special section

BRIEF REPORT

Implementation and Evaluation of Adverse Childhood Experiences Screening in Pediatrics and Obstetrics Settings

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Abstract

BACKGROUND: Screening for adverse childhood experiences (ACEs) in prenatal and pediatric populations is recommended by the California ACEs Aware initiative and is a promising practice to interrupt ACEs in children and mitigate ACEs-related health complications in children and families. Yet, integrating ACEs screening into clinical practice poses several challenges.

OBJECTIVE: The objective of this report was to evaluate the Kaiser Permanente Northern California and Kaiser Permanente Southern California pilots and implementation of ACEs screening into routine prenatal (Kaiser Permanente Northern California) and pediatric (Kaiser Permanente Southern California) care.

MATERIALS AND METHODS: These pilots were evaluated and compared to identify common challenges to implementation and offer promising practices for negotiating these challenges. Evaluation methods included feedback from staff, clinicians, and patients, as well as comparisons of methods to overcome various barriers to screening implementation.

RESULTS: Implementing ACEs screening, like implementation of any new component of clinical care, takes careful planning, education, creation of content and workflows, and continuous integration of feedback from both patients and staff.

CONCLUSION: This evaluation can serve as support for care teams who are considering implementing ACEs screening or who are already screening for ACEs. More research is needed regarding the relationship between ACEs and preventable and treatable health outcomes to improve health for patients and their families.

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All the authors conceived of the presented idea. CRW and KCYW conducted research in Kaiser Permanente Northern California. MD, SN, and KD conducted research in Kaiser Permanente Southern California. CRW led the writing with support from each of the other authors.

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Background

Adverse childhood experiences (ACEs) are associated with many negative health outcomes and have been called the greatest public health threat facing the country.[1] With increasing recognition of the health impacts of toxic stress, clinicians have become interested in exploring screening for ACEs in routine medical care.[2,3] In 2019, the California Office of the Surgeon General recommended routine screening for ACEs in primary care.[4] The California ACEs Aware initiative offers clinician training, and California's Medicaid health care program offers reimbursement for ACEs screening in primary care.[4] However, implementing a new screening tool into routine care poses challenges far beyond workflow activation: It requires development and deployment of many new materials, including patient education, education and training for clinicians and staff, workflows, and follow-up algorithms. Successful implementation depends on deliberate orchestration, staff and clinician support, and cross-collaboration between departments to support patients and families.

This report details experience implementing ACEs screening into standard care in OB/GYN (Kaiser Permanente Northern California) and Pediatrics (Kaiser Permanente Southern California; Kaiser Permanente Southern California). Kaiser Permanente Northern California and Kaiser Permanente Southern California are large, integrated health care delivery systems serving diverse populations representative of the California population with access to care, each with approximately 4.6 million patients.

Methods

In Kaiser Permanente Northern California's Obstetrics setting, initial multisite pilots in 2016 and 2019 evaluated the feasibility and acceptability of ACEs and resilience screening within standard prenatal care. These studies informed the implementation of ACEs and resilience screening in routine prenatal care across Kaiser Permanente Northern California, which has ≥ 50,000 pregnancies annually, in December 2021 using the Adult ACEs questionnaire[5] (Figure 1) and an internally developed resilience questionnaire.[6] In Kaiser Permanente Northern California, there were 3 pilots across 11 sites. The rollout to initiate screening as part of routine prenatal care across Kaiser Permanente Northern California outpatient OB/GYN was to 63 sites. The first 2 pilots included 926 pregnant patients. Each pilot had a different system for feedback. The first pilot included conversations and surveys with clinicians and staff who participated in screening and responded to an invitation to participate in the survey and/or conversations. Telephone interviews were conducted with 210 patients in the first pilot and with 119 patients[7,8] in the second pilot. The first and second pilot studies underwent institutional review board (IRB) approval.

In Kaiser Permanente Southern California's Pediatrics setting, which includes 1 million children, the first pilot in 2018 focused on 6 clinics and one age group (3- to 5-year-olds) for ACEs screening (n = 7056),[9] followed by a second pilot for all children age 2–18 years at 2 of the 6 original pilot clinics.[10] This led to a phased expansion of screening, with a planned rollout in June 2023 for every clinic in the Southern California Permanente Medical Group to screen children 2–18 years of age yearly at every well-child visit. Screening utilized the Pediatric ACEs and Related Life-events Screener (PEARLS) questionnaire, which includes 10 ACEs questions and 7–9 additional Social Determinants of Health questions. Telephone interviews were conducted with pediatricians, nurses, social workers, and community referral organization staff to assess facilitators of and barriers to ACEs screening and referral and quality improvement opportunities.[11] These were identified based on involvement with the pilot and their response to invitation to participate. These pilots were completed with IRB exemption for evaluation of ACEs screening and IRB approval for other aspects.

Kaiser Permanente Northern California also screens for ACEs in pediatrics. This report focuses on 1 example of ACEs screening from 2 different settings and medical groups (Kaiser Permanente Northern California Obstetrics and Kaiser Permanente Southern California Pediatrics) to highlight shared practices that can aide others working to implement ACEs screening.

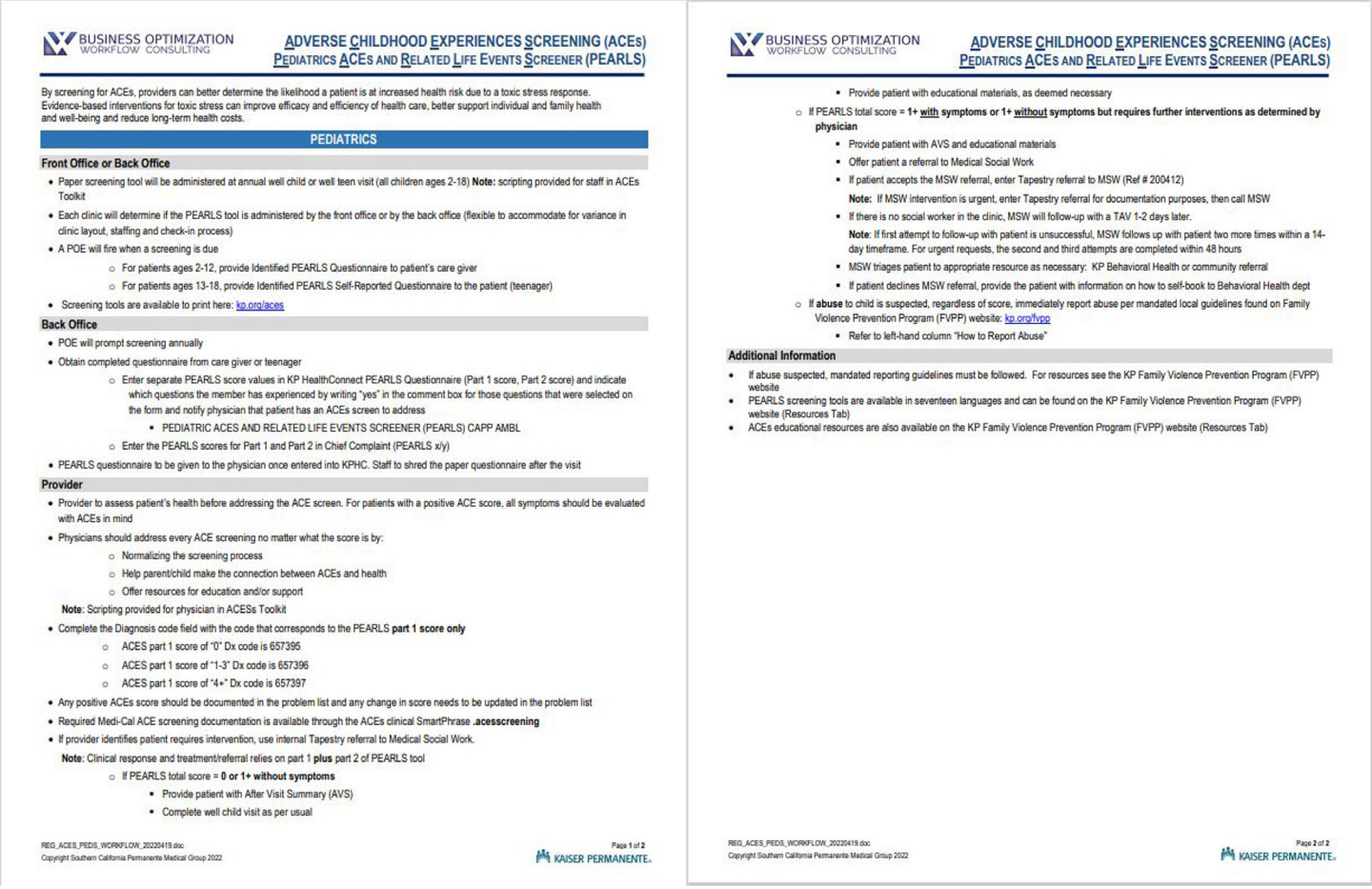
Results

In Kaiser Permanente Northern California and Kaiser Permanente Southern California, 5 common barriers to ACEs implementation were identified (Table 1).

BARRIERS TO ACES IMPLEMENTATION

Barrier 1: Lack of subject matter knowledge

First, lack of subject matter knowledge was a large obstacle. Many currently practicing clinicians have



BUSINESS OPTIMIZATION WORKFLOW CONSULTING

ADVERSE CHILDHOOD EXPERIENCES SCREENING (ACEs)
PEDIATRICS ACEs AND RELATED LIFE EVENTS SCREENER (PEARLS)

By screening for ACEs, providers can better determine the likelihood a patient is at increased health risk due to a toxic stress response. Evidence-based interventions for toxic stress can improve efficacy and efficiency of health care, better support individual and family health and well-being and reduce long-term health costs.

PEDIATRICS

Front Office or Back Office

- Paper screening tool will be administered at annual well child or well teen visit (all children ages 2-18) **Note:** scripting provided for staff in ACEs Toolkit
- Each clinic will determine if the PEARLS tool is administered by the front office or by the back office (flexible to accommodate for variance in clinic layout, staffing and check-in process)
- A POE will fire when a screening is due
  - For patients ages 2-12, provide Identified PEARLS Questionnaire to patient's care giver
  - For patients ages 13-18, provide Identified PEARLS Self-Reported Questionnaire to the patient (teenager)
- Screening tools are available to print here: kp.org/aces

Back Office

- POE will prompt screening annually
- Obtain completed questionnaire from care giver or teenager
  - Enter separate PEARLS score values in KP HealthConnect PEARLS Questionnaire (Part 1 score, Part 2 score) and indicate which questions the member has experienced by writing "yes" in the comment box for those questions that were selected on the form and notify physician that patient has an ACEs screen to address
    - PEDIATRIC ACES AND RELATED LIFE EVENTS SCREENER (PEARLS) CAPP AMBL
  - Enter the PEARLS scores for Part 1 and Part 2 in Chief Complaint (PEARLS x/y)
- PEARLS questionnaire to be given to the physician once entered into KPHC. Staff to shred the paper questionnaire after the visit

Provider

- Provider to assess patient's health before addressing the ACE screen. For patients with a positive ACE score, all symptoms should be evaluated with ACEs in mind
- Physicians should address every ACE screening no matter what the score is by:
  - Normalizing the screening process
  - Help parent/child make the connection between ACEs and health
  - Offer resources for education and/or support

  Note: Scripting provided for physician in ACESs Toolkit
- Complete the Diagnosis code field with the code that corresponds to the PEARLS **part 1 score only**
  - ACES part 1 score of "0" Dx code is 657395
  - ACES part 1 score of "1-3" Dx code is 657396
  - ACES part 1 score of "4+" Dx code is 657397
- Any positive ACEs score should be documented in the problem list and any change in score needs to be updated in the problem list
- Required Medi-Cal ACE screening documentation is available through the ACEs clinical SmartPhrase **.acesscreening**
- If provider identifies patient requires intervention, use internal Tapestry referral to Medical Social Work.

  Note: Clinical response and treatment/referral relies on part 1 **plus** part 2 of PEARLS tool
  - If PEARLS total score = **0 or 1+ without symptoms**
    - Provide patient with After Visit Summary (AVS)
    - Complete well child visit as per usual

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Page 1 of 2

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ADVERSE CHILDHOOD EXPERIENCES SCREENING (ACEs)
PEDIATRICS ACEs AND RELATED LIFE EVENTS SCREENER (PEARLS)

- Provide patient with educational materials, as deemed necessary
  - If PEARLS total score = **1+ with symptoms or 1+ without symptoms but requires further interventions as determined by physician**
    - Provide patient with AVS and educational materials
    - Offer patient a referral to Medical Social Work
    - If patient accepts the MSW referral, enter Tapestry referral to MSW (Ref # 200412)

      Note: If MSW intervention is urgent, enter Tapestry referral for documentation purposes, then call MSW
    - If there is no social worker in the clinic, MSW will follow-up with a TAV 1-2 days later.

      Note: If first attempt to follow-up with patient is unsuccessful, MSW follows up with patient two more times within a 14-day timeframe. For urgent requests, the second and third attempts are completed within 48 hours
    - MSW triages patient to appropriate resource as necessary: KP Behavioral Health or community referral
    - If patient declines MSW referral, provide the patient with information on how to self-book to Behavioral Health dept
  - If **abuse** to child is suspected, regardless of score, immediately report abuse per mandated local guidelines found on Family Violence Prevention Program (FVPP) website: kp.org/fvpp
    - Refer to left-hand column "How to Report Abuse"

Additional Information

- If abuse suspected, mandated reporting guidelines must be followed. For resources see the KP Family Violence Prevention Program (FVPP) website
- PEARLS screening tools are available in seventeen languages and can be found on the KP Family Violence Prevention Program (FVPP) website (Resources Tab)
- ACEs educational resources are also available on the KP Family Violence Prevention Program (FVPP) website (Resources Tab)

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Page 2 of 2

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Figure 1: Southern California Permanente Medical Group team algorithm for ACEs screening. (Reproduced with permission from Southern California Permanente Medical Group 2022.) ACE = adverse childhood experience; KP = Kaiser Permanente; PEARLS = Pediatric ACEs and Related Life-events Screener; POE = proactive office encounter.

not learned the science of toxic stress, ACEs, or resilience, or, if they have some familiarity, they are often not aware of or comfortable with using this knowledge in practice.

Barrier 2: Time

Second, the barrier of time: ACEs screening requires added time for screening itself, and time for empathic, trauma- and resilience-informed conversation. These

Barrier	Kaiser Permanente Northern California and Kaiser Permanente Southern California responses
Lack of knowledge	Staff trauma and resilience-informed care education, including science of toxic stress and resilience, scripts for entire care team, workflows, documentation, and referral support
Time	Time studies, stepwise pilots, emphasize staff input and feedback
Referrals	Cross-department prelaunch planning, iterative processes to determine referral algorithm, data tracking of referral volume
Stigmatization/equity	Communicate universality of screening, focus on patients' needs rather than ACE score alone, include resilience/strengths, staff education
Materials	Cover letter provides explanation, language access plan, communicate universality of screening, resources handouts for all regardless of ACE score, creation of support documents (algorithms, scripts, coding and documentation guidance) for staff and clinicians

Table 1: Overcoming barriers to adverse childhood experience screenings in Kaiser Permanente Northern California and Kaiser Permanente Southern California

ACE = adverse childhood experience.

time impingements are compounded by current health care challenges, including staffing shortages and multiple competing demands, to address every visit—all of which create time pressure for clinicians and staff.

Barrier 3: Referrals
A third barrier involved concerns about referrals after screening: There were questions about having the right resources for patients, which patients benefit from referrals, and whether these systems could support a potential increase in referral volume.

Barrier 4: Stigmatization and equity
A fourth barrier involved issues around limiting stigmatization and inequity. Regarding patient stigmatization, workflows, other tools, and the screening process itself needed to be built and translated to communicate an equitable and universal approach to screening. Regarding staff and clinicians, many had concerns that ACEs screening could lead to pathologizing patients over common experiences and worries that patients might be treated as "just their high ACEs score" and therefore pushed toward unneeded services—or kept away from beneficial resources if the ACEs score was deemed too low.

Barrier 5: Materials
Last, a fifth barrier was identified around generating materials for medical teams: decision-making tools, scripting, and patient-facing materials for education and referral information.

APPROACH TO OVERCOMING THESE BARRIERS

To surmount Barrier 1, lack of knowledge, education for staff and was required. This incorporated fundamentals of ACEs science, resilience, and trauma-informed care. Education also included workflows, scripts for receptionists, medical assistants, and clinicians, as well as coding, referral, and documentation support.[7] Educating the entire team on new content helped develop a shared understanding of the topic and the value of ACEs screening. In Kaiser Permanente Northern California, multiple in-person educational sessions for the entire staff and clinician team were required; attendees anecdotally commented that the trauma-informed education helped in other settings beyond ACEs screening. Kaiser Permanente Southern California created an online education module to train clinicians and staff on similar topics, encouraged using the Kaiser Permanente Colorado trauma-informed care training modules, and partnered with the ACE Resource Network's Number Story project[12–15] to customize a patient education video to normalize ACEs screening.

To address Barrier 2, concerns about time, timed studies of each component of ACEs screening in Kaiser Permanente Northern California Obstetrics were done. This included times to determine screening eligibility, introduce screening forms to the patient/family, and privately complete the screening, as well as times for clinician review and addressing screening with the patient, documentation, and any referrals. Although Kaiser Permanente Southern California did not complete timed studies, a series of pilots iteratively tested similar aspects of the screening process. Transparency about the details of screening gave control to the team as they determined for themselves the best ways to implement screening. Once teams became more comfortable with the steps, the process moved more quickly, and clinicians reported the screening time was marginal and not disruptive to clinic flow.[9] Occasionally, longer conversations were needed, but clinicians acknowledged that as with other unexpected but important medical issues that may arise, it is worth taking a few extra minutes to address patient needs.

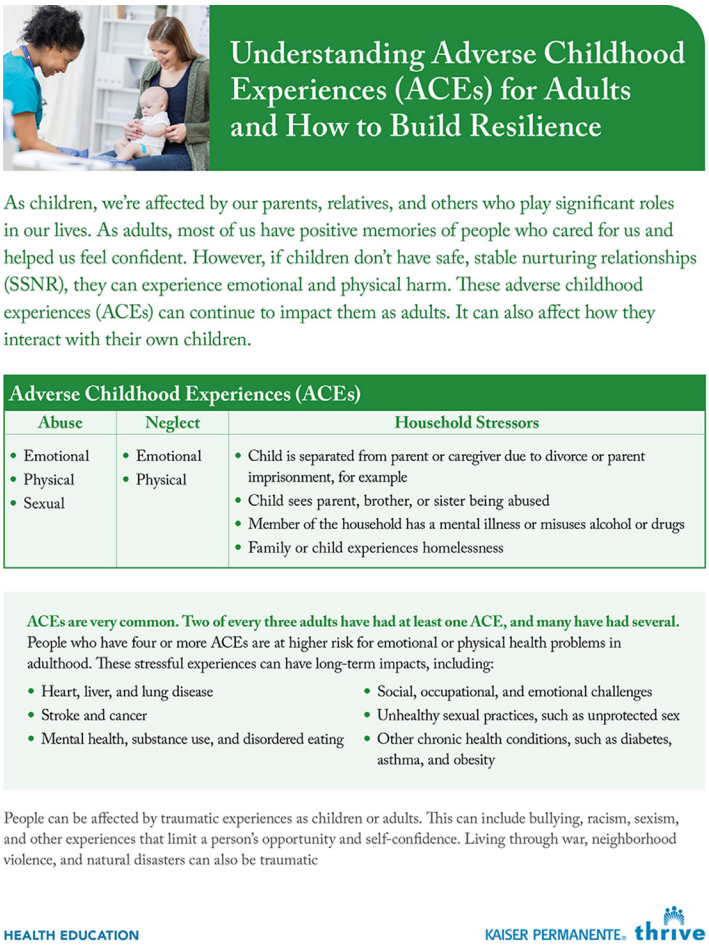
Regarding Barrier 3, referrals, cross-department planning, collaboration to determine referral algorithms, time studies, and data were used to overcome this obstacle. In Kaiser Permanente Northern California, a series of pilots were conducted and included all possible referral departments in prelaunch planning. This allowed consideration for which referrals might be most helpful to support patients and families dealing with ACEs. It also gave insight regarding department capacity, allowing pilots to be paced so they would not overwhelm resources. At Kaiser Permanente Southern California, each pilot iteration included detailed evaluation of the impact on patients, practitioners, staff, resources, social services, and behavioral health services.[9,16] Kaiser Permanente Southern California saw that ~3% of positive pediatric screenings required referral or other intervention.[16,17] This information provided reassurance to the whole team that ACEs screening is usually not time intensive or resource draining.

Using several approaches, challenges around pathologizing patients based on ACEs screening or score (Barrier 4) were addressed. Staff education, algorithms (Figure 1), and scripting, focused on supporting patients and incorporating strengths rather than overemphasizing the ACEs score. Kaiser Permanente Northern California

paired ACEs screening with resilience assessment, which allowed conversations to incorporate strengths. Anecdotally, clinicians found that resilience screening allowed them to better recognize which patients may benefit from additional support. This trend matched the analysis, wherein patients with low resilience were more likely to experience mental health problems, intimate partner violence, and substance use in pregnancy.[18] Kaiser Permanente Southern California informally assessed strengths and developed a workflow where patients were referred for services not only on the basis of their ACEs score but, rather, on a combination of score, strengths, and symptomatology or score plus request for services. Thus, not all positive scores result in referral for services if the patient is otherwise doing well or declines services.

Addressing stigmatization also helped overcome Barrier 5, materials creation. At Kaiser Permanente Northern California and Kaiser Permanente Southern California, both patient- and staff-facing documents highlight that ACEs screening was routine for everyone. Imaging in these materials were carefully chosen to avoid targeting any groups and were adjusted based on clinician and staff feedback. A cover letter (Figure 2) was included for additional explanation.

Equitable access to screening was ensured by translating forms, cover letters (Figure 3), and resource sheets into multiple languages and addressed screening in populations for which translation was not yet available. Resource handouts were shared regardless of ACE score. With extensive feedback, support documents were created for Kaiser Permanente teams, including



Understanding Adverse Childhood Experiences (ACEs) for Adults and How to Build Resilience

As children, we're affected by our parents, relatives, and others who play significant roles in our lives. As adults, most of us have positive memories of people who cared for us and helped us feel confident. However, if children don't have safe, stable nurturing relationships (SSNR), they can experience emotional and physical harm. These adverse childhood experiences (ACEs) can continue to impact them as adults. It can also affect how they interact with their own children.

Adverse Childhood Experiences (ACEs)

Abuse	Neglect	Household Stressors
• Emotional • Physical • Sexual	• Emotional • Physical	• Child is separated from parent or caregiver due to divorce or parent imprisonment, for example • Child sees parent, brother, or sister being abused • Member of the household has a mental illness or misuses alcohol or drugs • Family or child experiences homelessness

ACEs are very common. Two of every three adults have had at least one ACE, and many have had several. People who have four or more ACEs are at higher risk for emotional or physical health problems in adulthood. These stressful experiences can have long-term impacts, including:

- Heart, liver, and lung disease
- Stroke and cancer
- Mental health, substance use, and disordered eating
- Social, occupational, and emotional challenges
- Unhealthy sexual practices, such as unprotected sex
- Other chronic health conditions, such as diabetes, asthma, and obesity

People can be affected by traumatic experiences as children or adults. This can include bullying, racism, sexism, and other experiences that limit a person's opportunity and self-confidence. Living through war, neighborhood violence, and natural disasters can also be traumatic

HEALTH EDUCATION

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You're more than your ACEs

It's important to know that ACEs are only part of the story. If you've had ACEs, you can take action to recover. Start by:

- **Understanding resilience.** It's the ability to bounce back from tough times. Studies show that resilience is key to sustaining health and happiness and overcoming the impacts of ACEs. You can begin building resilience at any point in life.
- **Remembering an adult who cared about you during childhood.** This can be a relative, teacher, or other adult you trusted. Today, that relationship continues to help protect you from the health impacts of ACEs.

You can learn to build resilience

Becoming resilient means finding ways to be strong, healthy, and successful. You can do this even if your life is still impacted by ACEs and other traumatic experiences.

As you continue to build resilience over time, you'll feel calmer and healthier. The first step is any step in a healthy direction. Find what works best for you. You don't have to follow all the suggestions shown below.

Ways to Build Resiliency

If you'd like support as you build resilience, you can:

- Talk to your doctor or other clinician. Ask about referrals to counseling and other Kaiser Permanente resources for members.
- Call your local Health Education Center. Ask about classes, wellness coaching, and other services.

Other resources

Mental Health Services: kp.org/mentalhealth
ACEs 101: acestoohigh.com/aces-101/
Guide for Parents: Resilience Trumps ACEs™
myStrength and Calm apps: kp.org/selfcareapps
Relationship abuse support: https://www.thehotline.org/
1-800-799-SAFE (7233)
Thrive Local Connections (TLC) 1-800-443-6328 (TTY 711)
CDC Parenting information page: cdc.gov/parents/index.html
Child Help: 1-800-4A-CHILD (422-4453) (24/7)

This information is not intended to diagnose or to take the place of medical advice or care you receive from your physician or other health care professional. If you have persistent health problems, or if you have additional questions, please consult with your doctor. Some photos may include models and not actual patients.

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Figure 2: The Permanente Medical Group Resource handout for all patients eligible for ACEs screening. (Reproduced with permission from copyrighted material of the Permanente Medical Group, Inc., Northern California.) ACE = Adverse Childhood Experience.

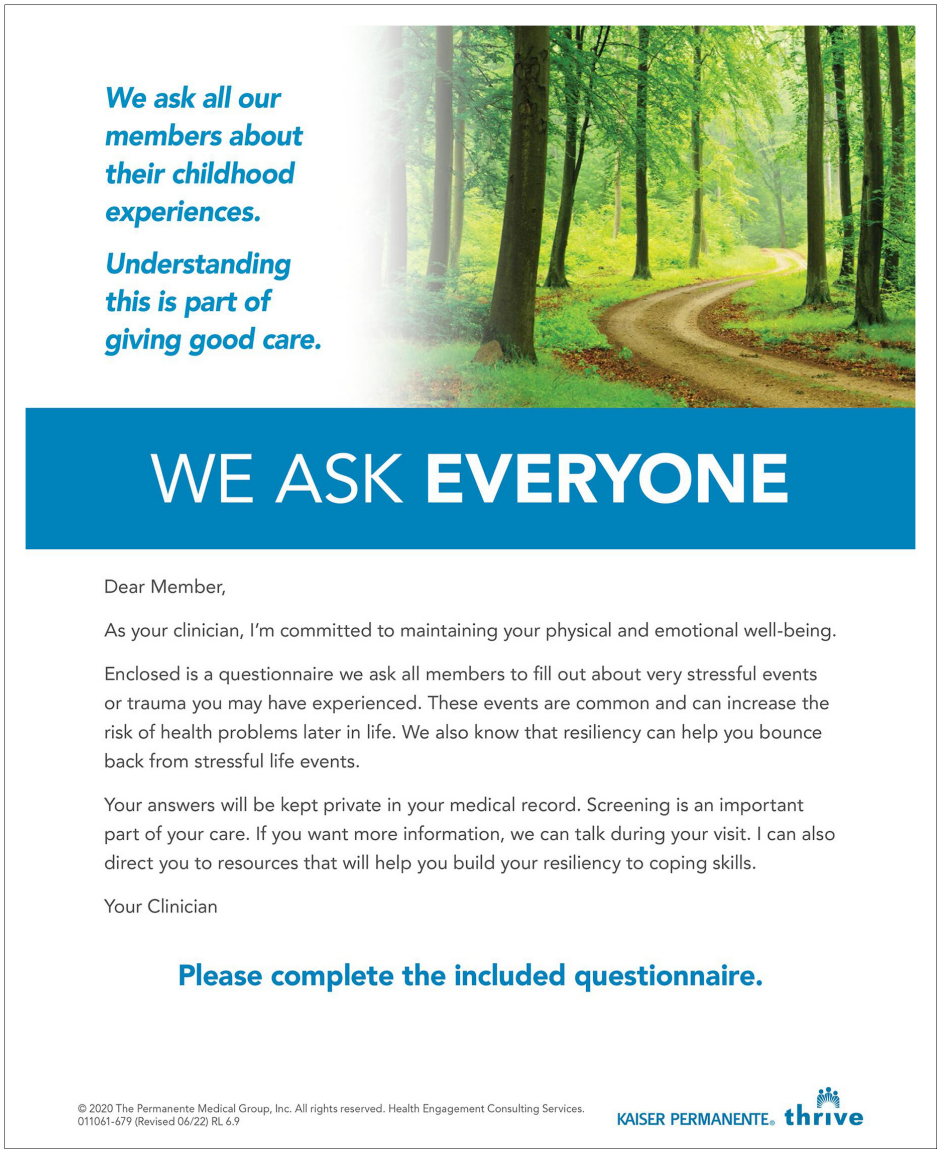

Figure 3: The cover page of the Permanente Medical Group patient resource handouts. (Reproduced with permission from copyrighted material of The Permanente Medical Group, Inc., Northern California.)

workflows, referral algorithms, and coding and documentation guidance.

GATHERING PATIENT AND PRACTITIONER PERSPECTIVES; EVALUATING PATIENT EXPERIENCES

Kaiser Permanente Northern California Obstetrics solicited direct patient and clinician feedback through surveys to learn if and how these services supported patients and families.[7,8] Of the 119 patients who participated in phone interviews on this subject, more than half reported using one or more resources from the resource handout, including apps, books, and websites, rather than referrals or mental health support.[8] This also showed that most patients 1) were satisfied with how Kaiser Permanente Northern California clinicians responded to ACEs (82%), 2) felt it built more trust with their clinician (53%), and 3) reported that ACEs screening did not negatively impact their relationship with their clinician (95%). Most patients (94%) also felt conversations about resilience or coping skills should be included in prenatal care.[8] Most pregnant patients (73.5%) felt that their partner should be included in ACEs screening. However, 40% of patients desired more empathy from their clinicians, and 5% felt that the ACEs screening had a negative impact on their relationship with their clinician. This feedback informed future clinician training to mitigate potential negative impacts.

In Kaiser Permanente Southern California Pediatrics' pilot, initially patients self-referred to behavioral health for counseling. However, this was found to have poor patient follow-up. So, a separate pilot was developed to analyze an updated process in which patients were referred to the medical social worker (MSW), who determined whether the patient needed trauma-informed counseling and/or community support services. The MSW would then provide families with a direct warm handoff to behavioral health counseling or offer local resources for support. When care transitioned to this approach, adherence improved greatly: This new workflow with social workers boosted completed behavioral health visits 7.5-fold for children with positive ACEs screening.[10] Approximately 6% of positive screens were referred to the social worker, and 3% needed behavioral health intervention.[17]

Additionally, to better understand perceptions of ACE screening and barriers and facilitators for the referral process, Kaiser Permanente Southern California completed interviews with parents/caregivers of child(ren) referred to behavioral health for positive ACEs screening, as well as pilot team members, including pediatricians, nurses, social workers, and community referral organization staff.

Among parents/caregivers, primary themes related to barriers were difficulty navigating the health care system, lack of appointment availability, and financial concerns due to lost time at work during appointments. Facilitator themes included familial support, prior positive experience with behavioral health, and parent or child requesting therapy. Overall, parents were generally positive about ACEs screening and receptive to referral to behavioral health. The majority also viewed the role of the social worker positively, supporting this workflow change.[19]

Among pilot staff and clinicians, primary themes related to barriers were screening tool challenges, especially patient confusion, cultural differences, capacity limitations, training issues, and care team silos. Themes for facilitators included clinician education, using screening data to provide more holistic and compassionate care, and collaborating between departments and practitioners.[11]

Discussion

These pilots of ACEs screening demonstrate that incorporating ACEs is a valuable part of regular medical care, providing Kaiser Permanente practitioners with an enriched and holistic understanding of their patients' health that could provide insight into root causes of symptoms or illness. Clinicians will continue to explore how best to apply the science of toxic stress, resilience, and ACEs screening. Integrating this knowledge will provide the most impact: Without knowledge about patient ACEs, the practice of medicine is limited, as is the capacity to support unique patient needs and, potentially, to prevent symptoms and illness. ACEs screening also has implications for population-based medicine and preventive care. Results suggest that medical teams can successfully offer education, support, and resources to pregnant women and children with ACEs, which holds the promise to interrupt the progression of ACEs, improve health, and, ultimately, potentially interrupt the intergenerational cycle of ACEs. Tools and strategies employed by Kaiser Permanente Northern California and Kaiser Permanente Southern California may not be applicable or may need adaptation in environments with access to fewer resources.

Conclusion

Informed by the science of ACEs, toxic stress, and resilience, these findings show that routine screening for ACEs is feasible in pediatrics and pregnancy care; furthermore, screening, and meaningful trauma-informed conversations do not require excessive time. Patients and practitioners are satisfied with the tools used for other commonly addressed problems in the medical setting: a brief, empathic conversation with additional resources as desired or recommended. For patients and families who desire to participate, this can lead to deeper connection with their medical team and provide additional support for earlier intervention and possibly prevention of ACEs. When the ACE score is understood in the larger context of a patient's overall health, including their strengths and resilience, it can allow clinicians to tailor care with more appropriate interventions. Future research should focus on the more impactful referrals and resources for patients with ACEs. There is also great potential to use knowledge about patient ACEs to improve medical outcomes for patients, for instance, evaluating the use of ACEs data to inform referrals or even treatment algorithms. Research is underway within Kaiser Permanente to evaluate patients screened for ACEs and learn how best to improve their health. More research is needed regarding the relationship between ACEs and preventable and treatable health outcomes to improve health for patients and their families.

Data-Sharing Statement

Underlying data are not available

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