



# Toxic Stress: Impact of Adverse Childhood Experiences on Mental Health and Chronic Disease

SUMMARY FROM WEBINAR: APRIL 21, 2022

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Adverse Childhood Experiences (ACEs) are defined as potentially traumatic events that occur in childhood (0-17 years). Examples include experiencing violence or abuse, witnessing violence in the home or community, or having a family member attempt or die by suicide. ACEs also include aspects of a child's environment that can undermine their sense of safety, stability, and bonding such as growing up in a household with substance misuse, mental health problems, or instability due to parental separation or household members being in jail or prison. ACEs are linked to chronic health problems, mental illness, and substance misuse in adulthood. (CDC: [www.cdc.gov/violenceprevention/aces/index.html](http://www.cdc.gov/violenceprevention/aces/index.html))

Adverse Childhood Experiences (ACEs) have been found to be highly correlated with risk for chronic health problems, mental illness, substance misuse in adulthood, and socioeconomic challenges in adulthood. (CDC Vital Signs [www.cdc.gov/vitalsigns/aces/index.html](http://www.cdc.gov/vitalsigns/aces/index.html)).

The National Association of Chronic Disease Directors (NACDD) in partnership with the Centers for Disease Control and Prevention (CDC) hosted a webinar featuring a panel of subject matter experts to discuss the emerging evidence for ACEs as a driver of chronic disease morbidity, premature mortality, and socioeconomic challenges and promising approaches for state chronic disease directors to consider incorporating into their chronic disease prevention efforts.

The following are key points from the panelists' presentation and the audience Q & A.

## What findings from the research on ACEs and chronic disease stand out the most?

A growing body of research from neurobiology, epigenetics, and epidemiology demonstrates a pathway from experiencing adversity in childhood that may result in toxic stress to chronic conditions and diseases in adulthood. The extent of its effect on precipitating chronic disease is still emerging.

ACEs contribute to an increased risk of chronic disease, including 5 of the 10 leading causes of death.

[www.cdc.gov/vitalsigns/aces/index.html](http://www.cdc.gov/vitalsigns/aces/index.html)

## Public Health Leaders



**Rob Anda, MD, MS**  
ACEs Interface



**Jim Marks, MD, MPH**  
Former Executive Vice  
President  
Robert Wood Johnson  
Foundation  
Former Director, CDC  
National Center for Chronic  
Disease Prevention and  
Health Promotion



ACEs research provides the opportunity to examine the “pile up” - the cumulative effect - of adversity on health and social outcomes.

### How can ACEs affect brain development and genetic expression?

- Strong, frequent, and/or prolonged adversity may activate the stress response system and damage the brain architecture.
- This toxic stress may shorten telomeres; emerging research suggests a link between short telomeres and certain diseases, including diabetes and dementia.

### How does being trauma informed support the way we approach social determinants of health and chronic disease prevention?

- The environment in which we grow up affects the way we learn and can have a strong influence on common health and social problems.
- ACEs account for a large percent of costly health and social problems.
- ACEs tend to be progressive throughout the life course and intergenerationally transmitted. They are common, occur in every sociodemographic group and are highly interrelated with health and social problems in youth and adulthood.

*.....the evidence is so strong that ACEs affect so many key health outcomes, some of which are core to chronic diseases themselves or their risk factors.*

—Dr. Jim Marks

### What can state chronic disease programs do?

- Collect and examine state-level data, such as the Behavioral Risk Factor Surveillance System ([www.cdc.gov/violenceprevention/aces/ace-brfss.html](http://www.cdc.gov/violenceprevention/aces/ace-brfss.html)) and state-specific Youth Risk Behavior Surveys, to connect ACEs prevalence with chronic diseases and their risk factors.
- Convene and connect with internal and external local, state and national partners to coordinate planning and interventions at local, state, and national levels.
- Recognize interdependence between sectors and share the credit for success.

*It's not what's wrong with you . . .It's what HAPPENED to you.*

—Dr. Rob Anda



- Support the efforts of others engaged in efforts to address the risk factors of ACEs:
  - o Community home visitation programs.
  - o PTSD and depression initiatives of the Veterans Administration.
  - o Addiction programs addressing tobacco, alcohol, opioids.
  - o Injury prevention programs to reduce abuse.
- Seek and share experiences across states on progress made in addressing ACEs as a chronic disease risk factor.



*Any real public health problems will not be solved alone. We can do more together.*

—Dr. Jim Marks