



The Oregon Coalition of Local Health Officials (CLHO) Presents:

Addiction Primary Prevention

2025 Legislative Session

What are Adverse Childhood Experiences (ACEs)?

ACEs are potentially traumatic events that occur in childhood.

Household Dysfunction	
Mental Illness	19.4%
Incarcerated Relative	4.7%
Interpersonal Violence	12.7%
Substance Abuse	26.9%
Parental Separation or Divorce	23.3%

Neglect	
Physical	9.9%
Emotional	14.8%

Abuse	
Physical	28.3%
Emotional	10.6%
Sexual	20.7%

Source: Centers for Disease Control and Prevention, Kaiser Permanente. The ACE Study Survey Data [Unpublished Data]. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2016.

What are Adverse Childhood Experiences (ACEs)?

ACEs are potentially traumatic events that occur in childhood.

There are other types of adverse childhood experiences. Researchers have begun incorporating these experiences as ACEs because they create the same biological changes as the original 10 ACEs.

Expanded ACEs

Bullying

Racism

Community Violence

Living in Safety

Living in Foster Care

Source: Cronholm, P. F., Forke, C. M., Wade, R., Bair-Merritt, M. H., Davis, M., Harkins-Schwarz, M., Pachter, L. M., & Fein, J. A. (2015). Adverse childhood experiences: Expanding the concept of adversity. *American Journal of Preventive Medicine*, 49(3), 354–361.

ACEs, Toxic Stress, and the Brain

Toxic Stress and the Brain

When stress hormones, like cortisol, hang around for a long time, they are toxic to brain cells. This toxicity makes it difficult for healthy brain cells to develop and can even cause brain cells to die. Toxic stress impacts many of the brain's vital systems and can generate predictable patterns of brain architecture, behavior, and traits

ACEs and Toxic Stress

A toxic stress response can occur when a child experiences intense, frequent, and/or prolonged adversity. Toxic stress explains how ACEs "get under the skin" and can alter brain structure, function, and the neurobiological stress response system.

Lifelong Consequences

ACE research shows a correlation between early adversity and poor outcomes later in life. It is this continuous toxic stress response that, when not properly addressed and reduced, can have a cumulative toll on an individual's physical and mental health—for a lifetime and lead to long-term behavior issues, health complications, and diseases.

We now know that what we experience in life changes our epigenetic profile, or in other words, life experience changes our genes. Not only does this affect the individual, but the way our bodies respond to stress can be passed from one generation to the next.

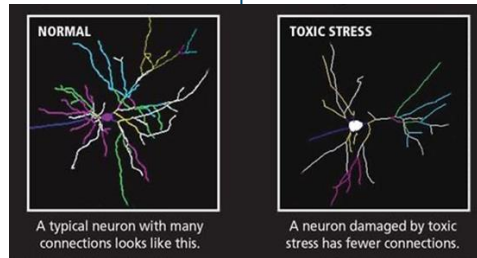


Figure 1. Impact of Toxic Stress on Neurons. 2004, JJ. Radley Neuroscience.

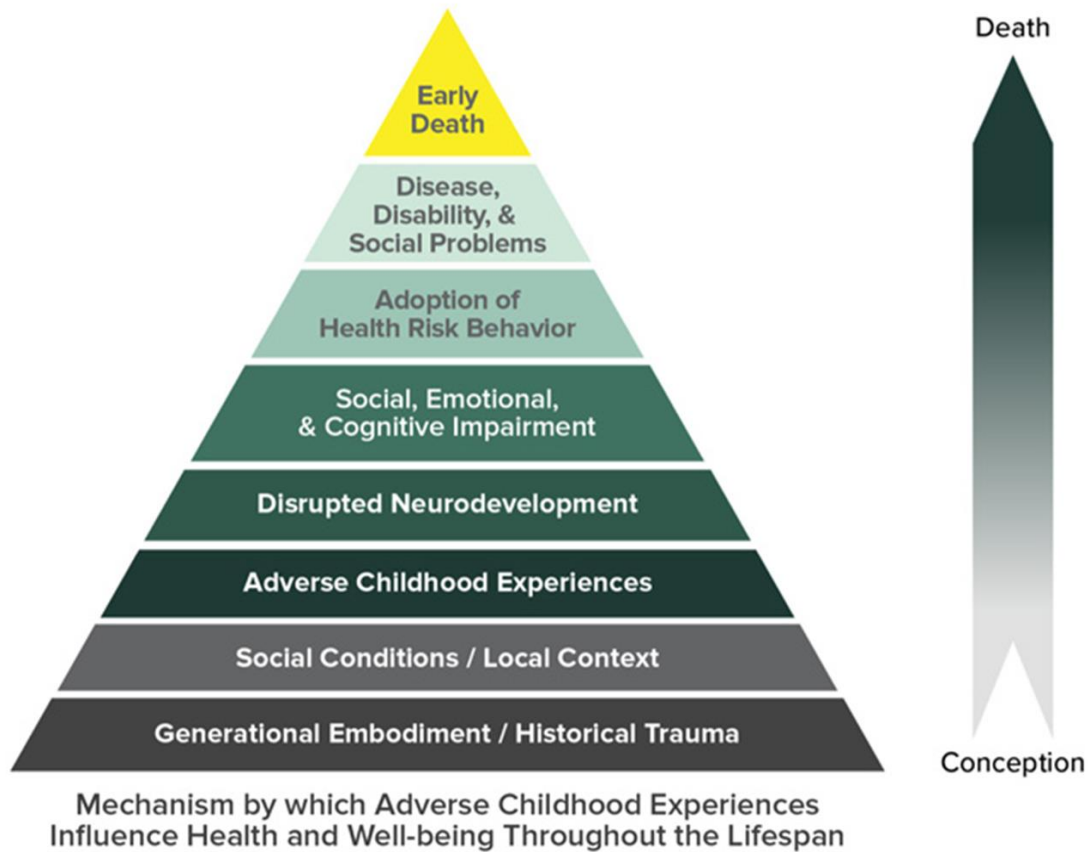


Figure 2. ACE pyramid. Adapted from "The ACE Pyramid" 2021, Center for Disease Control. About the CDC-Kaiser ACE Study [Violence Prevention|Injury Center|CDC

ACE Score = Level of Exposure to Toxic Stress

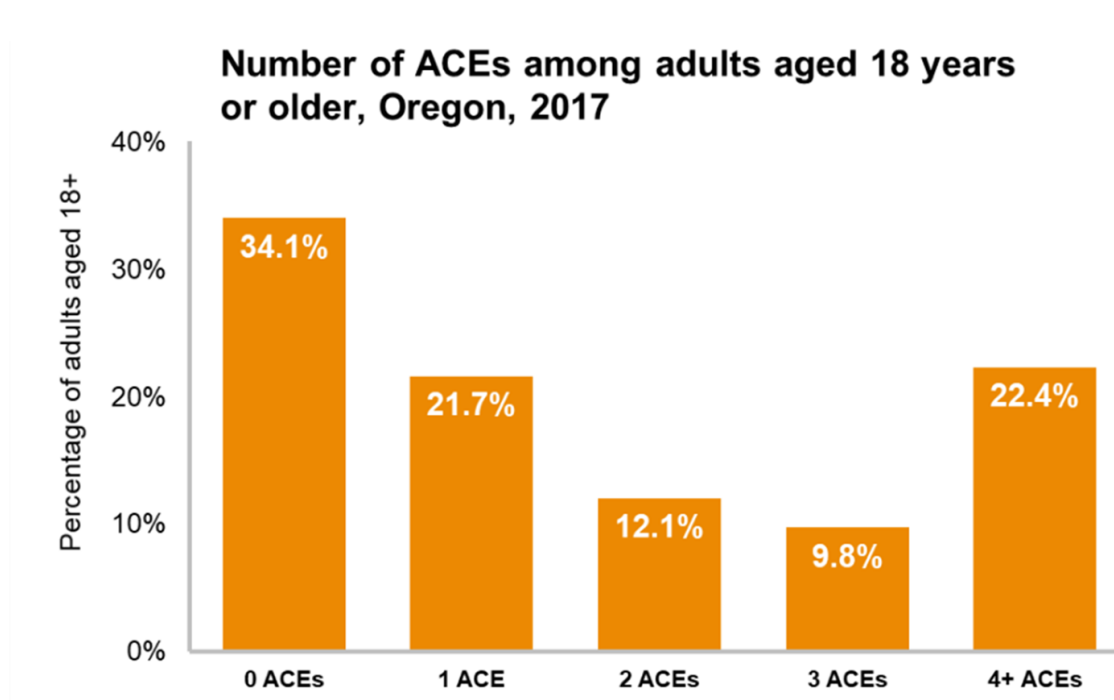
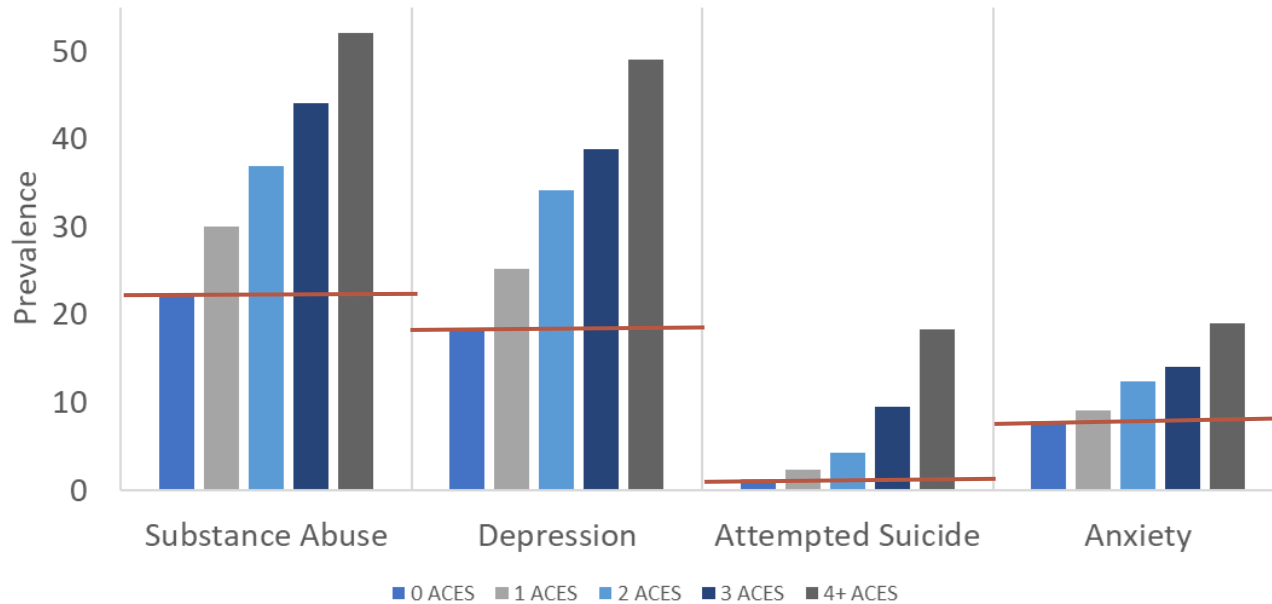


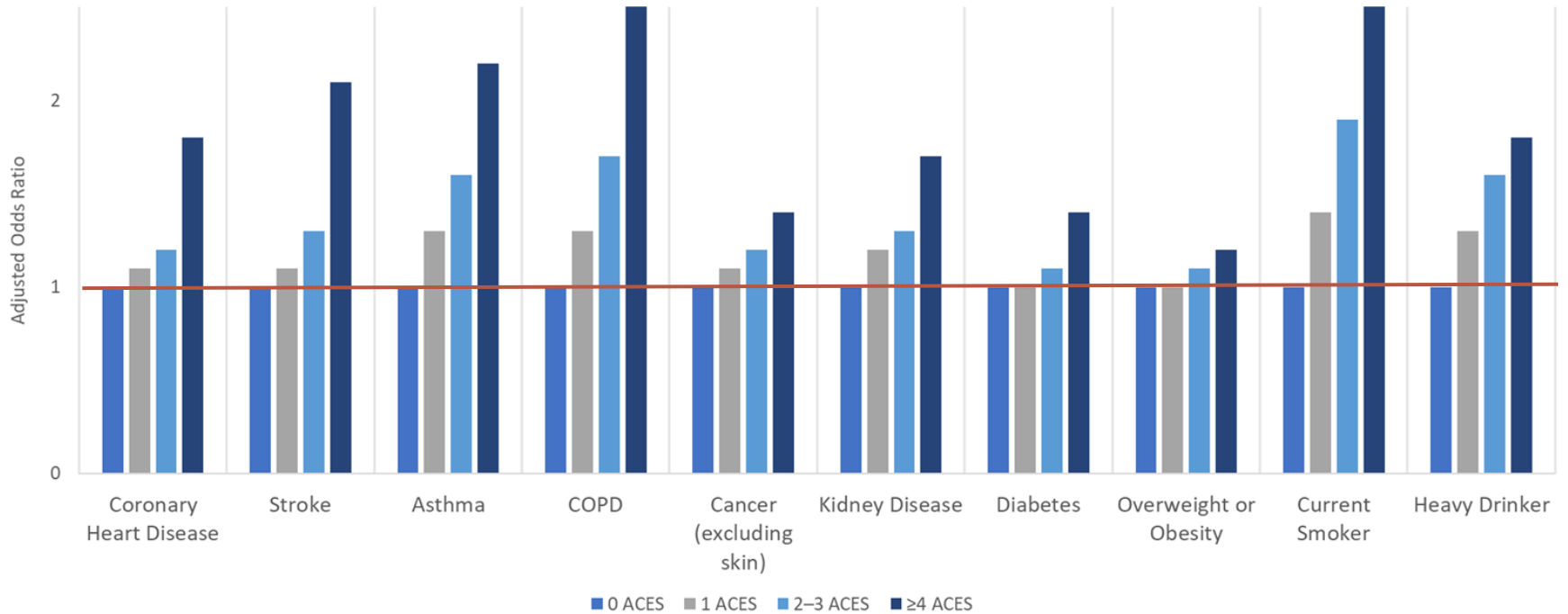
Figure 1. ACEs Prevalence in Oregon. Adapted from "Number of ACEs among adults aged 18 years or older, Oregon, 2017" 2019, Oregon Health Authority. Adverse childhood experiences

Table 1. Relationship between ACE score and the prevalence of substance abuse, depression, attempted suicide, and anxiety



Source: Felitti, V.J., Anda, R.F., Nordenberg, D., Williamson, D.F., Spitz, A.M., Edwards, V., Koss, M.P. & Marks, J.S. (1998) Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventative Medicine*;14(4): 245-258. Rights: Elsevier.; Anda RF, Felitti VJ, Fleisher VI, Edwards VJ, Whitfield CL, Dube SR, Williamson DF. (2004) Childhood abuse, household dysfunction and indicators of impaired worker performance in adulthood. *The Permanente Journal*. 8(1):30-38.; Anda RF, Felitti VJ, Bremner JD, Walker JD, Whitfield C, Perry BD, et al. (2006) The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology. *Eur Arch Psychiatry Clin Neurosci*. 256(3):174-86.; Anda, R. F., Whitfield, C. L., Felitti, V. J., Chapman, D., Edwards, V. J., Dube, S. R., & Williamson, D. F. (2002). Adverse childhood experiences, alcoholic parents, and later risk of alcoholism and depression. *Psychiatric Services*, 53(8), 1001-1009. <https://doi.org/10.1176/appi.ps.53.8.1001>

Table 2. Relationship between ACE scores and risk (adjusted odds ratio) of coronary heart disease, stroke, asthma, COPD, cancer (excluding skin), kidney disease, diabetes, overweight or obesity, current smoker, and heavy drinker



Source: Centers for Disease Control and Prevention. (2019, November 8). Vital Signs: Estimated Proportion of Adult Health Problems Attributable to Adverse Childhood Experiences and Implications for Prevention — 25 States, 2015–2017. Morbidity and Mortality Weekly Report, 68(44), 999–1005. https://www.cdc.gov/mmwr/volumes/68/wr/mm6844e1.htm?s_cid=mm6844e1_w

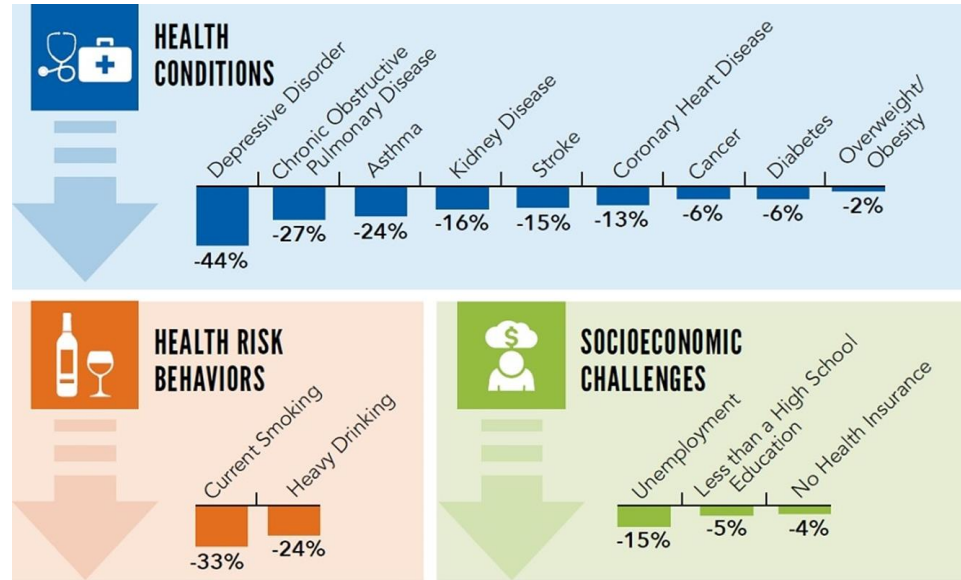
Key Takeaways

In 2023, the NIH estimated the economic burden of ACE-related adult health conditions to be:

- **\$14.2 trillion** annually (\$183 billion in direct medical spending & \$13.9 trillion in lost healthy life-years)
- **\$88,000** per affected adult annually
- **\$2.4 million** per affected adult over their lifetime

The ability to impact ALL of these outcomes (and more) through primary prevention offers one of the greatest opportunities to impact health and wellbeing.

Figure 3. Potential reduction of negative outcomes in adulthood. Adapted from "Potential reduction of negative outcomes in adulthood" 2021, Center for Disease Control. Adverse Childhood Experiences (ACEs) | VitalSigns | CDC



Source: Peterson C, Aslam MV, Niolon PH, Bacon S, Bellis MA, Mercy JA, Florence C. Economic Burden of Health Conditions Associated With Adverse Childhood Experiences Among US Adults. JAMA Netw Open. 2023 Dec 1;6(12):e2346323. doi: 10.1001/jamanetworkopen.2023.46323. PMID: 38055277; PMCID: PMC10701608.

Citations

1. Anda RF, Felitti VJ, Bremner JD, Walker JD, Whitfield C, Perry BD, et al. (2006) The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology. *Eur Arch Psychiatry Clin Neurosci*. 256(3):174-86.
2. Anda RF, Felitti VJ, Fleisher VI, Edwards VJ, Whitfield CL, Dube SR, Williamson DF. (2004) Childhood abuse, household dysfunction and indicators of impaired worker performance in adulthood. *The Permanente Journal*. 8(1):30-38.
3. Anda, R. F., Whitfield, C. L., Felitti, V. J., Chapman, D., Edwards, V. J., Dube, S. R., & Williamson, D. F. (2002). Adverse childhood experiences, alcoholic parents, and later risk of alcoholism and depression. *Psychiatric Services*, 53(8), 1001-1009. <https://doi.org/10.1176/appi.ps.53.8.1001>
4. Centers for Disease Control and Prevention. (2019, November 8). Vital Signs: Estimated Proportion of Adult Health Problems Attributable to Adverse Childhood Experiences and Implications for Prevention — 25 States, 2015–2017. *Morbidity and Mortality Weekly Report*, 68(44), 999-1005. https://www.cdc.gov/mmwr/volumes/68/wr/mm6844e1.htm?s_cid=mm6844e1_w
5. Felitti, V.J., Anda, R.F., Nordenberg, D., Williamson, D.F., Spitz, A.M., Edwards, V., Koss, M.P. & Marks, J.S. (1998) Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine*;14(4); 245-258. Rights: Elsevier.
6. Peterson C, Aslam MV, Niolon PH, Bacon S, Bellis MA, Mercy JA, Florence C. Economic Burden of Health Conditions Associated With Adverse Childhood Experiences Among US Adults. *JAMA Netw Open*. 2023 Dec 1;6(12):e2346323. doi: 10.1001/jamanetworkopen.2023.46323. PMID: 38055277; PMCID: PMC10701608.