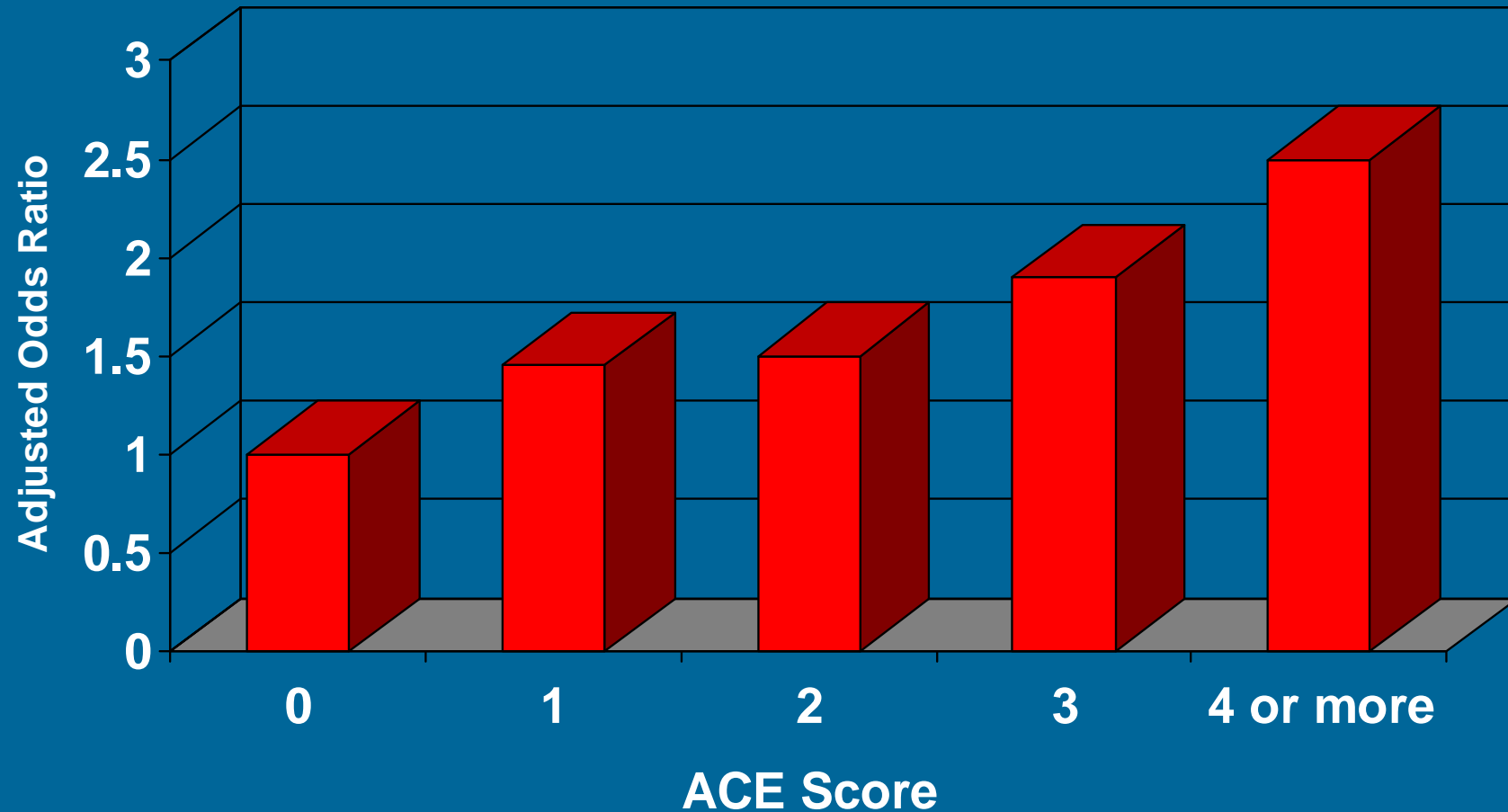


Estimates of the Population Attributable Risk* of ACEs for Selected Outcomes in Women

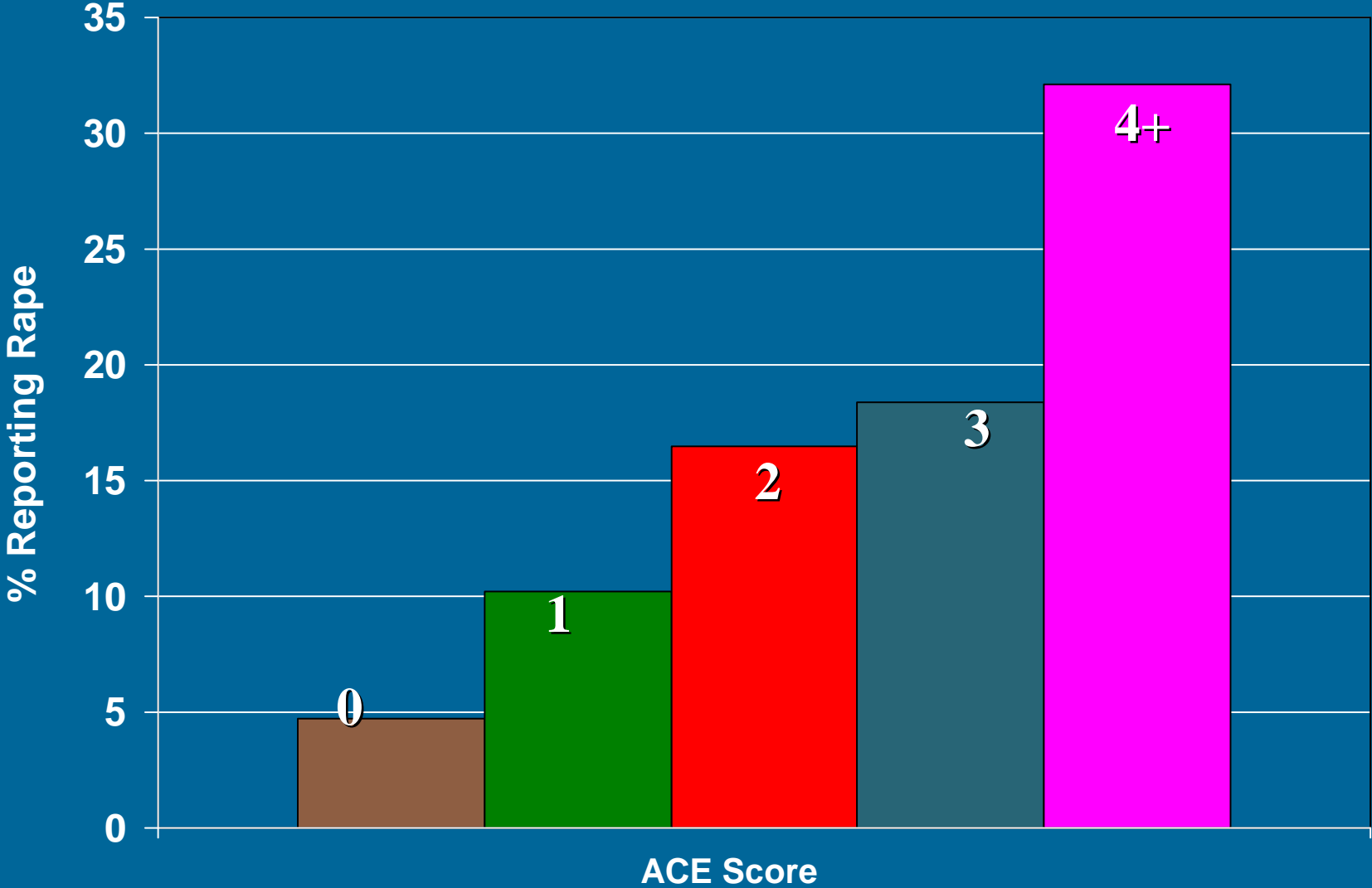
Mental Health	PAR
Current depression	54%
Chronic depression	41%
Suicide attempt	58%

*That portion of a condition attributable to specific risk factors

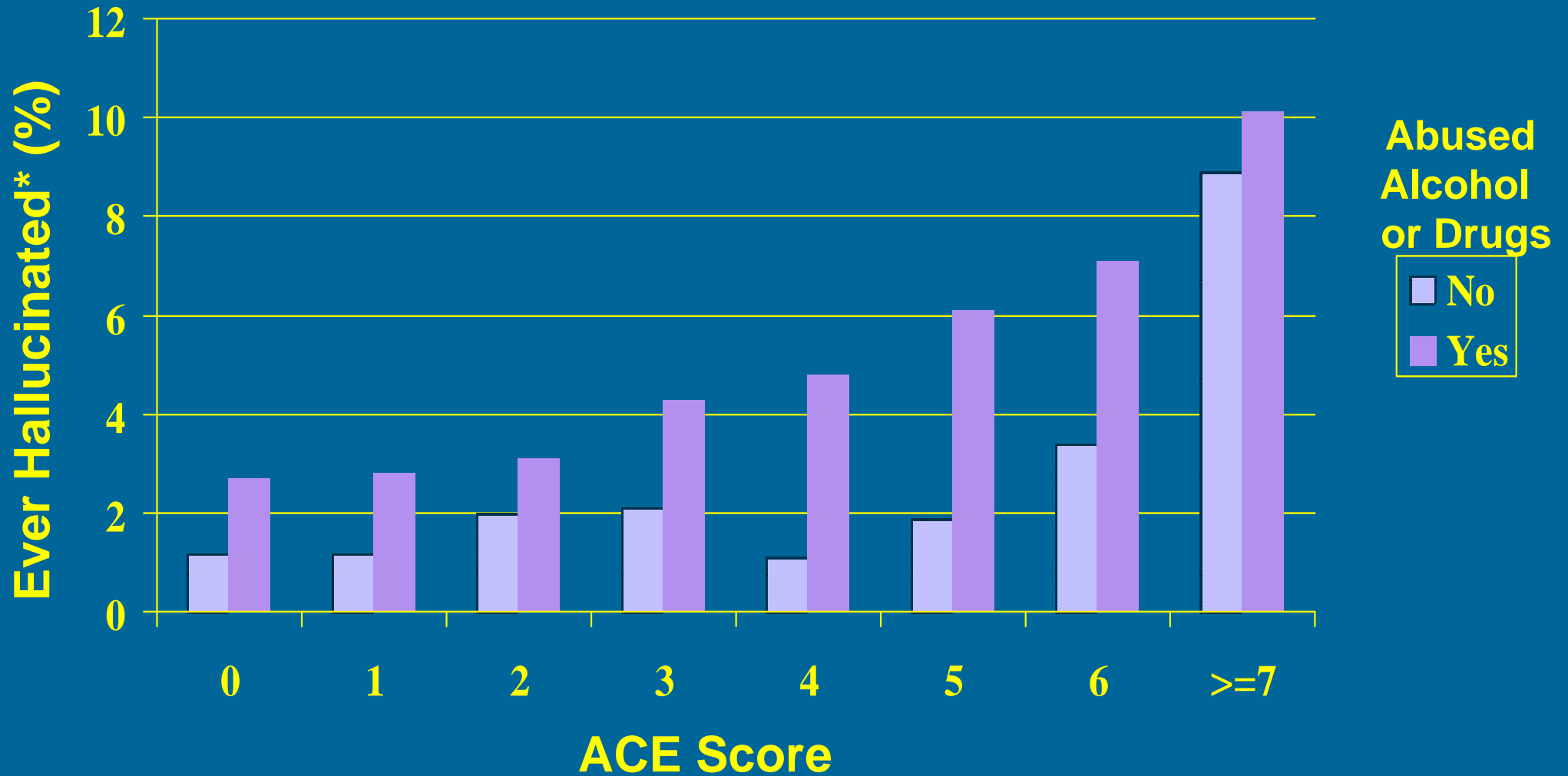
Adverse Childhood Experiences vs. History of STD



Childhood Experiences Underlie Rape



ACE Score and Hallucinations



*Adjusted for age, sex, race, and education.

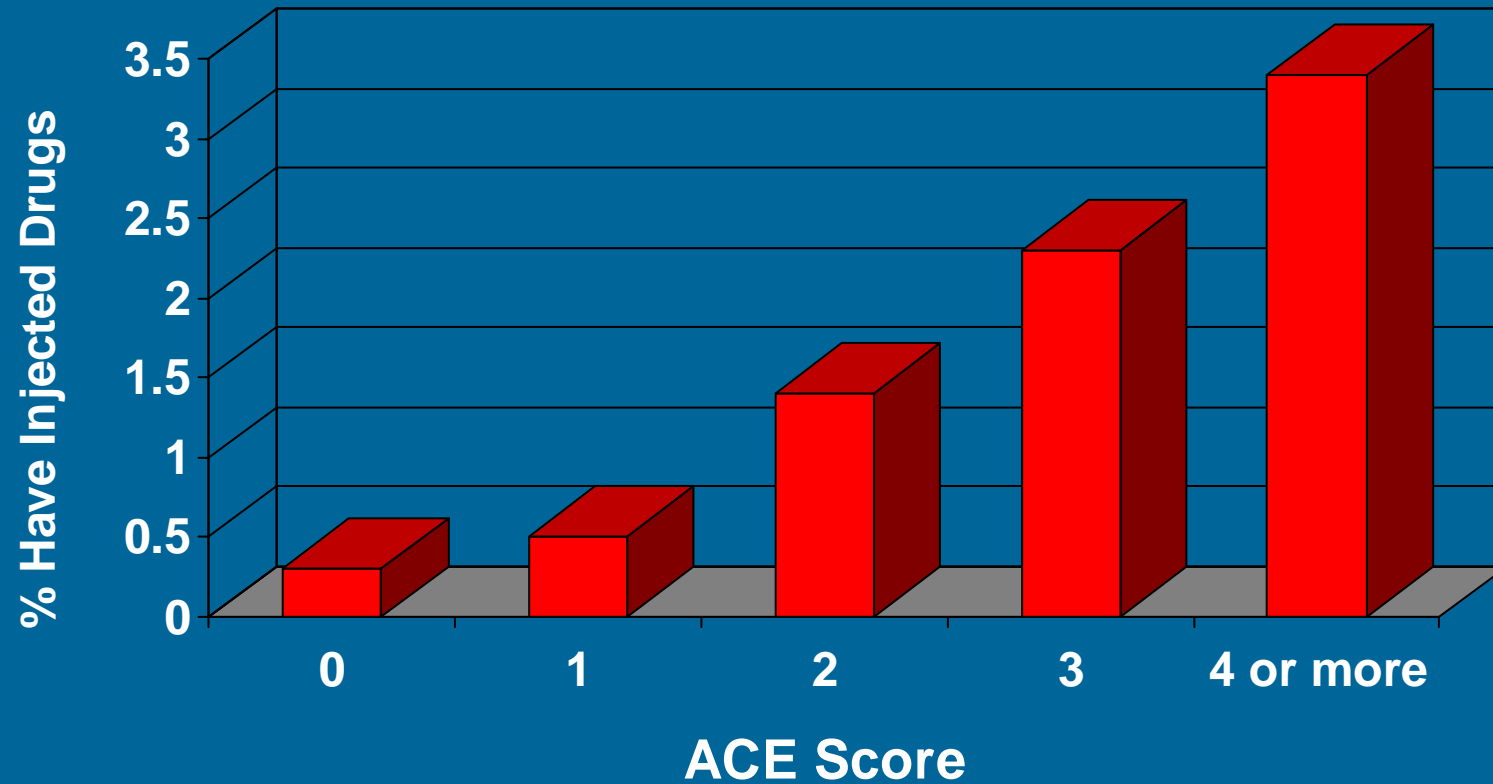
The traditional concept:

“Addiction is due to the characteristics intrinsic in the molecular structure of some substance.”

We find that:

“Addiction highly correlates with characteristics intrinsic to that individual’s childhood experiences.”

ACE Score vs. Intravenous Drug Use



N = 8,022 **p < 0.001**

Estimates of the Population Attributable Risk* of ACEs for Selected Outcomes in Women

Drug Abuse	PAR
Alcoholism	65%
Drug abuse	50%
IV drug use	78%

*That portion of a condition attributable to specific risk factors

Adverse Childhood Experiences determine the likelihood of the ten most common causes of death in the United States.

Top 10 Risk Factors: smoking, severe obesity, physical inactivity, depression, suicide attempt, alcoholism, illicit drug use, injected drug use, 50+ sexual partners, h/o STD.

With an ACE Score of 0, the majority of adults have few, if any, risk factors for these diseases.

However, with an ACE Score of 4 or more, the majority of adults have multiple risk factors for these diseases or the diseases themselves.

**Many chronic diseases
in adults are determined
decades earlier, in
childhood.**

**Their risk factors are also
reliable markers for
antecedent problems.**

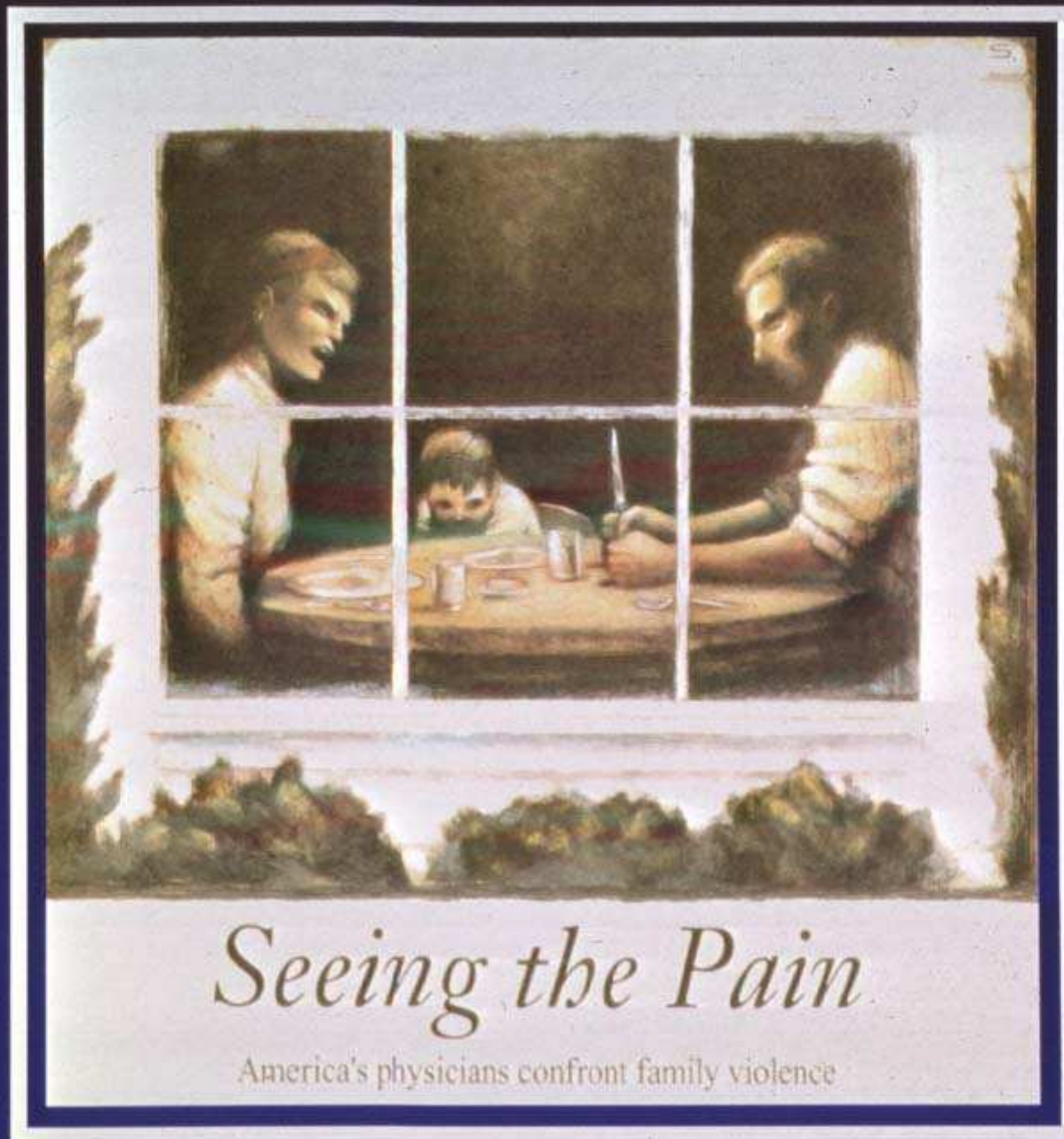
“In my end is my beginning.”

T.S. Eliot - Quartets

Dismissing them as “bad habits” or “self-destructive behavior” hides their functionality.



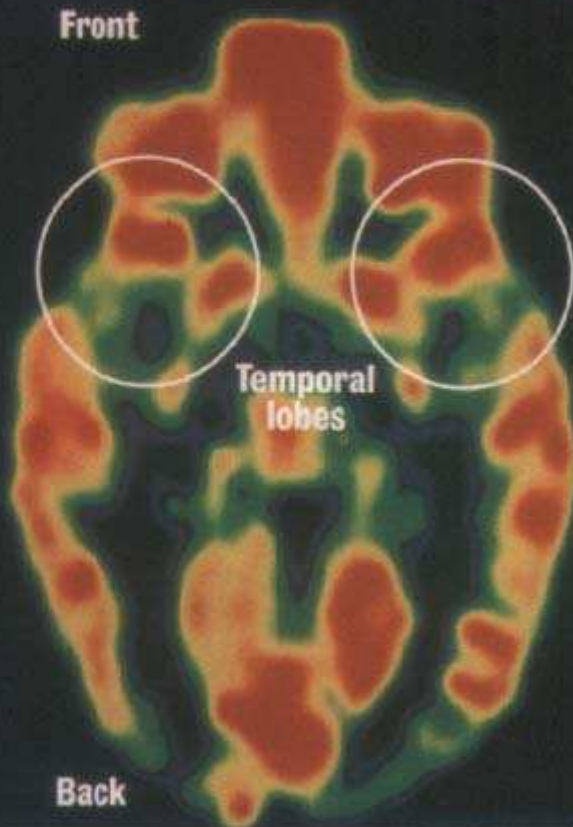
**The risk factors
underlying these adult
diseases are effective
short-term coping devices.**



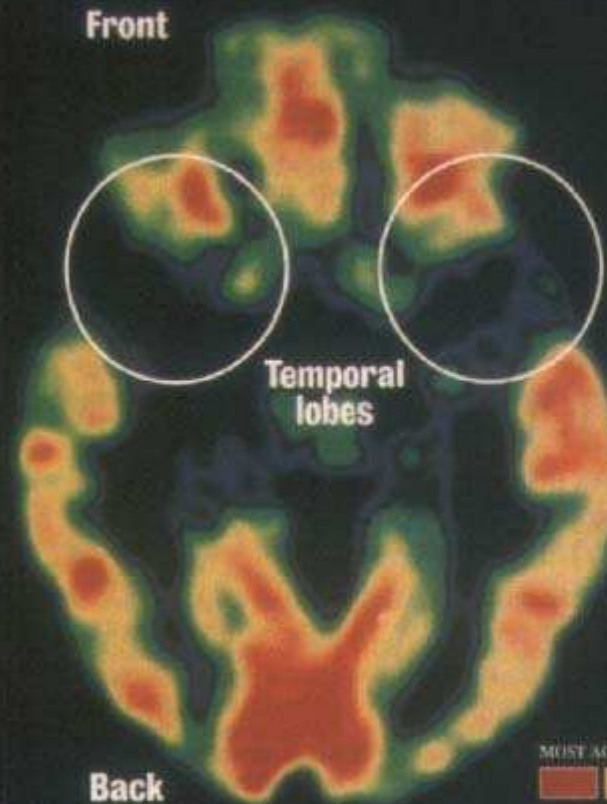
Why are their long-term consequences so difficult to treat?

Healthy Brain

This PET scan of the brain of a normal child shows regions of high (red) and low (blue and black) activity. At birth, only primitive structures such as the brain stem (center) are fully functional; in regions like the temporal lobes (top), early childhood experiences wire the circuits.

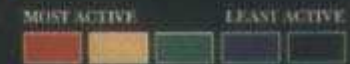


Front



An Abused Brain

This PET scan of the brain of a Romanian orphan, who was institutionalized shortly after birth, shows the effect of extreme deprivation in infancy. The temporal lobes (top), which regulate emotions and receive input from the senses, are nearly quiescent. Such children suffer emotional and cognitive problems.

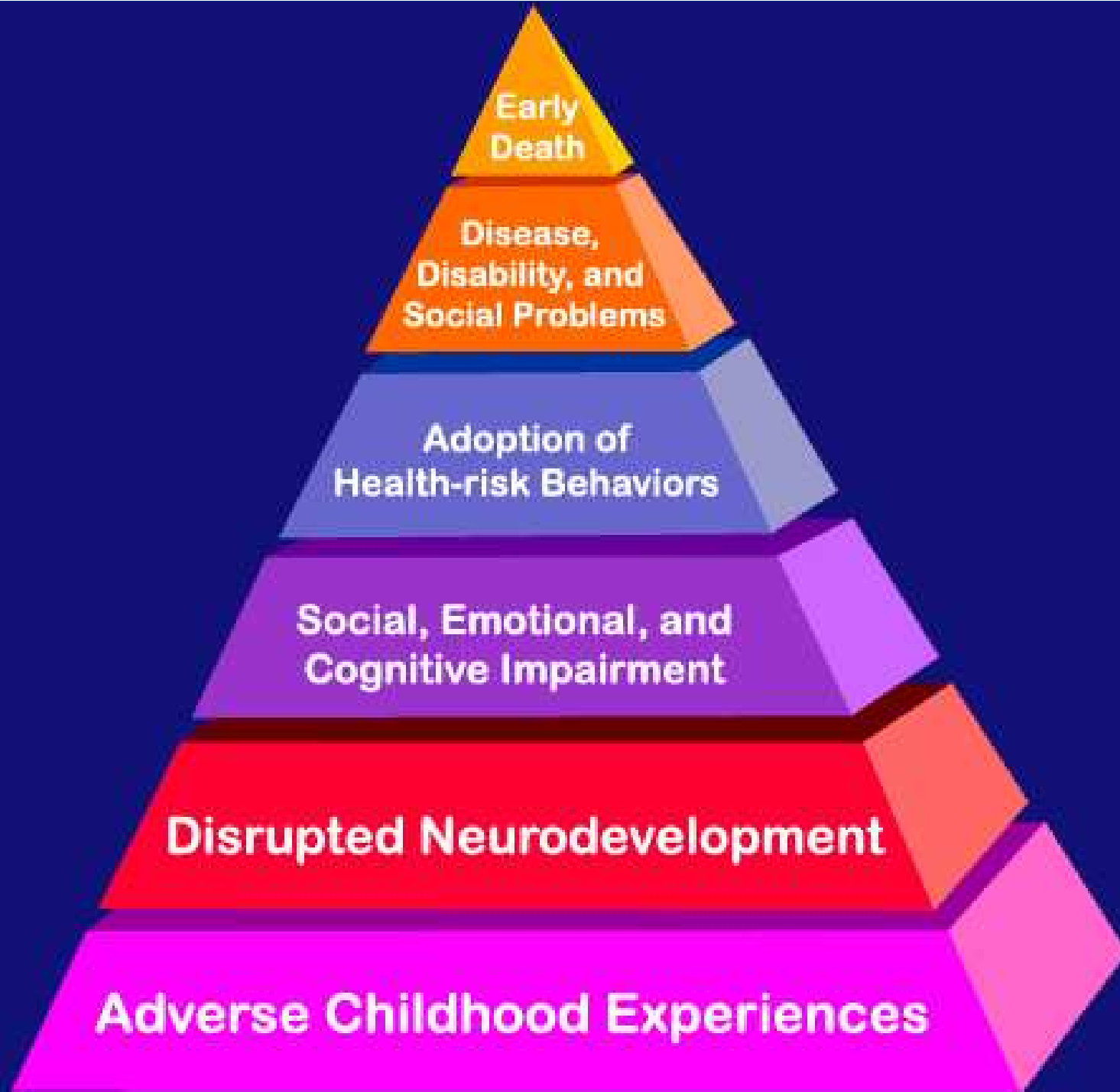


**Many public health problems
are often attempted
solutions to unrecognized
childhood experiences.**

Evidence from ACE Study Indicates:

Adverse childhood experiences are the most basic cause of health risk behaviors, morbidity, disability, mortality, and healthcare costs.

Death



Conception

Bridging the Chasm



**Child
health
and
well-being
as it
stands
today.**

**Acknowledgment that
the problem exists.**

**Recognition of cases
in medical practice.**

**Human
health
and
well-being
as it
could be.**

What Can We Do Today?

- Routinely seek history of adverse childhood experiences from all patients
- Acknowledge their reality by asking, “*How has this affected you later in life?*”
- Develop systems to help with current problems
- **Develop systems for early prevention.**

Translating Research into Practice

a beginning



6th Floor

1.2 million patient evaluations since 1975

Unconventional Questions of Demonstrated Value

- Have you lived in a war zone?
- Have you ever been a combat soldier?
- *Who* in your family has committed suicide?
- *Who* in your family has been murdered?
- *Who* in your family has had a nervous breakdown?
- Were you molested as a child?
- Have you ever been held prisoner?
- Have you been tortured?
- Have you been raped?

Economics of a Biopsychosocial Preventive Approach

Biomedical evaluation: 11% reduction in DOVs, subsequent year (700 patient sample)

Biopsychosocial evaluation: 35% reduction in DOVs (125,000 patient sample)

**Digital technology makes
comprehensive, *individual*
biopsychosocial evaluation a
powerful and affordable basis
for population-based preventive
medicine.**

An Economist's View

- Gary S. Becker, winner in 1992 of the Nobel Prize for Economics, feels so strongly about the value of early childhood programs that in a recent speech, he recommended that society make payments to parents contingent on their children's regular attendance at an early childhood program.

Further Information

www.cestudy.org

<http://www.cdc.gov/NCCDPHP/ACE/>

Medline – PubMed (Felitti or Anda as author name)

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