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Recommendations for Population-Based Applications of the Adverse Childhood Experiences Study: Position Statement by the American College of Preventive Medicine



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Introduction: Childhood adversity profoundly influences health, well-being, and longevity. Prevention and interventions to mitigate its harmful effects are essential. The American College of Preventive Medicine reviewed the research literature and other professional and governmental statements about adverse childhood experiences to support the development of evidence-based and population-focused recommendations about prevention, screening, and mitigation interventions for childhood adversity.

Methods: We performed an umbrella review to find, assess and synthesize the evidence from systematic reviews focused on 3 key questions: the prevention or mitigation of the effects of adverse childhood experiences; the association of screening for adverse childhood experiences with various benefits, including health outcomes; and the effectiveness and harms of interventions in individuals with elevated adverse childhood experience scores. Adverse childhood experience-related recommendations from 6 professional and governmental organizations were also reviewed. On the basis of these reviews, the American College of Preventive Medicine developed a position statement through consensus.

Results: A total of 8 systematic reviews, including 260 studies in total, were identified and combined with adverse childhood experiences-related recommendations from 6 professional organizations to support the American College of Preventive Medicine recommendations. The American College of Preventive Medicine offers 7 adverse childhood experiences-related recommendations focused on screening, education/training, policy/practice, and research: 2 are evidence-based, and 5 are based on expert opinion. Notably, regarding secondary prevention of adverse childhood experiences, the American College of Preventive Medicine endorses population-level surveillance and research around childhood adversity but not adverse childhood experience screening in individual clinical encounters.

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Conclusions: Despite limitations in the heterogeneity and quality of the published systematic reviews, the extant literature supports the American College of Preventive Medicine recommendations. Interventions to enhance protective factors and prevent and mitigate the consequences of adverse childhood experiences and other childhood adversity are promising and require further implementation and research.

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INTRODUCTION

Adverse childhood experiences (ACEs) profoundly affect health and well-being across the lifespan,¹ contributing to significant morbidity and mortality,² and present opportunities to enhance prevention, mitigation, and treatment frameworks and strategies.³ Evidence is emerging that ACEs are both a cause and a consequence of health disparities.^{4,5} “ACEs are the single greatest unaddressed public health threat facing our nation today,” said Robert Block, former president of the American Academy of Pediatrics.⁶

The 1998 ACE study by Felitti and Anda identified 10 ACEs, which occur before age 18 years. ACEs are experiences of abuse, neglect, and household distress that may overwhelm a child’s ability to cope.^{7,8} Through their ACE questionnaire, the researchers developed an ACE score by assigning 1 point for every *yes* response by participants. They found that ACEs are extremely common (reported by 60% of the American population on average), are interrelated, and increase the risk for physical, psychological, and social problems as well as disability and early death through a dose–response relationship.⁷ Results of the 1998 ACE study and subsequent research reveal that ACEs have been associated with post-traumatic stress disorder, depression, borderline personality disorder, addiction, obesity, diabetes, cancer, coronavirus disease 2019 (COVID-19) vaccine hesitancy, and more.^{9,10} Although a dose–response relationship between the 10 conventional ACEs and health outcomes exists, scores based on the original questionnaire do not consider other important experiences of adversity, such as poverty, discrimination, or historical trauma. These scores also exclude the buffering effects of positive childhood experiences, and do not take the timing, frequency, or intensity of the experiences into account.^{11–14}

Since the publication of the first ACE manuscript, there have been hundreds of studies with considerable heterogeneity and quality exploring childhood adversity.¹⁵ Some of these subsequent studies have built on or modified the original ACE questionnaire to include other important adverse experiences, such as poverty,

discrimination, and neighborhood violence. Various measures of childhood adversity that enhance our understanding of a broader range of experiences are now available,^{11,16} including the National Survey of Children’s Health,¹⁷ the Philadelphia Urban ACE Survey,¹⁸ the Portland Parent ACE questionnaire,¹⁹ the International Childhood Trauma Screen,²⁰ and others. There is however no one standardized instrument, making it challenging to compare studies using different instruments with each other. Nonetheless, the high prevalence of ACEs and evidence of their deleterious effects on morbidity and mortality as well as healthcare utilization and costs make ACEs a worthy target for prevention and mitigation strategies.^{2,6,7,9}

The prevalence and impact of childhood adversity, along with the opportunity for significant health improvements and cost savings, has inspired many clinicians to want to screen for ACEs in individual patient encounters. However, in 2020, Robert Anda, co-author of the 1998 ACE paper, and colleagues published a commentary reminding clinicians that “the ACE score is a powerful tool for describing the population impact of the cumulative effect of childhood stress and provides a framework for understanding how prevention of ACEs can reduce the burden of many public health problems and concerns. However, the ACE score is neither a diagnostic tool nor is it predictive at the individual level.”¹¹ Although the recognition of the profound role of childhood adversity in the development of disease, disability, and early death is a core concept for health care, studies showing the merits of screening remain limited.

Despite its usefulness in research and surveillance, the ACE score obtained during individual screening is a relatively crude measure of cumulative childhood stress exposure that can vary widely from person to person. Unlike other screening measures, such as blood pressure or lipid levels that use measurement reference standards and cut points or thresholds for clinical decision making, the ACE score is not a standardized measure of childhood exposure to toxic stress, the excessive or prolonged activation of stress response systems in the body and brain.²¹

Along with other experts, the authors are concerned that ACE scores may be misappropriated as a screening or diagnostic tool to infer individual client risk and misapplied in treatment algorithms that inappropriately assign population-level risk for health outcomes from epidemiologic studies to individuals. Such assumptions ignore the limitations of the ACE score. Routine ACE screening may also retraumatize individual patients and clients who are not yet ready to disclose their personal histories of adversity. Therefore, programs that promote ACE screening and treatment of individuals with high scores should receive the same rigorous and systematic review of the evidence of their effectiveness according to the standards applied to other screening programs by the U.S. Preventive Services Task Force (USPSTF).

The ACE study and its application are of great interest to the American College of Preventive Medicine (ACPM), which is the national medical specialty society of physicians dedicated to disease prevention, health promotion, and systems-based healthcare improvement. Established in 1954, ACPM is the leading U.S.-based physician organization focused on the practice, research, publication, and teaching of evidence-based preventive medicine. ACPM's members are leaders in a variety of health settings, including state and local health departments, federal agencies, hospitals, health plans, community and migrant health centers, industrial sites, occupational health centers, academic centers, private practice, and the military. The ACPM Science and Translation Committee (STC) advances scientific knowledge in preventive medicine among medical professionals, employers, healthcare consumers, and national advisory and policy-making bodies by developing practice statements for the ACPM. Because the science included in the ACE and related studies is essential to population health and surveillance as well as clinical practice, the STC developed a working group to draft an ACPM position statement on the basis of a review of the literature as well as the position statements of governmental and other professional organizations, with the aims of strengthening preventive medicine practice and improving the public's health. The working group shared this position statement for review and approval by the ACPM Board of Regents, with the goal of publishing and disseminating it to members of the College, the public health community at large, clinicians, and the public.

METHODS

The ACPM ACE working group defined the scope of the project through the following key questions (KQs) that explore the primary, secondary, and tertiary prevention of ACEs. The group used the Population, Intervention, Comparison, Outcome (PICO) method to create the KQs, consistent with the Agency for Healthcare Research and Quality (AHRQ) Effective Health Care

Program processes.²² The PICO criteria for these KQs are presented in Table 1. KQ 1: *Is there evidence that the effects of ACEs can be prevented or mitigated (primary prevention)?* KQ 2: *Is screening for ACEs associated with various benefits, including improved health outcomes (secondary prevention)?* KQ 3: *What is the effectiveness or harm of interventions for elevated ACE scores (tertiary prevention)?*

Studies for each KQ were included if they addressed the PICO of interest. The target population of relevant studies included children aged <18 years with and without a reported history of childhood adversity (KQ 1); children and adults (KQ 2); and children and adults with ACE scores greater or equal to 4, a common cut point for ACE intervention (KQ 3).²³ Interventions included strategies to prevent, screen for, and mitigate the effects of ACEs. Comparators included usual care or other prevention strategies (KQ 1); no screening or use of other screening tools (KQ 2); and no intervention, other active comparisons, or self (before and after intervention in the same individual) (KQ 3). Outcomes included direct (e.g., health and well-being outcomes) and proxy (e.g., coping skills, internalizing behaviors, and self-efficacy, biomarkers) measures of prevention or mitigation of ACEs (KQ 1) and of health status and well-being (KQs 2 and 3).

The ACPM STC ACE working group conducted an umbrella review of the literature.²⁴ To answer each of the 3 KQs, a medical librarian used keywords and Medical Subject Headings terms appropriate for each for the period from May 31, 2014 to September 30, 2021 to search PubMed, Cochrane Systematic Reviews, PROSPERO (International Prospective Register of Systematic Reviews), AHRQ Evidence Reports from the Effective Healthcare Program, AHRQ Technology Assessment Reports, U.S. Department of Veterans Affairs Evidence Synthesis Program, and the Patient-Centered Outcomes Research Institute databases or websites for publications limited to systematic reviews (SRs) in the English language. The working group selected this time period as both recent enough and long enough to yield an impactful number of SRs. See Figure 1 for a PRISMA flow diagram of the literature review.

The search yielded SRs, meta-analyses, and policy statements. Two members of the working group independently reviewed all SR titles and abstracts to determine which should be selected for full-text review. They then independently reviewed the selected full-text articles before including them in the development of the ACPM position statements for KQs 1–3. The working group resolved any differences by consensus. Studies that did not meet the PICOs of interest, as described earlier, were excluded. SRs and meta-analyses were assessed on the basis of their relevance to the particular KQ, PICOs, year of publication, and quality/risk of bias based on AMSTAR-2 (A Measurement Tool to Assess Systematic Reviews).²⁵ The AMSTAR methodology for critical appraisals of SRs facilitates ranking of the quality of the evidence (i.e., high, moderate, low, critically low) according to 16 criteria detailed in Appendix Table 1 (available online). Although there are emerging primary research studies that may help to assess the interventions and outcomes included in the KQs, their inclusion was beyond the scope of this project.

In addition, the working group reviewed relevant position statements on ACEs from governmental agencies as well as professional and health organizations to help inform ACPM's position statement. On the basis of the available evidence of the net benefits and harms to individuals and populations from the

Table 1. ACE ACPM Position Statement Key Questions and PICO

Key Question 1: Is there evidence that the effects of adverse childhood experiences (ACEs) can be prevented or mitigated?	Key Question 2: Is screening for ACEs associated with various benefits, including improved health outcomes?	Key Question 3: What is the effectiveness or harm of interventions for elevated ACE scores (4 or more categories of adverse childhood exposures)?
Population: Children aged <8 years	Population: a. Children aged <18 years b. Adults aged ≥18 years	Population: a. Children aged <18 years with high ACE scores b. Adults aged ≥18 years with high ACE scores
Intervention: Any prevention-oriented strategies (e.g., behavioral health, population-based approaches)	Intervention: Screening (questionnaire/survey)	Interventions: Any interventions (e.g., behavioral health, population-based approaches)
Comparators: Usual care or other preventive strategies	Comparators: No screening or use of other screening tools	Comparators: No intervention Other active intervention Self (before and after intervention in the same individual)
Outcomes: Direct (e.g., health and well-being outcomes) and proxy (e.g., coping skills, internalizing behaviors, self-efficacy, biomarkers) measures of mitigation or prevention of ACEs	Outcomes: Health status and well-being (e.g., chronic disease, substance abuse, quality of life)	Outcomes: Health status and well-being (e.g., chronic disease, substance abuse, quality of life)

ACE, adverse childhood experiences; ACPM, American College of Preventive Medicine; PICO, Populations, Interventions, Comparators, and Outcomes.

literature and the recommendations of other organizations, the STC developed consensus recommendations.

RESULTS

Table 2 lists the 8 SRs^{15,26–32} identified through the literature search for this umbrella review. Three of the SRs addressed KQ 1,^{15,26,27} 2 addressed KQ 2,^{28,29} and 4 addressed KQ 3.^{26,30–32} One SR addressed both KQ 1 and KQ 3.²⁶ The number of SR publications by year ranged from 1 in 2015, 1 in 2017, and 3 each in 2018 and 2019. The 8 SRs together included 260 studies and 340,450 subjects, not considering duplication, in a variety of study designs.^{15,26–32} One SR²⁷ received a high rating, one³⁰ received a low rating, and the rest received a critically low rating.^{15,26,28,29,31,32} Table 1 details the PICO for each included SR by KQ, Table 2 includes the overall AMSTAR ratings, Appendix Table 1 (available online) presents the detailed AMSTAR assessments and quality rating for each SR, and Appendix Table 2 (available online) offers detailed descriptions of the characteristics of the included SRs.

KQ 1

Is there evidence that the effects of adverse childhood experiences) can be prevented or mitigated? A total of 3

SRs aligned with this question and included 69 studies and 268,178 subjects.^{15,26,27} The design of the studies used to answer KQ 1 included RCTs, observational studies, case series, and case-control studies. Comparisons included active controls, usual care, and delayed interventions. Interventions included usual care, various tools and programs, primary care-based home visitation programs, and clinician training. Outcomes examined were also diverse and included reduced exposure to childhood abuse or neglect, removal from the home, and adverse health outcomes (e.g., sexual health, weight problems, chronic disease, violence, drug abuse, and suicide attempts).

The overall confidence in the quality of the studies in the Hughes et al.¹⁵ and Flynn and colleagues²⁶ SRs was rated critically low based on the AMSTAR-2 tool because of a lack of reporting for the critical domains for AMSTAR-2. The Viswanathan et al.²⁷ SR received a high AMSTAR-2 rating for study quality.

Our findings from analysis of the KQ 1 SRs are that although referral for general social needs support holds promise for reduction of childhood maltreatment, overall, there is limited and inconsistent evidence for the effectiveness of clinical or community strategies to prevent and/or mitigate adversity for children who had already experienced ACEs as well

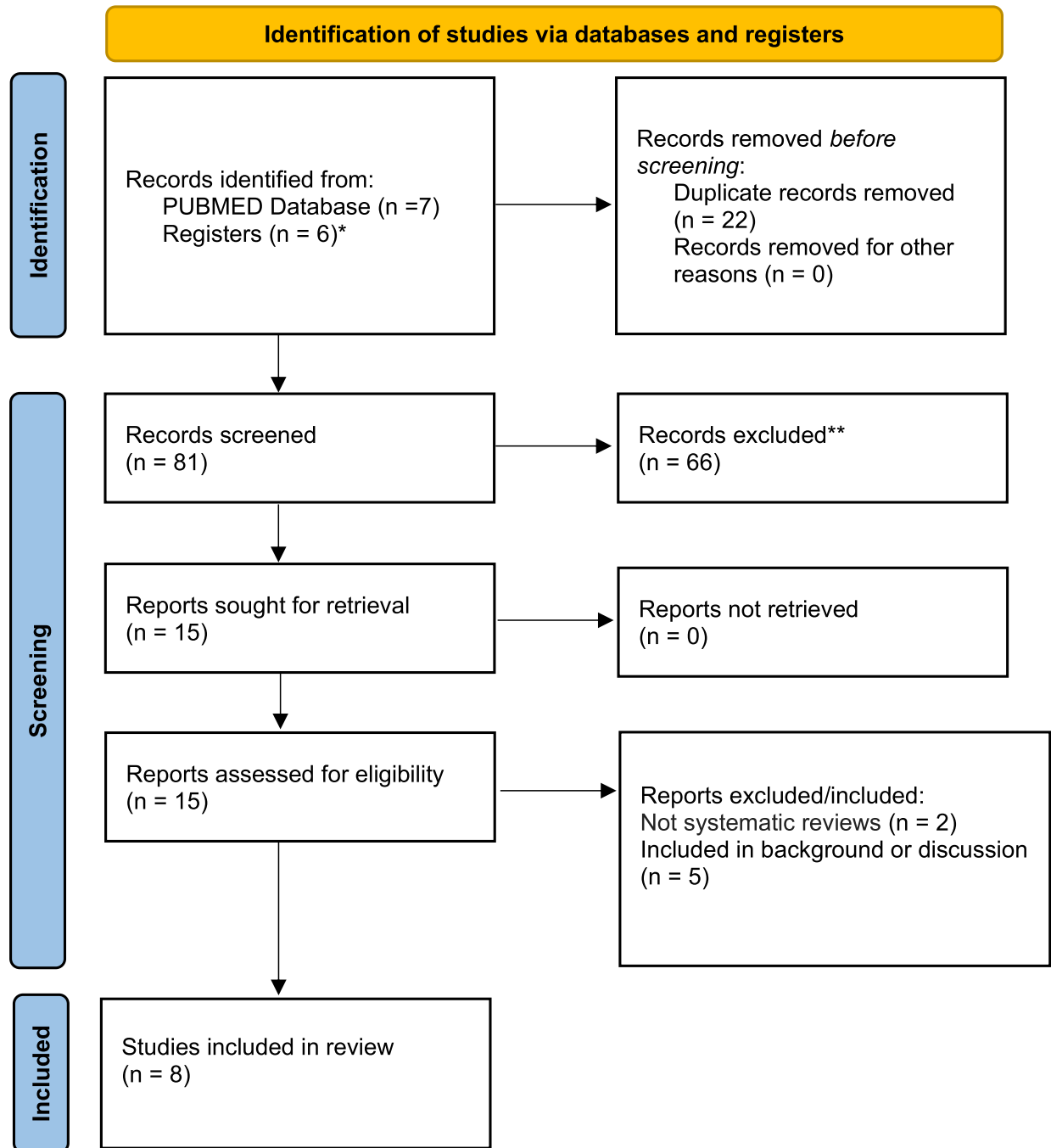


Figure 1. PRISMA flow diagram for new ACE-related systematic reviews.

Note: Registries searched include Cochrane Systematic Reviews, PROSPERO, AHRQ Evidence Reports from the Effective Healthcare Program, AHRQ Technology Assessment Reports, U.S. Department of Veterans Affairs Evidence Synthesis Program, and the PCORI databases.

ACE, adverse childhood experience; ACPM STC: American College of Preventive Medicine science and translation committee; AHRQ, Agency for Healthcare Research and Quality; PCE, positive childhood experience; PCORI, Patient-Centered Outcomes Research Institute; PROSPERO, International Prospective Register of Systematic Reviews; USPSTF, U.S. Preventive Services Task Force.

as those who had not. Although there are some encouraging findings from these studies, the current evidence is too limited to draw firm conclusions

about the benefits of primary care (e.g., pediatric and maternal–child health services) or public health (e.g., community nursing and social services) approaches

Table 2. Characteristics of Systematic Reviews by KQs

KQ ^a	Author	Journal/publication (year)	Study designs	Total number of subjects (all studies)	No. of studies	AMSTAR-2 rating
1	Flynn ²⁶	<i>Academic Pediatrics</i> /2015	RCT, OB	3,327	10	Critically low
	Hughes ¹⁵	<i>Lancet</i> /2017	CS, CC, CH	253,719	37	Critically low
	Viswanathan ²⁷	<i>Journal of the American Medical Association</i> /2018	RCT, OB	11,132	22	High
2	Oh ²⁸	<i>BioMed Central Pediatrics</i> /2018	CH	67,219	35	Critically low
	Petrucelli ²⁹	<i>Child Abuse & Neglect</i> /2019	MA, CC, CH	537	96	Critically low
3	Flynn ²⁶	<i>Academic Pediatrics</i> /2015	RCT, OB	3,327	10	Critically low
	Lorenc ³⁰	<i>BioMed Central Public Health</i> /2020	SR2	260	27	Low
	Fenwick-Smith ³¹	<i>BioMed Central Psychology</i> /2018	SR, RCT, QE, MM	4,082	11	Critically low
	Marie-Mitchell ³²	<i>American Journal of Preventive Medicine</i> /2019	SR, RCT	174	22	Critically low

^aKQ 1: Is there evidence that the effects of adverse childhood experiences (ACEs) can be prevented or mitigated? KQ 2: Is screening for ACEs associated with various benefits, including health outcomes? KQ 3: What is the effectiveness or harm of interventions for elevated ACEs?

ACE, adverse childhood experience; AMSTAR-2, A Measurement Tool to Assess Systematic Reviews; CC, case-control; CH, cohort study; CS, case series; KQ, key question; MA, meta-analysis; MM, mixed methods; OB, observational study; POT, post-test; PRT, pretest; QE, quasi-experimental; SR, systematic review; SR2, systematic review of systematic review.

to prevent adverse childhood experiences on the basis of the heterogeneity of strategies and outcomes reviewed.

KQ 2

Is screening for adverse childhood experiences associated with various benefits, including improved health outcomes? The 2 SRs connected to KQ 2 included 131 studies and 67,756 subjects.^{28,29} These studies used several different study designs such as cohort studies, case-control studies, meta-analyses, and RCTs. Outcomes examined were also diverse and included delays in cognitive development, asthma, infection, somatic complaints and sleep disturbances, child protective services involvement, language development, anger, and aggressive behavior.

Findings for the 2 SRs aligned with KQ 2 are that there is limited evidence for the effectiveness of screening for ACEs. The overall confidence in the results of all SRs was rated as critically low. AMSTAR-2 quality domain items frequently not included were similar to those identified in KQ 1.

The KQ 2 findings for the 2 SRs are that there is evidence for an association between increasing ACE scores and a variety of psychosocial/behavioral and medical outcomes consistent with an abundance of single studies from the last 2 decades. In addition, these studies suggest a potential benefit of screening for ACEs if effective

interventions exist, but they do not offer strong and consistent evidence that screening reduces the consequences of ACEs.^{28,29}

KQ 3

What is the effectiveness or harm of interventions for elevated adverse childhood experience scores? The 4 KQ 3 SRs^{26,30–32} included 70 studies, 7,843 subjects, and several different study designs: SRs, meta-analyses, RCTs, quasi-experimental, and mixed methods studies. Interventions included usual care, cognitive behavioral therapy (CBT); other psychological therapies, (e.g., psychoeducation, counseling); parent training; and cross-sector, educational, housing, or life skills interventions.

The overall AMSTAR-2 quality ratings were low for the SR by Lorenc and colleagues³⁰ and critically low for the SRs by Fenwick-Smith et al.³¹ and Marie-Mitchell and colleagues.³² AMSTAR-2 quality domain items frequently not included were similar to KQs 1 and 2.

School-based mental health promotion programs had a clearly positive impact and yielded improvements in student resilience and individual protective factors, such as increased frequency of use of coping skills, reduction in internalizing behaviors, and improved self-efficacy in postassessment studies.³¹ Nonetheless, there appears to be limited evidence for the effectiveness of most of the interventions studied for children and young people

Table 3. Recommendations About ACE Study Applications by Other Professional Organizations

Organization year/basis of recommendation	Screening	Education/training	Policy/practice recommendations	Research
AAP ³³ 2017 Expert opinion	Develop a standardized screening schedule to identify the risk factors that are highly prevalent or relevant to a particular practice setting	More extensive training on the adverse effects of chronic stress on developing brain along with cardiovascular, immune, and metabolic regulatory systems Trauma toolbox ³⁹ Resilience project ⁴⁰	Pediatricians should be vocal advocates of incorporating evidence-based interventions to reduce the long-term effects of ACEs on mental and physical health as well as financial burdens	Nothing specific to ACE
USPSTF ³⁴ 2018 Good quality evidence	The USPSTF found inadequate evidence that interventions initiated in primary care can prevent maltreatment among children who do not already have signs or symptoms of such maltreatment. The USPSTF deemed the evidence inadequate because of a lack of studies on accurate methods to predict a child's individual risk of maltreatment and the limited and inconsistent report of outcomes from studies of preventive interventions for maltreatment	Nothing specific to ACE	Evidence on interventions to prevent child maltreatment is limited and inconsistent; therefore, the USPSTF concludes that the evidence is insufficient to determine the balance of benefits and harms of interventions initiated in primary care to prevent child maltreatment in children and adolescents	Nothing specific to ACE
AHA ³⁵ 2019 Limited quality evidence	Universal screening in clinical practice and school settings with evidence-based treatment resources	Nothing specific to ACE	Strengthen economic security for low-income families, minority student populations who have increased risk for ACEs	Nothing specific to ACE
ASTHO ³⁶ 2019 Expert opinion	Nothing specific to ACE Utilize a population health approach that implements cross-sector partners to encourage the social and emotional well-being of children and their families along with centralized access points, care coordination efforts, and community involvement for universal and/or specific risk factors	Cultivate a trauma-informed system, where all employees are trained in trauma-informed concepts and all agencies have a stake in addressing ACEs as a cross-cutting issue Use of data to educate prevention programs and policy and to identify at-risk populations or geographic areas to incorporate context-specific prevention initiatives	Support partnerships for policy and environmental change to strengthen household financial security and economic self-sufficiency (e.g., paid family leave, tax credits, child support payments, reduced financial barriers for mental health care and rental assistance, and subsidized child care)	Nothing specific to ACE
AAFP ³⁷ 2019 Expert opinion	Population-level surveys and research for ACEs along with lifestyle, behavioral factors, and social drivers of health such as CDC's BRFSS is recommended, but not to be used for primary prevention, clinical assessment, or targeted interventions. Limited quality evidence Primary care providers and health systems should consider screening for	Healthcare teams, including education and training, that screen patients for history of trauma, adversity, and ACEs should receive training and have protocols and systems in place to appropriately manage and/or refer those with high ACE scores for evidence-based trauma-informed care, resiliency-informed care, and other indicated behavioral and	Public (Medicaid, Federally Funded Accountable Care Organizations), private payers, and health plans incentivize population-level trauma-informed care, screening for trauma and adversity, and appropriate evidence-based management of individuals with high ACE scores, such as cognitive behavioral and desensitization therapy.	Federal agencies such as NIMH and CDC fund the development and research of trauma and adversity screening questionnaires, including ACE-based and other instruments that are validated and generalizable as well as longitudinal intervention studies with a variety of study designs such as real-world evidence, quasi-

(continued on next page)

Table 3. Recommendations About ACE Study Applications by Other Professional Organizations (*continued*)

Organization year/basis of recommendation	Screening	Education/training	Policy/practice recommendations	Research
	adversity, trauma, and supportive relationships in adults/families/children. Screening should be done in the context of therapeutic relationships and shared decision making. Prerequisite health system development is required for screening to include financing, bundled payments, enhanced nurturing environments for families and children, access to behavioral health, and further safety protocols before health systems develop or endorse further secondary preventive strategies (Expert opinion)	social services, such as perinatal home visiting and parenting programs. Expert opinion	support state- and county-level initiatives to reach <i>Healthy People 2030</i> goals to improve the health and well-being of children with evidence-based resources so children get timely developmental screenings, recommended healthcare services, as well as family, school, and neighborhood-level interventions (Limited quality evidence)	experimental, and pragmatic trials (Expert opinion). learning health systems and health plans conduct quality improvement activities to examine factors leading to the implementation of trauma-informed care, screening with ACE and/or other instruments, as well as compliance with evidence-based interventions such as cognitive behavioral and desensitization therapy, to manage patients with a history of significant trauma and adversity (including high ACE scores) (Expert opinion)
CDC ^{38,41,42} 2019 Good quality evidence 2021 expert opinion	Surveillance data to help researchers and practitioners track changes in ACE burden and consequences on local, state, and federal levels. Support surveillance of ACEs and data innovation to guide ACEs prevention, identification, response, and evaluation efforts	Strengthen economic supports for families, promote social norms that protect against violence and adversity, ensure a strong start for children, teach skills, connect youth to caring adults and activities, intervene to lessen immediate and long-term harms	Build local, state, tribal, territorial, and key partner capacity to implement ACEs prevention and response policies, programs, and practices based on the best available evidence. Increase awareness and understanding among key partners of the public health approach to preventing, identifying, and responding to ACEs	Expand the ACEs evidence base by conducting and supporting innovative research and evaluation

AAFP, American Academy of Family Physicians; AAP, American Academy of Pediatrics; ACE, adverse childhood experience; AHA, American Heart Association; ASTHO, Association of State and Territorial Health Officials; BRFSS, Behavioral Risk Factor Surveillance System; CDC, Centers for Disease Control and Prevention; NIMH, National Institute of Mental Health; USPSTF, U.S. Preventive Services Task Force.

who have experienced childhood adversity. The strongest evidence is for the effectiveness of CBT on mental health outcomes in children who have been sexually abused. The evidence on other interventions and populations is less clear, but there are positive findings.³⁰

Adverse Childhood Experience Recommendations by Other Professional Organizations

Table 3 includes recommendations from 6 national organizations (American Academy of Family Physicians, American Academy of Pediatrics, American Heart Association [AHA], Association of State and Territorial Health Organizations, Centers for Disease Control and Prevention [CDC], and USPSTF) on screening,

education/training, policy/practice, and research related to ACEs.^{33–38}

The American Academy of Family Physicians', CDC's, AHA's, and USPSTF's recommendations are based on SRs, whereas the other 3 organizations' recommendations are based on expert opinion. The AHA and American Academy of Pediatrics recommend that pediatric healthcare providers screen for ACEs during well-childcare. AHA and USPSTF did not address ACE-related education/training or research. Furthermore, the USPSTF recommendation addressing ACEs is limited to primary care interventions to prevent child maltreatment (e.g., child abuse and neglect) and does not include the other conventional ACEs (e.g., household stressors). USPSTF concluded that there was insufficient evidence

for/or against screening for child maltreatment in primary care and has no additional recommendations as of November 27, 2018.³⁴ Apart from these differences, the 6 organizations are generally aligned with each other regarding recommendations for ACE-related screening, education/training, and policy/practice.

CDC has provided additional recommendations since its position statement, which the *American Journal of Preventive Medicine* published as an entire supplement addressing Childhood Adversity Prevention in its June 2022 issue.⁴³ In the supplement, CDC's Division of Violence Prevention, one of the 3 divisions of the National Center for Injury Prevention and Control, detailed its ACE Prevention Strategy for the Fiscal Year (FY)2021–2024, which includes investment in ACE and positive childhood experiences surveillance; studying the impact of ACEs on violence, injury, and other negative health outcomes; and developing, evaluating, implementing, and disseminating ACE prevention strategies. CDC's ACE prevention efforts utilize a public health approach to develop programs, policies, and practices designed to prevent and reduce violence. This approach includes the following: (1) defining the problem, (2) identifying risk and protective factors, (3) developing and testing prevention strategies, and (4) assuring widespread adoption. CDC funds ACE-related research to understand how best to prevent disease and injury, etiology, evaluation, and implementation.^{41–44}

CDC also offers scientific administration and support to the Community Preventive Services Task Force (CPSTF),⁴⁴ convened by the U.S. Department of Health and Human Services. Although it does not have a specific position statement on preventing and addressing childhood adversity, CPSTF's *Community Guide*⁴⁵ includes extensive reviews of SRs related to childhood adversity.

American College of Preventive Medicine Adverse Childhood Experiences Recommendations

The ACPM recommendations were developed through a consensus process built on existing (although limited) literature and professional recommendations. Table 4 is a list of ACPM population-level recommendations related to ACEs. They are organized by category and number of recommendations: ACPM endorses secondary prevention (2 recommendations, on the basis of SRs and expert opinion), education/training (1, on the basis of expert opinion), policy/practice (2, on the basis of SRs and expert opinion), and research (2, on the basis of expert opinion). These consensus recommendations aim to prevent and/or address the impact of ACEs across the lifespan. The ACPM STC and the ACPM Board of Regents reviewed and endorsed these recommendations.

DISCUSSION

The breadth of the published literature, including 8 SRs with 260 included studies, along with recommendations from 6 professional and/or governmental organizations and recent guidance from CDC and CPSTF, supported ACPM in making 7 recommendations: 2 recommendations based on limited research evidence and 5 based on consensus and expert opinion. First, ACPM recommends general population-level ACE surveillance and research to guide screening and supports around lifestyle, behavioral, and social drivers of health, such as safe housing, education, transportation, and job opportunities. An example of this strategy is CDC's Preventing ACEs: Data to Action (CDC-RFA-CE20-2006) funding initiative.⁴⁶ At the same time, ACPM recommends against individual ACE screening in clinical settings.^{11,47} In contrast, population-level ACE surveillance can provide opportunities to raise public, clinician, and politician awareness of the prevalence and impact of ACEs and help to advance practice and policy change that supports individuals and families. Moreover, educating families and organizations on the importance of positive nurturing experiences and how to recognize risks or signs of distress as part of individual clinical encounters and public awareness campaigns can help to prevent and mitigate the negative consequences of ACEs while augmenting protective factors. This approach can foster caring and collaboration to enhance patient benefits from medical, mental health, behavioral, and social resources.^{41–44,46,48}

Secondary Prevention of Adverse Childhood Experiences

Although ACPM recommends against ACE screening in clinical practice given the potential risk of harm and current lack of resources and systems supporting evidence-based interventions, real-world models that include ACE screening in clinical practice exist.^{47,49} Bayview Child Health Center and the Resilient Beginnings Collaborative, both in San Francisco, have included ACE screening in pediatric care.^{48,50,51} Montefiore Medical Group is also conducting ACE screenings for adult participants of Healthy Steps.⁵² Montefiore found that their Healthy Steps program, an evidence-based population-level program to promote pediatric well-being, was more impactful for children who had mothers with high ACE scores.⁵² Rigorous evaluation and dissemination of the results of these real-world programs will be important to more fully assess their risks and benefits.

On the basis of the evidence included in this umbrella review, ACPM recommends continued population-level surveillance of children and adults for ACEs and protective factors (e.g., positive childhood experiences) because

Table 4. American College of Preventive Medicine Recommendations

Category of recommendation	Recommendation statements
ACE screening	ACPM recommends the following: • Population-level surveys and research for ACEs and protective factors (e.g., positive childhood experiences) as well as for lifestyle, behavioral factors, and social drivers of health, such as CDC's BRFSS, but not for clinical assessment or targeted interventions in individual patient care encounters (Limited quality evidence). • Primary care providers and health systems may consider sensitive trauma inquiry to explore adversity, trauma, and positive childhood experiences such as supportive relationships in adults/families/children. If done, this inquiry must be offered in the context of therapeutic relationships and shared decision making. Prerequisite health system development is necessary for sensitive inquiry to include appropriate financing, bundled payments, enhanced nurturing environments for families and children, access to behavioral health and wraparound social supports, as well as safety protocols before health systems develop or endorse further secondary preventive strategies (Expert opinion).
ACE education/training	ACPM recommends: • All healthcare teams should receive training about the impact of childhood experiences on health across the life-span and must have protocols and systems in place which support evidence-based trauma-informed, resiliency-informed, healing-centered care and referral for other indicated behavioral and social services, such as perinatal home visiting and parenting programs for those who are at risk for or have experienced trauma. (Expert opinion)
ACE policy/practice	ACPM recommends: • Public and private payers and health plans incentivize universal precautions, a trauma-informed approach, and appropriate evidence-based trauma-specific treatment for individuals with a history of childhood trauma and adversity (Expert opinion). • Supporting state and county-level initiatives to reach <i>Healthy People 2030</i> goals to improve the health and well-being of children with evidence-based resources so children get timely developmental screenings, recommended healthcare services, as well as family, school, and neighborhood-level interventions, such as home visitation programs and parental interventions (Limited quality evidence)
ACE research	ACPM recommends: • Federal agencies such as NIMH/NICHD, SAMHSA, HRSA, CDC, and others fund research about prevention, mitigation, and treatment of adversity and trauma as well as about protective factors and positive childhood experiences that support the development of health and resilience. This research may include the development, implementation, and evaluation of validated and generalizable assessment instruments as well as longitudinal intervention studies with a variety of study designs such as real-world evidence, quasi-experimental, and pragmatic trials (Expert opinion). • Health systems and health plans conduct a rigorous evaluation of full-spectrum trauma-informed care implementation efforts as well as of effective trauma-specific interventions to treat patients with a history of significant trauma and adversity (Expert opinion).

ACE, Adverse Childhood Experiences Study; ACPM, American College of Preventive Medicine; BRFSS, Behavioral Risk Factor Surveillance System; CDC, Centers for Disease Control and Prevention; HRSA, Health Resources and Services Administration; NICHD, National Institute of Child Health and Human Development; NIMH, National Institute of Mental Health; SAMHSA, Substance Abuse and Mental Health Services Administration.

of its potential to guide policy and practice strategies that may improve outcomes and lessen the long-term effects of ACE. However, at this time, it does not support routine, opportunistic, or targeted risk screening in individual patient encounters.

Sensitive Trauma Inquiry and Trauma-Informed Care

ACPM recommends that primary care providers and health systems consider sensitive trauma inquiry to explore adversity, trauma, and positive childhood experiences (such as supportive relationships in adults/families/children).⁵³ This recommendation requires that primary care teams be educated about and trained in trauma-informed, resiliency-oriented care, a science-based approach that “emphasizes strengths and is grounded in an understanding of and responsiveness to the impact of trauma.” This approach “emphasizes physical, psychological, and emotional safety for both providers and survivors, and creates opportunities for survivors to rebuild a sense of control and empowerment”⁵⁴ and to heal and thrive. ACPM’s position agrees with the Substance Abuse and Mental Health Services Administration and the National Child Traumatic Stress Network, which recommend a trauma-informed care (TIC) approach in the context of therapeutic relationships and shared decision making.^{55,56} ACPM’s recommendation aims to incentivize TIC has the potential to reduce the burden of ACEs long term.

Sensitive trauma inquiry and TIC require thorough staff training, integration of mental health and other referral resources, and staff wellness programs to prevent compassion fatigue and/or burnout. ACPM recommends that training include all clinical, nonclinical, and administrative personnel. Before health systems advance or endorse further secondary prevention strategies, health system development is required to support sensitive trauma inquiry and TIC. This includes financing, bundled payments, enhanced nurturing environments for families and children, access to behavioral health and other social support services, as well as protocols supporting physical and emotional safety for all individuals served by or working in organizations.⁵⁷

Interventions and Further Research

ACPM recommends that family-, school-, and neighborhood-level interventions be aligned with *Healthy People 2030*, which includes reducing the number of young adults (aged 18–25 years) who report 3 or more ACEs.⁴⁹ Harvard University’s Center on the Developing Child emphasizes that 50 years of research indicate that early childhood programs such as skills development for parents, caregivers, and teachers as well as programs for

maternal, prenatal, and postnatal health are key components of prevention and mitigation strategies. Creating new models that integrate the science of childhood adversity and healing as part of all health care is essential.^{57,58} Single studies show that programs such as the Nurse-Family Partnership, Head Start and/or preschool programs, and parenting programs (e.g., Circle of Security, Attachment-Biobehavioral Catch-UP, Positive Parenting Program) are effective for the prevention or mitigation of risk associated with ACEs.⁵⁹

Focusing on research, ACPM recommends ACE-related research through longitudinal intervention studies, real-world evidence, quasi-experimental studies, and pragmatic trials. The evidence base supporting the burden of disease associated with ACEs is robust and expanding. Further research is needed to identify the strategies to optimize sensitive trauma inquiry and TIC, identify and enhance protective factors and positive childhood experiences, and design and deliver appropriate interventions. On May 8, 2020, CDC and HHS funded the Preventing ACEs: Data to Action Grant, which focuses on surveillance, research, and other activities.⁶⁰ The Robert Wood Johnson Foundation has also funded a TIC project focusing on CBT, behavioral, and other therapies for children and parents.⁵⁰ The American Public Health Association in partnership with the National Center for Injury Prevention and Control has issued a call to explore uniform definitions and measures for ACEs and Childhood Protective Factors through a scoping review to clarify conceptual issues and their relation to adverse community environments and the social determinants of health.⁶¹ The state of California is supporting large-scale ACEs research through its California Initiative to Advance Precision Medicine.⁶² Such collaborations and grants can help to bridge the gaps that exist in the current evidence base related to ACE prevention, mitigation, and treatment.

Although there is a robust body of literature confirming the association between childhood experiences and adult physical and behavioral health and social outcomes, additional adult-focused research will be key to identifying whether specific interventions to mitigate and treat the consequences of ACEs are universally effective or vary across populations or conditions resulting from insufficiently buffered childhood adversity. In addition to the need for more primary research, the authors recommend future SRs to continue the synthesis of the rapidly expanding body of ACE-related studies.

Behavioral interventions are challenging to study for many reasons, including difficulties in standardizing interventions and comparisons as well as the broad range of outcomes of interest. Therefore, the design and application of new research methodologies suited to

studying complex problems and interventions will be important. In addition, it may be unethical to design studies with no intervention. Instead, studies must include a waitlist or other active controls. Quasi-experimental and natural experimental study designs in defined settings such as a health system may best serve the field. In this setting, real-world data collection can occur in a manner that minimizes the burden on health-care providers and patients, for example, with the use of patient-reported data and practice protocols.

Studies to develop efficient clinical and organizational workflows informed by the science of childhood trauma and healing would be of benefit to all stakeholders. A coordinated and multifaceted approach with multiple stakeholders, including patients and people with lived experience, will allow us to achieve the goal of reduced morbidity and mortality as well as reduced personal and societal costs associated with ACEs. Given the evolving evidence, new reviews of the literature and potential revisions to the ACPM ACE position statement will be necessary.

The CPSTF's *Community Guide*⁴⁵ is a good example of SRs of evolving evidence. The *Community Guide* includes extensive reviews of SRs related to childhood adversity, including the categories of mental health, childhood adversity, violence prevention, and health equity. A total of 13 key references relevant to this study are identified, show promise in the following areas, and are consistent with the ACPM recommendations: child maltreatment prevention, violence prevention in schools, improving mental health or resilience, and health improvements in high-risk groups. School-based interventions, programs for at-risk adolescents, comprehensive telehealth, home visitation programs (2002 key evidence of home visitation as an effective intervention) and housing first examples all led to improvements in health equity or prevention in these studies.

LIMITATIONS

The authors recognize the limitations of the present ACPM umbrella review. First, the evidence review was limited to an 8-year period. We sought to include the most recent evidence but may have missed reviews conducted before 2014. Second, although umbrella review is the review type most consistent with our process, the authors acknowledge that some steps of a standard umbrella review were not performed, including developing a prespecified protocol, estimation of common effect size, and performing a sensitivity or stratified analysis on the basis of the quality of the evidence. These steps were

omitted due to resource limitations. However, the authors did conduct data abstraction and AMSTAR-2 ratings in duplicate and performed a narrative synthesis of findings for the 3 KQs. Finally, although the eligible SRs explored the benefits of ACE screening, they did not fully consider its potential harms, for example, retraumatization.

CONCLUSIONS

This review of the academic literature along with recommendations from federal public health agencies and professional societies addressed 3 KQs regarding prevention and screening for ACEs as well as the effectiveness of interventions in individuals reporting high ACE scores. It informed the ACPM consensus-based recommendations regarding surveillance, education/training, policy/practice, and research for the prevention of ACE-related health consequences. Despite limitations of the published SRs, the available evidence and expert opinion support ACPM's recommendation to expand the implementation of population-level surveillance and research but not universal or risk-based ACE screening. Sensitive trauma inquiry rather than ACE screening can be an important part of individual patient care encounters in the context of therapeutic relationships, shared decision making, and concomitant emphasis on the celebration and enhancement of strengths and positive experiences. Because childhood experiences shape the trajectory of health across the lifespan, investment in further research on strategies that strengthen protective factors and prevent, mitigate, and treat the consequences of childhood adversity is essential.

Health professionals have an ethical and moral responsibility to respond to health needs on the basis of the best available evidence. ACPM accepts this responsibility and calls for evidence-based population and clinical measures to prevent and mitigate childhood adversity and trauma as well as ongoing program evaluation and research that will either support or refute current position statements.

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SUPPLEMENTARY MATERIALS

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