

## Topic Brief: Adverse Childhood Experiences

**Date:** 8/21/2019

**Nomination Number:** 0839

**Purpose:** This document summarizes the information addressing a nomination submitted on 1/31/2019 through the Effective Health Care Website. This information was used to inform the Evidence-based Practice Center (EPC) Program decisions about whether to produce an evidence report on the topic, and, if so, what type of evidence report would be most suitable.

**Issue:** Adverse Childhood Experiences (ACEs) scores reflect childhood abuse and neglect and are positively correlated with negative health and well-being across the life course, including substance abuse, chronic disease, and decreased life expectancy.<sup>1</sup> Despite the impact of ACEs on health, no clinical recommendations for screening and interventions for high ACEs exist.

**Program Decision:** The EPC Program will not develop a new systematic review because we found systematic reviews addressing the majority of the concerns of this nomination and did not find enough primary studies addressing the concerns not already addressed by the systematic reviews.

### Key Findings

We found five systematic reviews that partially cover the scope of this nomination. For the remainder of the nomination that is not covered by these systematic reviews, there are insufficient primary studies for a new systematic review or similar product.

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### Background

In 1998, investigators identified a graded relationship between the number of childhood abuse experiences and adult health risk behaviors such as alcoholism, drug abuse, depression, and obesity, and diseases such as cancer and heart disease. The questionnaire that the investigators developed to measure what they coined Adverse Childhood Experiences (ACEs) evaluated the presence of childhood exposure to psychological, physical, and sexual abuse, and the presence of substance abuse, mental illness, violence toward the mother, and criminal behavior in the household.<sup>1</sup>

Since the initial study, further investigation of ACEs has confirmed increased risk of a range of health outcomes associated with exposure to multiple ACEs, with the strongest risk for problematic drug use and violence.<sup>2</sup> In a 2018 study of over 200,000 respondents, 62% of participants identified at least one ACE and 25% identified having experienced three or more ACEs.<sup>3</sup> While the harm and prevalence of ACEs have been established, guidelines for screening

and intervention have not, and some experts argue that it may be prudent to establish recommendations for intervention prior to implementing widespread screening.<sup>4</sup>

## Scope

- 1) Is there evidence that adverse childhood experiences (ACEs) can be prevented?
- 2) Is screening for ACEs associated with positive outcomes?
- 3) What is the effectiveness and harms of interventions for elevated ACEs?

**Table 1.** Key Questions and PICOTS (population, intervention, comparator, outcome, timing and setting)

Key Questions	1) Prevention of ACEs	2) Screening for ACEs	3) Interventions for ACEs
<b>Population</b>	Children under the age of 18 years	Children under the age of 18, Adults 18 years or older	Children under the age of 18 with high ACE scores greater or equal to 4, Adults 18 years or older with high ACE scores
<b>Interventions</b>	Any interventions aimed at preventing ACEs targeting parents or other caregivers (e.g., behavioral health, population-based approaches, etc.)	Screening tool (questionnaire/survey)	Any interventions aimed at treating ACEs (behavioral health, population-based approaches, etc.)
<b>Comparators</b>	Usual care Other intervention	No screening, Other screening tool	No treatment, Other active treatment
<b>Outcomes</b>	Direct measures (including reports to child protective services and removal of the child from the home) or proxy measures of abuse or neglect; behavioral, emotional, mental, or physical well-being.	Health and well-being outcomes (e.g., chronic disease, substance abuse, quality of life, etc.)	Health and well-being outcomes (e.g., chronic disease, substance abuse, quality of life, etc.)
<b>Timing</b>	N/A	N/A	N/A
<b>Setting</b>	At the community level, At the individual level (e.g., primary care)	N/A	N/A

## Assessment Methods

See Appendix A.

## Summary of Literature Findings

We identified systematic reviews and protocols for in-process systematic reviews that covered much of the nomination scope in our targeted and limited literature search. Where there were not systematic reviews, we found limited primary studies.

1. For Question 1, we identified a 2018 AHRQ systematic review developed for the U.S. Preventive Services Task Force that evaluated preventative interventions that are feasible in a primary care setting or that are referable from a primary care setting.<sup>5</sup> Additionally,

we identified a protocol for an in-process systematic review that will evaluate economic interventions intended to prevent ACEs.<sup>6</sup>

2. For Question 2, we identified a 2019 scoping review that included an evaluation of health and well-being outcomes associated with screening in adults.<sup>7</sup> Although this was a scoping review and not a systematic review, the investigators assessed the quality of the evidence and attempted to synthesize the information, but, due to the limited number of studies and the heterogeneity of the studies, a qualitative synthesis was not possible and a narrative synthesis was conducted instead. Since this review only included adults, we searched for primary studies in children and did not identify any.
3. For Question 3, we identified a 2019 systematic review that evaluated interventions in children of ages 0-5 years,<sup>8</sup> and a protocol for an in-process review of reviews of interventions in children of ages 3-18 years.<sup>9</sup> Through personal correspondence with the author of the protocol, we learned that the systematic review has been completed, and is estimated to be published in October 2019. We did not identify any systematic reviews for the adult subpopulation and found only four pre-post primary studies to address the question in adults. One of these evaluated a program for increasing resilience,<sup>10</sup> and another that evaluated a program for improving skills in emotion regulation.<sup>11</sup> Two studies in adult women only who had experienced childhood abuse or maltreatment, but for whom ACE scores were not assessed, evaluated an analytic and systemic group psychotherapy intervention,<sup>12</sup> and a mindfulness-based intervention,<sup>13</sup> respectively. Additionally, one in-process clinical trial proposing to evaluate the effects of exercise on young adult women with ACEs was identified.<sup>14</sup>

**Table 2.** Literature identified for each Question

Question	Systematic reviews (4/2016-4/2019)	Primary studies (5/2014-5/2019)
Q 1: Prevention of ACEs	Total: 2 <ul style="list-style-type: none"> <li>• Cochrane: 0</li> <li>• AHRQ: 1<sup>5</sup></li> <li>• Protocol: 1<sup>6</sup></li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
Q 2: Screening for ACEs	Total: 1 <ul style="list-style-type: none"> <li>• Cochrane: 0</li> <li>• AHRQ: 0</li> <li>• Other: 1<sup>7</sup> study in adults</li> </ul>	Total: 0 studies in children <ul style="list-style-type: none"> <li>• RCT: 0</li> <li>• Controlled pre-post: 0</li> </ul> Clinicaltrials.gov Recruiting: 0
Q 3: Intervention for ACEs	Total: 2 <ul style="list-style-type: none"> <li>• Cochrane: 0</li> <li>• AHRQ: 0</li> <li>• Other: 1<sup>8</sup> (focused on children 0-5 years)</li> <li>• Protocol: 1<sup>9</sup> (focused on children 3-18 years)</li> </ul>	Total: 5 studies of adults <ul style="list-style-type: none"> <li>• RCT: 0</li> <li>• Controlled pre-post: 4<sup>10-13</sup></li> </ul> Clinicaltrials.gov <ul style="list-style-type: none"> <li>• Recruiting: 1<sup>14</sup></li> </ul>

*Abbreviations:* ACEs= Adverse childhood experiences; AHRQ= Agency for Healthcare Research and Quality; RCT= randomized control trial.

See Appendix B for detailed assessments of all EPC selection criteria.

### Summary of Selection Criteria Assessment

The questions are largely covered by existing and in-process systematic reviews, with the exception of screening in children (Question 2, subpopulation of children), and interventions for

adults (Question 3, adult subpopulation), for which we did not identify any systematic reviews and for which we identified an insufficient amount of evidence from primary studies.

Please see Appendix B for detailed assessments of individual EPC Program selection criteria.

## Related Resources

We identified additional information in the course of our assessment that might be useful. Specifically, we identified a 2016 review of psychosocial interventions delivered in a primary care setting for adults with a history of ACEs. It was not considered duplicative (Question 3, adult subpopulation) since it did not include an assessment of the quality of the included primary studies.<sup>15</sup>

This review is valuable in that it asks a question that would partially address Question 3 in the adult subpopulation, for which there is otherwise very limited recent evidence. The review identified cognitive-behavioral therapies as the most effective of the reviewed interventions in improving mental health and reducing health-risk behaviors.<sup>15</sup>

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## Appendix A: Methods

We assessed nomination for priority for a systematic review or other AHRQ Effective Health Care report with a hierarchical process using established selection criteria. Assessment of each criteria determined the need to evaluate the next one. See Appendix B for detailed description of the criteria.

### Appropriateness and Importance

We assessed the nomination for appropriateness and importance.

### Desirability of New Review/Absence of Duplication

We searched for high-quality, completed or in-process evidence reviews published in the last three years 4/25/2019 on the questions of the nomination from these sources:

- AHRQ: Evidence reports and technology assessments
  - AHRQ Evidence Reports <https://www.ahrq.gov/research/findings/evidence-based-reports/index.html>
  - EHC Program <https://effectivehealthcare.ahrq.gov/>
  - US Preventive Services Task Force <https://www.uspreventiveservicestaskforce.org/>
  - AHRQ Technology Assessment Program <https://www.ahrq.gov/research/findings/ta/index.html>
- US Department of Veterans Affairs Products publications
  - Evidence Synthesis Program <https://www.hsr.dva.gov/publications/esp/>
  - VA/Department of Defense Evidence-Based Clinical Practice Guideline Program <https://www.healthquality.va.gov/>
- Cochrane Systematic Reviews <https://www.cochranelibrary.com/>
- PROSPERO Database (international prospective register of systematic reviews and protocols) <http://www.crd.york.ac.uk/prosp/registration/>
- PubMed <https://www.ncbi.nlm.nih.gov/pubmed/>
- PCORI <https://www.pcori.org/>

### Impact of a New Evidence Review

The impact of a new evidence review was qualitatively assessed by analyzing the current standard of care, the existence of potential knowledge gaps, and practice variation. We considered whether it was possible for this review to influence the current state of practice through various dissemination pathways (practice recommendation, clinical guidelines, etc.).

### Feasibility of New Evidence Review

We conducted a limited literature search in PubMed from the last five years 5/31/2014-5/31/2019 on parts of the nomination scope not addressed by earlier identified systematic reviews. Because a large number of articles were identified, we reviewed a random sample of 200 titles and abstracts for each question for inclusion.

Search strategy

Feasibility	
MEDLINE(PubMed) searched on: May 7, 2019	
Concept	

Adverse Childhood Experiences	((("adverse childhood experience"[Title/Abstract]) OR "adverse childhood experiences"[Title/Abstract])) OR "Adverse Childhood Experiences"[Mesh]
AND	
Limits: 5 years, English N=1073	published in the last 5 years; English
SR N=21	systematic[sb]
RCT N=148	(((((groups[tiab]) OR (trial[tiab]) OR (randomly[tiab]) OR (drug therapy[sh]) OR (placebo[tiab]) OR (randomized[tiab]) OR (controlled clinical trial[pt]) OR (randomized controlled trial[pt])
Other N=904	
Clinicaltrials.gov	35 Studies found for: adverse childhood experiences  <a href="https://clinicaltrials.gov/ct2/results?cond=&amp;term=adverse+childhood+experiences">https://clinicaltrials.gov/ct2/results?cond=&amp;term=adverse+childhood+experiences</a>

## Value

We did not assess the nomination for value.

## Appendix B. Selection Criteria Assessment

Selection Criteria	Assessment
1. Appropriateness	
1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.?	Yes
1b. Is the nomination a request for an evidence report?	Yes
1c. Is the focus on effectiveness or comparative effectiveness?	Yes
1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic?	Yes
2. Importance	
2a. Represents a significant disease burden; large proportion of the population	Yes. A recent study of over 200,000 respondents reported that 62% of participants identified at least one ACE and 25% identified having experienced three or more ACEs. <sup>3</sup>
2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the US population or for a vulnerable population	Yes. High ACE scores are associated with greatly increased risk of adverse health conditions such as depression, cancer, and heart disease. <sup>1</sup> A recent study of over 200,000 respondents reported that 62% of participants identified at least one ACE and 25% identified having experienced three or more ACEs. <sup>3</sup>
2c. Incorporates issues around both clinical benefits and potential clinical harms	Yes.
2d. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers	Yes. High ACE scores are associated with greatly increased risk of adverse health conditions such as depression, cancer, and heart disease. <sup>1</sup> A recent study of over 200,000 respondents reported that 62% of participants identified at least one ACE and 25% identified having experienced three or more ACEs. <sup>3</sup>
3. Desirability of a New Evidence Review/Absence of Duplication	
3. A recent high-quality systematic review or other evidence review is not available on this topic	No. Question 1= 1 systematic review on prevention in primary care settings; 1 protocol for systematic review on economic interventions to prevent ACEs. Question 2 = 1 scoping review that included an assessment of evidence quality and attempted an evidence synthesis assessed health and well-being outcomes associated with screening in adults. Question 3 = 2 systematic reviews of interventions in children.
4. Impact of a New Evidence Review	
4a. Is the standard of care unclear (guidelines not available or guidelines inconsistent, indicating an information gap that may be addressed by a new evidence review)?	Yes. Despite the impact of ACEs on health, no clinical recommendations for screening and interventions for high ACEs exist.

4b. Is there practice variation (guideline inconsistent with current practice, indicating a potential implementation gap and not best addressed by a new evidence review)?	Yes. No clinical recommendations for prevention, screening, and intervention for high ACEs currently exist, resulting in tremendous variation in practices.
5. Primary Research	
5. Effectively utilizes existing research and knowledge by considering: - Adequacy (type and volume) of research for conducting a systematic review - Newly available evidence (particularly for updates or new technologies)	<p>We identified no studies on children related to question 2 (screening for ACE in children).</p> <p>For question 3, we identified four pre-post primary studies<sup>10-13</sup> and one clinical trial protocol<sup>14</sup> for interventions for adults, which was insufficient evidence for a systematic review. Each study looked a different type of intervention. These included resilience training<sup>10</sup>, emotion regulation skills<sup>11</sup>, analytic or systemic group<sup>12</sup>, and attachment-related mindfulness and compassion<sup>13</sup>.</p>

*Abbreviations:* ACE= Adverse childhood experience; ACPM= American College of Preventive Medicine.