

Adverse Childhood Experiences Study: Implications for Adolescent Health

www.healingattention.org/ace.pdf

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**“When I approach a child, he inspires
in me two sentiments; tenderness for
what he is, and respect for what he
may become.”**

— *Louis Pasteur* —



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Modern Medicine and Health Improvements

Vaccines and the advent of antibiotics reduced:

- The burden of infectious diseases (e.g. TB)
- Childhood mortality due to infectious disease (e.g. measles)



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Changing Patterns of Disease

- Changing patterns of disease due to overall improvements in health in the late 19th and early 20th Century
- Mortality rates were dominated by infectious diseases
- Chronic diseases are now the leading causes of death

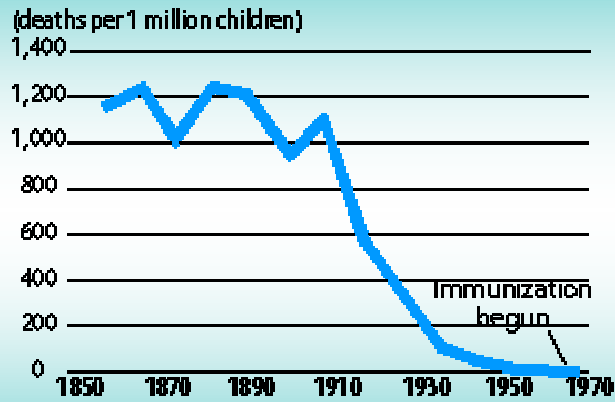
Christopher J. L. Murray and Alan D. Lopez, eds., *The Global Burden of Disease: Volume 1* (World Health Organization, Harvard School of Public Health, and The World Bank, Geneva, 1996), p. 18.



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Death Rates for Measles in Children Under Age 15, England and Wales, 1850-1970



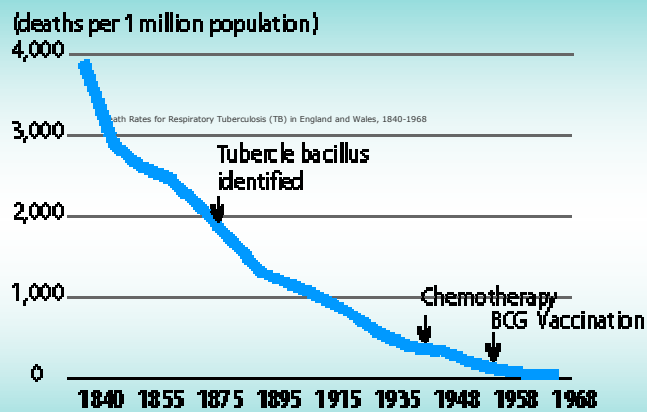
Thomas McKeown, *The Modern Rise of Population* (Academic Press, San Francisco, 1976), pp. 93, 96.



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Death Rates for Respiratory Tuberculosis (TB) in England and Wales, 1840-1968



Thomas McKeown, *The Modern Rise of Population* (Academic Press, San Francisco, 1976), pp. 93, 96.



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Chronic Disease Burden

Public health research:

- Age single most determining factor
e.g. > 85% of all persons 65 and older have at least one chronic disease
- Lifestyle and behaviors strong risk factors for chronic diseases
e.g. smoking, lack of physical activity



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Scientific Gaps Still Remained

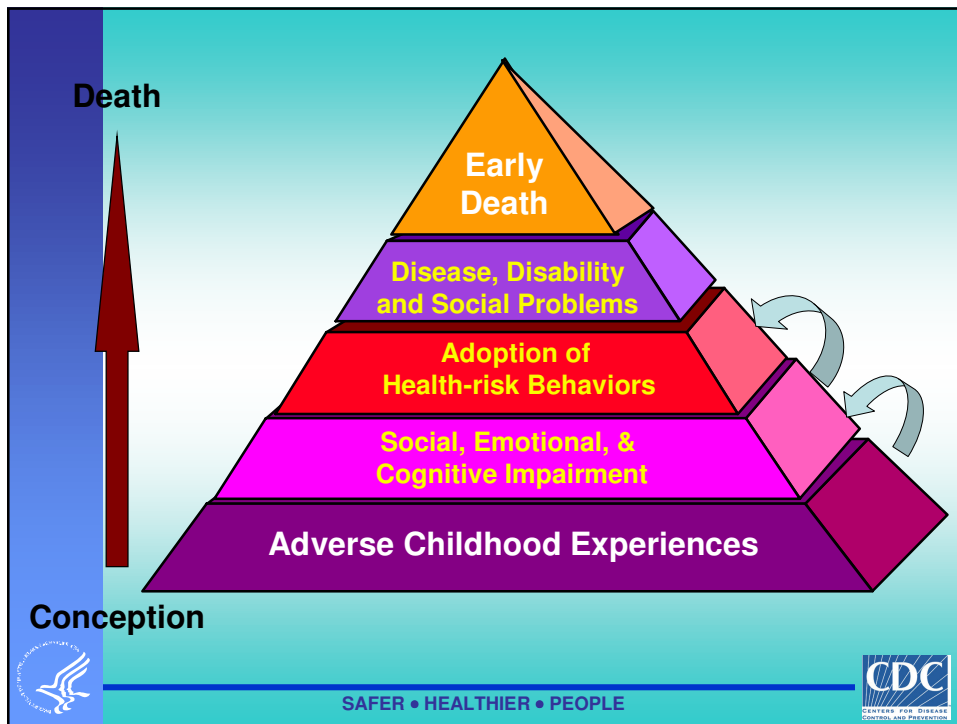
What are the underlying factors that lead to chronic diseases?

**Adverse Childhood Experiences (ACE)
Study Developed to Examine the Health
Impact of Early Life Experiences**



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The Adverse Childhood Experiences (ACE) Study
 The largest study of its kind ever done to examine the health and social effects of adverse childhood experiences throughout the lifespan (17,421 participants)

What do we mean by Adverse Childhood Experiences?
 Experiences that represent health or social problems of national importance.

- childhood abuse and neglect
- growing up with domestic violence, substance abuse or mental illness in the home, parental discord, crime

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CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

ACE Study Procedure

Data Collected between 1995-1997 from:

1. Participants who were HMO members seeking an overall health assessment
2. After participants clinic visit, the Family Health History (FHH) was mailed home.
3. The FHH had questions about adverse childhood experiences and other details about current health behaviors



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Definition of Adverse Childhood Experiences

Abuse By Parents During Childhood:

Emotional

Often or very often swore at, insulted, or put me down...?
often or very often acted in a way that
made me afraid that I would be physically hurt?

Physical

Sometimes, often or very often pushed, grabbed, shoved,
slapped me...

Sometimes, often, or very often hit me so hard that I had
marks or was injured

Sexual

Did an adult or person at least 5 years older ever...):

Touch or fondle you in a sexual way?

Have you touch their body in a sexual way?

Attempt oral, anal, or vaginal intercourse with you?

Actually have oral, anal or vaginal intercourse with you?



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Definition of Adverse Childhood Experiences

Family Exposures:

Substance Abuse

- Live with anyone who was a problem drinker or alcoholic?
- Live with anyone who used street drugs?

Mental Illness

- Was a household member depressed or mentally ill?
- Did a household member attempt suicide?

Mother Treated Violently

Was your mother (or stepmother):

- Sometimes, often, or very often pushed, grabbed, slapped or had something thrown at her?
- Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard ?
- Ever repeatedly hit over at least a few minutes?
- Ever threatened with, or hurt by, a knife or gun?

Criminal Behavior in Household

- Did a household member go to prison?



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Growing up with: Childhood abuse, neglect domestic violence, substance abuse, mental illness in the home, parental discord, crime

These experiences:

- Often go unrecognized
- Impact developing child in ways that cannot be “seen”



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Who Was In the Study?



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Characteristics of the Study Population

Mean age	57 years
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Women	54%
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Education

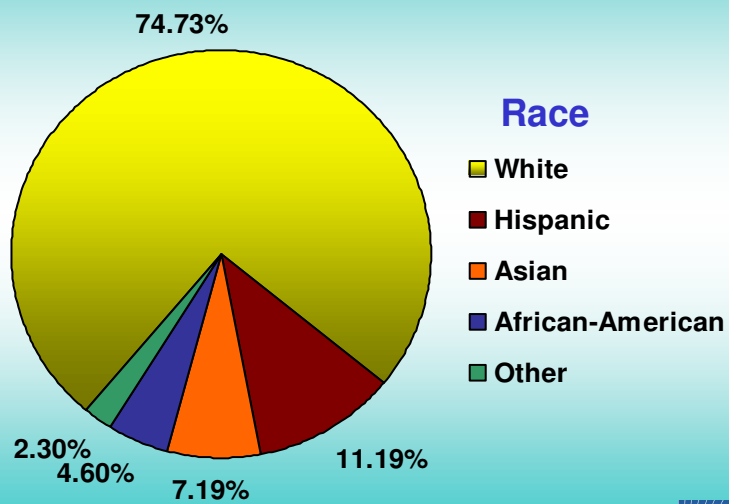
No H.S. diploma	7%
H.S. diploma or GED	17%
Some college	35%
College graduate	39%



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ACE Study Demographics



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What percent of persons in the study reported adverse childhood experiences?



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Prevalence of Individual Adverse Childhood Experiences

Childhood Abuse:

Physical	28.3%
Sexual	20.7%
Emotional	10.5%

*Childhood Neglect:**

Emotional	15.0%
Physical	10.0%

Household Exposures

Substance abuse	26.9%
Parental separation or divorce	23.3%
Mental illness	17.3%
Battered mother	12.7%
Criminal behavior	4.7%



* Wave 2 Only

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What was the likelihood that persons experienced more than one type of adverse event?



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Prevalence of reporting additional ACEs if reported any one category

<u>If a child experiences:</u>	<u>The probability of other ACEs is:</u>	
	Second ACE	Third ACE
<u>Abuse</u>		
Emotional	98	90
Physical	83	64
Sexual	78	58
<u>Neglect</u>		
Physical	89	75
Emotional	93	79
<u>Household Dysfunction:</u>		
Battered Mother	95	82
Substance abuse	81	60
Mental illness	84	65
Parental separation/divorce	82	60
Criminal household member	90	74



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Adverse Childhood Experiences (ACE) Score

Number of individual adverse childhood experiences were summed...

<i>ACE score</i>	<i>Prevalence</i>
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



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The Childhood Environment

Co-occurrence of parental alcohol abuse and Adverse Childhood Experiences (ACEs)



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Prevalence of Parental Alcohol Abuse

<i>Parental alcohol abuse:</i>	Percent
At least one parent	22
Father	17
Mother	2
Both	3

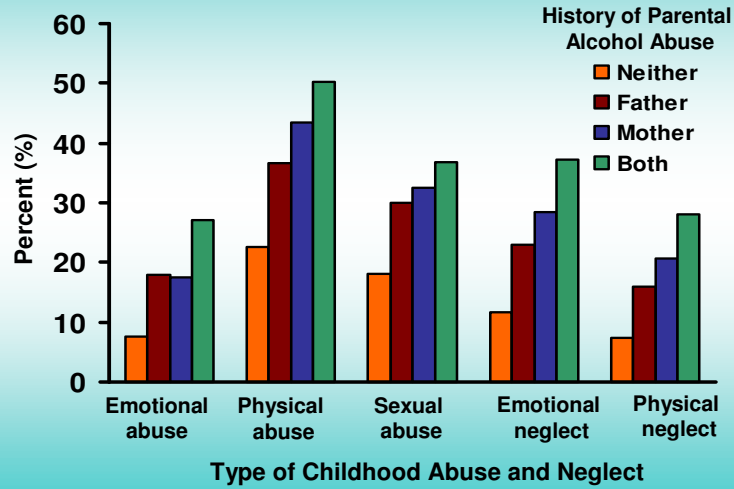
Dube et al., *Child Abuse & Neglect*, 2001.



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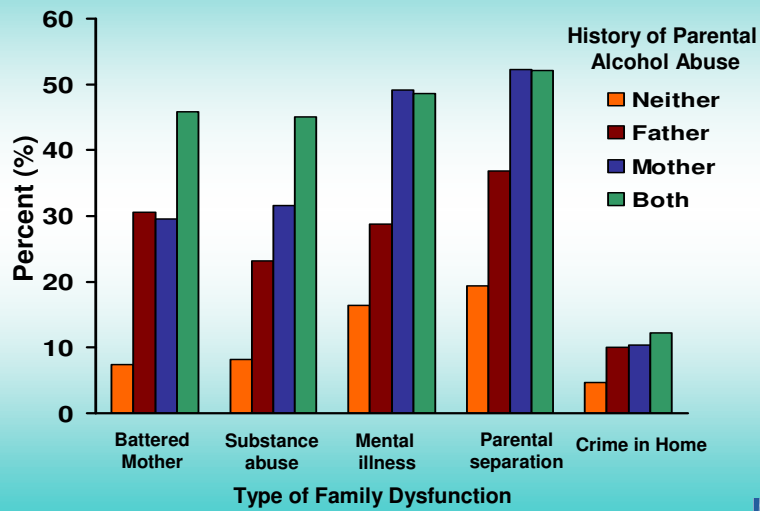
Prevalence of Childhood Abuse and Neglect by History of Parental Alcohol Abuse



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Prevalence of Family Dysfunction by History of Parental Alcohol Abuse



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**When can you expect to begin seeing
the impact of adverse childhood experiences
during the life span?**



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During Adolescence....

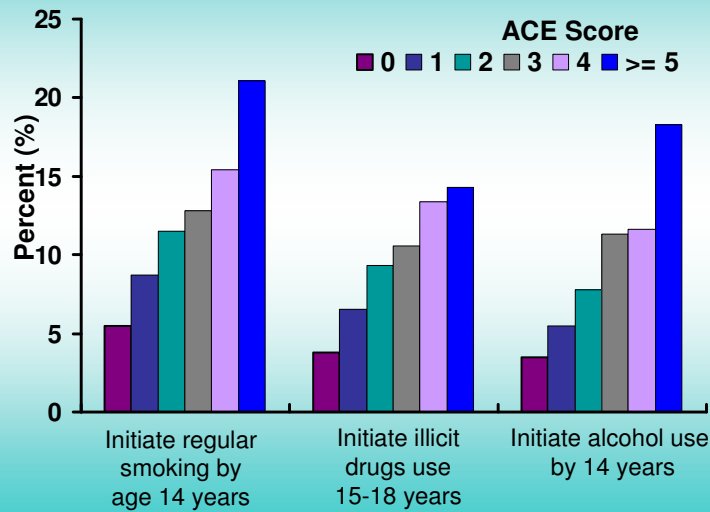
**Alcohol, Drug Use,
Tobacco Use, Violence,
Sexual Behaviors**



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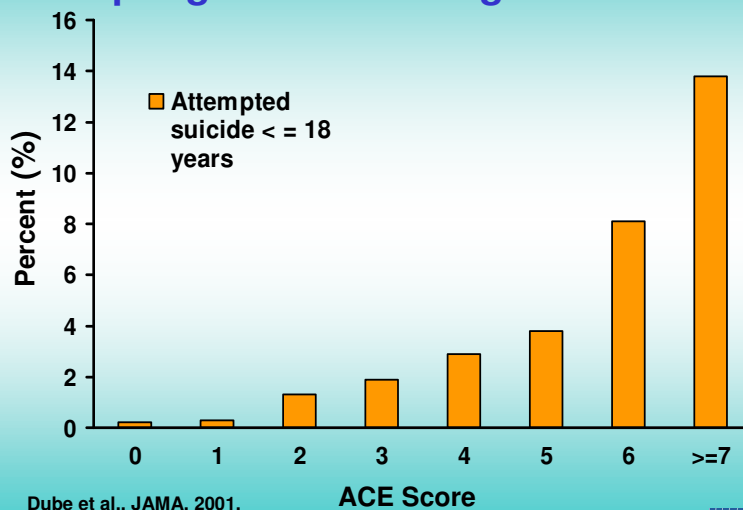
Relationship Between ACE Score and Adolescent Substance Use



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Relationship Between the ACE Score and Attempting Suicide During Adolescence



Dube et al., *JAMA*, 2001.

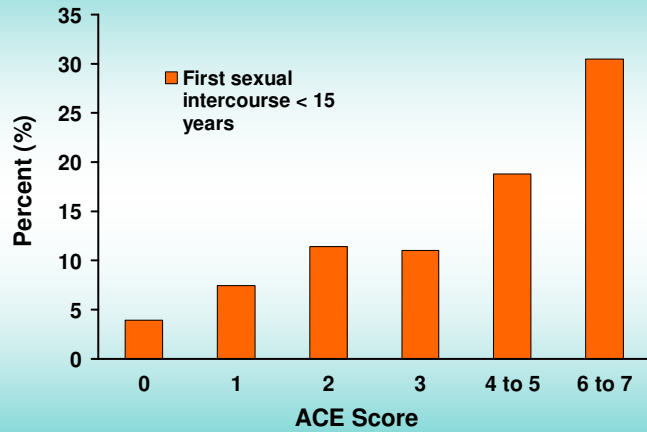
ACE Score



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Relationship Between Number of ACEs and First Sexual Intercourse



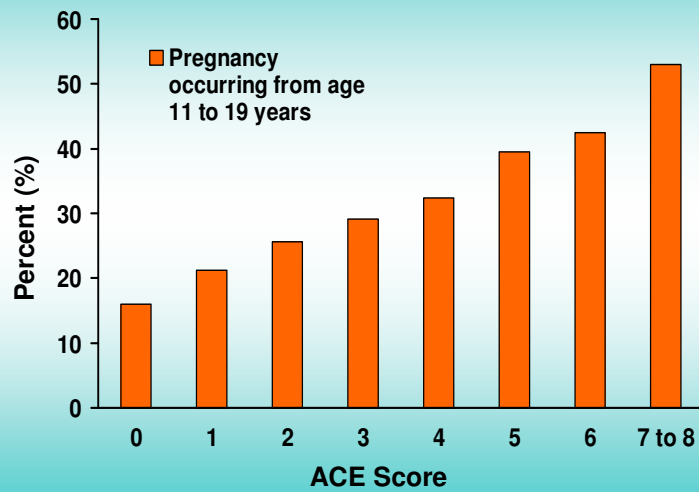
Hillis et al., *Family Planning Perspective*, 2001.



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Relationship Between Number of ACEs and Adolescent Pregnancies



Hillis et al., *Pediatrics*, 2004.



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During Adulthood.....

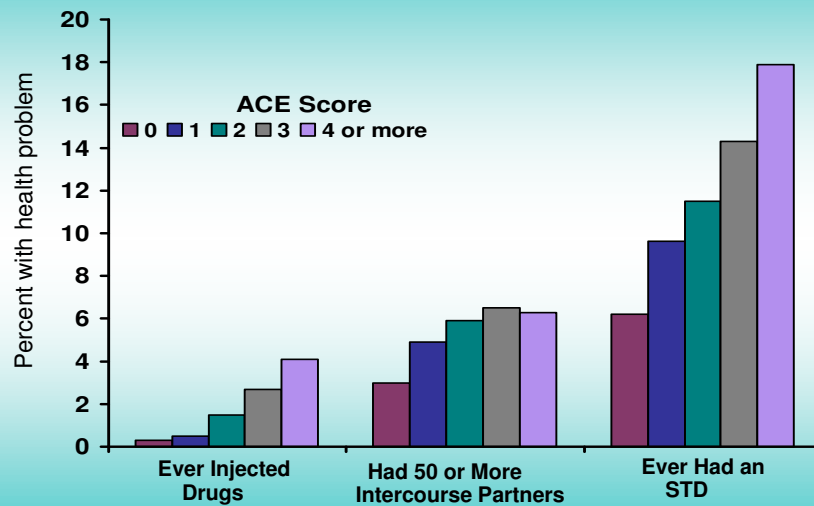
Alcoholism, Illicit drug use,
STDs, Intravenous drug use



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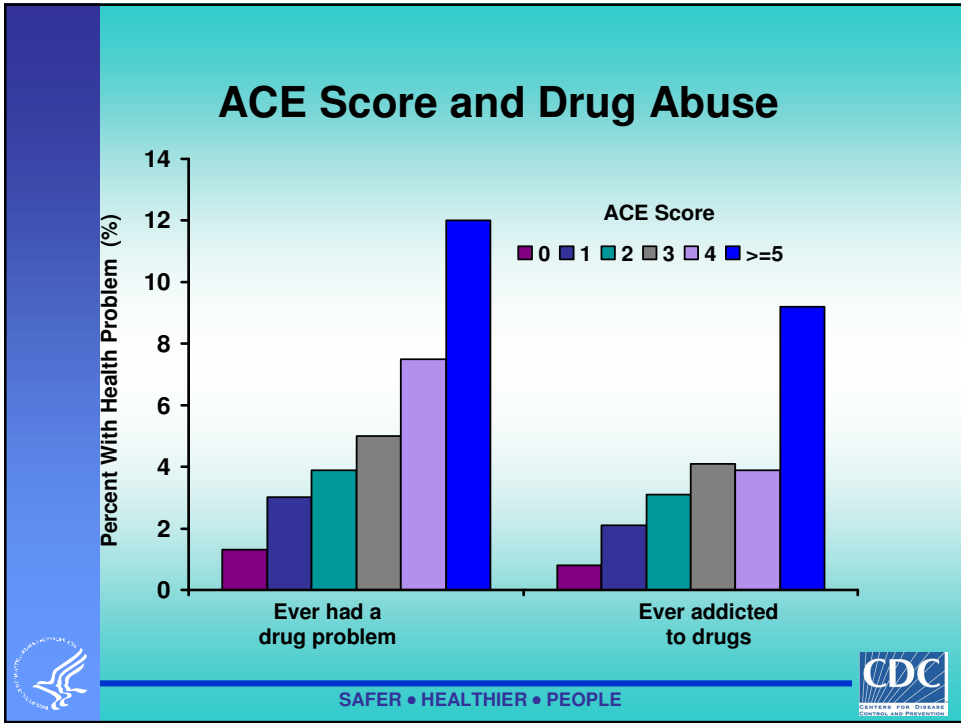
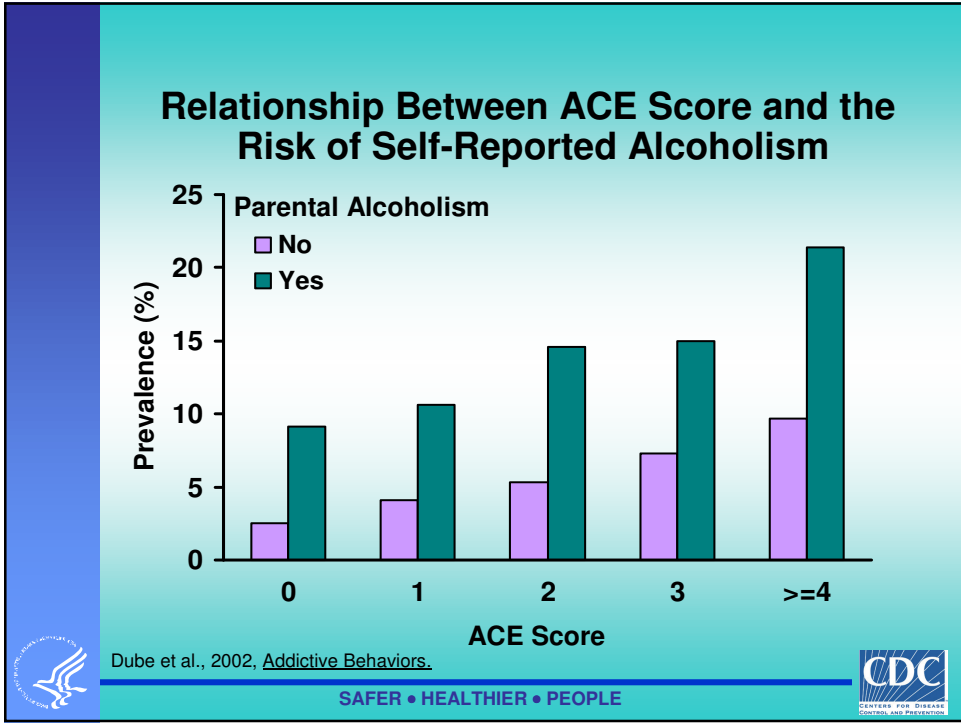


ACE Score and HIV Risks



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Despite social and secular influences to change behaviors over the past 100 years:

- **The study found that growing up with ACEs increases the risk for numerous health behaviors and outcomes for 4 consecutive generations.**



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ACE Study Findings: A Biological Phenomena

- Studies from neurosciences documenting numerous changes in brain structure and function related to childhood traumatic stress
- Areas of the brain related to memory and emotions



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ACEs and The Life Span

Childhood	Adolescence	Adulthood
<ul style="list-style-type: none">• Abuse• Neglect• Family substance abuse	<p><u>Early Initiation of:</u></p> <ul style="list-style-type: none">• Alcohol use• Tobacco use• Sexual intercourse• Illicit drug use• Suicide attempts	<ul style="list-style-type: none">• Alcoholism• Smoking• STDs• Unintended pregnancy• Depression• Obesity• Liver disease• Cardiovascular disease• Injection drug use



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Summary

- Adverse childhood experiences are common and highly interrelated
- Consistent strong and graded relationships between the ACE score and adolescent risk behaviors
- Graded relationships are consistent despite secular changes over the past century
- Exposure to ACEs increases numerous behaviors and outcomes that are CDC priorities

The ACE Study Website

www.cdc.gov/nccdphp/ace



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