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CASE STUDY

Universal Adverse Childhood Experience Screening in Primary Care

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Adverse childhood experiences (ACEs) — defined as abuse, neglect, or household dysfunction before age 18 years — are consistently associated with a higher risk for many chronic health conditions and harmful health behaviors. Many organizations have recommended ACE screening to support preventive medical care and have provided examples of screening strategies. However, despite the consistent evidence linking ACEs with chronic health conditions and harmful health behaviors, routine ACE screening in primary care populations is rarely clinically implemented. The 1998 seminal Kaiser Permanente (KP)–Centers for Disease Control and Prevention ACEs study was born from ACE screening implemented in the Department of Preventive Medicine at KP San Diego in the 1980s. The goal of the 2018 initiative was to build on and advance that earlier work by implementing universal ACE screening in primary care at a KP Northern California site. The KP team included patient service representatives, medical assistants, nurses, physicians, and patients. Team members were first educated about ACEs and screening best practices. The workflow included directions on the ACE screener handout procedure, patient screener completion location, patient screening response documentation, and addressing the results with patients. Hurdles included concerns regarding the time it would take for patients to complete the screening and for providers to review and discuss with the patient, as well as the communication barriers related to topic discomfort among clinicians. Consistent with prior reports, patient resistance or discomfort was not a major hurdle. Metrics to measure implementation focused on ACE screenings completed by clinicians and patient screening refusal rates. Over the course of an 18-month pilot period, only 1% of patients declined screenings and more than 90% of physicians completed the screening process with their primary care patients. Team member education and recognition of ACEs as risk factors for chronic

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health conditions, a culture of trauma-informed care, and identifying team members who are passionate about ACE screening are necessary preludes to implementation of ACE screening.

KEY TAKEAWAYS

- Universal primary care adverse childhood experience (ACE) screening is a systematic way to identify ACEs and can be part of a preventive care strategy.
- ACE screening is acceptable to patients. Screening before or during the visit did not lead to patient psychological distress that was immediately observed or recounted in surveys after screening.
- An abbreviated ACE screening tool or an ACE-integrated questionnaire may help address staff concerns about the time needed to screen or to address concerns about the screening feeling out of place.
- In cases in which an ACE is reported, follow the screening by asking, "How has this [the ACE] affected your life?" Then, listen and express acceptance; this approach represents a powerful form of taking action that patients find therapeutic.
- Providers appreciated implementation of resilience-based screening because it encouraged strength-based discussions. However, individuals with high resilience can be at risk of biomedical disease. When assessing resilience, one should evaluate the patient's medical status in addition to assessing occupational, emotional, economic, and academic success.

The Challenge

Some studies suggest that a majority of adults in the United States and worldwide have reported at least one adverse childhood experience (ACE), with consistent evidence linking ACEs to costly, debilitating, and prevalent health conditions.[1-4] Despite this evidence, universal ACE screening during clinical care is not formally a recommended preventive care strategy by professional societies or the U.S. Preventive Services Task Force, with less than 30% of primary care physicians reporting implementation of routine ACE screening.[5,6] Furthermore, as of December 2022, there are no widely implemented national or international guidelines regarding ACE screening or implementation strategies.[7] ACEs are described as physical, sexual, or emotional abuse; emotional or physical neglect; having a parent with substance use or mental health problems; parental separation due to incarceration or spousal separation; or witnessing domestic violence, all before age 18 years.[1] ACEs can increase risk for chronic diseases — such as heart disease, cancer, and diabetes — in a dose-response manner.[8] As such, preventing chronic disease development after ACE exposure would affect health care outcomes and costs, leading some to identify ACEs as one of the greatest public health crises of our time.[9,10]

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ACE screening in primary care is one strategy outlined by the Centers for Disease Control and Prevention in its Best Available Research Evidence resource document,[11] and organizations such as the Center for Health Care Strategies suggest that upfront, universal screening may be more appropriate in primary care settings.[12] Thirty-three states have passed ACE-related legislation, recommend screening, or provide training and screening reimbursement.[13] However, ACE screening is rarely systematically implemented in routine clinical primary care settings.[7] As an example, the California ACEs Aware program launched in 2019 provides free ACE training, screening tools, and expanded reimbursement for screening in Medi-Cal populations, yet only 264,000 Medi-Cal beneficiaries have been screened[14,15] of the more than 13 million eligible patients.[16] The challenge we address in the current article is the need for ACE screening in primary care.

> *"Preventing chronic disease development after ACE exposure would affect health care outcomes and costs, leading some to identify ACEs as one of the greatest public health crises of our time."*

The Goal

Given the evidence supporting ACE screening as a part of a preventive care strategy for the most costly and debilitating heath conditions of our time, we aimed to implement universal ACE screening in one primary care site and evaluate it by tracking the percentage of adult physical examinations with a completed ACE screener. The plan also included evaluating patients' acceptance of the process by measuring the percentage of patients declining screening.

The Execution

In March 2018, before clinical implementation (which began in June 2018 with a go-live date of July 2018), the initiative development leaders consulted with the site lead for ACE screening in the Department of Preventive Medicine at Kaiser Permanente (KP) San Diego, who had been involved in the earlier seminal study (V.F.).[17] We discussed aspects important to clinical implementation of ACE screening, including the treatment setting and the patient population; screening strategies, including assessment tools, administration of the tool/survey, and documentation of patient response; strategies to respond to and support patients reporting ACEs; and staff training in screening for this sensitive topic.[12] The Department of Preventive Medicine provided an ideal setting for universal ACE screening implementation given their experience obtaining and integrating detailed yearly biomedical, psychological, and social evaluations during intakes of patients aged 18 years or older (Table 1). The clinical screening strategy used by the Department of Preventive Medicine has been described elsewhere.[17]

Patients completed the questions at home before the appointment to provide a private environment; the answers were then reviewed and addressed during the clinical encounter. Progressive iterations

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Table 1. Categorization of ACEs

ACE Risk Factor	Categories
Abuse	Physical
	Emotional
	Sexual
Neglect	Emotional
	Physical
Household dysfunction	Domestic violence
	Mental illness
	Divorce
	Substance use
	Incarceration

Broad categorization of adverse childhood experiences (ACEs) developed from the original 1998 Kaiser Permanente–Centers for Disease Control and Prevention ACE Study. Questions from the Behavioral Risk Factor Surveillance System survey were used and categorized into 10 broader categories, including: physical, emotional, and sexual abuse; physical and emotional neglect; and household dysfunction, including mental illness, incarceration, domestic violence, substance use, and divorce. Source: The authors, informed by the 1998 ACE Study (Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences [ACE] Study. Am J Prev Med 1998;14:245-58 https://www.ajpmonline.org/article/S0749-3797(98)00017-8/fulltext https://doi.org/10.1016/s0749-3797(98)00017-8[17]).

of the questionnaire expanded ACE screening to include childhood exposure to combat soldiers or war zone experience, rape, and family member death by suicide or murder.[18,19]

Preventive medicine clinic physicians responded to the patient information by saying, "I see on the Medical History Questionnaire that …. Can you tell me how that has affected you in your life?" followed by listening and expressing acceptance of that individual. At the end of the intake process, patients received a comprehensive health letter including how their ACEs may affect risk for their current health experiences, disorders, and behaviors and providing resources to address this risk.[20]

> *"The Department of Preventive Medicine provided an ideal setting for universal ACE screening implementation given their experience obtaining and integrating detailed yearly biomedical, psychological, and social evaluations during intakes of patients aged 18 years or older."*

Using this information and trauma-informed care principles,[21] in June 2018, we launched universal ACE screening in a KP Northern California adult and family medicine primary care clinic. We followed the same universal screening approach in patients aged 18 years or older during annual physical examinations. Our assessment tool was a four-question ACE screener that we developed after feedback from clinic leadership that the longer version could be too time-consuming (Table 2).[22-25]

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Table 2. Innovation — The Four-Question Adverse Childhood Experience Screening Tool

Question	Yes	No
As a child, did you experience abuse of any sort (physical, sexual, emotional, or bullying)?		
Were you neglected as a child or was a parent absent for any reason?		
When you were a child, did your parents use drugs or alcohol in excess or have mental health problems?		
Were you exposed to violence in your home?		

Based on feedback from clinical leadership before deployment of screening in June 2018, we developed a four-question variation that would encompass the elements of the 10-question version of the adverse childhood experience screening tool but in a briefer format. This brevity, plus the combining of categories of abuse, served to mitigate a feeling of vulnerability for some patients. This version, developed in 2018 by the team at the Kaiser Permanente Northern California primary care clinic, was designed for in-clinic use, rather than completion by the patient at home. Source: The authors

Because we did not have resources for at-home screening, patients received a paper screening tool when checking in for their primary care appointment (Table 3).

After completing the screening in the privacy of an examination room, the medical assistant (MA) received the screener during the in-room visit check-in and documented responses in the electronic health record in the same section as domestic violence. The paper screener was then given to the physician before entering the room.

Before implementation, staff received training in workflows for and responses after ACE screening (Table 4).

Following the approach of the Department of Preventive Medicine at KP San Diego, we recommended responding by saying, "Thank you for completing this questionnaire. Can you tell me how this has affected you in your life?" followed by listening and expressing acceptance. Our strategy to respond and support patients reporting ACEs was to discuss with the patient if they wanted to and then provide a handout with local and national resources addressing the sequelae of ACEs. Finally, physicians were asked to add the *screening for ACEs* diagnostic code to the visit/problem list. We decided to screen yearly because comfort with ACE disclosure may change over time; a separate assessment of variation of responses over time is underway. Screening was expanded to all department care teams once screening rates reached 90% with the pilot care team of patient service representatives (PSRs), MAs, nurses, and physicians. After the initial implementation, resilience screening of patients[26] was added to the workflow to assess

Table 3. Four-Step Process for Clinic Workflow for ACE Screening

Step	Activity
1	Patient service representative hands the ACE screening tool to the patient
2	Patient completes the paper ACE screener in the examination room
3	Medical assistant takes the ACE screener from the patient, enters responses into the electronic health record, and then hands it to the physician
4	Physician reviews answers and addresses these with the patient, provides resources based on score, and adds "screening for ACEs" to visit diagnosis and problem list

This table shows the general workflow for the adverse childhood experience (ACE) screening implementation in primary care. Feedback and buy-in were helpful for each category of team member in implementation. Source: The authors

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Table 4. Example Dialogue for Team Members in Discussing ACE Screening with Patients

Team Member	Activity	Communication
Patient service representative	Providing the screening tool to the patient to complete	This is a questionnaire we give to all patients regarding past experiences that can affect your health. Completion is voluntary. Your physician will review this form with you during your visit today.
Medical assistant	Collecting the screening tool after completion (before handing it off to physician)	Thank you for completing the form. Your physician will review this form with you during your visit today.
Physician	During the clinical visit with patient	*If it is completed:* Thank you for completing this questionnaire. Can you tell me how this has affected you in your life? OR Thank you for completing this questionnaire. Do you feel that any of these experiences still affect you today?
		If not completed: Certain experiences before the age of 18 years can affect your current physical and emotional well-being. The health impact of ACEs may be improved through strategies such as increasing resilience. Would you feel comfortable completing this form? *If patient says Yes, then the physician leaves briefly while the patient completes the form.* *If the patient says No, then the visit proceeds without survey completion.*

An implementation hurdle was to address team members' comfort with discussing and addressing adverse childhood experiences (ACEs). Communication strategies were developed and given to the team, which facilitated implementation by improving team member comfort.
Source: The authors

the patient's ability to bounce back or recover from stress. ACE screening continued during the Covid-19 pandemic, with staff transitioning to screening during virtual care visits.

The Team

The team included two components — one to develop the implementation for the revised care delivery model and a second team that would execute the ACE screening intervention.

Implementation Development: This included the physician and nursing leader for the pilot care team, the physician ACE screening champion (K.K.R.), and one representative from each team member needed for screening execution (MA, PSR, and patient). V.F. met with this team and consulted as a subject-matter expert.

Initiative Execution: The execution team — the pilot care team composed of the above team with additional MAs, PSRs, nurses, physicians, and patients — would comprise those conducting the new care model. Before initiation, the implementation and execution teams met and reviewed ACE screening rationale, workflows, and scope of practice, and discussed any questions. A patient advisory group was asked to review proposed workflows and screening tools for acceptability. During implementation, pilot care team physician leaders discussed ACE screening during all-team daily huddles; this care team physician leader brought any hurdles or questions to the screening implementation team.

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> *Clinical team discomfort with discussing and addressing ACEs, including incest, rape, and child abuse, was a large implementation hurdle."*

Hurdles

Clinical team discomfort with discussing and addressing ACEs, including incest, rape, and child abuse, was a large implementation hurdle. To address this hurdle in primary care, implementation leaders gave multiple presentations with a brief didactic component regarding evidence linking ACEs and patient health and case-based role-play. This role-play facilitated team member reflection, questions, and participation. When reviewing the earlier screening strategy efforts of the Department of Preventive Medicine at KP San Diego, our KP Northern California primary care clinic leadership was concerned about the screening length and the time added to the clinic visit. To address this concern, a four-question ACE screener was developed (Table 2), which took approximately 1 minute to complete; the four-question screener had a mean completion time of 55 seconds, which is notably faster than the 265 seconds for the 10-question version. We used principles of scale development to formulate the ACE screener, including domain identification, deductive and inductive item generation, and establishing content validity with domain experts.[21]

Another hurdle at our primary care site was physician discomfort and uncertainty about the impact of discussing ACEs with patients; this hurdle limited physician buy-in to initial implementation and then, after implementation, limited physicians addressing completed ACE screeners and could leave patients feeling vulnerable. To address this barrier, physicians were given communication strategies for responding after screening through didactics and allotted time to practice during case-based role-play sessions before implementation, followed by brief, case-based role-plays during department meetings and daily huddles. Physicians were encouraged to bring difficult cases for peer discussion. We recommended the most productive strategy to a *Yes* answer as being, "I see that you have experienced some of the events on the form. Would you share how that has affected you?" (Table 4).

Initially, many physicians focused on the type or number of ACE exposures during patient discussions. Group education was followed by individual provider education about how ACE categories equally increase health risk and suggested focusing on the patient's subsequent *experience* of the ACEs; this helped provider communication around these generally unspoken subjects. Of note, many clinicians approached the implementation team disclosing their own ACEs, which contributed to their initial discomfort. Providing a supportive, private environment for these staff to touch base individually with implementation leads was critical to screening adoption.

During daily clinical team huddles, primary care physicians noted that having a strength-based discussion with the patient after ACE screening would help contextualize the interventions offered. After gaining feedback from team stakeholders and implementation leads, we added

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resilience screening as a systematic way to ensure that a strength-based talk would occur after each ACE screening to reinforce acceptance and promote support programs; this increased the screening time by 3–5 minutes but facilitated team comfort with the process. Patient refusal of — or psychological distress associated with — ACE screening was not an implementation hurdle at either site. This may be due to the trauma-informed care training, scripts, and prewritten contextualization information included on the screening tool.

> *We recommended the most productive strategy to a* Yes *answer as being, 'I see that you have experienced some of the events on the form. Would you share how that has affected you?'"*

Metrics

For the primary care pilot starting in June 2018, we followed the Plan-Do-Study-Act cycle of quality improvement to guide implementation, including selecting a goal and an intervention, implementing the intervention for 1 month, and evaluating the intervention success. Our first Plan-Do-Study-Act cycle set a goal of screening for ACEs during 50% of adult physical examinations, and our first intervention included training and practicing the workflow with all team members for 1 month before the go-live date and placing the ACE screening form at all workstations. After meeting our initial goal, we aimed to increase ACE screening to 95% of adult physical examinations.

Our second intervention included placing implementation leaders in each care team, promoting ACE screening during huddles, and following up with team members individually about their screening experiences. Using this process, screening went from 0% to an average rate of 94% over the next 15 months, through December 2019 (Figure 1); this included resilience screening. The majority of patients found screening acceptable, with less than 1% of patients declining screening; of those who declined, most were patients 70 years of age or older. Of note, the four-question version of the screening survey was considerably faster (patient completion time of 55 seconds, plus or minus 7 seconds) than the earlier 10-question version (mean of 4 minutes and 25 seconds, plus or minus 22 seconds). After the pilot ended in December 2019, it was adopted as standard practice.

Where to Start

Critical factors for successful ACE screening implementation in the clinic are accepting ACEs as a risk factor for health conditions and understanding trauma-informed care. Organizations such as ACEs Aware, the Centers for Disease Control and Prevention, and the Substance Abuse and Mental Health Services Administration have free resources for training and implementation of ACE screening.[9,27-29] Such principles and trainings can be scaled for systems by using resources in employee educational portals, sequencing rollouts through departments, and sharing best practices between departments. Team members as implementation leaders are foundational for clinical implementation and workflow adherence. The overwhelming evidence linking ACEs and

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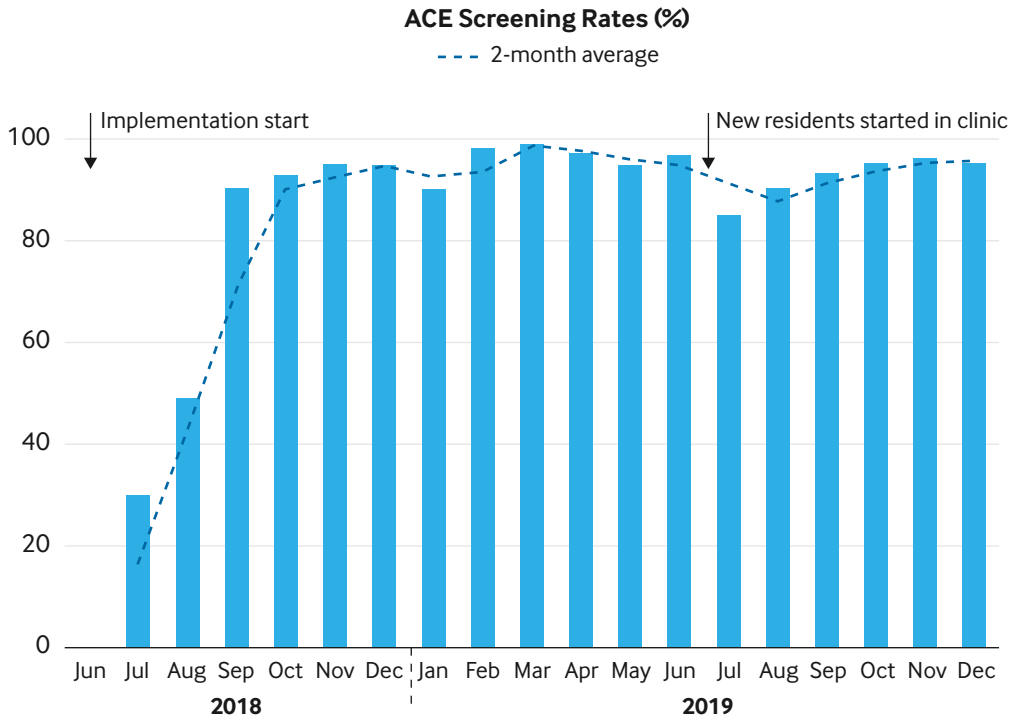
FIGURE 1

Run Chart of ACE Screening

This graphic shows implementation of the adverse childhood experience (ACE) screening at the Kaiser Permanente Northern California primary care clinic. The dotted line shows 2-month average. Screening was started in June 2018 and, with continued staff education, increased to an average of 94%. A decrease in screening rates was seen when first-year residents joined the clinic; with provider education on workflows, this returned to previously observed rates.



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chronic health conditions, along with the evidence that patients accept and appreciate the ACE screening process, provides adequate motivation for clinical ACE screening. Furthermore, the recognized economic effects of ACE screening, leading 33 states to pass legislation supporting ACE screening integration into routine medical practice,[13] provide motivation to address this fundamental component of patient health.

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