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Centers for Disease Control and Prevention Investments in Adverse Childhood Experience Prevention Efforts

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INTRODUCTION

Lifelong health and well-being are rooted in developmental experiences faced during childhood.[1] Adverse childhood experiences (ACEs) are preventable, potentially traumatic events that occur in childhood (age 0–17 years) such as witnessing or experiencing violence, experiencing neglect, or having a family member attempt or die by suicide. Exposure to ACEs is linked to negative outcomes later in life, including chronic disease; mental health and substance use problems; and even lower education attainment, fewer job opportunities, and decreased earning potential.[1–5] More than 60% of adults report experiencing ≥1 ACE during childhood, and nearly 1 in 6 adults report experiencing ≥4 ACEs.[6] Recent research suggests that preventing ACEs could potentially reduce millions of cases of heart disease, depression, and other negative health outcomes.[6] Given the prevalence of ACEs, their documented impacts on future health and social outcomes, and the potential impacts of prevention efforts, investments in ACE prevention may help to improve public health across the lifespan.

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CREDIT AUTHOR STATEMENT

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SUPPLEMENTAL MATERIAL

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SUPPLEMENT NOTE

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In December 2019, the U.S. Congress appropriated $4 million toward the Centers for Disease Control and Prevention (CDC)'s ACE prevention efforts for Fiscal Year 20 (FY20) —the first ever appropriation of its kind. However, for years before the formal receipt of funding, CDC invested resources in conducting surveillance on ACEs; studying the impact of ACEs on violence, injury, and other negative health outcomes; and developing, evaluating, implementing, and disseminating ACE prevention strategies (Appendix Figure 1, available online). CDC's investments in ACE prevention are driven by the public health approach: conducting surveillance to define the scope of the problem, identifying the risk and protective factors associated with ACEs, developing and testing prevention strategies, and implementing strategies that work to prevent ACEs and create healthy childhoods for all children.[7,8]

HISTORICAL CENTERS FOR DISEASE CONTROL AND PREVENTION INVESTMENTS TO PREVENT ADVERSE CHILDHOOD EXPERIENCES

The initial investment by CDC in understanding ACEs was through a partnership with Kaiser Permanente that resulted in the first major investigation of the association between childhood adversity and later-life health and well-being.[5] The original ACE Study, conducted at Kaiser Permanente from 1995 to 1997, identified and measured 7 ACEs: 3 forms of child abuse (physical, sexual, and emotional abuse) and 4 household dysfunctions (now referred to as household challenges; these include growing up in a household with intimate partner violence, where someone has mental health problems or a substance use problem, or where a caregiver or adult is incarcerated). This study showed that adults who reported experiencing ≥4 childhood adversities were at much higher risk of experiencing many negative health risk behaviors and outcomes in adulthood, including mental health problems, sexual violence victimization, and premature death. Later, physical and emotional neglect were added as 2 child abuse and neglect ACEs, and divorce/separation of parents/ caregivers was added as a household challenge. This study and the subsequent research established that the accumulation of adverse events in early childhood had impacts that lasted long into adulthood. Although this was CDC's first investment that was specific to ACEs, CDC has long recognized the connection between multiple forms of violence and ACEs (for instance, with respect to factors that increase the risk for violence[9]) and thus invested in efforts to address and prevent specific types of ACEs, such as child abuse and neglect, teen dating violence, and youth violence, well before the start of the 1995 ACEs Study.[10] However, the combined assessment of ACEs acknowledged the fact that adverse events are likely to co-occur and that some groups may be at greater risk than others, thus underlining how efforts to prevent the accumulation of adversities during childhood, particularly among populations at increased risk, could purport improved population-level outcomes for health and well-being later in life.

During the >20 years that passed between the publication of the original ACEs study in 1998 and the FY20 appropriation, CDC continued to make investments in the areas of surveillance, research, and programmatic efforts in relation to specific ACEs exposures, such as child abuse and neglect. It is beyond the scope of this paper to catalog them all, but a few examples of past CDC investments in these efforts are detailed in this paper. One notable

investment in surveillance is that CDC developed an ACEs module for the Behavioral Risk Factor Surveillance System and later incentivized states to use the ACEs module on their state-level surveys, so the prevalence and consequences of ACEs at both the state and national levels could be better estimated.

Research conducted by CDC has since used Behavioral Risk Factor Surveillance System data to assess the prevalence of ACEs in a subset of states across the U.S. and to highlight the impact of ACEs on outcomes, including substance use, chronic disease, and traumatic brain injury.[3,4,11–13] Behavioral Risk Factor Surveillance System ACEs data were also used in a pivotal study in 2019 to estimate the proportion of adult health conditions, risk behaviors, and socioeconomic challenges attributable to ACEs, indicating the potential for ACE prevention to reduce depression (44% reduction), smoking (33%), heart disease (13%), and unemployment (15%), among other outcomes.[6] This research highlighted the importance of preventing ACEs and promoting healthy childhood in various areas of public health, including chronic disease and cancer prevention and mental health promotion.

Furthermore, in 2016 and 2017, CDC published a series of technical packages on the prevention of multiple forms of violence. These technical packages translated decades of research on the best available evidence for preventing violence to guide violence prevention efforts at the state and local levels and provided information on adapting strategies[14] (as necessary) to better fit the needs of their communities and populations they serve. The multiple forms of violence described in the technical packages are all related to ACEs, so a resource guide to accompany these technical packages was published in 2019 to highlight cross-cutting strategies and specific approaches associated with strategies that can effectively prevent ACEs (Appendix Table 1, available online).[15–19] Thus, CDC has not only invested in ACEs research but also in translating this research into meaningful resources to help policymakers, funding recipients, and others understand how to prevent ACEs and related forms of violence. Indeed, CDC has since incorporated language into funding announcements requiring that funded states and localities implement and support evidence-based prevention strategies highlighted in these resources to foster effective prevention activities.

Well before the first appropriation in FY20, CDC was also investing in programmatic efforts to prevent ACEs. One example is CDC's 2013 investment in the Essentials for Childhood (EfC) cooperative agreement (CDC-RFA-CE13-1303), which funded 5 state health departments to focus on preventing 2 major types of ACEs—child abuse and neglect —at the state and community level. This funding supported strategic partnerships with other organizations to implement strategies using the EfC framework, which was developed to promote safe, stable, nurturing relationships and environments in which children can thrive.[20] In addition to the 5 funded states, >30 self-supported states participated in a community of practice to share lessons learned between funded and self-supported states. In 2018, the second cohort of the EfC initiative (CDC-RFA-CE18-1803) supported 7 state health departments and expanded activities to include implementation of key evidence-based strategies, development of state actions plans, engagement of multisector partners, and a requirement to implement a process and outcome evaluation of child abuse and neglect

prevention strategies. In addition, CDC provided technical assistance to EfC recipients and conducted multisite evaluations described by Ottley et al.[21] in this supplement.

RECENT CENTERS FOR DISEASE CONTROL AND PREVENTION INVESTMENTS

The FY20 Congressional appropriation for ACEs accelerated and focused CDC's work in addressing ACEs. The appropriation specifically identified the need for improved surveillance efforts in addition to the need for research and programmatic efforts at ACEs prevention. Current ACE investments span the focus areas of surveillance, research, and programmatic efforts.

In FY20 and FY21, CDC made several investments to improve the surveillance of ACEs, for instance, by collecting ACEs data from youth (as opposed to retrospective data collected from adults), expanding the measurement of ACEs to include items on witnessing violence in the community and experiencing racial and sexual orientation discrimination, and incorporating assessment of positive childhood experiences. First, CDC incentivized administrators of local (state, tribal, or large school district) Youth Risk Behavior Surveys to add a number of expanded ACEs questions to their 2021 Youth Risk Behavior Survey. These data will provide some of the first data on ACEs self-reported by adolescents (high-school students) at a state/local level. The expanded ACEs questions will provide data from adolescents on witnessing community violence and experiencing discrimination—concepts that will promote the measurement of ACEs among more diverse populations than have been supported by historic ACEs assessments[22]; the addition of positive childhood experience assessment will further allow for an understanding of how positive childhood experiences can buffer or mitigate the risk of ACEs. In addition, CDC is cognitively testing these questions with adolescents for future use on national surveys. Finally, CDC has invested in adding ACEs questions to future national surveys including both adolescents and adults to obtain, for the first time, national estimates of ACE burden. These surveillance data improvement efforts are designed to strengthen CDC's programmatic response to preventing ACEs by efficiently guiding the allocation of resources. Anderson and colleagues[23] discuss building the surveillance infrastructure for prevention action.

Additional research investments (project descriptions for the Division of Violence Prevention's recently funded ACEs prevention research projects are available at https://www.cdc.gov/violenceprevention/aces/fundedresearch.html) were made by CDC to understand and prevent ACEs since receiving an ACEs appropriation. CDC funded extramural research in 2019 and 2020 (CDC-RFA-CE-19-005 and CDC-RFA-CE-20-005) to support rigorous evaluations of primary prevention programs, practices, or policies to address gaps in the prevention of violence impacting children and youth. This includes community- or societal-level strategies to prevent multiple forms of violence and other ACEs that impact children and youth, strategies that enhance protective factors and promote healthy development, and strategies that incorporate a dual-generation approach for caregivers and their children to break the cycle of violence and adversity. Some projects will assess the impact of policies that strengthen economic supports to families on ACEs, which

is one of the evidence-based strategies for preventing ACEs listed in CDC's prevention resource tool.[19] Such research efforts can guide the effective allocation of limited resources by pointing states and communities toward prevention strategies proven to prevent ACEs.

The recent investments by CDC in programmatic efforts to address ACEs include the Preventing Adverse Childhood Experiences: Data to Action cooperative agreement (CDC-RFA-CE20-2006). This programmatic work responded to the appropriation's call for improved surveillance of ACEs in addition to prevention efforts in providing funding to do the following:

1. improve statewide ACE surveillance infrastructures, including encouraging the collection of ACEs data from youth and ensuring that data are used to guide the implementation of ACE prevention strategies;
2. establishing cross-sector partnerships in advancing ACE prevention; and
3. implementing evidence-based primary prevention strategies for ACEs at the state and community levels.

Thus, the goal of this funding is to increase state capacity to develop and sustain an ACE surveillance system and use these data to improve the implementation and reach of ACE prevention strategies.[24] These data can improve prevention efforts by allowing states to more efficiently and effectively target prevention efforts and benefit those at the highest risk for experiencing ACEs.

CROSS-CUTTING ADVERSE CHILDHOOD EXPERIENCE INVESTMENTS ACROSS THE CENTERS FOR DISEASE CONTROL AND PREVENTION

Efforts that address the intersection of ACEs and other public health issues have also been funded by CDC, leveraging the opportunity to prevent and mitigate ACEs as a means of preventing 2 other injury priorities for CDC—suicide and overdose prevention. Experiencing ACEs is associated with later risk for both suicide and overdose, and effective prevention of suicide and overdose among adults prevents ACEs among the next generation of children. Recent CDC funding initiatives have strategically incorporated language that addresses ACEs in the context of overdose and suicide prevention. For example, CDC's Comprehensive Suicide Prevention Program (CDC-RFA-CE20-2001) funds 9 recipients to implement and evaluate a comprehensive public health approach to suicide prevention, and the funding announcement specifically encourages collaboration with other programs addressing ACEs.

Furthermore, recent overdose prevention funding provides support for ACEs prevention activities designed to simultaneously prevent substance use disorder and overdose. CDC's Overdose Data to Action program (CDC-RFA-CE19-1904) funds 66 jurisdictions to implement surveillance and programmatic activities to prevent overdose, and more than half (34) opted to implement programs that prevent ACEs and mitigate their effects through multigeneration approaches.[25] In addition, a CDC funding announcement released through the National Association of County and City Health Officials funded communities to implement evidence-based approaches to prevent and mitigate the harms of ACEs and the

subsequent increased risk for substance use disorder. Integrating efforts to address ACE prevention across multiple funding initiatives highlights the intersection of ACEs and other injury topics and helps states and communities to focus on upstream prevention approaches that simultaneously address multiple injury-related outcomes.

FUTURE EFFORTS

Ensuring safe, stable, nurturing relationships and environments for all children is a critical step to preventing ACEs and mitigating their consequences in ways that can impact health across the lifespan and across generations. CDC investments in ACE prevention have increased the awareness of the importance of prevention and improved state infrastructures to support population-level change. Future areas for growth in ACE prevention include strengthening existing surveillance and programmatic efforts; supporting expanded partnerships to bridge data, science, and practice to inform ACE prevention activities; and addressing ACEs and related outcomes through multiple funding initiatives. CDC continues to reinforce the 4-step public health approach to the prevention of ACEs. To ensure an additional commitment of resources to ACE prevention, there is a continued need to document the impact of these comprehensive and multipronged investments; as such, future research may focus on understanding the public health impact of state- and community-level prevention efforts. The portfolio of CDC investments made to date paves the way for these areas for growth in addressing ACEs, and continued investments in preventing and mitigating the consequences of ACEs can improve population-level health and well-being over the life course.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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