

# The Financial Costs of Adverse Childhood Experiences (ACEs) and Toxic Stress



## Findings from *Roadmap for Resilience: The California Surgeon General's Report on Adverse Childhood Experiences, Toxic Stress, and Health*

Adverse Childhood Experiences (ACEs) such as child abuse, neglect, and household challenges (like family member incarceration or intimate partner violence) are very common, affecting 62% of California adults in the first 18 years. Approximately 16% of Californians report experiencing four or more ACEs.<sup>1</sup> ACEs are associated in a dose-response fashion with numerous poor health and social outcomes over the life course, including nine of the 10 leading causes of death nationally.<sup>2-7</sup>

The consequences of ACEs also create significant costs for systems and for individuals and families. For health, this includes costs to healthcare systems, like increased utilization of services for health conditions that could be prevented or mitigated, and the costs to society and individuals, who lose productive, healthy years of life.<sup>8-10</sup>

For **North America and Europe, ACEs cost 37.5 million disability-adjusted life years (DALYs)\* annually**, which represents the sum of years of life lost due to premature death and to disability for people living with the health condition or its consequences. Based on these DALYs, the financial cost was estimated at **\$1.3 trillion annually** (representing **3.55% of gross domestic product (GDP) for North America**, and **2.67% of GDP for Europe**) when considering ACE-attributable fractions<sup>^</sup> for 10 major ACE-Associated Health Conditions (AAHCs): cancer, diabetes, cardiovascular disease, respiratory disease, anxiety, depression, harmful alcohol use, illicit drug use, smoking, and obesity.<sup>8</sup>

---

**Health costs of ACEs in North America and Europe were estimated at \$1.3 trillion annually**

- <sup>^</sup>ACE-attributable fractions, or the risk of disease due to exposure to ACEs specifically, for these 10 common AAHCs range from 7.5% to 41.1%, with 30% of cases of anxiety and 40% of depression attributable to ACEs in North America.
- Costs went up with total number of ACEs experienced; 77-82% of costs resulted from those who had experienced two or more ACEs.



- Costs due to ACE-attributable cardiovascular disease are substantially higher than for other causes of ill health.

## CALIFORNIA

For **California, ACEs cost 434,313 DALYs and \$112.5 billion overall annually** (\$10.5 billion in personal healthcare spending and \$102 billion in years of productive life lost), when considering ACE-attributable fractions of eight common AAHCs: asthma, arthritis, chronic obstructive pulmonary disorder (COPD), depression, cardiovascular disease, smoking, heavy drinking, and obesity.<sup>9,10</sup>

---

**For California,  
ACEs cost  
\$112.5 billion  
overall annually**

Annually, each adult with a history of ACEs costs an additional \$589 in healthcare expenses, and 0.0224 DALYs valued at \$5,769.

Costs per individual rose with the number of ACE categories experienced. However, while health care costs for people with four or more ACEs were more than double the costs for those with just one ACE (\$818 versus \$407 per person per year), given how many more people experienced fewer ACEs, most (64%) of the total health costs resulted from adults exposed to three or fewer lifetime ACEs. For example, adults exposed to one ACE accounted for 24% of the total health costs.

## COST ESTIMATES FROM OTHER SECTORS

Overall, United States lifetime systems-level costs per child abuse or neglect victim are estimated to be \$7,728 in child welfare, \$6,747 in criminal justice, and \$7,999 in special education services.<sup>11</sup>

In California alone, annual state costs of substantiated child abuse and neglect cases are estimated at \$919 million for education, \$787 million for welfare, \$545 million for criminal justice, and \$13 billion in lost productivity—or \$15.3 billion total for these areas in 2017. With healthcare costs at \$3.8 billion and the cost of fatalities at \$207 million, this adds up to **\$19.3 billion** in overall costs.<sup>12</sup>

---

**Additional annual  
costs from  
other sectors in  
California adds  
up to \$19.3 billion**



## CURRENT STUDIES LIKELY UNDERESTIMATE THE IMPACTS

Current studies of cost estimates of ACEs, toxic stress, and AAHCs have focused primarily on health costs, and on only a fraction of relevant conditions. Ongoing and future studies of the costs of ACEs could include total costs associated with illness and disability from all AAHCs, lost economic productivity, school failure and non-completion, learning and developmental problems requiring interventions like special education, involvement in criminal justice, child welfare, and public support service systems, all shown to be higher in those with significant ACEs, toxic stress, and/or AAHCs.<sup>3-5,11-18</sup>

- ▶ ***Preventing and reducing impacts from ACEs and toxic stress improves people's lives, health and social outcomes, and significantly lessens economic impacts.***

Even moderate reductions in ACEs would yield significant gains for health and well-being and significant reductions in money invested in systems and programs seeking to mitigate damage once impacts of ACEs and toxic stress have already resulted. A

**10% reduction in ACE prevalence could save \$105 billion in North America and Europe annually**

**10% reduction in ACE prevalence could equal an annual savings of three million DALYs, or \$105 billion, in North America and Europe**, when considering the health impacts of 10 AAHCs alone.<sup>8</sup>

*\*Studies estimating the economic costs of health conditions often look at years of life lost due to ill health and premature death across populations. A commonly used measure is Disability-Adjusted Life Years (DALYs), which represents the sum of years of life lost due to*

*premature death and to disability for people living with the health condition and its consequences. Analysts can use studies of the value people place on reducing their risk of dying to assign a monetary value to a DALY.*

*^Another way costs are calculated for health risks like ACEs starts with estimating the portion of common diseases or health conditions that are thought to be caused by, or attributable to, the risk factor (in this case, ACEs). This excess risk of disease due to exposure to ACEs specifically is called the "ACE-attributable fraction" for that disease. Because many factors contribute to diseases and health conditions, the "ACE-attributable fractions" can be used to estimate the costs associated with the proportion of that condition thought to arise from exposure to ACEs specifically.*



## REFERENCES

1. California Department of Public Health, Injury and Violence Prevention Branch (CDPH/IVPB), California Department of Social Services, Office of Child Abuse Prevention, California Essentials for Childhood Initiative, University of California Davis, Violence Prevention Research Program, Firearm Violence Research Center. Adverse Childhood Experiences data report: Behavioral Risk Factor Surveillance System (BRFSS), 2011-2017: an overview of adverse childhood experiences in California. California: California Department of Public Health and the California Department of Social Services, 2020.
2. Centers for Disease Control and Prevention. Ten leading causes of death and injury. 2017. <https://www.cdc.gov/injury/wisqars/LeadingCauses.html> (accessed Sep 15, 2020).
3. Hughes K, Bellis MA, Hardcastle KA, et al. The effect of multiple Adverse Childhood Experiences on health: A systematic review and meta-analysis. *The Lancet Public Health* 2017; **2**(8): e356-e66.
4. Merrick MT, Ford DC, Ports KA, et al. 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* 2019; **68**(44).
5. Center for Youth Wellness. A hidden crisis: Findings on Adverse Childhood Experiences in California: Center for Youth Wellness, 2014.
6. Brown DW, Anda RF, Tiemeier H, et al. Adverse Childhood Experiences and the risk of premature mortality. *American Journal of Preventive Medicine* 2009; **37**(5): 389-96.
7. Petruccelli K, Davis J, Berman T. Adverse Childhood Experiences and associated health outcomes: A systematic review and meta-analysis. *Child Abuse & Neglect* 2019; **97**: 104127.
8. Bellis MA, Hughes K, Ford K, Ramos Rodriguez G, Sethi D, Passmore J. Life course health consequences and associated annual costs of Adverse Childhood Experiences across Europe and North America: A systematic review and meta-analysis. *The Lancet Public Health* 2019; **4**(10): e517-e28.
9. Miller TR, Waehrer GM, Oh DL, et al. Adult health burden and costs in California during 2013 associated with prior Adverse Childhood Experiences. *PLoS One* 2020; **15**(1): e0228019.
10. Waehrer GM, Miller TR, Silverio Marques SC, Oh DL, Burke Harris N. Disease burden of Adverse Childhood Experiences across 14 states. *PLoS One* 2020; **15**(1): e0226134.
11. Fang X, Brown DS, Florence CS, Mercy JA. The economic burden of child maltreatment in the United States and implications for prevention. *Child Abuse & Neglect* 2012; **36**(2): 156-65.
12. Safe & Sound. The economics of child abuse: A study of California: Safe & Sound, 2019.
13. Jäggi LJ, Mezuk B, Watkins DC, Jackson JS. The relationship between trauma, arrest, and incarceration history among Black Americans: Findings from the National Survey of American Life. *Society and Mental Health* 2016; **6**(3): 187-206.



14. Giovanelli A, Reynolds AJ, Mondri CF, Ou S-R. Adverse Childhood Experiences and adult well-being in a low-income, urban cohort. *Pediatrics* 2016; **137**(4): e20154016.
15. Cheng TL, Johnson SB, Goodman E. Breaking the intergenerational cycle of disadvantage: The three generation approach. *Pediatrics* 2016; **137**(6).
16. Burke NJ, Hellman JL, Scott BG, Weems CF, Carrion VG. The impact of Adverse Childhood Experiences on an urban pediatric population. *Child Abuse & Neglect* 2011; **35**(6): 408-13.
17. Metzler M, Merrick MT, Klevens J, Ports KA, Ford DC. Adverse Childhood Experiences and life opportunities: Shifting the narrative. *Children and Youth Services Review* 2017; **72**: 141-9.
18. Bellis M, Hughes K, Hardcastle K, et al. The impact of adverse childhood experiences on health service use across the life course using a retrospective cohort study. *Journal of Health Services Research & Policy* 2017; **22**(3): 168-77.