

ADVERSE CHILD EXPERIENCES: Link Between Exposures and Health

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The ACEs Study



- Vincent J. Felitti, MD and Robert J. Anda, MD, MS
- Asked 26,000 adults at Kaiser, San Diego's Dept of Preventive Medicine.
- 17,421 participated in the study.
- Participants completed a questionnaire.

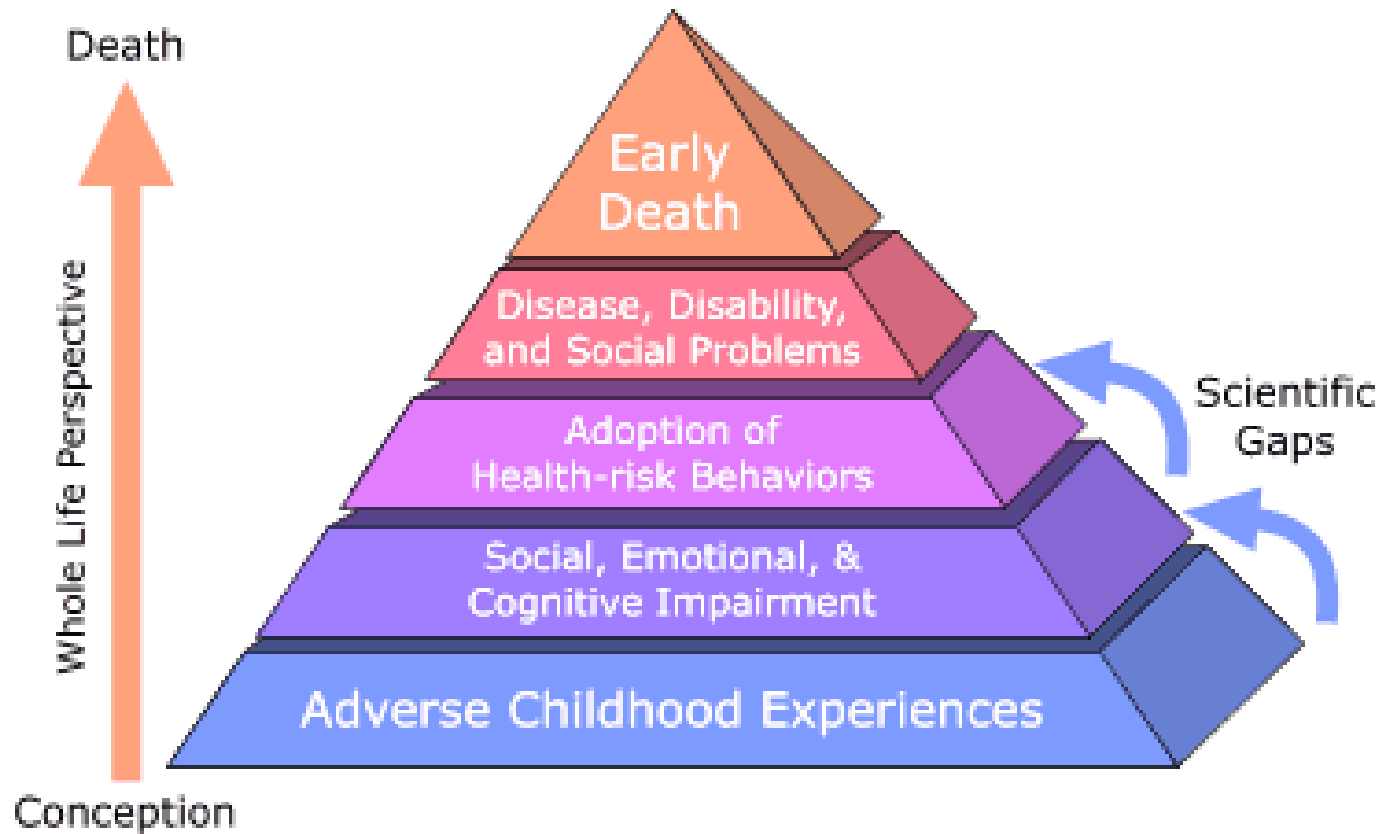
ACEs Criteria

1. Recurrent physical abuse
2. Recurrent emotional abuse
3. Contact sexual abuse
4. An alcohol or drug abuser in the household
5. An incarcerated household member
6. Someone who was chronically depressed, institutionalized, or suicidal
7. Mother treated violently
8. One or no parents, or parents divorced.
9. Emotional or physical neglect

Relative Risk of disease for ACEs ≥ 4

- Hepatitis 240%
- STD 250%
- COPD 260%
- Depression 460%
- Suicidality 1,220%

Mechanism





Stress Response

- Activation of the HPA Axis - release of ACTH, adrenaline and cortisol
- Increase in centrally controlled peripheral sympathetic nervous system activity
- Activation of nor-adrenaline throughout the midbrain and forebrain including the cortex



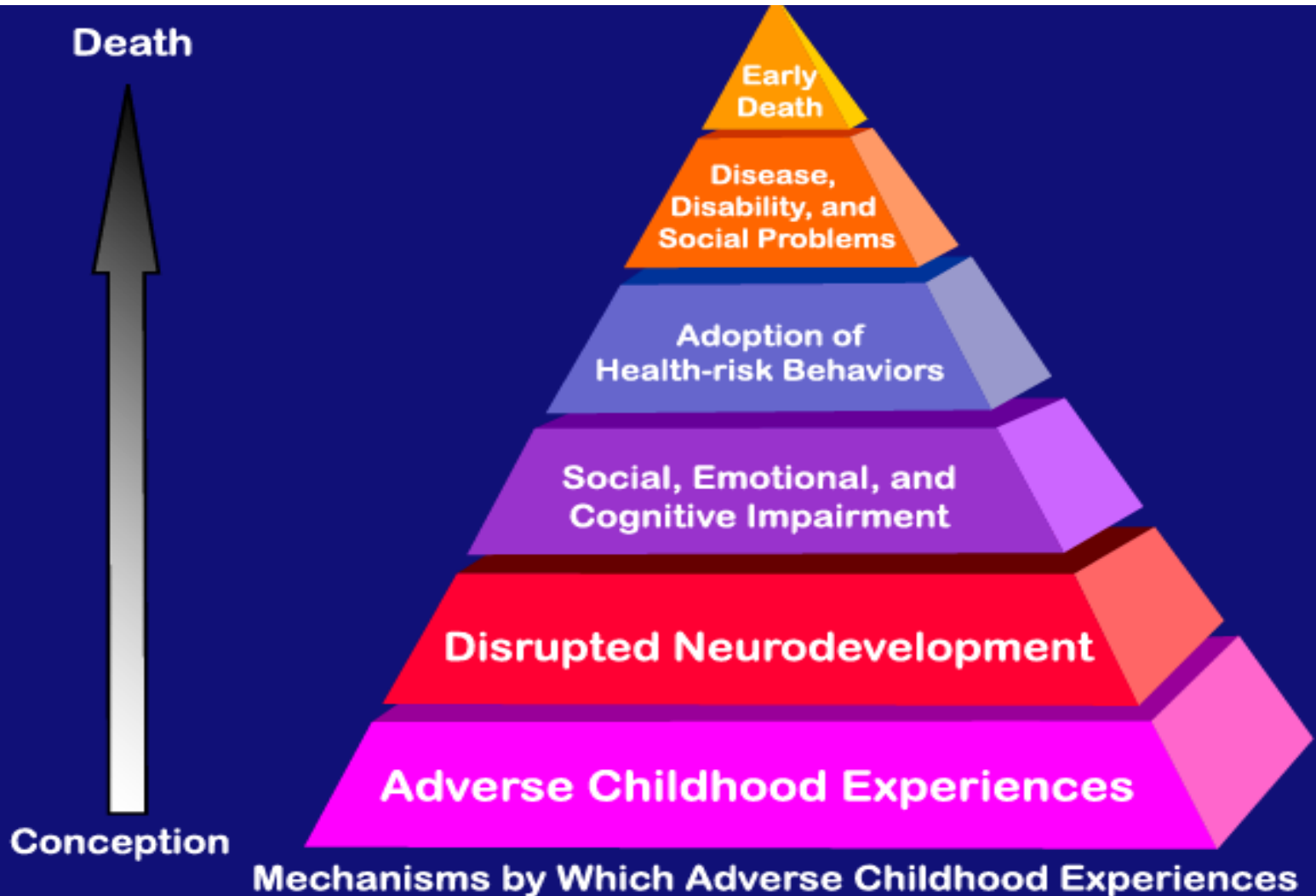
Multi-systemic Impacts

- Neurologic:
 - HPA Axis Dysregulation
 - Reward center dysregulation
 - Hippocampal neurotoxicity
 - Neurotransmitter and receptor dysregulation
- Immunologic
 - Increased inflammatory mediators and markers of inflammation such as interleukins, TNF alpha, IFN- γ

Multi-systemic Impacts

- Epigenetic
 - ▣ Changes in the way DNA is read and expressed
 - ▣ Changes in the way the brain responds to stress
- Endocrine
 - ▣ Long-term changes in ACTH, cortisol and adrenaline levels.

Updated Mechanism



Positive Stress	Tolerable Stress	Toxic Stress
<ul style="list-style-type: none"> ▪ Normal and essential part of healthy development ▪ Brief increases in heart rate and blood pressure ▪ Mild elevations in hormonal levels ▪ <i>Example:</i> Tough test at school. Playoff game. 	<ul style="list-style-type: none"> ▪ Body's alert systems activated to a greater degree ▪ Activation is time-limited and buffered by caring adult relationships. ▪ Brain and organs recover ▪ <i>Example:</i> Death of a loved one, divorce, natural disaster 	<ul style="list-style-type: none"> ▪ Occurs with strong, frequent or prolonged adversity ▪ Disrupts brain architecture and other organ systems ▪ Increased risk of stress-related disease and cognitive impairment ▪ <i>Example:</i> abuse, neglect, caregiver substance dependence or mental illness

Intense, prolonged, repeated, unaddressed

Social-Emotional buffering, Parental Resilience, Early Detection, Effective Intervention

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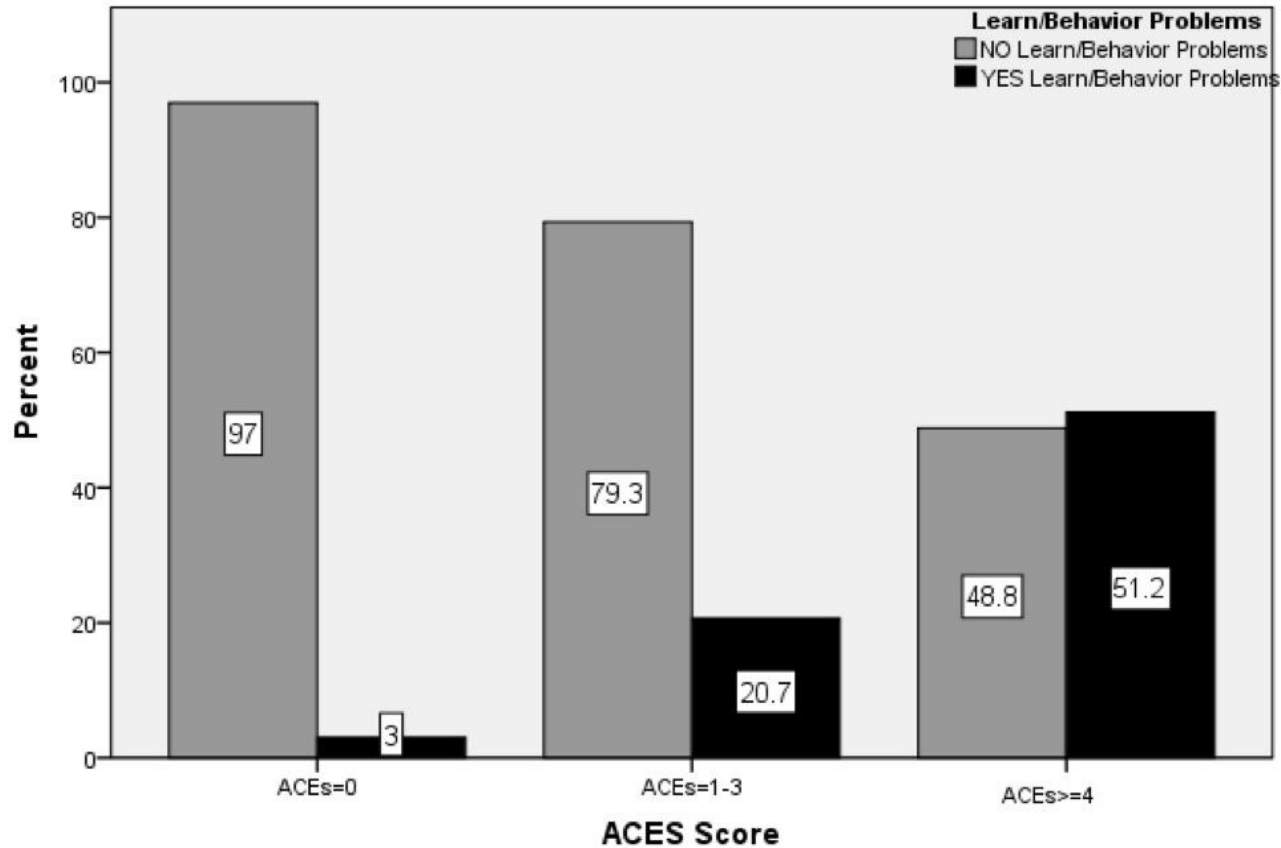
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ACEs ≥ 1	67.2%
ACEs ≥ 4	12%
ACEs ≥ 4 and BMI $\geq 85\%$	OR: 2.0 p < .02
ACEs ≥ 4 and learning/beh probs	OR: 32.6 p < .001

N.J. Burke et al/ Child Abuse and Neglect 35(2011) 408-413

Effect of ACEs on Educational Outcomes

Figure 2: Learning/Behavior Problems by ACEs Score



SCOPE OF THE CHALLENGE

- Impacts are pervasive and long-lasting
 - ▣ Development
 - ▣ Physical and Mental Health
 - ▣ Social and Educational impacts
 - ▣ Economic impacts
- Prevalence is high
- Strong evidence relating the risk
- Early intervention improves outcomes

PUBLIC HEALTH APPROACH IS NECESSARY

What would it take?

- Align the activities of NIH, CDC, IOM, MCHB, ACF and CMS to provide the educational, financial, and logistical/administrative/systems support for:
 - ▣ Basic science and translational research for the development of evidence-based practices, and
 - ▣ Training for clinicians and researchers to develop and implement effective interventions.

What would it take?

- Develop pediatric medical homes that are integrated both vertically and horizontally with the ability to provide:
 - ▣ a) universal preventions to toxic stress,
 - ▣ b) targeted, evidence-based interventions for those at risk for toxic stress, and
 - ▣ c) evidence-based treatments for those symptomatic due to toxic stress)

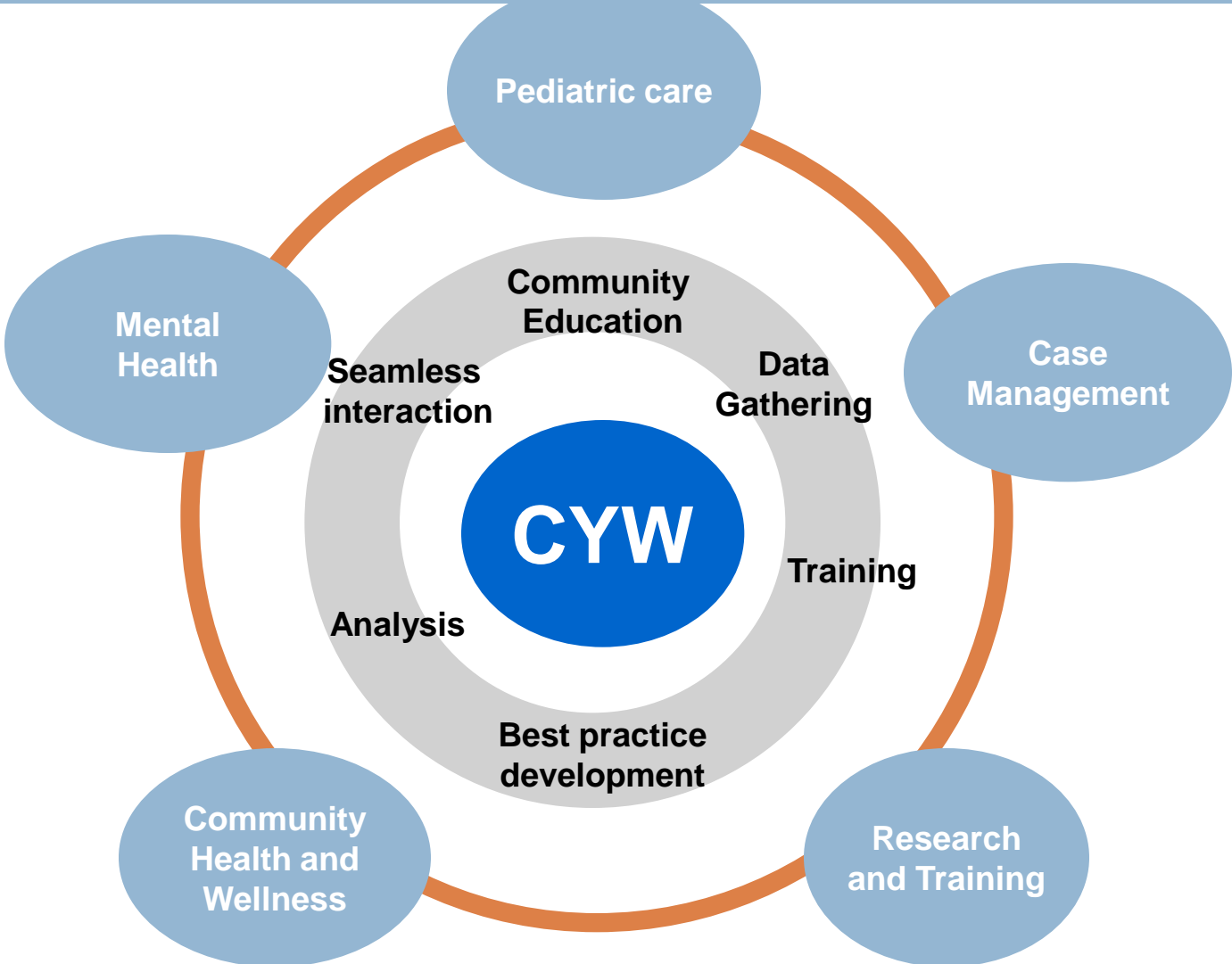
What We Can Do Now!

- Start Early!
 - ▣ Identify kids exposed to ACEs through routine screenings and establish prevention programs in healthcare, schools and youth-serving organizations
- Focus on early childhood and early adolescence
 - ▣ Critical developmental stages
- Invest in programs that heal
 - ▣ Don't spend money on programs that don't support the health and development of our kids – punitive school discipline/juvenile justice

What We Can Do Now!

- Change Public Policy
 - Support prevention and healing using policy to prioritize funding for early detection and effective intervention
- Make ACEs a public issue.
 - Educate our community about the impact and the role each of us can play.

Center for Youth Wellness



Thank You!



Resources

- Centers for Disease Control and Prevention
 - <http://www.cdc.gov/ace/index.htm>

- UCSF Child Trauma Research Program
 - <http://childtrauma.ucsf.edu/>

- Lucile Packard Early Life Stress Program
 - <http://childpsychiatry.stanford.edu/clinical/stress.html>

- National Child Traumatic Stress Network
 - <http://www.nctsn.org/>

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