

# PART I

## The Science, Scope, and Impacts of Adverse Childhood Experiences and Toxic Stress



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

# Framing the Public Health Crisis of ACEs and Toxic Stress

Adverse Childhood Experiences (ACEs) and toxic stress represent an urgent public health crisis with wide-reaching health and societal impacts. ACEs affect millions of Californians and the resulting toxic stress is a root cause of many chronic health and societal challenges - from heart disease to homelessness.<sup>1,2</sup> The high prevalence of ACE exposure in adults and children in California, along with the intergenerational accumulation of impacts for individuals, families, and communities, have resulted in a public health crisis, with the greatest impacts on already disadvantaged individuals and communities. We now readily understand how ACEs can drive biologic risks for health, social, and relational challenges.

The purpose of this report is to bring together the latest science and insights from leading experts, share the most promising community innovations, and advance best practices, systems, approaches, and tools to address ACEs and toxic stress. The development of this report has been guided by the foundational principles of prevention, equity, and rigor. Addressing ACEs and toxic stress is a fundamental prevention strategy to head off major public health and societal morbidity for future generations.

Though there are multiple potential adverse experiences in childhood that matter for health, in this report, when capitalized, the term Adverse Childhood Experiences (ACEs) specifically refers to the 10 categories of adversities in three domains experienced by age 18 years that were studied by in the landmark ACE Study published in 1998. The categories are: child abuse (physical, emotional, or sexual); neglect (physical or emotional); or household challenges (as reframed by the Centers for Disease Control and Prevention in 2015 from “household dysfunction”—growing up in a household with incarceration, mental illness, substance use, parental separation or divorce, or intimate partner violence).<sup>3-5</sup> High doses of adversity, occurring early in life, without adequate buffering protections of trusted caregivers and safe, stable environments, may lead to prolonged activation of the biological stress response and changes in brain structure and function, how genes are read and transcribed, functioning of the immune, metabolic, and endocrine systems, and growth and development. These changes comprise what is now known as the toxic stress response.<sup>6-12</sup>

With great optimism and intention at the forefront, this first California Surgeon General's report lays out a roadmap for advancing systematic reforms that recognize and respond to the effects of ACEs and toxic stress. The science is clear: ACEs affect all communities and are common in all regions and populations. At the same time, inequities exist in the prevalence of ACEs along axes of race, ethnicity, class, gender, sexuality, and educational attainment.<sup>10,13-22</sup> We know that historically rooted inequities translate into significant day-to-day differences in lived experiences that get embedded in our brains and bodies. Neighborhood, community, systemic, and structural factors also strongly shape and can “set the odds” for negative or positive health and developmental trajectories and outcomes, and these upstream factors must be targeted as part of a cross-sector approach to addressing ACEs and toxic stress.<sup>23</sup> To truly transform the negative outcomes associated with ACEs, we must act intentionally and inclusively to address the structural factors that result in disparities in health, social, and economic outcomes and opportunities.

In 2020, multiple simultaneous public health emergencies—the Coronavirus disease 2019 (COVID-19) pandemic; the devastating impacts of climate change, including wildfires; and the sharper focus on the deep-rooted systemic racism in our society—have laid bare the substantial structural and systemic forces that imperil health and well-being. It is clear that vulnerable and systematically overlooked communities bear the brunt of each new crisis, and that these communities deserve a much more effective set of buffering systems and supports.

The approaches outlined in this report recognize and respond to the ways in which experiences of trauma and adversity directly increase risk for acute and chronic disease as well as early death. Seeking to fundamentally upend and intervene on the root causes of these outcomes is guided by the values of prevention, equity, and rigor. These values have been and continue to be critical touchstones of this work.

California is leading the way in addressing ACEs and toxic stress as a public health crisis with key priorities, engagements, and investments in communities and sectors across the state. Several principles are emphasized in this report. The first is cross-sector collaboration. Since the root causes of ACEs and toxic stress are complex and deeply interconnected, effectively addressing them requires a coordinated approach across sectors that attends to the multi-layered systemic and structural determinants of health, starting from upstream factors.<sup>2</sup>

Second, an effective response to ACEs and toxic stress requires prevention at all three levels—primary, secondary, and tertiary—or prevention, early recognition, and early, evidence-based intervention.<sup>24,25</sup> To break the intergenerational cycle of ACEs and toxic stress and improve outcomes at scale, both the upstream or

systems-level factors, and individual-level treatment must be attended to.

Third, this report shares and seeks to build from the current, on-the-ground efforts of advocates, medical professionals, public health experts, public servants, cross-sector leaders, communities, and others to systematically prevent and address ACEs and toxic stress. These models, best practices, and protocols can be replicated, tailored, or built upon in other contexts. The solutions highlighted in this report offer a guide and shared language for other communities', states', and nations' responses to ACEs and toxic stress. With this broader application in mind, the authors of this report set forth approaches, guidance, and recommendations to foster cross-sector collaboration, workforce training, continuous learning and quality improvement, dissemination of best practices and avoidance of unintended harms, data gathering and utilization, and rigorous research and evaluation.

Many of the recommendations set forth here do not require further investments. Rather, they highlight the opportunity to leverage and improve upon existing approaches by acting on the evidence that through preventing ACEs and healing toxic stress, we can more efficiently and effectively address some of the most deeply rooted health and societal issues that plague our communities today. When we have the courage, creativity, compassion, and commitment to address the root causes of these pervasive health and social inequities, we take an essential step closer to realizing a world in which everyone is afforded opportunities to reach their full potential and thrive.