



ACEs Aware Trauma-Informed Network of Care Roadmap

June 2021

acesaware.org

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Dear Colleagues,

We imagine a better world for our children, families, and communities – where we work together across the health, human services, education, and non-profit sectors to prevent and address the impact of Adverse Childhood Experiences (ACEs) and toxic stress to significantly improve the health and well-being of individuals and families.

A consensus of scientific evidence demonstrates that cumulative adversity, especially when experienced during critical and sensitive periods of development, is a root cause of some of the most harmful, persistent, and expensive health challenges facing our state and nation.

There is hope – ACEs are not destiny. Toxic stress is a health condition amenable to treatment. Health care clinical team members can screen for ACEs, respond with trauma-informed care, and leverage a network of evidence-based clinical and community interventions to improve health for children, adults, and families. These efforts can also reduce the risk of intergenerational transmission of ACEs and of toxic stress and avert their significant health and societal consequences.

We are pleased to share this **Trauma-Informed Network of Care Roadmap**, developed by the California Surgeon General’s Network of Care Subcommittee with input from the California Surgeon General’s Clinical Implementation Subcommittee and other stakeholders in collaboration with the Office of the California Surgeon General and the Department of Health Care Services. This Roadmap aims to provide practical steps that health care clinical care teams, community-based organizations, and social service agencies can take within their own communities to grow cross-sector Networks of Care that support clinical teams, individuals, and families in preventing and addressing the impact of ACEs and toxic stress on health.

We hope you will use this Roadmap to assess where your community stands in its ability to screen for, treat, and heal toxic stress and identify opportunities to strengthen Trauma-Informed Networks of Care to support the well-being of children, adults, and families.

Building a trauma-informed network of care is an evolving process that needs to be tailored to meet the needs of communities based on demographics, prevalence of ACEs, eligibility for Medi-Cal, and availability of public and private resources. To that end, the Roadmap underwent a public comment process and has benefited from the review and informed commentary from many community members. Additionally, in January 2021, we awarded \$30.8 million in ACEs Aware grant funding to 35 organizations across California to support the planning and implementation of Trauma-Informed Networks of Care. We are proud to release this final Roadmap as the community blueprint to guide, support, and grow our Trauma-Informed Network of Care movement.

Thank you for your partnership on this important effort!

With gratitude,

Nadine Burke Harris, MD, MPH, FAAP
Surgeon General
State of California
Care Services

Karen Mark, MD
Chief Medical Officer
California Department of Health



Message from Network of Care Subcommittee Co-Chairs

It has been our privilege to serve as Co-Chairs of the California Surgeon General’s Network of Care Subcommittee.¹ Since February 2020, our group of clinicians, community leaders, and social workers has, through a dozen formal meetings and countless emails and conversations, sought to pull together the collective wisdom around how to establish an effective and sustainable Trauma-Informed Network of Care and how to align it, in a practical fashion, with the vision of the ACEs Aware initiative. The contents of this document are informed by the lived experiences of many people, organizations, and communities across California.

Our mission was to recommend a “roadmap” for improving collaboration and coordination across health care and social service organizations when identifying and providing trauma-informed care in response to ACEs and toxic stress identified in primary care. Our discussions have included a strong emphasis on providing strategies for working with cross-sector partners to establish a preventive network of evidence-based buffering resources (stress-mitigating supports) that help to prevent, treat, and heal the harmful consequences of toxic stress. Building and maintaining Trauma-Informed Networks of Care requires bi-directional partnership, outreach, and training to ensure patients and families are connected to timely and relevant supports.

Specifically, our group:

- Provided feedback on specific strategies to ensure the provision of high-quality, accessible trauma-informed care in the Medi-Cal program as well as other health care delivery systems in California;
- Learned from a series of guest speakers about their lived experience in building, executing, and sustaining Trauma-Informed Networks of Care in their communities;

¹The Network of Care Subcommittee is an advisory subgroup of the Trauma-Informed Primary Care Implementation Advisory Committee, a group of over 30 organizations that advise the Office of the California Surgeon General and the Department of Health Care Services on promising models, best practices, evolving science and clinical expertise for the implementation of trauma-informed care systems in California.

- Discussed opportunities and challenges to fostering clinical-community linkages to ensure there is a continuum of care and coordinated, evidence-based, buffering supports for patients; and
- Identified additional community stakeholders and delivery systems that could help extend the reach of the ACEs Aware initiative and coordinate efforts.

It feels particularly poignant that the Network of Care Subcommittee navigated this work within the context of the COVID-19 public health emergency, a global public health crisis with significant ongoing secondary health impacts. These secondary impacts of COVID-19, the increased risk of stress-related health conditions, mental, and behavioral health disorders, will acutely affect the health and well-being of Californians in the weeks, months, and years ahead, even more so for those who have already experienced adversity such as ACEs in their lives. The focus on building robust networks of care is vital, now more than ever.

This Trauma-Informed Network of Care Roadmap has, by necessity, been crafted through the lens of the demands of this moment, but we have done our best to create a document that will have long-term applicability beyond this particular period of time and circumstances. Providing and linking to community buffering supports through a trauma-informed lens, to help prevent, treat, and heal toxic stress by supporting patients and families will always be an important north star. We thank you for joining us on this journey to advance this critical public health initiative.

Sincerely,

Frank Mecca (Co-Chair)

Mary Ann Hansen (Co-Chair)

Acknowledgements

This Trauma-Informed Network of Care Roadmap was informed by contributions from the Network of Care Subcommittee members, as well as several other key advisors to the ACEs Aware initiative. Each member brought an invaluable perspective that informed the milestones, recommendations, and content of this Roadmap. We would also like to thank the technical writers of the Roadmap, Aurrera Health Group, for their efforts to convene, facilitate, and distill these discussions into this written report. We would also like to recognize the contributions from our ACEs Aware partners and advisors, ACEs Connection and Health+ Studio.

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- Jonathan Goldfinger, MD, MPH, FAAP, Didi Hirsch Mental Health Services
- Michael Brodsky, MD, L.A. Care Health Plan
- Edward Machtinger, MD, University of California, San Francisco

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ACEs Aware Trauma-Informed Network of Care Roadmap

Executive Summary

The ACEs Aware initiative, led by the Office of the California Surgeon General (CA-OSG) and the California Department of Health Care Services (DHCS), is an innovative public health approach that forms the foundation of California’s ambitious goal to reduce ACEs and toxic stress in California by half in one generation. Effective January 1, 2020, DHCS began paying Medi-Cal clinicians for conducting ACE screenings for children and adults up to age 65 with full-scope Medi-Cal. CA-OSG and DHCS are partnering with organizations across the California health care system and communities to ensure that these clinical teams have the training, tools, and resources they need to effectively incorporate ACE screening and the appropriate responses, including strategies for mitigating toxic stress, into patient care. Please note, to be as inclusive as possible, this Roadmap refers to “clinical team members,” rather than “health care providers” throughout the document.

The purpose of this **Trauma-Informed Network of Care Roadmap** is to provide health care clinical teams, community-based organizations, and social service agencies with guidance on the key elements and milestones for establishing a robust and effective system for responding to ACE screenings and mitigating the toxic stress response in their community. This document outlines these milestones – for health care clinical teams, as well as for communities – in a specific and actionable manner that can be applied in a variety of settings and contexts.

The Network of Care Milestones for Clinical Teams include:

- **Milestone #1:** Conduct a Readiness Assessment
- **Milestone #2:** Define Clinical Roles and Tasks
- **Milestone #3:** Gather Resources and Get to Know Your Network of Care
- **Milestone #4:** Consider Financing and Technology Needs
- **Milestone #5:** Monitor, Evaluate, and Improve Referral Process

The Network of Care Milestones for Communities include:

- **Milestone #1:** Identify or Establish a Strong Leadership and Accountability Structure
- **Milestone #2:** Connect with Health Care Clinical Teams and Other Resources
- **Milestone #3:** Achieve Community and Health Care Integration
- **Milestone #4:** Consider Financing and Technology Needs
- **Milestone #5:** Evaluate and Improve the Strength of the Trauma-Informed Network of Care

Appendices include detailed information about collecting contact information for network partners, potential financing mechanisms, and characteristics of effective digital health platforms.

We hope you will use this Roadmap to assess where your community stands in its ability to screen for, treat, and heal toxic stress and identify opportunities to strengthen Trauma-Informed Networks of Care to support the well-being of children, adults, and families.

Introduction

Cumulative adversity, especially when experienced during critical and sensitive periods of development, is a root cause of some of the most harmful, persistent, and expensive health challenges facing our state and nation – from heart disease to homelessness.ⁱⁱⁱ Adverse Childhood Experiences (ACEs) are potentially traumatic events that occur in childhood. The term “ACEs” refers to 10 categories of adversities in three domains – abuse, neglect, and household challenges – experienced by age 18 years that were evaluated in the 1998 Centers for Disease Control and Prevention (CDC) and Kaiser Permanente landmark study of the same name.

ACEs are associated, in a dose response fashion, with common and consequential health conditions such as asthma, diabetes, depression, heart disease and cancer. It is now known that one important way in which ACEs increase risk of negative health outcomes is through prolonged activation

of the biological stress response and associated changes to brain, immune, hormonal, and genetic regulatory systems – known as the toxic stress response.ⁱⁱⁱ

There is hope – toxic stress is amenable to treatment. We can act now to change and save lives. We can screen for ACEs and toxic stress risk, intervene early, respond with evidence-based trauma-informed care, and significantly improve the health and well-being of individuals and families. These efforts can also reduce the risk of intergenerational transmission of ACEs and toxic stress.

The ACEs Aware initiative, led by the Office of the California Surgeon General (CA-OSG) and the Department of Health Care Services (DHCS), is an innovative public health approach that forms the clinical foundation of California’s ambitious goal to reduce ACEs in California by half in one generation. Effective January 1, 2020, DHCS began paying Medi-Cal clinicians for conducting ACE screenings for children and adults up to age 65 with full-scope Medi-Cal. CA-OSG and DHCS are partnering with organizations across the California health care system and communities to ensure that these clinical teams have the training, tools, and resources they need to effectively incorporate ACE screening and the appropriate responses, including treatment for toxic stress, into patient care. This Trauma-Informed Network of Care Roadmap is one of many tools that the ACEs Aware Initiative has developed to support clinical teams and communities.

We encourage clinical team members to take advantage of all of the free educational materials available through the [ACEs Aware Resource Page](#), as well as to leverage the [Roadmap for Resilience: The California Surgeon General’s Report on Adverse Childhood Experiences, Toxic Stress and Health](#).

The purpose of this Trauma-Informed Network of Care Roadmap is to provide health care clinical teams, community-based organizations, and social service agencies with guidance on the key elements for establishing a robust and effective system for responding to ACE screenings and mitigating the toxic stress response in a manner that supports the needs of adults, children, and families. A Trauma-Informed Network of Care can take many forms and involves many different partners, but there are several key elements – or milestones – that have emerged as critical to success. This document aims to outline these milestones in a specific and actionable manner that can be applied in a variety of settings and contexts.

Section 1 – Background

- 1.1 What Are ACEs and Toxic Stress?
- 1.2 Why Screen for ACEs and Toxic Stress?
- 1.3 What is Trauma-Informed Care?
- 1.4 What is a Trauma-Informed Network of Care?
- 1.5 Who is in the Network of Care?

1.1 What Are ACEs and Toxic Stress?

The term Adverse Childhood Experiences (ACEs) comes from the landmark 1998 study of the same name by the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente. It describes 10 categories of adversities in three domains experienced by age 18 years (Figure 1). The domains are:

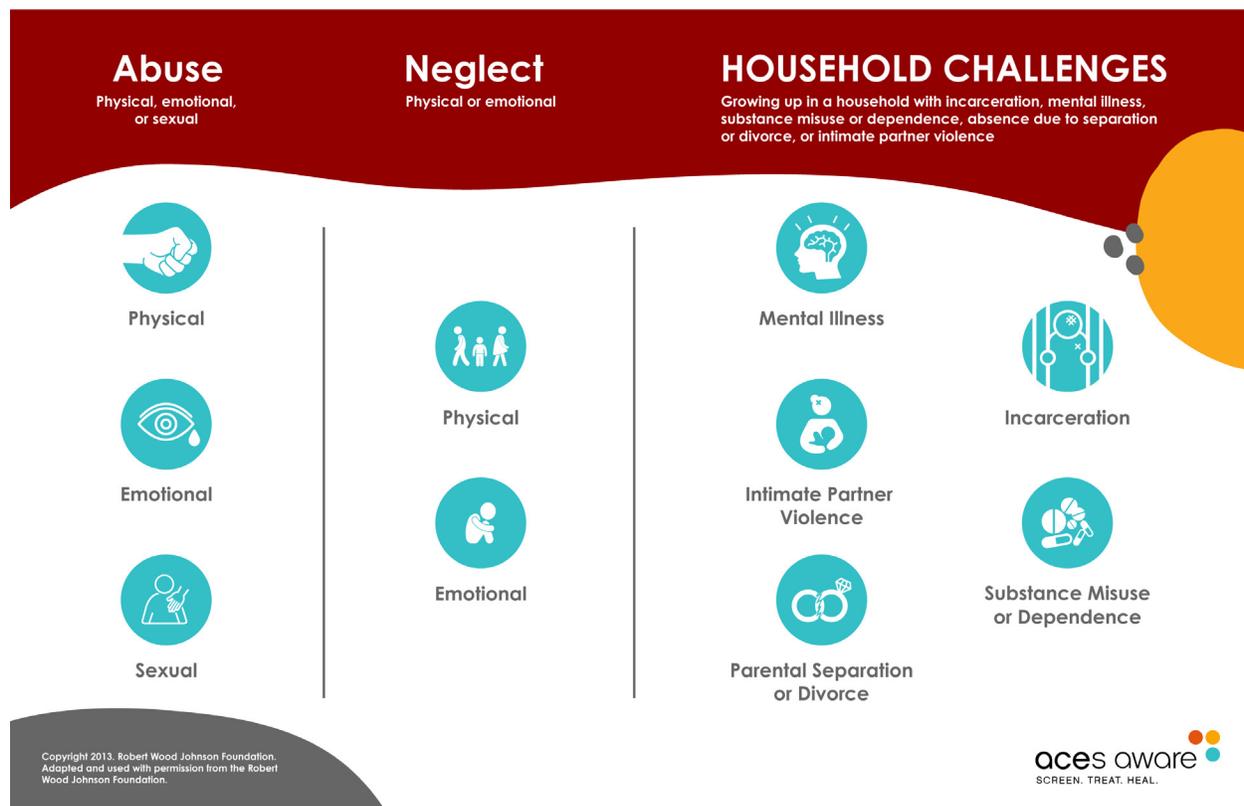
- **Abuse:** Physical, emotional, and sexual abuse
- **Neglect:** Physical and emotional neglect
- **Household Challenges:** Growing up in a household with incarceration, mental illness, substance misuse or dependence, absence due to parental separation or divorce, or intimate partner violence

ACEs are associated, in a dose response fashion, with common and consequential health conditions such as asthma, diabetes, depression, heart disease and cancer. It is now known that one important way in which ACEs increase risk of poor physical, mental, and behavioral health is through prolonged activation of the biological stress response and associated changes to brain development as well as immune, hormonal, metabolic, and genetic regulation. These long-term changes are known as the toxic stress response.^{iv,v,vi,vii} See Section 2 for more information on the biological toxic stress response.

ACEs cross ethnic, socioeconomic, gender, and geographic lines and affect millions of Californians. Children are uniquely vulnerable to the effects of an overactive stress response because their brains and bodies are still developing.

Parental ACEs and toxic stress can also affect the health of subsequent generations – with effects transmitted from parent to child and even to grandchild.

Figure 1. Ten Categories of ACEs



1.2 Why Screen for ACEs and Toxic Stress?

Toxic stress is treatable. A consensus of scientific data demonstrates that early detection and early intervention is associated with improved outcomes related to toxic stress. Preventing ACEs, screening to assess risk of toxic stress, and effectively responding with evidence-based, trauma-informed care in the health care setting and across sectors can significantly improve the health and well-being of individuals and families for generations.

An effective response to ACEs and toxic stress requires action on three levels – primary, secondary, and tertiary prevention – or prevention, early recognition, and early, evidence-based intervention. To break the intergenerational cycle

of ACEs and toxic stress and improve outcomes at scale, both the upstream or systems-level factors and individual-level treatment must be addressed.^{viii}

The health care setting offers a unique opportunity to help patients and families understand the impact of ACEs on health, and to prevent and treat toxic stress. ACE screening involves assessing for the triad of adversity (i.e., ACE score), clinical manifestations of toxic stress (i.e., ACE-Associated Health Conditions, or AAHCs), and protective factors to assess clinical risk for toxic stress and to guide effective responses.^x Of note, though clinical manifestations of toxic stress are currently best assessed by the presence or absence of AAHCs, efforts are underway to develop reliable clinical biomarkers that may inform diagnosis, prognostic precision, and therapeutic targets in identifying and intervening on toxic stress.^x See Section 2 for the ACEs and Toxic Stress Risk Assessment Algorithm, list of AAHCs, and further guidance on assessment of toxic stress risk.

Other Risk Factors for Toxic Stress

In addition to ACEs, factors such as poverty, housing and food insecurity, exposure to racism, homophobia, transphobia, and other forms of discrimination are associated with health risks and are also believed to be risk factors for toxic stress. It is known that socioeconomic status, education, neighborhood and physical environment, employment status, and access to health and social support networks all influence individual health status. However, whether and to what extent these factors act through the toxic stress response is still under investigation. Additionally, while validated odds ratios are available in large, population-based studies utilizing the ten standardized ACE criteria, the strength of association between social determinants other than ACEs and specific health outcomes has not been similarly standardized. For this reason, questions on the ACE screening tools related to other adversities beyond the 10 original ACEs are not included in calculating a person's ACE score or risk of toxic stress. However, clinical team members should address these adversities with referrals to appropriate patient resources and interventions.

1.3 What is Trauma-Informed Care?

Trauma-informed care recognizes and responds to the signs, symptoms, and potential consequences of trauma to support the health needs of patients who have experienced ACEs and other risk factors for toxic stress.

Trauma-informed care is a framework that involves:

- Understanding the prevalence of trauma and adversity and their impacts on health and behavior;
- Recognizing the effects of trauma and adversity on health and behavior;
- Training leadership and clinical team members on responding to patients by incorporating best practices for trauma-informed care;
- Integrating knowledge about trauma and adversity into policies, procedures, practices, and treatment planning; and
- Avoiding re-traumatization by approaching patients who have experienced ACEs or other adversities with non-judgmental support.

Trauma-informed health care must also recognize the mechanisms by which exposure to trauma and adversity lead to disease and seek to interrupt and heal these pathways.

Principles of Trauma-Informed Care

According to the Substance Abuse and Mental Health Services Administration (SAMHSA) [Trauma and Justice Strategic Initiative](#), the following key principles of trauma-informed care should serve as a guide for all health care clinical team members:

1. Establish the physical and emotional safety of patients and staff.
 - When appointments are made, staff can ask patients if there is anything the clinical team member needs to know to make their upcoming visit more comfortable.
 - When the patient arrives, inform them about any anticipated wait times and, when possible, provide a private setting for completing the ACE screening.

2. Build trust between clinical team members and patients.

- Provide a clear description of the purpose of ACE screening and how the responses will inform the clinical team member's assessment and a joint treatment plan.
- Approach patients who have experienced ACEs or other adversities with non-judgmental support.
- Train all clinical team members on how to recognize patient strengths and experiences and build upon them.
- Trauma-informed care training for staff should also include best practices for preventing vicarious traumatization, compassion fatigue, and burnout.

3. Recognize and respond to the signs and symptoms of trauma exposure on physical and mental health.

- Clinical team members should familiarize themselves with the range of ACE-Associated Health Conditions (AAHCs) –including asthma, obesity, cardiovascular disease, and mental health disorders.
- Supplementing the treatment plan with patient education on how to recognize and respond to the role that past or present stressors may be playing in their current health condition(s) is an important part of trauma-informed care.
- Specific and evidence-based interventions for mitigating the toxic stress response (known as “buffering” supports) include enhancing supportive relationships, regular moderate physical activity, nutritional strategies, promotion of sleep hygiene and treatment of sleep disorders, mindfulness, experiencing nature, and mental health care, including psychotherapy, psychiatric care, and/or substance use disorder treatment, if indicated.

4. Promote patient-centered, evidence-based care.
 - Clinical team members should consult evidence-based clinical guidelines for best practices in trauma-informed care and addressing toxic stress.
 - For resources on trauma-informed care, visit ACEsAware.org/TIC.
 - All clinical team members should receive information and resources on how to practice trauma-informed care and offer evidence-based toxic stress interventions.
5. Ensure clinical team member and patient collaboration by bringing patients into the treatment process and discussing mutually agreed upon goals for treatment.
 - Use motivational interviewing techniques to engage patients in discussions about their priorities, preferences, and goals to inform a jointly-formulated treatment plan.
 - Train all clinical team members on how to assess for, recognize, and integrate patient strengths and experiences into the treatment plan. Healing happens through supportive relationships and shared decision-making.
6. Provide care that is sensitive to the patient's racial, ethnic, and cultural background, sexual orientation, and gender identity.
 - Establish policies, practices, and processes that are responsive to the diverse needs of patients.
 - Provide patients with language-appropriate resources, ask for patient information in lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ+) community inclusive ways.
 - Take cultural perspectives into account to ensure that patients understand and are comfortable with the care they receive.

1.4 What is a Trauma-Informed Network of Care?

As the science illuminates the extent to which our experiences and environments shape our biology, there is increased recognition that clinical interventions are necessary, but not sufficient, to reduce the health impacts of ACEs and toxic stress. Cross-sector coordination, including with health care delivery systems, is necessary. Many sectors play a critical role in supporting patients by continuing to provide access to evidence-based stress mitigation strategies.

For purposes of the ACEs Aware initiative, a Trauma-Informed Network of Care is a group of interdisciplinary health, education, and human service professionals, community members, and organizations that support adults, children, and families by providing access to evidence-based “buffering” resources and supports that help to prevent, treat, and heal the harmful consequences of toxic stress. Evidence-based buffering supports that help regulate the stress response are included in Figure 2.

Figure 2. Strategies to Regulate the Stress Response



Sources: Bhushan D, et al. The Roadmap for Resilience: The California Surgeon General's Report on Adverse Childhood Experiences, Toxic Stress, and Health. Office of the California Surgeon General, 2020 DOI:10.48019/PEAM8812; Gilgoff et al. Adverse Childhood Experiences, Outcomes, and Interventions. *Pediatric Clinics* 2020; **67**(2): 259-73.

1.5 Who is in the Trauma-Informed Network of Care?

All entities discussed in this section may be part of a local community's Trauma-Informed Network of Care and have the potential to prevent, treat, and heal toxic stress. There is, however, an expectation that these entities, including those that provide evidence-based buffering supports, are knowledgeable about the principles and strategies of trauma-informed care. The scope of each community's Trauma-Informed Network of Care will vary depending upon the needs and resources of that particular community. Thus, while this definition is meant to be inclusive, the expectation is that each locality will have its own relevant, resilience-enhancing, and trauma-informed ecosystem. Following is a list of organizations, entities, and clinical team member types that have been identified as important partners in an effective Network of Care.



Table 1. Network of Care Membership and Related Evidence-Based Buffering Supports

Clinical Team/ Organization Type	Examples of Buffering Support(s) Provided
Primary Care Clinical Team Members	
<ul style="list-style-type: none"> • Pediatricians • Obstetrician-Gynecologists • Family Physicians • Internal Medicine • Physician Assistants • Nurse Practitioners • Certified Nurse-Midwives • Licensed Midwives • Doulas • Community Health Workers • Social Workers • Case Managers • Federally Qualified Health Centers and Rural Health Clinics 	<ul style="list-style-type: none"> • Patient and family education about ACEs, toxic stress, and mitigation strategies • Supportive relationships with patients, caregivers, and family members • Promotion of healthy relationship norms including education, counseling, and modeling healthy interactions during patient visits • Promotion of sleep hygiene and treatment of sleep disorders • Promotion of regular, moderate physical activity • Nutritional strategies such as anti-inflammatory diet (e.g., Mediterranean diet) • Promotion of mindfulness interventions, such as Mindfulness-based stress reduction (MBSR), meditation, yoga, tai chi • Promotion of indoor green space and outdoor nature usage, including park prescriptions • Referral to parenting supports • Referral to Warm lines (e.g., CalHOPE) • Referral to mental/behavioral health care if necessary • Care coordination and case management • Referral to home visiting programs such as Nurse Family Partnership • Referral to other government and social service programs (e.g., for financial, food security, housing, etc.) • Referral to medical/legal partnerships

Clinical Team/ Organization Type	Examples of Buffering Support(s) Provided
Behavioral Health Clinical Team Members	
<ul style="list-style-type: none"> • County Mental Health Clinicians • Therapists and Counselors • Psychiatrists • Psychologists • Substance Use Disorder Treatment Clinicians • Social Workers • Case Managers • Peer Support Specialists • Federally Qualified Health Clinics and Rural Health Clinics 	<ul style="list-style-type: none"> • Psychotherapy, including Trauma-Informed Cognitive-Behavioral Therapy (TF-CBT), Child-Parent Psychotherapy, Parent-Child Interaction Therapy, Cue-Centered Therapy, Family Systems Therapy, Cognitive Processing Therapy, Prolonged Exposure Therapy, Dyadic Services, and EMDR Therapy • Infant and early childhood mental health services • Psychiatric care • Suicide prevention • Crisis counseling • Promotion of regular, moderate physical activity including yoga and exercise • Promotion of mindfulness interventions, such as MBSR, meditation, yoga, tai chi • Experiencing nature, such as through park prescriptions, and referrals to ecotherapy, wilderness therapy, adventure-based treatment programs • Substance use disorder treatment • Peer support specialist services • Case management and care coordination • Referral to primary care for management of non-neuropsychiatric AAHCs

Clinical Team/ Organization Type	Examples of Buffering Support(s) Provided
Schools/Education	
<ul style="list-style-type: none"> • Pupil Personnel Services-Credentialed Professionals (i.e., school counseling, school nurses, school social work, school psychology, Child Welfare and Attendance, etc.) • School-Based Health Centers • Early Childhood Education Programs (e.g., Early Head Start, Head Start) • Free and Reduced-Price School Meals 	<ul style="list-style-type: none"> • Create opportunities for supportive relationships through art, music, and other group activities and team sports before/ during/after school • Create opportunities for mentoring with caring adults (teachers, coaches, mentors) • Promotion of regular exercise such as through increased indoor and outdoor green space, outdoor recess, and playgrounds • Education and promotion of sleep hygiene • Education and promotion of balanced nutrition • Mindfulness and meditation exercises in school • School-based physical and mental health education and care • Suicide prevention programs • Coordination of Individualized Education Program (IEP) for students exhibiting symptoms of toxic stress • Early childhood development including preschool enrichment • Using restorative justice techniques that emphasize redirection, de-escalation tactics, and prioritize time in the classroom

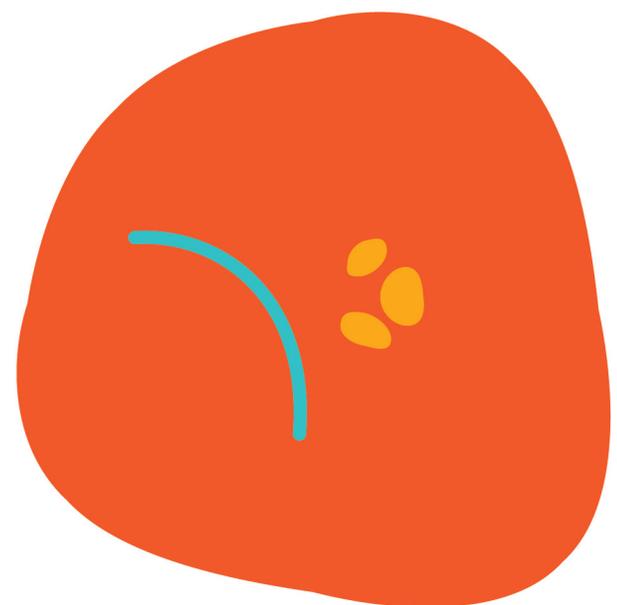
Clinical Team/ Organization Type	Examples of Buffering Support(s) Provided
Early Intervention Services	
<ul style="list-style-type: none"> • Help Me Grow Organizations • ACE Collaboratives • Child Advocacy Centers • Healthy Steps 	<ul style="list-style-type: none"> • Early intervention services and supports • Case management and care coordination • Early childhood development enrichment • Parent education regarding child development, parent-child groups • Child development experts that join pediatric team to promote health, well-being, and school readiness (e.g., Healthy Steps program)
Social Service Programs	
<ul style="list-style-type: none"> • Family Resource Centers • Regional Centers • Home Visiting Programs • CalFresh Food Benefits • Women, Infants, and Children (WIC) Program • Food Banks • Housing Assistance Agencies/ • Homeless Services • Domestic Violence Services and Shelters • Sexual Violence Services • Economic support programs (e.g., CalWORKS, Cal-Learn) • CDSS Family Stabilization Program 	<ul style="list-style-type: none"> • Supportive relationships with patients and families • Immediate physical safety support services • Provision of food and nutrition education • Housing support services • Family-oriented economic supports • Workforce development and employment supports • Child welfare services that provide supports and resources to families and children involved in the child welfare system • Parent mentoring programs and parent support groups • Childcare navigation and services

Clinical Team/ Organization Type	Examples of Buffering Support(s) Provided
Local and County Government Programs	
<ul style="list-style-type: none"> • First 5 • Black Infant Health • Child Abuse Prevention Coordinating Councils • Services for Victims of Violent Crime • County Offices of Education • Parks & Recreation • Adult Protective Services 	<ul style="list-style-type: none"> • Early childhood development support services • First 5 Talk, Read, Sing education campaign • Increase access to physical exercise • Increase access to indoor and outdoor green space/nature such as through parks and playgrounds • Public education on ACEs and toxic stress, and social norms about risky behaviors and AAHCs among other chronic health outcomes
Tribal Organizations	
<ul style="list-style-type: none"> • California Tribal Communities • Urban-Indian Health Agencies • Indian Child Welfare Act • Family Violence Prevention • Tribal Justice System 	<ul style="list-style-type: none"> • Patient education about ACEs/toxic stress and mitigation strategies • Promotion of sleep hygiene and treatment of sleep disorders • Promotion of mindfulness practices • Promotion of indoor green space and outdoor nature usage, including park prescriptions • Nutritional strategies such as anti-inflammatory diet or supplementation of poly-unsaturated fatty acids. • Promotion of regular, moderate physical activity • Parent education regarding child development • Referral to mental/behavioral health care if necessary • Care coordination and case management

Clinical Team/ Organization Type	Examples of Buffering Support(s) Provided
Legal/Justice System	
<ul style="list-style-type: none"> • Juvenile Justice and Probation • Family Courts • Professionals Trained in Collaborative Practice, such as Mediation and Collaborative Divorce Teams • Domestic Violence Support Services • Family Reunification Services • Tribal-State-Court Forum • Medical-Legal Partnerships 	<ul style="list-style-type: none"> • Family support services • Promoting parenting efficacy, resilience, attachment, and family bonds, including reducing family violence • Restorative justice programs • Using redirection and de-escalation tactics • Handle with Care program • After school programs for juvenile offenders (e.g., Project Back-on-Track) • Providing alternatives to traditional criminal court proceedings (e.g., mental health court) • Increasing opportunities, family connection, and reunification for people reentering their communities following interaction with the criminal justice system • Services that address the medical, educational, vocational, and psychosocial needs of individuals and families upon release • Connections to interventions such as multi-systematic therapy, cognitive behavioral therapy, and family-based therapies
Managed Care Networks	
<ul style="list-style-type: none"> • Independent Practice Associations • Medi-Cal Managed Care Plans • County Mental Health Plans • Dental Managed Care Plans • Drug Medi-Cal Organized Delivery System (DMC-ODS) 	<ul style="list-style-type: none"> • Physical, dental, mental health and substance use treatment services • Referrals • Care coordination

Clinical Team/ Organization Type	Examples of Buffering Support(s) Provided
Community-Based Organizations	
<ul style="list-style-type: none"> • National Alliance on Mental Illness (NAMI) • Culturally Specific Clinical Team Members (e.g., Promotoras, LGBTQ community centers, translation services) • Organizations focused on trauma-informed care, specific ACEs, or certain communities 	<ul style="list-style-type: none"> • Promotion of sleep hygiene • Promotion of regular, moderate physical activity • Mindfulness interventions and meditation • Experience nature, including parks and playgrounds • Patient and family education about ACEs, toxic stress, and mitigation strategies • Supportive relationships with patients and families that are culturally and linguistically appropriate • Education on balanced nutrition • Mental health care and substance use disorder support services • Peer support services • Crisis counseling • Family support services
Faith-Based Organizations	
<ul style="list-style-type: none"> • Faith-Based Institutions • Faith-Affiliated Social Service Organizations 	<ul style="list-style-type: none"> • Supportive relationships with patients and families • Provision of food to support balanced nutrition • Mental health care supports • Crisis counseling

Clinical Team/ Organization Type	Examples of Buffering Support(s) Provided
Digital Health Technology Platforms	
<ul style="list-style-type: none"> • Systems designed to connect people to services (e.g., Unite Us, Aunt Bertha, FINDConnect) • Care coordination of services (e.g., Mahmee, Emilio Health) • Mindfulness services, (e.g., Headspace, Calm) 	<ul style="list-style-type: none"> • Identify local resources that are available for referral for ACE prevention and toxic stress mitigation • Connect patients to resources • Coordinate referrals, data, and care • Coordinate care for individuals within families receiving care separately (e.g., in the child vs. adult health systems) • Optimize the availability, efficiency, and effectiveness of services provided across sectors (e.g., Handle with Care initiative) • Support sleep hygiene • Support mindfulness and meditation practices



Section 2 – Screening and Responding to ACEs and Toxic Stress

- 2.1 The Biological Stress Response**
- 2.2 ACE Screening Overview**
- 2.3 ACE Screening Clinical Workflow**
- 2.4 ACE Screening Tools**
- 2.5 ACEs and Toxic Risk Assessment Algorithms for Pediatrics and Adults**

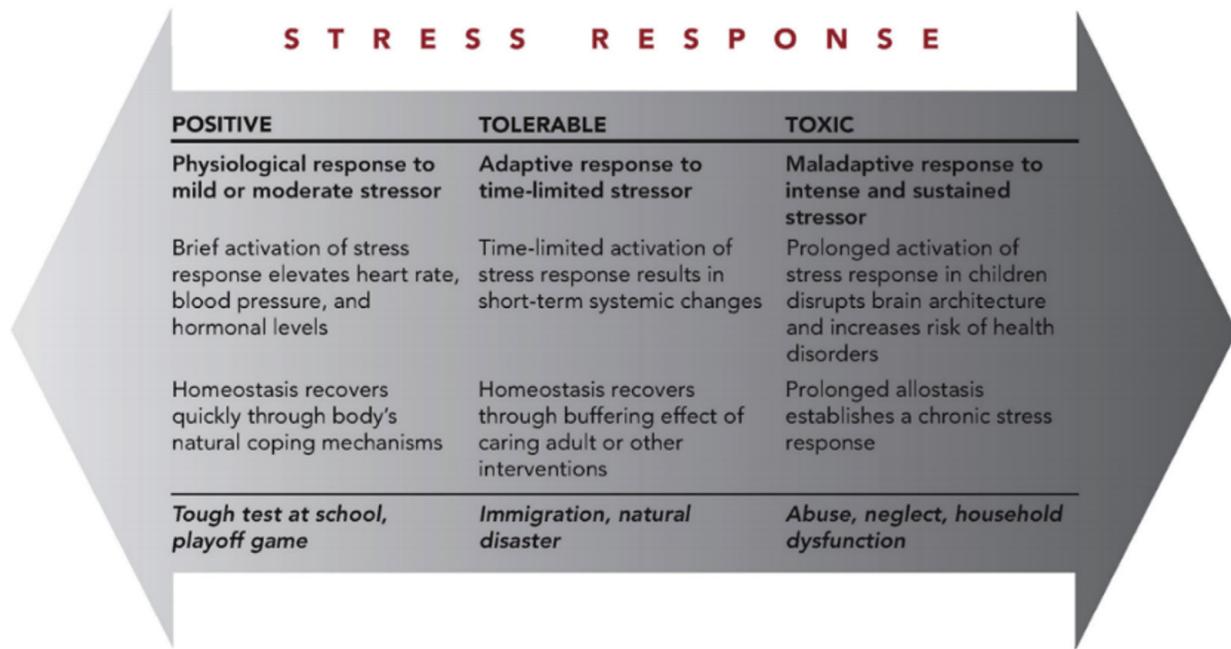
Screening for ACEs and toxic stress helps primary care clinical teams assess clinical risk for toxic stress and guide effective responses. The health care setting offers a unique opportunity to help patients and families understand the impact of ACEs on health, and to prevent and treat toxic stress. Clinical team members can apply targeted interventions to prevent further exposures, strengthen resilience, and provide evidence-based buffering care and resources.^{xi} While many ACE-informed treatment plans can be managed within the primary care setting, some patients need additional support through referrals to in-house and/or community-based resources that can provide ongoing and/or enhanced buffering supports.

This section explains the biological stress response, provides an overview of ACE screening and clinical workflows, and offers guidance on how to apply the *ACEs Aware ACEs and Toxic Risk Assessment Algorithms for Pediatrics and Adults* to identify a patient’s risk for toxic stress and determine an appropriate treatment plan.

2.1 The Biological Stress Response

The biological stress response has been characterized in three types – positive, tolerable, and toxic (see Figure 3).^{xii} Not all stress is bad. Some stress is a necessary and even essential part of growth and development; it can help us transiently mobilize energy and increase focus to perform better at the task at hand, such as an upcoming test, the big game, or a presentation at work. The **positive stress response** is characterized by brief elevations in stress hormones, heart rate, and blood pressure in response to a routine stressor.^{xiii}

Figure 3. The Spectrum of Positive, Tolerable, and Toxic Stress



Source: Bucci M, Marques SS, Oh D, Harris NB. Toxic Stress in Children and Adolescents. *Advances in Pediatrics* 2016; 63: 403-28. DOI: [10.1016/j.yapd.2016.04.002](https://doi.org/10.1016/j.yapd.2016.04.002). Reproduced with permission.

The **tolerable stress response** “activates the body’s alert systems to a greater degree as a result of more severe, longer-lasting difficulties, such as the loss of a loved one, a natural disaster, or a frightening injury. If the activation is time-limited and buffered by relationships with adults who help the child adapt, the brain and other organs recover from what might otherwise be damaging effects.”^{xiv}

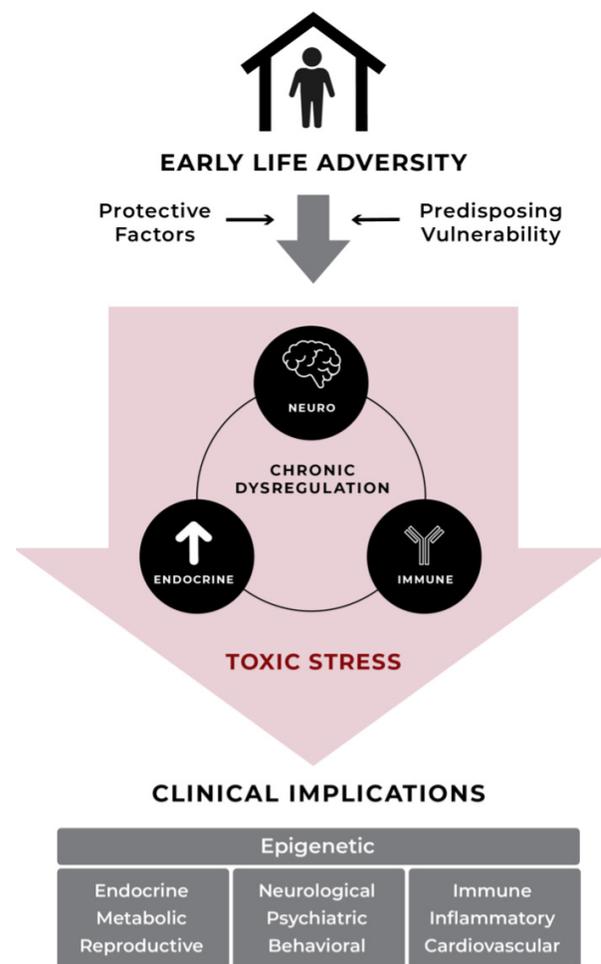
The **toxic stress response** is defined by the National Academies of Science, Engineering, and Medicine’s (NASEM) 2019 consensus report as, “prolonged activation of the stress response systems that can disrupt the development of brain architecture and other organ systems, and increase the risk for stress-related disease and cognitive impairment, well into the adult years... For children, the result is the disruption of the development of brain architecture and other organ systems and an increase in lifelong risk for physical and mental health disorders.”^{xv}

2.2 ACE Screening Overview

The toxic stress response is influenced by a combination of cumulative adversity, buffering/protective factors, and predisposing vulnerability (Figure 4). Therefore, ACE screening involves assessing for the triad of *adversity* (i.e., the ACE score), clinical manifestations of *toxic stress* (i.e., ACE-Associated Health Conditions, or AAHCs), and *protective factors* to assess clinical risk for toxic stress and to guide an appropriately tailored treatment and follow-up plan, including referrals, if indicated.^{xvi}

Of note, though the science establishing the biological mechanisms of toxic stress is robust, there currently exist no widely agreed upon clinical diagnostic criteria for toxic stress. In the absence of such diagnostic criteria, the combination of an ACE score and the presence or absence of ACE-Associated Health Conditions (AAHCs) may serve as a somewhat crude, but useful, proxy for the likely presence of a toxic stress response. Efforts are underway to develop reliable clinical biomarkers that may inform diagnosis, prognostic precision, and therapeutic targets in identifying and intervening on toxic stress.^{xvii} Pending the development of confirmatory diagnostic criteria and/or biomarkers, the evidence supports characterizing a patient as being at low, intermediate, or high risk of manifesting a toxic stress response.^{xviii}

Figure 4. Toxic Stress: Underlying Factors and Clinical Implications



Adapted from Bucci M., Marques S. S., Oh D., Harris N. B. (2016). Toxic Stress in children and adolescents. *Advances in Pediatrics*, 63(1), 403-428.

2.3 ACE Screening Clinical Workflow

Clinical workflows for ACE screening should be designed to focus on assessing the risk for toxic stress, identifying the needs of patients, building trust with patients, and facilitating a trauma-informed response, including strengths and protective factors. Each primary care clinic/practice must identify the tasks that need to be completed and which staff will be assigned to them – to develop the team-based approach that is critical to both successful ACE screening and clinical response to the risk of toxic stress.

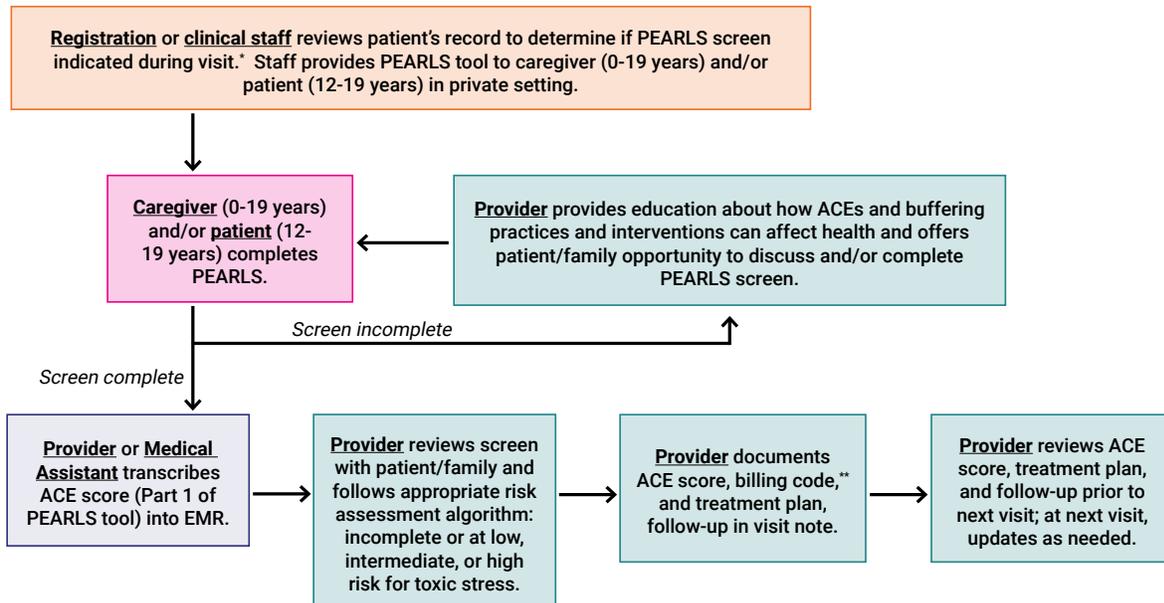
As part of developing the clinical workflow, it is important for primary care team members to identify what they are going to do when a patient is identified as being at moderate or high risk of having a toxic stress physiology, what the available resources are in clinic and in the community, and the ways in which they can connect families to needed supports. Patient and family representatives should be invited to participate in developing clinical workflows whenever possible.^{xix}

Clinical workflows will vary based on existing processes, the team composition, and the available resources within the clinic and in the community. However, all ACE screening clinical workflows should include the following key elements:^{xx}

- Administration of the screening tool
- ACE screening tool completion
- Review and scoring of the completed screening
- Application of the [ACEs and Toxic Stress Risk Assessment Algorithm](#) and determination of clinical response to ACE screening results, including connections with internal resources and/or referrals to community-based organizations as needed
- Follow-up plan
- Documentation and tracking of the plan
- Medi-Cal billing and claim submission

The California Surgeon General’s Clinical Advisory Subcommittee has developed the following suggested workflows for incorporating ACE screening and response into clinical care, adapted for pediatric and adult practices (Figures 5 and 6).

Figure 5. Pediatric ACE Screening Clinical Workflow



*PEARLS is recommended to be completed once per year.

**Healthcare Common Procedure Coding System (HCPCS) billing codes for ACE scores:

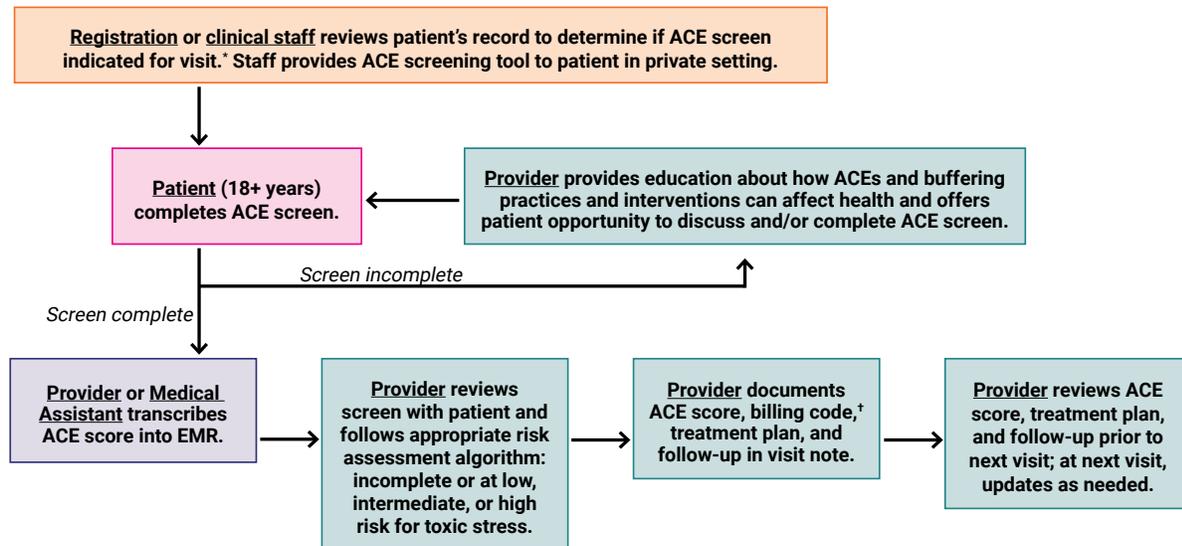
G9919: ACE score ≥ 4, high risk for toxic stress

G9920: ACE score of 0 – 3, lower risk for toxic stress. For purposes of coding, scores of 1-3 with ACE-Associated Health Conditions should be coded as G9920, even though patient falls into the high-risk category of the clinical algorithm.

***PEARLS to be completed once per year, and no less often than every 3 years

For those with visual impairment, a more accessible version of this workflow/algorithm is available on the [ACEs Aware website](#).

Figure 6. Adult ACE Screening Clinical Workflow



*ACE tool is recommended to be completed once per adult, per lifetime.

†Healthcare Common Procedure Coding System (HCPCS) billing codes for ACE scores:

G9919: ACE score ≥ 4 , at high risk for toxic stress.

G9920: ACE score of 0 – 3, at lower risk for toxic stress (on algorithm, at either low or intermediate risk).

For those with visual impairment, a more accessible version of this workflow/algorithm is available on the [ACEs Aware website](#).

2.4 ACE Screening Tools

At the beginning of an appointment, the [age-appropriate screening tool](#) should be given directly to adult patients, caregivers for children and adolescents, and adolescent patients for completion in a private setting when possible. The screening tool is used to determine a patient's ACE score. Different screening tools are used for children and adults.

The Pediatric ACEs and Related Life-events Screener (PEARLS) is used to screen children and adolescents ages 0-19 for ACEs. PEARLS was developed by the Bay Area Research Consortium on Toxic Stress and Health (BARC), a partnership between the Center for Youth Wellness, the University of California, San Francisco (UCSF), and UCSF Benioff Children's Hospital Oakland.

The PEARLS includes an ACE screen (Part 1) as well as a screen for additional adversities (Part 2). There are three versions of the tool, based on age and reporter:

- **PEARLS child tool**, for ages 0-11, to be completed by a caregiver
- **PEARLS adolescent tool**, for ages 12-19, to be completed by a caregiver
- **PEARLS for adolescent self-report tool**, for ages 12-19, to be completed by the adolescent

Clinicians receive a single Medi-Cal payment if the adolescent or the caregiver completes the PEARLS adolescent tool. However, the best practice is for both the adolescent and the caregiver to complete a tool. When these yield different scores, the higher score should be used in toxic stress risk assessment, treatment planning, and billing.

The ACE Questionnaire for Adults was adapted from the work of Kaiser Permanente and the Centers for Disease Control and Prevention – a version of the tool has been compiled by the CA-OSG and DHCS in consultation with the California Surgeon General’s Clinical Advisory Subcommittee. If an alternative version of the ACE Questionnaire for Adults is used, it must contain questions on the 10 original categories of ACEs to qualify for Medi-Cal payment. For 18- and 19-year olds, either tool may be used.

Both tools are available in 17 languages and in de-identified and identified formats:

- **De-Identified:** Respondents count the number of ACE categories on the screening tool and indicate only the total score – without identifying which ACE(s) they or their child have experienced.
- **Identified:** Respondents count the number of ACE categories on the screening tool and specify which ACE(s) they or their child have experienced.

Clinical teams may choose whether to use de-identified or identified tools based on their and their patient’s comfort level. See Trauma-Informed ACE Screening Strategies below for information on the de-identified and identified tools and screening in a trauma-informed manner.

Medi-Cal payment is available for ACE screenings based on the following schedule:

- **Children and Adolescents: Under Age 21:** Payment is permitted for ACE screening and periodic rescreening as determined appropriate and medically necessary, not more than once per year, per practice (per managed care plan). Children should be screened periodically to monitor the possible accumulation of ACEs and increased risk for a toxic stress physiology.
- **Adults:** Age 21 through 64: Payment is permitted once per adult lifetime (through age 64), per practice (per managed care plan). Screenings completed while the person is under age 21 years do not count toward the one screening allowed in their adult lifetime for which payment is available. Adults should be screened at least once in adulthood – although, by definition, ACEs occur in childhood, patients’ comfort with disclosure may change over time, so re-screening for adults can be considered.

Trauma-Informed ACE Screening Strategies

ACE screening can induce a spectrum of emotional reactions in patients. Screening requires patients to reflect on and revisit upsetting parts of their lives, which may activate distressing feelings or thoughts for patients, as well as for clinical team members conducting the screenings. Some people who have experienced ACEs or other adversities may feel shame, blame, anger, sadness, and/or embarrassment. However, some patients find the experience empowering and report a positive emotional response to being able to make important connections between ACEs, toxic stress, and their current health.

Patients with higher ACE scores with an identified screen were more likely to have strong emotional reactions, both positive and negative, according to pilot data. De-identified ACE screening was much less likely to elicit a strong emotional reaction for patients, either positive or negative.^{xxi}

Therefore, it is important for clinical teams to offer ACE screening and response in a trauma-informed manner that avoids re-traumatizing patients. One way to do this is by using a de-identified screening tool, which allows primary care clinical team members to elicit only the information they need to establish the risk of a toxic stress physiology, limit risks for re-traumatization, and allows for trauma-trained professionals to delve into the specifics more appropriately, as needed. Other strategies for avoiding re-traumatization include:

- Maintain emotional safety** by approaching patients who have experienced ACEs and other adversities with non-judgmental support. Assess for, recognize, and integrate patient strengths and experiences into a jointly formulated treatment plan.
- In the primary care context, clinical care team members can **provide supportive, compassionate responses to trauma histories of ACEs or other adversities without eliciting specific details.**
- Empower patients** by providing education on simple things they can do every day, at home, to recognize how stress shows up in their bodies and help **regulate their stress response system and buffer the negative impacts of toxic stress.**
- Refer patients to mental health clinicians** who are trained in evidence-based trauma-specific therapy, if necessary.
- Practice compassionate resilience** to maintain clinical team member well-being while caring for patients to be able to combat compassion fatigue, burnout, secondary traumatic stress, vicarious trauma, and related concerns.

Partial completion of the ACE screen may indicate discomfort or a lack of understanding of the questions. In these cases, clinical team members should educate patients about the purpose of ACE screening and how the information will be used. Clinical team members should also act according to the information that the patient is willing to share. It is critical for clinical teams to continue to build relationships with patients, which may help patients disclose additional information at future appointments.

2.5 ACEs and Toxic Risk Assessment Algorithms for Pediatrics and Adults

The [ACEs and Toxic Stress Risk Assessment Algorithms](#) (Figures 7 and 8) for pediatric and adult care was created by a team of expert researchers and clinicians as part of the California Surgeon General’s Clinical Advisory Subcommittee, to assist clinical team members who screen for ACEs in assessing risk for toxic stress.^{xxii}

This section introduces the Algorithms and describes each element to assess for: adversity based on ACE score, ACE-Associated Health Conditions (AAHCs) to identify clinical manifestations of toxic stress, and protective factors – to inform clinical risk of toxic stress and guide treatment planning.

Figure 7. ACEs and Toxic Stress Risk Assessment Algorithm – Pediatrics

	Low Risk	Intermediate Risk	High Risk	High Risk	Unknown Risk
ACE screen (Part 1)	Score of 0	Score of 1-3	Score of 1-3	Score of 4+	Score unknown (incomplete)
Assess for associated health conditions	↓	Without associated health conditions	With associated health conditions	With or without associated health conditions	↓
Determine response and follow-up	Provide education, anticipatory guidance on ACEs, toxic stress, and buffering factors.	Provide education, anticipatory guidance on ACEs, toxic stress, and buffering factors. Assess for protective factors and jointly formulate treatment plan. Link to support services and interventions, as appropriate.	Provide education about toxic stress, its likely role in patient’s health condition(s), and buffering. Assess for protective factors and jointly formulate treatment plan. Link to support services and interventions, as appropriate.	Provide education about toxic stress, its likely role in patient’s health condition(s), and buffering. Assess for protective factors and jointly formulate treatment plan. Link to support services and interventions, as appropriate.	Provide education on ACEs, toxic stress, and buffering factors. Re-offer at next physical.

This algorithm pertains to the ACE score (Part 1 of PEARLS), whose associations with health conditions are most precisely known. Additional adversities (Part 2 of PEARLS) may also increase risk for a toxic stress response and should be addressed with appropriate services, but should NOT be added to the ACE score for this algorithm. Partial completion may indicate discomfort or lack of understanding. If partial response indicates patient is at intermediate or high risk, follow the guidelines for that category.

If the **ACE score is 0**, the patient is at “low risk” for toxic stress. The provider should offer education on the impact of ACEs and other adversities on health and development as well as on buffering factors and interventions. If the **ACE score is 1-3** without ACE-associated health conditions, the patient is at “intermediate risk” for toxic stress. If the **ACE score is 1-3** and the patient has at least one ACE-associated condition, or if the **ACE score is 4 or higher**, the patient is at “high risk” for toxic stress. In both cases, the provider should offer education on how ACEs may lead to toxic stress and associated health conditions, as well as practices and interventions demonstrated to buffer the toxic stress response, such as sleep, exercise, nutrition, mindfulness, mental health, experiencing nature, and healthy relationships. The provider should also assess for protective factors, jointly formulate a treatment plan, and link to supportive services and interventions, as appropriate.

Figure 8. ACEs and Toxic Stress Risk Assessment Algorithm – Adults

		Adverse Childhood Experiences (ACEs) and Toxic Stress Risk Assessment Algorithm			
		Low Risk	Intermediate Risk	High Risk	Unknown Risk
ACE screen (top box)	Score of 0-3	Score of 1-3	Score of 4+	Score unknown (incomplete)	
Assess for associated health conditions	Without associated health conditions	With associated health conditions	With <u>or</u> without associated health conditions		
Determine response and follow-up	Provide education about ACEs, toxic stress, and resilience. Assess for protective factors.	Provide education about toxic stress, its likely role in patient's health condition(s), and resilience. Assess for protective factors and jointly formulate treatment plan. Link to support services and treatment, as appropriate.	Provide education about toxic stress, its likely role in patient's health condition(s), and resilience. Assess for protective factors and jointly formulate treatment plan. Link to support services and treatment, as appropriate.	Provide education on ACEs/ toxic stress and buffering/ resilience. Re-offer at next physical.	

Partial completion may indicate discomfort or lack of understanding. If partial response indicates patient is at intermediate or high risk, follow the guidelines for that category.

If the **ACE score is 0-3** without ACE-Associated Health Conditions, the patient is at “low risk” for toxic stress physiology. The provider should offer education on the impact of ACEs and other adversities on health (including reviewing patient's self-assessment of ACEs' impact on health), buffering/protective factors, and interventions that can mitigate health risks. If the **ACE score is 1-3** with ACE-Associated Health Conditions, the patient is at “intermediate risk.” If the **ACE score is 4 or higher**, even without ACE-associated health conditions, the patient is at “high risk” for toxic stress physiology. In both cases, the provider should offer education on how ACEs may lead to a toxic stress response and associated health conditions, as well as practices and interventions demonstrated to buffer the toxic stress response, such as sleep, exercise, nutrition, mindfulness, mental health, experiencing nature, and healthy relationships. The provider should also assess for protective factors, jointly formulate a treatment plan and link to supportive services and interventions, as appropriate.

ACE Score Calculation

The ACE score refers to the total number of “yes” answers to the 10 ACE questions (from Part 1 of the PEARLS and from the ACE Questionnaire for Adults). The ACE score refers to the total number of ACE categories experienced, not the severity or frequency of any one category. ACE scores range from 0 to 10. Scores are categorized into ranges to help inform the appropriate clinical response. The higher a patient's ACE score, the greater the risk for a toxic stress response and ACE-Associated Health Conditions (AAHCs).

However, the ACE score is only one component of ACE Screening. A complete ACE screen involves assessing for the triad of adversity (ACE score), clinical manifestations of toxic stress (ACE-Associated Health Conditions), and protective factors. The first two components are used in assessing clinical risk

for toxic stress and all three help to guide effective responses.^{xxiii} Even patients with lower ACE scores may exhibit toxic stress physiology. Some individuals who have experienced ACEs may not have ACE-Associated Health Conditions (AAHCs). ACE screening is based on a probabilistic, rather than a deterministic, framework to alert clinical teams which patients are at greater health risk based on population health data.^{xxiv}

As noted in Section 1, there are other adversities that may be risk factors for toxic stress, such as exposure to racism and discrimination. While adversities beyond the 10 original ACEs are not included in calculating a person's ACE score, clinical teams should consider and address them with referrals to appropriate patient resources and interventions.

Understanding the Clinical Manifestations of Toxic Stress

ACE-Associated Health Conditions (AAHCs) are health conditions for which there is empirical evidence showing a strong association, in a dose-response fashion, between ACE exposure and health outcomes, as well as plausible biological mechanisms underlying such associations. AAHCs include cardiovascular, pulmonary, immune, metabolic, mental health, and substance use conditions.^{xxv}

Beginning in 2019, the Office of the California Surgeon General reviewed the literature and compiled a list of [ACE-Associated Health Conditions \(AAHCs\)](#) for the ACEs Aware initiative. In children, AAHCs include asthma, headaches, attention-deficit hyperactivity disorder (ADHD), poorer dental health, and depression, among others. In adults, AAHCs include diabetes, chronic obstructive pulmonary disease (COPD), chronic pain, and neuropsychiatric disorders. For a complete list of AAHCs in children and adults is available on the [ACEs Aware website](#). While the relationship between ACEs and mental health outcomes is most commonly recognized, a recent meta-analysis demonstrates that the single greatest driver of ACE-associated health care costs is cardiovascular disease.^{xxvi}

Clinical teams should assess their patients for ACE-Associated Health Conditions (AAHCs) by talking with them and reviewing and assessing their clinical history, symptoms, medical conditions, and protective factors. As discussed in Section 3, Milestone 2, when primary care clinical team members refer patients to specialty clinicians (as appropriate), noting the patient's risk of toxic stress can help inform treatment planning.

Assess for Protective Factors That Could Mitigate the Impacts of Toxic Stress

The science of child and human development demonstrates the importance of cumulative protective factors or positive childhood experiences (PCEs) to lifelong health.^{xxvii,xxviii,xxix} The accumulation of positive experiences during childhood can buffer the developing brain and body from stress and build resilience.^{xxx} Resilience refers to the ability to withstand or recover from stressors, and results from a combination of extrinsic and intrinsic factors, such as safe, stable, and nurturing relationships with family members and others and predisposing biological susceptibility.^{xxxi}

Clinical teams should assess patients for protective factors that have been shown to mitigate the impact of toxic stress – including supportive relationships, environments, and community resources. While protective factors can co-exist with ACEs and can reduce the risk that ACEs will lead to toxic stress and associated negative outcomes,^{xxxii,xxxiii,xxxiv} more research is necessary (such as standardization of assessment of protective factors) before application for clinical use. However, protective factors are a critical part of ACE screening and should be used in informing the patient's treatment plan.

For example, an adult patient who is found to be at low risk of toxic stress who has a number of protective factors in place may not need any additional interventions or referrals beyond patient education. However, a patient determined to be at intermediate risk of toxic stress with limited social supports may benefit from specific interventions that will interrupt the toxic stress response, as well as referrals for community and/or mental health resources.^{xxxv}

Identify Risk for Toxic Stress

Based on the ACE score and the presence or absence of ACE-Associated Health Conditions (AAHCs), clinical team members can assess a patient’s risk for toxic stress according to three strata: low risk, intermediate risk, and high risk (Tables 2 and 3, adapted from the *ACEs and Toxic Stress Risk Assessment Algorithm*).

Table 2. Pediatrics – Risk for Toxic Stress

Establish ACE Score	Presence of AAHCs	Risk of Toxic Stress
0	–	Low Risk
1 – 3	No	Intermediate Risk
1 – 3	Yes	High Risk
4+	Yes or No	

Table 3. Adults – Risk for Toxic Stress

Establish ACE Score	Presence of AAHCs	Risk of Toxic Stress
0 – 3	No	Low Risk
1 – 3	Yes	Intermediate Risk
4+	Yes or No	High Risk

Determine Clinical Response and Follow-Up

Based on a patient’s risk for a toxic stress response and the protective factors that are in place, clinical teams should work with patients to jointly develop an evidence-based treatment plan. The clinical response to ACEs and toxic stress should start with addressing any immediate safety concerns, with attention to key principles of trauma-informed care. The treatment strategy consists of education to help patients recognize and respond to the role that past or present stressors may be playing in their current health conditions and addressing toxic stress physiology as a core component of treating ACE-Associated Health Conditions (AAHCs).^{xxxvi}

For both children and adults, addressing current stressors, increasing the total dose of buffering and protective factors such as safe, stable, and nurturing relationships and environments are associated with decreased metabolic, immunologic, neuroendocrine, and inflammatory dysregulation, and improved physical and psychological health. Even when treatment comes later in life,

for individuals with ACEs, addressing the resulting toxic stress physiology is important for improving ACE-Associated Health Conditions (AAHCs), as well for averting future consequences.^{xxxvii}

Clinical Response to ACEs and Toxic Stress

The *ACEs and Toxic Stress Risk Assessment Algorithm* indicates providing:

- Education and anticipatory guidance (proactive counseling that anticipates likely upcoming concerns) on ACEs, toxic stress, and protective factors;
- Evidence-based stress mitigation strategies; and
- Links to both internal resources and community-based support services and interventions, as appropriate.

The clinical response needs will vary by patient. Many ACE- and toxic stress-informed treatment plans can be managed within the primary care home. For primary care clinical team members, understanding that an overactive (or in some cases underactive) stress response may be part of the physiologic mechanism of the patient's presenting symptom can be an important part of informing differential diagnosis and clinical decision-making to maximize the potential for effective treatment.

The clinical response to identification of ACEs and increased risk of toxic stress should include:

- Applying principles of trauma-informed care**, such as establishing trust, safety, and collaborative decision-making;
- Supplementing usual care for ACE-Associated Health Conditions (AAHCs) by providing **patient education** on toxic stress and offering strategies to regulate the stress response, including:
 - a. Supportive relationships, including with caregivers (for children), other family members, and peers
 - b. Promotion of sleep hygiene and treatment of sleep disorders
 - c. Anti-inflammatory diet (such as the Mediterranean diet)

- d. Regular, moderate physical activity
 - e. Mindfulness interventions such as MBSR and meditation
 - f. Experiencing nature
 - g. Mental health care, including both mild-to-moderate and specialty psychotherapy or psychiatric care, and substance use disorder treatment, when indicated;
- Validating** existing strengths and protective factors;
 - Referrals to needed patient resources or interventions**, such as educational materials, social workers, school agencies, care coordination or patient navigation, community health workers, as well as the stress-mitigation strategies listed above; and
 - Follow up** as necessary, using the presenting AAHCs as indicators of treatment progress.

As outlined above, clinical teams should educate patients on stress mitigation strategies that have been shown to counteract the toxic stress response and improve health and well-being. Primary care clinical teams can use these strategies as a framework for patient education and, in addition to usual care for ACE-Associated Health Conditions (AAHCs), facilitate connections to clinic-based resources available to mitigate toxic stress.

Some patients will benefit from referrals to internal or external mental health clinicians, specialty clinicians, and/or to community-based organizations and agencies that can provide additional and enhanced buffering supports. As discussed in depth throughout this Roadmap, community-based organizations and agencies play a critical role in supporting patients in adopting stress-mitigation strategies.

This section covered what primary care clinical care teams can do to screen for ACEs and toxic stress risk, develop patient-centered trauma-informed clinical workflows, and develop treatment plans based on the *ACEs and Toxic Risk Assessment Algorithm*. The following sections cover how to improve connections between Medi-Cal clinical care teams and community-based organizations that will mitigate the impact of toxic stress on children, adults, and families and promote resilience through Trauma-Informed Networks of Care.

Section 3 – Milestones for Clinical Care Teams

This section is designed to provide a set of specific, actionable “milestones” that health care clinical teams should consider and achieve to fully engage with the Trauma-Informed Network of Care in their community. Clinical care team milestones include:

Milestone #1: Conduct a Readiness Assessment

Milestone #2: Define Clinical Roles and Tasks

Milestone #3: Gather Resources and Get to Know Your Network of Care

Milestone #4: Consider Financing and Technology Needs

Milestone #5: Monitor, Evaluate, and Improve Referral Process

Milestone #1: Conduct a Readiness Assessment

First and foremost, it is important for health care clinical care teams to educate themselves about how ACEs create the potential for a toxic stress response in their patients, and the importance of incorporating ACE screening and trauma-informed care in their practice. A readiness assessment includes:

- Assessing the number of clinical team member who have completed the [Becoming ACEs Aware in California Training](#);
- Ensuring that clinical care team members [attest](#) to having completed the training in order to receive Medi-Cal payment for conducting ACE screenings;
- Identifying ACEs-related training resources for staff;
- Assessing clinical staffing model to identify the internal resources to support referral and response activities, such as:
 - Staff who could serve as care coordinators;
 - Referral sources co-located within your clinic/system; and if not,
 - Changes that could be made to facilitate a smooth referral and response process;

- Implementing an ACE screening tool, response algorithm, and clinical workflow (as discussed in Section 2);
- Incorporating trauma-informed care into and across your practice (as discussed in Section 2);
- Engaging with your community to understand resources that will make up an effective Network of Care for adults, children, and families.

Becoming ACEs Aware in California

The [Becoming ACEs Aware in California Training](#) is a free, two-hour training to learn about ACEs, toxic stress, screening, risk assessment, and evidence-based care to effectively intervene on toxic stress.

Clinical care team members can receive 2.0 Continuing Medical Education (CME) and 2.0 Maintenance of Certification (MOC) credits upon completion.

The training is available to and encouraged for any clinical care team member, but it is particularly geared towards primary care clinicians who serve Medi-Cal (California's Medicaid program) beneficiaries.

Attestation

Effective January 1, 2020, qualified Medi-Cal clinical care team members began receiving payment for screening children and adults for ACEs. Medi-Cal clinical care team members must [self-attest](#) to completing certified training to receive payment for screening.

Staff Training

The ACEs Aware website has links to [resources](#) for all members of the primary care team. While approaches for responding to ACEs, ACE-Associated Health Conditions (AAHCs), and toxic stress may differ by practice setting or community, the website aggregates and shares learnings, research, practices, and experiences that advance the standard of care for ACEs and toxic stress.

Assess the Clinical Staffing Model

Clinical settings vary widely in the types and number of staff members available. Some may have a doctor, one or two nurses, and front desk staff; others may have a fully integrated care team that includes a care coordinator, a social worker, and a mental health professional in addition to the primary care clinical care team members. For more discussion on how to incorporate trauma-informed care tasks into workflows, see **Milestone #2: Define Clinical Roles and Tasks**.

Incorporate Trauma-Informed Care Across Practices

The principles of trauma-informed care include establishing trust, safety, and collaborative decision-making. ACE screening and the assessment of toxic stress risk and ACE-Associated Health Conditions (AAHCs) provides critical information about the risk of a patient experiencing toxic stress physiology. If screening identifies a risk of toxic stress and/or potential AAHCs, after discussion with the patient or family, a referral to support services and interventions may be appropriate. The primary care team should also take action to address unmet basic needs (food insecurity, housing instability, access to green space) and health condition management (asthma, mental health needs, diabetes, etc.).

Whether a clinic has a built-in care team or refers out to existing resources to provide this support to patients, it is crucial that there is an established clinical workflow. The workflow should include the appropriate response and follow-up from the *ACEs and Toxic Stress Risk Assessment Algorithm* and options for internal and external referrals to provide patients with the appropriate buffering supports against toxic stress physiology. For more detail on establishing a trauma-informed clinical workflow, see Section 2.

Engage with Community

For more information on how to engage with community resources, see **Milestone #3: Gather Resources and Get to Know Your Network of Care**.

Case Study

Redwood Pediatrics in Fortuna, CA is an example of an independent small practice and Rural Health Clinic that conducts ACE screenings despite not having a robust Network of Care for referrals yet. The clinical care team consists of two physicians, a pediatric nurse practitioner, a registered nurse, two medical assistants, a referral coordinator, a front desk staff member, and a bookkeeper.

After a patient is screened, the ACE score is recorded in the EHR to inform the primary care clinician that the child and family has a history of trauma and could be at risk for toxic stress. The pediatricians deliver healing strategies, such as acknowledging and supporting strengths, reducing stigma, and other patient education. They partner with the referral coordinator in connecting their patients to external resources after the visit. Patients sign a release of information so patient information may be shared with outside organizations to link them to services. Community partners include Partnership Health Plan, Beacon Health Options, Humboldt First 5, and the Humboldt Network of Family Resource Centers (HNFRC).

The clinical care team at Redwood Pediatrics would benefit from bi-directional referrals. They currently rely on patient self-reporting to find out if patients and families successfully receive further services. To that end, the North Coast Health Improvement and Information Network (NCHIIN) is working to create a community resource directory and Health Information Exchange funded by the county and community agencies. This process includes HNFRC, the Department of Health and Human Services, local hospitals, and the Open Door Community Health Center.

Milestone #2: Define Clinical Roles and Tasks

The ACE screening, treatment, and healing process begins with the patient and family interacting with the primary care team. All members of the health care team have roles to play as part of a trauma-informed care team. Defining and performing the tasks that will ensure that adults, children, and families receive buffering supports is key to mitigating the effects of toxic stress and ACE-Associated Health Conditions (AAHCs). For more detail on developing trauma-informed workflows into clinical practice, see Section 2.

Screen

A member of the primary care team administers and scores the ACE screen. Screenings can be administered by a variety of primary care clinical team members.

Treat

The primary care clinician is the clinical lead on the team caring for the patient/family. Based on screening results, the primary care clinician informs the patient and family about the science of toxic stress, their relative risk based on the assessment, and how it could be impacting their health. The primary care clinician educates the patient about buffering supports that can mitigate the negative effects of the toxic stress response, including ACE-Associated Health Conditions (AAHCs). The primary care clinician may opt to provide relational healing strategies, such as acknowledging and supporting strengths, reducing stigma, and other patient education, in addition to social service referrals during the primary care visit. Depending on the severity of an AAHC (i.e., cardiovascular disease or asthma), a referral to a specialist may be required.

Under the leadership of the primary care clinician, the primary care team will develop a trauma-informed treatment plan using the screening and assessment results as one key source of information. The care plan includes details for individual patient coaching, self-care, and referrals to community resources.

Heal

The entire primary care team has a role in healing the effects of toxic stress and ACE-Associated Health Conditions (AAHCs). All members of the primary care team should be trained in ACEs, the science of toxic stress, and AAHCs. One of the most important roles within a trauma-informed primary care team is that of the care coordinator. The care coordination function within a primary care setting can be performed by individuals such as referral coordinators, care navigators, CHWs, social workers, peer support specialists, and behavioral health aides. More important than the title is the skill set of the individuals that perform these functions. Ideally, this person is resourceful, compassionate, service-oriented, and understands and mirrors the community they serve.

Case Study

Venice Family Clinic is a community health center established in 1970 with 14 locations and a street medicine program in the Los Angeles area. Venice Family Clinic treats a high-needs and high-risk patient population with 64% of their patients living below the federal poverty line and 16% who identify as homeless.

After assessing readiness to become ACEs Aware clinicians, Venice Family Clinic began screening for ACEs in June 2020 and has opted to focus referral efforts on three identified high-need areas: lasting physical and mental health impacts of toxic stress and trauma, food insecurity, and housing instability.

Venice Family Clinic uses an integrated behavioral health model to treat patients who screen positive with an onsite, co-located behavioral health department that provides consults when referred from the primary care team. A case manager coordinates patient referrals to external, community-based resources and services using NowPow, a digital community referral platform, to complete the referral cycle and close the loop.

In a complex network of community services, care coordinators play an integral role in assisting adults, children, and families in traversing the health care and social service system and overcome barriers they may encounter. The tasks involved in the care coordination function include the following, which can be incorporated into the job descriptions of a variety of staff in primary care clinics, not just care coordinators:

- Maintaining and updating patient and family contact information and treatment plans;
- Building and maintaining a resource database for social services, community-based organizations, and programs available to adults, children, and families;
- Using the resource database to refer adults, children, and families to resources that may help them overcome social or economic barriers to health;
- Interfacing with the primary care team to help assess social needs in a culturally appropriate manner;
- Facilitating communication across all clinical team members involved in caring for individuals and families;
- For families, identifying a trauma-informed primary care clinical team member for parents and caregivers of children at risk for toxic stress to meet parent/caretaker physical and mental health care needs;
- Engaging and collaborating effectively with other community-based agencies;
- Following up to ensure that needs are met and providing additional support as necessary; and
- Closing the loop with the primary care team when resource needs are resolved or ongoing.

Of course, not every clinic has the staffing resources to provide this level of team-based care. In these instances, there are resources in the community that may be able to share in the responsibility for care coordination, such as managed care plans, Independent Physician Associations (IPAs), and [Family Resource Centers](#).

Case Study

Knowing a patient's ACE score can inform a more comprehensive management strategy for health conditions associated with adversity.

Forty percent of the patient population at [UCSF Benioff Children's Hospital Oakland](#) have a diagnosis of asthma. Given that ACEs can lead to stress and that asthma is a disease of inflammation, clinical care teams target therapy to reduce that inflammation by:

- Partnering with community health workers to help address unmet basic needs like food, experiencing nature, and housing;
- Providing patient education about high-quality sleep, nutrition, physical exercise, mindfulness, mental health, and supportive relationships;
- Increasing and encouraging compliance with medical management such as inhaled corticosteroid controller medications; and
- Engaging mental health colleagues as appropriate to work with the patient/family when concerned about anxiety, depression and/or behavioral concerns.

This type of comprehensive, team-based care enables clinicians to focus on providing buffering supports, promote resilience, and manage the health condition(s) simultaneously.

Milestone #3: Gather Resources and Get to Know Your Network of Care

As the science illuminates the extent to which our experiences and environments shape our biology, there is increased recognition that clinical interventions are necessary, but not sufficient, to reduce the health impacts of ACEs and toxic stress. Cross-sector coordination, including with health care delivery systems, is necessary. Many sectors play a critical role in supporting patients by continuing to provide access to evidence-based toxic stress mitigation strategies. Knowing and connecting with the resources in your community is key to supplementing the trauma-informed care that the primary care team provides.

Health care clinical teams may already have in-house buffering resources such as a parent support groups or an onsite food pantry. Community-based resources are part of the broader ecosystem, such as emergency shelters, local parks and recreation, and mental health services.

- Identify Community Partners:** The primary care team is only one part of the Trauma-Informed Network of Care. Many resources that address toxic stress are based in the community such as food banks, community-based mental health agencies, parenting resources, mindfulness programs, faith-based organizations, and local parks (see Section 1.5 for full list). In order to establish trust between health care clinical teams and community-based organizations, health care clinical teams need to understand, value, and partner with local resources, not just refer to them. For families, it is also important to consider the primary care team of parents/caregivers of children at risk for toxic stress as part of the Network of Care. Parents need to be healthy and stable to facilitate buffering services for children.
- Tap into Existing Networks:** Staff can research the community-based resources by searching online, calling directly, and meeting with representatives from organizations to obtain additional information and develop an ongoing relationship. More information about existing network partners can be found through 211 information services, managed care plans, Family Resource Centers, county behavioral

health agencies, IPAs, the local First 5 agency, and organizations such as Help Me Grow, which collect and maintain early childhood resources.

- Vet Resources Based on Trauma-Informed Principles:** Every resource needs to be vetted based on the types of services offered, program goals, eligibility criteria, outcomes, and trauma-informed knowledge and competency.
- Update Resources:** Federal poverty guidelines that define eligibility for programs such as Medicaid and WIC are updated annually. Seasonal programs, such as summer camps and indoor/outdoor recreational classes, are also updated regularly. It is important to stay on top of changes.

Documentation

There are many ways to create a database to store resources and each of them can provide value, depending on community needs and capacity. See Appendix A for an example of the information needed to provide a thorough referral. Some of the ways in which resource information is stored include:

- **Shared hard drives** with resource information that can be accessed by any user who has access to the digital hard drive;
- **Spreadsheets** that allow for each different type of resource to have a separate tab that is easily accessible;
- **Cloud-based drives** that offer any team member access to folders;
- **Digital health resource platforms** (see Appendix D for characteristics of effective digital health information platforms); and
- **Binders** that provide clinical care team access to information that can be shared with individuals and families.

Privacy and Consent

It is critical to protect patient privacy and health information. Internal referrals are typically covered by the consent to treat that is completed by individuals when services are rendered at clinics. For external referrals, when making referrals to community resources, information can be proactively given to patients/families. This way, the patient/families can contact the resource directly. If clinic staff is making the referral to an external resource on behalf of the patient/family, consent must be obtained from family to send their protected health information to another organization. It should be noted that different requirements apply to the privacy and sharing of mental health and substance use disorder patient information.

[State Health Information Guidance \(SHIG\)](#) from the California Office of Health Information Integrity (CalOHII) provides authoritative but non-binding guidance, written in plain language, to clarify state and federal laws on how health and social service providers can appropriately share personal information and address unnecessary barriers to coordinate care and services.

Breaking Down Silos

The most effective way to interface with community-based organizations and stakeholders is to establish a model of team-based care. A social worker, care coordinator, navigator, peer support specialist, or a CHW can facilitate access to care for adults, children, and families from multiple agencies and can form relationships within the community to secure the best care for patients and/or clients. Think about your team as including both those co-located in your practice but also those who may work in the community.

Educating yourself and your team about available resources, existing resources, and communications channels across the Network of Care can begin the process of breaking down barriers and getting on the road to system-wide change.

If you partner with multiple organizations, create a standardized referral procedure for clinic staff to follow. This can involve creating a workflow and standardizing the documents and permissions needed to complete a referral

to an outside agency or accept a referral from an outside agency. Embedding these workflows into the clinic's Electronic Medical Record (EMR) facilitates the creation of a sustainable coordination and follow-up model.

Getting Involved in Your Community

Community-based organizations and local social service agencies often have familiarity with one another and have defined pathways for how clients can receive services they need. Clinical teams have not historically been a part of the social services Network of Care, and this linkage is an opportunity to extend these valuable services to adults, children, and families. For example, county Help Me Grow systems often bring together key stakeholders in the community who serve young children and their families, and pediatric or family medicine clinicians should connect with them.

In order for primary care clinical team members to effectively link to the Network of Care, clinic leadership must acknowledge that trauma-informed care is a priority. For primary care clinical team members, this translates to protected time to engage with community-based organizations. This might come in the form of serving as a board member, clinical advisor, or toxic stress expert with Network of Care partners. For those who serve in the role of care coordinator, relationships with community resources should be encouraged and expected. Staff might personally tour, experience, or sign up for community-based resources.

Understanding your community also involves coordinating with other clinical teams. The health care system is often fragmented and siloed between specialties, but forming partnerships between primary care, obstetrics, and behavioral health clinicians can lead to more effective care coordination and support for patients experiencing the clinical effects of toxic stress. This also includes identifying and forming relationships with primary care clinical teams who are treating parents/caregivers for children with adversity and toxic stress risk. Those serving in the role of care coordinator should be encouraged to form relationships with colleagues playing similar roles in other health care organizations.

By relying on care coordinators who form relationships with community-based organizations and local social service agencies and incorporating referrals and follow-ups into clinical protocols, medical team members have more time to focus on the science of assessing and treating toxic stress.

Case Study

The Pediatric Resiliency Collaborative (PeRC) is a community collaboration, focused on expanding ACE screening and referral services to all pediatric clinics in Santa Barbara County. Cottage Health, a not-for-profit health system, provides backbone support to the collaborative, which is governed by a shared leadership model.

PeRC is an example of a partnership that links clinical care teams to relevant community systems and facilitates knowledge sharing, collaboration, and alignment of efforts. PeRC has created a series of trainings designed to support clinicians in the ACE screening process, which includes ongoing technical assistance and connections to community partners.

The approaches that the collaborative offers include:

- **Pediatric Clinic Support** – Training and provision of dedicated navigation and behavioral health services for all clinics conducting ACE screenings.
- **Perinatal Interventions** – Training on educational interventions in the perinatal setting related to ACEs and toxic stress.
- **Education and Awareness** – Education and awareness to the broader pediatric community in Santa Barbara County on ACEs and toxic stress, new Medi-Cal requirements, and technical assistance.
- **Community Coordination** – Fostering activities with other community-based organizations and networks.

- **Fundraising** – Monitoring, identification, and pursuit of funding opportunities.
- **Policy** – Advocacy to state policymakers and insurance providers to sustain the program with ongoing reimbursement strategies.
- **Data Collection and Evaluation** - Tracking and evaluating progress using shared metrics across clinics and the community and using county-wide outcomes data.

PeRC's success is due to a small, committed cohort of people and organizations, as well as the county culture of collaboration, and motivation to create a web of services in clinics and beyond to build a trauma-informed and responsive community.

The partner agencies created a standardized intake form so patients referred for services need only give their information once. Memorandums of Understanding (MOUs) are in place between service providers. Through this model, a clinic communicates the results of an ACEs assessment to a community partner, and then the dedicated therapist and navigator collaborate to provide supportive services to the patient.

Knowing and understanding the resources and community-based organizations available in your community is critical to successfully engaging in a Network of Care.

Case Study

Los Angeles County Department of Health Services encourages a hands-on process to learn what resources are available within a particular community to better understand and develop strategies for meeting the needs of their patients. The process begins with an internet search for resources, telephone calls to local organizations, and going out into the community to experience the services that clinical care teams may recommend to their patients. For example, staff have taken yoga classes at the local library to understand what the experience might be like for a patient referred there to support mindfulness and physical activity.

The relationships that care team staff have with community-based organizations are forged on a personal level and are built on trust, shared goals, and mutual benefit. In addition to asking a partner agency to prioritize services for particular patients, the clinic staff may offer training or education for the staff of the partner agency.

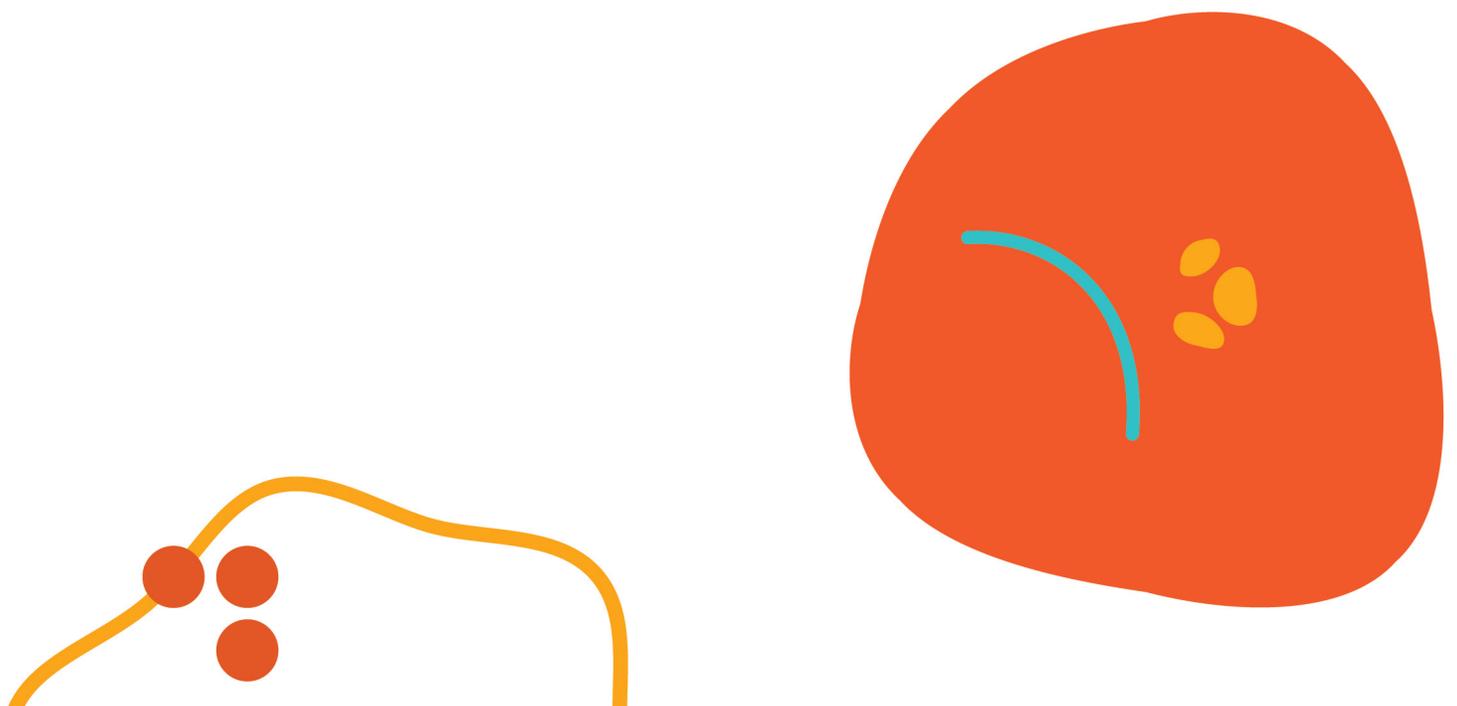
Local community organizations have also been invited to join clinic staff meetings to give brief presentations about their services, eligibility criteria, and role in community. This ensures that clinic staff who do not have time to visit resources in the community are still aware of their offerings and can effectively connect their patients to these services.

Milestone #4: Consider Financing and Technology Needs

Identifying and maintaining a stable funding source within a primary care clinic to support the follow-up to a positive ACE screening is necessary to support the provision of whole person, trauma-informed care. Some services can be provided in-house (e.g., patient education, nutritional strategies, co-locating a mental health professional, social worker), but other services are typically provided by others in the Network of Care.

Identifying adequate resources to support the referral and response process is one of the most critical first steps to building a trauma-informed care practice. Having in-house care coordination staff (whether on your clinic's payroll or funded by a partner organization) to navigate referrals and stay on top of patient needs and follow-ups is critical to supporting individuals with toxic stress in navigating the system. Digital health resource platforms can enable and support bi-directional referrals and effective data sharing between clinical teams and community-based organizations.

See **Appendix B** for further discussion on potential financing mechanisms and **Appendix C** for characteristics of effective digital health resource platforms.



Case Study

CIE San Diego defines a Community Information Exchange as an ecosystem comprised of multidisciplinary network partners that use a shared language, a resource database, and an integrated technology platform to deliver enhanced community care planning. Care planning tools enable partners to integrate data from multiple sources and make bi-directional referrals to create a shared longitudinal record.

CIE San Diego is a collaborative effort led by 211 San Diego and nearly 100 community providers and stakeholders. It is an information exchange platform utilized by health plans, clinicians, and social service agencies to collaborate on patient care. By focusing on these core components, a CIE enables communities to shift away from a reactive approach to providing care, and to shift toward proactive, holistic, person-centered care.

CIE San Diego also supports bi-directional closed loop referrals by providing an interoperable technology platform that enables the integration of data from multiple partners' source data systems and uses it to populate a longitudinal record of a patient's interactions with the health and social service systems. This shared platform allows CIE Partners to communicate with one another, share patient data, send bi-directional referrals, and track patient care across sectors and between clinical care teams. The lifecycle of CIE's bi-directional referral process goes beyond simple acceptance of a referral. Partners document services provided, program enrollment, and populate a community care team with staff names and contact information that lives within the patient's record.

Patients who opt into the CIE have a universal, person-centered record of life events and system interactions. This enables clinical care teams to proactively tailor services to the family's individual needs. Giving clinical care teams access to this universal longitudinal record also supports trauma-informed care by reducing the need for individuals to repeatedly share their experiences with different service providers.

Case Study

Unite Us is a technology company that builds coordinated care networks of health and social service providers and powers community information exchanges. With Unite Us, clinical care teams can send and receive closed-loop, secure, electronic referrals across multiple sectors and organizations, track every person's total health journey, and report on tangible outcomes.

Unite Us operates with a “no wrong door” policy that allows for community-based organizations (CBOs) to refer to other network partners and ensures that every provider listed in the ecosystem is fully integrated into the program. Screenings and assessments are supported within the Unite Us platform, and standardization of these assessments is crucial for collecting relevant data. Every client has a profile that follows them throughout their care and encourages more comprehensive, coordinated, and team-based care.

Unite Us provides built-in bidirectional, communication between a referring agency and the agency receiving the referral. User data is kept confidential, shared only between referring and sending agencies, as needed, with the highest level of security. Because every member agency is using the same technology, and because each patient entered into the Unite Us platform has a profile that is accessible by each provider, there are lower barriers to data sharing and exchange between care team members.

In California, Unite Us is working with Kaiser Permanente, Blue Shield California, CommonSpirit Health, and other health care partners to build the Unite California network. Growing at the county level, the network is now live in Kern, Los Angeles, Merced, Napa, Placer, Sacramento, San Joaquin, Solano, and Stanislaus; with planning underway in another 16 counties for launch by June 2021. In launched counties, the platform is available at no cost to community-based organizations, safety-net clinics, and to county agencies (up to 75 licenses per county).

Milestone #5: Monitor, Evaluate, and Improve Referral Process

Note: This section refers to quality improvement (QI) for the referral process; a forthcoming ACEs Aware Implementation Guide will address the comprehensive QI process for ACE screening and clinical response specifically.

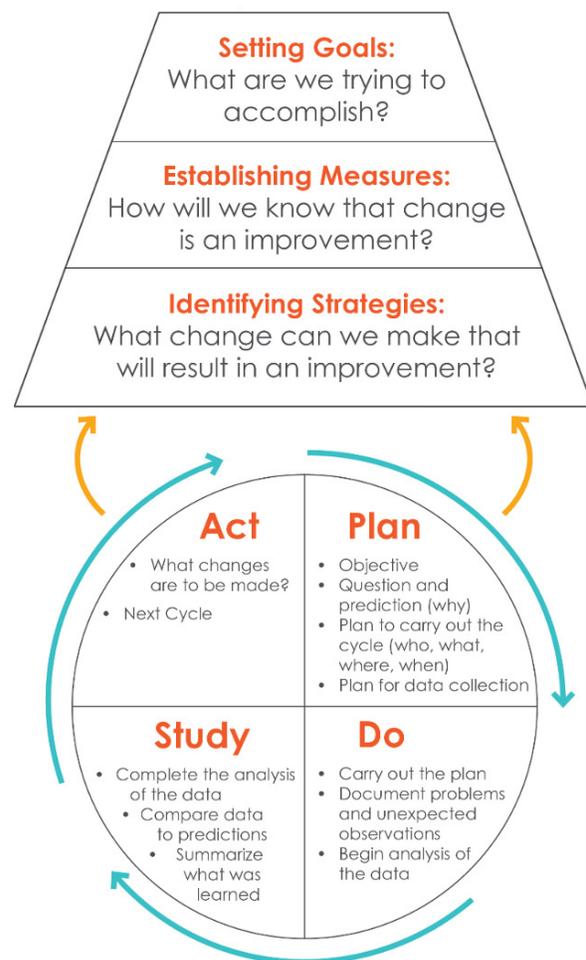
When implementing any practice change, it is critical to establish goals, monitor progress, evaluate the data and outcomes, and use that information to continuously make improvements. After initial relationship-building and launching the referral process, health care clinical teams should monitor and evaluate their clinical protocols as well as the Trauma-Informed Network of Care screening and referral process to identify opportunities for improvement through small tests of change.

There are several existing approaches that can be used to guide clinical QI efforts. For example, the Institute for Healthcare Improvement (IHI) has adapted the Model for Improvement,^{xxviii} developed by Associates in Process Improvement for quality improvement efforts in the health care setting, which describes a Plan-Do-Study-Act (PDSA) framework that can be utilized improve clinical protocols for the Trauma-Informed Network of Care referral process. The PDSA framework is based on three pillars, as shown in Figure 8:

Plan

The planning phase of the PDSA cycle allows the problem to be identified and desired outcomes. The individuals in the clinic charged with QI (the QI team) need to understand what is

Figure 8. Model for Improvement



Adapted from [IHI](#)

currently happening in the clinic and community to understand what changes are needed and the outcomes the team wishes to see.

Setting Goals and Establishing Measures. The first steps of the QI process are setting goals and establishing measures to assess progress toward achievement of these goals. In establishing measures, is important to identify the data sources needed to track improvement and ensure that the data are readily available on the frequency needed. Examples of effective goals for clinical protocols for referrals to the Trauma-Informed Network of Care are below (note that the goals get progressively more aspirational); the goals and measures identified should be “**SMART**” and applicable to the circumstances of the clinical team and the patients served.

Specific	Indicates by how much you want to improve (e.g., 10%)
Measurable	Can be documented using data available to you/ your team
Achievable	Can be realistically achieved given current resources and constraints
Relevant	Is reasonable and worthwhile
Time-bound	Indicates by when you want to achieve your goal (e.g., in 1 day, 3 weeks, or 6 months)

Examples of SMART Goals and Measures:

- 1. Improve training rates:** All primary care clinical team members are trained on ACEs, the science of toxic stress, and trauma-informed care within six months of implementation of the ACE screening and referral process.

Possible Measures:

- Percentage of primary care clinical team members who have completed training by X date.

Possible Data Sources:

- Documentation of completed ACEs Aware Core Training (or supplemental training for clinic staff); and
- Clinic personnel interviews.

- 2. Improve training rates:** Increase percentage of primary care clinical team members who are trained on the network of evidence-based buffering support services that are available in the community from a baseline of X% to X% within six months of implementation of the ACEs screening and referral process.

Possible Measures:

- Percentage of primary care clinical team members trained by X date.

Possible Data Sources:

- Documentation of training; and
- Clinic personnel interviews.

- 3. Improve the warm hand-off process:** All patients in need of behavioral health services receive a warm hand-off to behavioral health team members (e.g., the clinical team member introduces the patient in-person or by phone to the next individual/organization that will provide care and support).

Possible Measures:

- Percentage of all referred patients who received a warm hand-off to a behavioral health team member by X date.

Possible Data Sources:

- Referral tracking system; and
- Clinic personnel interviews.

- 4. Amelioration of ACE-Associated Health Conditions:** X% percentage of patients in the clinic will have improved control or amelioration of ACE-Associated Health Conditions (AAHCs) between Year 1 and Year 2.

Possible Measure:

- Percentage of patients identified as having ACEs and asthma characterized as being well-controlled within six months of supplementing usual care for asthma with toxic stress mitigation strategies.

Possible Data Sources:

- Patient electronic medical record (EMR)/electronic health record (EHR) data.

Identifying Improvement Strategies. The next step is to identify strategies and changes that may help to meet the goals identified. As the IHI notes, all improvement requires making a change, but not all changes lead to improvement. Sources for new ideas include learning from other health care organizations, meeting with or surveying the project team, gathering information from patients and families (interviews and focus groups or patient/family advisory panels), and networking with community organizations, especially those that focus on evidence-based buffering supports.

Using the example goals from above, potential interventions may include:

- 1. Improve training rates:** All primary care clinical team members are trained on ACEs, the science of toxic stress, and trauma-informed care within six months of implementation of the ACEs screening and referral process.

Possible Improvement Strategies:

- Consider messaging about training. Do staff understand the value and what is in it for them?
- Provide staff incentives for completion of training
- Create and distribute a weekly dashboard of training rates for staff

2. Improve training rates: Increase percentage of primary care clinical team members who are trained on the network of evidence-based buffering support services that are available in the community from a baseline of X% to X% within six months of implementation of the ACEs screening and referral process.

Possible Improvement Strategies:

- Consider messaging about training. Do staff understand the value and what is in it for them?
- Provide staff incentives for completion of training
- Create and distribute a weekly dashboard of training rates for staff

3. Improve the warm hand-off process: All patients in need of behavioral health services receive a warm hand-off to (meaning direct contact with) behavioral health team members.

Possible Improvement Strategies:

- Develop relationships with behavioral health teams
- Learn behavioral health team members' preferred method of contact
- Implement EMR/EHR or referral tracking system improvements. For example, use of modern technologies to support integration and operation across Network partners (see Appendix C).

4. Amelioration of ACE-Associated Health Conditions: X% percentage of patients in the clinic will have improved control or amelioration of AAHC's between Year 1 and Year 2.

Possible Improvement Strategies:

- Ensure that clinicians in the Trauma-Informed Network of Care include those in a position to address specific ACE-Associated Health Conditions (AAHCs)
- Ensure warm hand-off to services
- Create an enhanced outreach program to strengthen relationships with clinicians who address AAHCs to ensure the provision of buffering services and supports

After choosing the possible strategies, the next step would be to write and implement an action plan, which could include:

1. What changes will we undertake?
2. Who will be affected, and how?
3. Who can lead the change?
4. What resources will be needed?
5. What are the barriers, and how can they be overcome?
6. What is our timeline?

Do

After the goals have been selected, the QI team will implement and test those changes. The team should accurately and consistently document the specifics of the changes implemented, including real-time feedback and observations, and any modifications made along the way, as well as any unforeseen challenges or surprises.

For example, if the QI team implements an incentive program to increase training rates, the team should document the specific incentive provided, the value of the incentive, when the incentive began to be provided, etc.

Study

The study portion of the PDSA cycle refers to the post-implementation analysis. The QI team will analyze the data collected in the “do” step and study the results by comparing the data collected post-implementation to the baseline. Using the measures identified, the QI team will determine whether the change resulted in an improvement and by how much. The QI team will want to build in regular opportunities to monitor and analyze data and evaluate the impact of changes on performance throughout the duration of the project.

Date	# of Providers Trained	% of Providers Trained	% Change
1/1/20	23	15%	-
1/8/20	32	21%	39.1%

Act

The act portion of the PDSA cycle refers to the actions taken in response to the analysis. The QI team should refine the change based on what was learned from analysis of the data. Successful changes should be sustained and broadened, though the team should continually look for ways to improve processes. This is often the phase where teams will plan out future incremental tests of change based on knowledge learned from the current PDSA.

For example, if the outreach program identified above in “4. Amelioration of ACE-Associated Health Conditions” is to test the effectiveness of text messaging, and families were found to be very responsive to texts, the QI team may decide to implement a formal text messaging program as part of clinic outreach.

Section 4 – Milestones for Communities

This section is designed to provide a set of specific, actionable “milestones” that community-based organizations, local social service agencies, and other members of the Trauma-Informed Network of Care should consider and complete as part of their efforts to engage with health care clinical care teams in service of creating a robust, interdisciplinary, responsive referral and response system for adults, children, and families.

- Milestone #1:** Identify or Establish a Strong Leadership and Accountability Structure
- Milestone #2:** Connect with Health Care Clinical Care Teams and Other Resources
- Milestone #3:** Achieve Community and Health Care Integration
- Milestone #4:** Consider Financing and Technology Needs
- Milestone #5:** Evaluate and Improve the Strength of the Trauma-Informed Network of Care

Milestone #1: Identify or Establish a Strong Leadership and Accountability Structure

Just as the geographic and socioeconomic traits of communities across California vary – rural, urban, northern, southern – the corresponding Trauma-Informed Networks of Care will necessarily look different across the state. The common ingredient needed in each community is a strong and collaborative group of leaders to guide the Network of Care and its efforts to integrate health care clinical care teams into the existing structure. Identifying entities and individuals who can provide leadership and accountability for a Trauma-Informed Network of Care deserves careful consideration if a structure is not already in place.

The leadership and accountability structure does not necessarily need to be a single entity. A Trauma-Informed Network of Care leadership and accountability structure could be comprised of leaders from a variety of participating entities and community/patient/family representatives. It is important that leaders have the knowledge, political will, bandwidth, organizational support, decision-making authority, and above all, a commitment to make the Trauma-Informed Network of Care a success.

The previous section identified a series of milestones for health care clinical care teams interested in building a Network of Care “beyond the four walls” of a primary care clinic. Likewise, it is incumbent upon community-based organizations and social service agencies to take ownership of building relationships with health care clinical care team colleagues. Inviting health care clinical care team members to be a part of the leadership and accountability structure is one way to create bi-directionality in building a Trauma-Informed Network of Care.

Importantly, the leadership and accountability structure can identify a series of shared goals amongst Trauma-Informed Network of Care entities and the communities they serve. For example, perhaps a goal is to establish a system of high-quality parenting supports in partnership with groups like First 5, Family Resource Centers, or other community entities. Identifying shared goals will foster the shared accountability that a robust Trauma-Informed Network of Care can demonstrate. The leadership and accountability structure can also facilitate shared learning, ongoing training opportunities, and networking amongst all participants.

Creating a cohesive Trauma-Informed Network of Care leadership and accountability structure will ensure that direction and guidance is provided as the network is created and maintained. For more robust networks, the leadership and accountability structure can also play a key role in governance of the data sharing platform and the myriad decisions that will need to be made to ensure privacy of referrals and data sharing.

Case Study

First 5 Sacramento has an Advisory Committee that is tasked with providing technical and professional expertise to the First 5 Sacramento Commission. This includes advising the Commission on local issues impacting children ages 0-5, reviewing funding proposals, making recommendations on the strategic plan, and serving on the Commission's standing committees including: Evaluation, Financial Planning, and Sustainability committees.

Represented on the Advisory Committee are community members, alcohol and other drug counseling services, child abuse prevention services, foster care, and many other service areas that impact children in Sacramento County. This committee serves as a sounding board for the commission, who turns to these community-based organizations as experts in their field and points of contact for the local community.

Additionally, First 5 Sacramento hosts a quarterly contractors meeting where all contracting agencies are brought together to receive updates about policy, continued education, and given an opportunity to share their experiences of what is currently affecting the families they serve. These meetings also provide training on relevant topics to attendees, as well as presentations from contractors and community partners. This ongoing technical assistance assures a close relationship between First 5 as a funder, and their contractors, which supports a clear understanding of roles within a community as well as opportunities and avenues for collaboration.

Milestone #2: Connect with Health Care Clinical Care Team and Other Resources

Many existing Trauma-Informed Networks of Care have the advantage of already having strong relationships at the community level and across disciplines. For the purposes of ACEs Aware, those organizations also have a responsibility to reach out and connect with health care clinical care teams who are serving the community, and especially those primary care clinical care team members who have completed the [Becoming ACEs Aware in California](#) training. That outreach should include an appraisal of where there are gaps and areas for improved connection with clinics and other buffering services. For example:

- Do health care clinical care teams have staff trained to assist patients with applying for safety net programs, such as Medi-Cal, CalFresh, and WIC?
- Do any primary care clinics in our community also have shared space or strong referral linkages with mental health and/or substance use disorder treatment clinicians?
- Do local health care clinical care teams know how to support families in need with food and housing resources?
- Does the local clinic have a connection to local resources like the public library, YMCA, intimate partner violence (IPV) resource organizations and/or youth organizations such as the Boys and Girls Club?
- Do health care clinical care teams know about the kinds of services that are available through the local Family Resource Center?

Creating a fully interconnected Trauma-Informed Network of Care might feel too complicated or overwhelming for many communities. Yet there are many fine examples of networks – big and small – throughout California doing this type of work who followed a similar path to the milestones indicated. Because of their knowledge of specific regions and communities throughout the state, managed care plans should proactively get involved with Trauma-

Informed Networks of Care to share information about resources, mental health clinicians, and care coordination.

Shared learning resources are available. For example, [ACEs Connection](#) is a free social network with over 40,000 members dedicated to supporting trauma-informed and resilience-building practices based on ACE science and has several dedicated collaboratives underway within various California geographies.

Define Shared Accountability

Viewing health care clinical care teams as necessary partners within the Trauma-Informed Network of Care is likely to enhance and sustain efforts to address the needs of individuals who are at risk for toxic stress. Open communication, the ability to have conversations about roles and responsibilities, and keeping the patient at the center of the care team will help form a cohesive Trauma-Informed Network of Care.

Affirming a commitment to shared goals and outcomes – in the short-term as well as the long-term – is critical to building a successful Trauma-Informed Network of Care. Using the example from Milestone #2, the community could set a goal to establish a system of high-quality parenting supports in partnership with groups like First 5, Family Resource Centers, or other community entities. Each member of the Trauma-Informed Network of Care should have a tangible role to play in advancing the effort and the leadership and accountability structure should ensure that every entity in the network is committed to rigorous referrals, documentation, responses and follow-ups that will ensure results.

Without a common understanding of the shared interests and potential mutual financial benefits of improving health outcomes for individuals who are at risk for toxic stress, clinical care teams and social service organizations may not engage or continue as active participants in a Trauma-Informed Network of Care. Defining role clarity up front will assist in ensuring that individuals and organizations within the network understand accountability when outcomes are not met.

Case Study

The Fresno County Trauma & Resilience Network (FCTRN) is a cross-sector network under the Fresno County Health Improvement Partnership (FCHIP). This is a collection of institutions, school districts, community-based organizations and businesses that have a common desire to make their communities trauma-informed for the purpose of building resilience in youth, families, neighborhoods, and the county. Within the FCTRN, there are multiple community initiatives such as Cradle to Career, All for Youth Program, Police Resiliency Network and Suicide Prevention Collaborative.

The FCTRN incorporates a wide range of community partners that work across multiple sectors. This includes partnerships with payers of health plans like CalViva and Anthem, Fresno County Public and Behavioral Health, the four major health care hospitals and over 45 community-based organizations. They are also partnering with both Saint Agnes Hospital and UCSF Fresno in training their staff on trauma-informed care, ACEs, and resilience. This same principle, of universally training service providers on ACEs, trauma, and the science of toxic stress, is applied across all FCTRN community partnerships. FCTRN has the vision to make Fresno County trauma-informed, so that services can be delivered to the most vulnerable populations in the county without risk of re-traumatizing.

Key to the FCTRN's success is the ongoing development of their referral structure within their network of care. The county operates with a "no wrong door" policy where families are able to connect to trauma-informed care, regardless of how they enter the system.

Milestone #3: Achieve Community and Health Care Integration

Achieving community and health care integration refers to the successful, interdisciplinary marriage of clinical and social services that supports prevention and treatment of trauma and toxic stress. Reducing fragmentation across health care and social services, which allows for access to services that reduce the toxic stress response, is the goal of a whole-person, whole-family Trauma-Informed Network of Care.

Breaking Down Silos

In many places, there has been a historic disconnect between health care clinical care teams and community-based organizations. Working to integrate multiple fields in a meaningful way is a process based primarily on relationship building.

At a systems level, a public health department, county behavioral health agency, or a managed care plan could assist physicians and health centers in asset mapping their communities and in forming the interpersonal, interagency connections crucial to integrating health care and community-based services. Once a Network of Care has been established, the leadership team can create opportunities for relationship-building and shared learning.

Bi-Directionality

Through this partnership, clinical care teams integrate other health and human services into clinical workflows by building and maintaining ongoing relationships with community resources through bi-directional information sharing. In turn, the community organizations actively engage with the health care community to ensure communication and follow-up regarding ACE screening and response. For a Network of Care, this may involve standing up digital health resource technology platforms to effectively share patient data, provide bi-directional communication pathways, and establish shared protocols between clinical and social service care teams.

Case Study

First 5 of Humboldt County implemented a three-step plan to improve the health and well-being of children in their community, with the goal to incorporate trauma-responsive care practices, promote resiliency factors, and prevent ACEs. In order to build Humboldt County's capacity to respond, the County Board of Supervisors together with the Department of Health and Human Services provided forty-two community grants to non-profits, including mental health consultation for families, foster parent coaching, behavioral health support in schools, developmental screening, and support for school-based health centers. These efforts included trauma-informed training for twelve schools, three clinics, and six community groups.

An important aspect of First 5's efforts in Humboldt County is their partnership with tribal communities. The boundaries of Humboldt County include seven federally recognized tribes and rancherias. Traditionally, these communities have reported higher than the national average rates of serious mental illness, substance use disorders, and early mortality. These health disparities and inequities pair with historical trauma and the toxic stress that can be caused by poverty, discrimination, and other social determinants of health to create poorer health outcomes for vulnerable communities. In response, the Hoopa Tribal Education Association, a chartered organization of the Hoopa Valley Tribal Council, is leading efforts with cross-system community partners to form the valley's Trauma Informed Movement (TIM) to transform the supports in their community, including the creation of the Klamath-Trinity Joint Unified School District (KTJUSD) Student Wellness Center and the incorporation of culturally-responsive, trauma-informed practices in local education, health, and human service sectors.

An important requirement for developing and building upon partnerships with underserved communities when engaging in trauma-informed work is to hold space as an organization or a system to hear how these communities have not been served, and how that can change going forward. This recognition, paired with an understanding that communities are experts in their own experiences, allows for meaningful community connection and integration.

Milestone #4: Consider Financing and Technology Needs

The heart of a Trauma-Informed Network of Care is relationship building. Identifying trauma-informed community-based programs and partners who can provide buffering services, address housing and food insecurity, and help individuals seek wellness requires the active efforts of people who have the time and the capacity to foster connections between entities. These interventions and responses have a cost associated with them, some of which can be reimbursed through Medi-Cal and other state and/or federally-funded programs; however, additional dedicated funding sources to fill the gaps are critical to long-term success.

Community-based organizations and social service agencies should be aware that they may be providing services that are eligible for Medi-Cal and other public program reimbursement. For example, home visiting programs that provide new mothers with child development advice and health care navigation services may be eligible for reimbursement under Medi-Cal, as well as through the Maternal, Infant, and Child Home Visiting program.

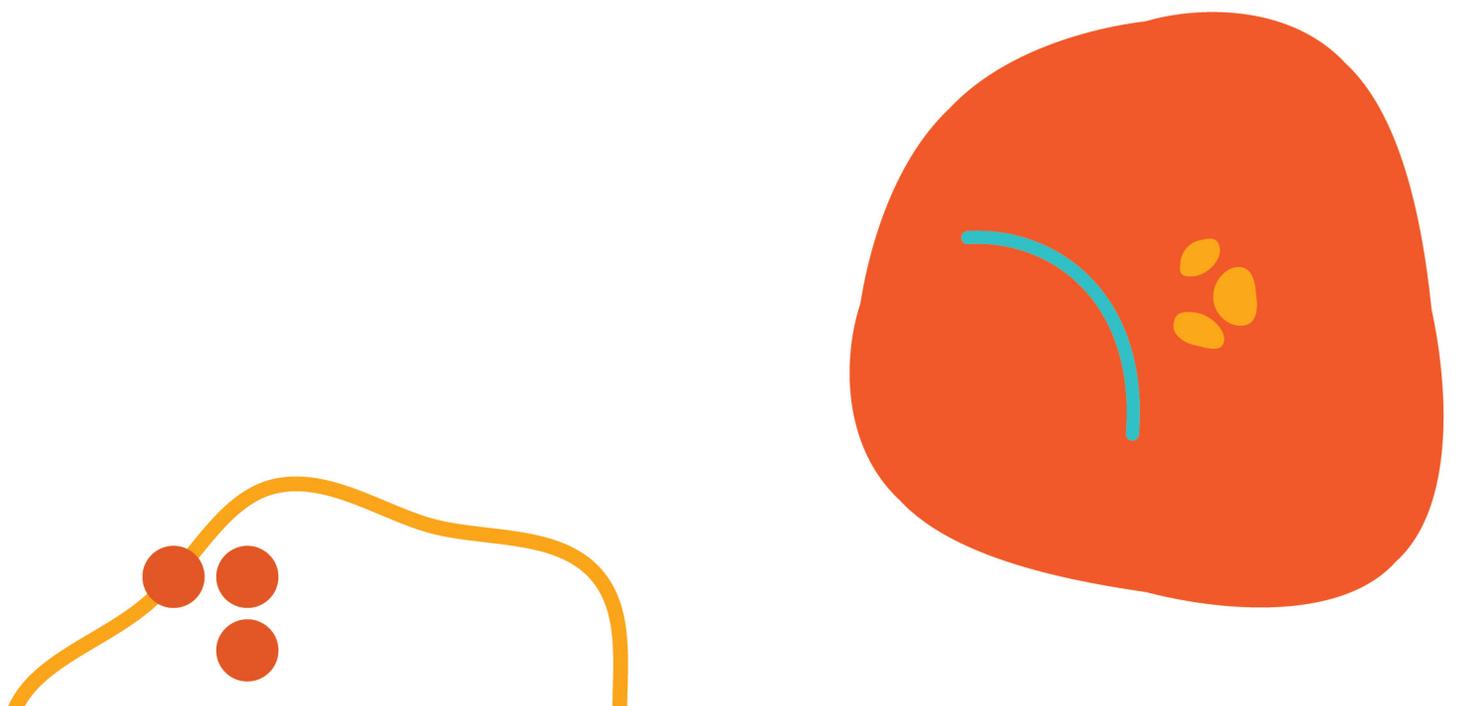
Information is available on the DHCS website about the range of [provider types](#) that could be involved in helping patients navigate the system and how to enroll with the state as a [participating Medi-Cal provider](#). Organizational accounting teams should be made aware of the appropriate [billing codes and documentation requirements](#) for submitting claims for Medi-Cal payment.

A robust Trauma-Informed Network of Care may have an infrastructure that allows for shared learning, ongoing ACE screening implementation, training, and networking opportunities. However, this type of infrastructure requires funding. And while not required, infrastructure funding can also allow for a digital technology platform that facilitates bi-directional referrals and marries multiple electronic health records and data-sharing platforms.

By working together, the Trauma-Informed Network of Care leadership and accountability structure can explore ongoing infrastructure funding through:

- Consideration of technology solutions that can support referral network;
- Identifying possible sources of long-term funding;
- Identifying entities that can take the lead or work together to explore funding options;
- Partnering together to write grant applications;
- Engaging with partners who might be in a position to financially support the Network of Care; and
- Thinking creatively about other strategies.

See **Appendix B** for further discussion on additional financing mechanisms and **Appendix C** for characteristics of effective digital health resource platforms.



Case Study

[All Children Thrive - California \(ACT\)](#) is an equity-focused, community-driven initiative to develop the tools and support that diverse communities need to prevent ACEs, counter their effects, promote healing, and foster individual and community resilience, giving all children the opportunity to thrive.

ACT partners with leaders and residents from cities and counties to establish groundbreaking prevention and intervention strategies at the level of public health policy. Through these partnerships with California cities, ACT aims to develop scalable, evidence-based models that can be applied throughout the state.

In 2019, a statewide ACT California pilot project launched with a \$10 million allocation from the California Legislature to the California Department of Public Health, Public Health Advocates, and the UCLA Center for Healthier Children, Families, and Communities. This three-year initiative aims to provide cities with the tools, policies, and practices that enable them to address the core causes of toxic stress physiology.

ACT raises the visibility of whole child outcomes such as healthy births, a strong start in a child's first 1,000 days, and third grade reading levels, by asking not only parents to be accountable for their children's health, but communities and cities too.

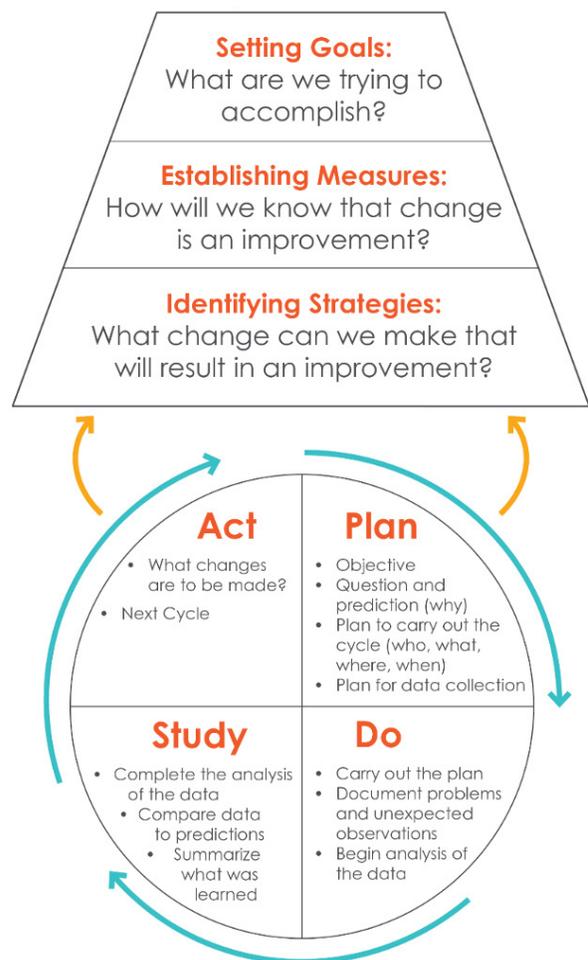
These supportive efforts are tailored to their environments to reflect the unique needs of each community in which ACT is implemented through an upstream approach. This work begins with an assessment of the current public health policy and an analysis of what impacts existing legislation has on children. Then, using [Behavioral Risk Factor Surveillance System \(BRFSS\)](#) data, ACT constructs a neighborhood risk index that shows population-level clustering of social and health problems, including ACE Associated Health Conditions. This allows cities to focus their systems change efforts in places and communities that need it most. ACT then provides coaching and technical assistance to cities to prevent trauma and promote resiliency through public health policy.

Milestone #5: Evaluate and Improve the Strength of the Trauma-Informed Network of Care

This section offers concepts similar to Milestone #5 for Medi-Cal clinical care teams. The difference is the types of defined goals. For clinical care teams, the focus is on the process for making referrals to the Trauma-Informed Network of Care. For communities, the focus is on providing evidence-based buffering services to adults, children, and families that mitigate the toxic stress response and ultimately can result in improved health outcomes. To make process improvements among Trauma-Informed Network of Care partners, it will be important to engage the leadership and accountability structure in place (see Milestone #1 in this section) to help identify those who will focus on QI activities.

There are several existing approaches that can be used to guide clinical QI efforts. For example, the [Institute for Healthcare Improvement \(IHI\)](#) has adapted the Model for Improvement,^{xxxix} developed by [Associates in Process Improvement](#) for quality improvement efforts in the healthcare setting, which describes a [Plan-Do-Study-Act \(PDSA\)](#) framework that can be utilized improve clinical protocols for the Trauma-Informed Network of Care referral process. The PDSA framework is based on three pillars, as shown in Figure 9.

Figure 9. Model for Improvement



Adapted from [IHI](#)

Plan

The planning phase of the PDSA cycle for community QI allows for community partners to first identify the problem or area for improvement, and then develop potential ways to address the problem or advance improvement. The individuals in the Trauma-Informed Network of Care charged with QI (the QI team) need to understand how evidence-based buffering services can mitigate toxic stress and improve health outcomes. The team should then identify a set of outcomes the community wishes to see.

Setting Goals and Establishing Measures. Examples of effective goals for Network of Care community QI include (note that these goals get progressively more aspirational):

- 1. Improving the referral process:** Adults, children, and families in the Trauma-Informed Network of Care in need of referrals consistently receive warm hand-offs to Network partners where appropriate.

Possible Measure:

- Percentage of patients in the Trauma-Informed Network of Care in need of referrals who were referred to a Network partner and received a warm hand-off by X date.

Possible Data Sources:

- Referral tracking systems;
- Patient EMR/EHR data; and
- Interviews with Trauma-Informed Network of Care clinical care teams and community organizations.

- 2. Strengthen the Network:** Establish a system of high-quality parenting supports.

Possible Measure:

- Number of partners with high-quality parenting supports.

Possible Data Sources:

- Review of partners' parenting support programs;
- Assessment of organizations that provide high-quality parenting supports statewide;
- Interviews with partners providing parenting supports.

3. Improve health outcomes: Pediatric patients experience reductions in the toxic stress response and improvements in intermediate and long-term health outcomes because of Trauma-Informed Network of Care evidence-based buffering supports.

Possible Measures:

- Percentage of children with a diagnosis of asthma who had an asthma-related hospitalization in the year.

Possible Data Sources:

- Patient EMR/EHR data;
- Medi-Cal claims data;
- Referral tracking system; and
- Interviews with Trauma-Informed Network of Care organizations.

Identifying Improvement Strategies. The next step is to identify additional strategies and changes that may help meet the goals identified. Sources for new ideas include learning from other health care and community-based organizations, meeting with or surveying Trauma-Informed Network of Care partners, and gathering information from patients and families about their experience of care (interviews and focus groups or patient/family advisory panels).

Using the example goals from above, potential interventions may include:

1. Improve the referral process: Adults, children, and families in the Trauma-Informed Network of Care in need of referrals consistently receive warm hand-offs to Network partners where appropriate.

Possible Improvement Strategies:

- Implement EMR/EHR and/or referral tracking system improvements. For example, use of modern technologies to support integration and operation across Network partners (see Appendix C).

2. Strengthen the Network: Establish a system of high-quality parenting supports.

Possible Improvement Strategies:

- Work with First 5, Family Resource Centers, and other community entities to develop additional programs that focus on high-quality parenting supports

3. Improve health outcomes: Pediatric patients experience reductions in the toxic stress response and improvements in intermediate and long-term health outcomes because of Trauma-Informed Network of Care evidence-based buffering supports.

Possible Improvement Strategies:

- Create targeted outreach program focused on children with asthma or other ACE-Associated Health Conditions (AAHCs)
- Create program among Network of Care partners that focuses on incorporating asthma education (or other AAHC) into early intervention and school-based services

After choosing the possible strategies, the next step is to write and implement an action plan, which could include:

- What changes will we undertake?
- Who will be affected, and how?
- Who can lead the change?
- What resources will be needed?
- What are the barriers, and how can they be overcome?
- What is our timeline?

Do

After the goals have been selected, the QI team will implement and test the changes and improvements. The team should accurately and consistently document the specifics of the changes implemented, including documenting real-time feedback and observations, and any modifications made along the way, as well as any unforeseen challenges or surprises.

For example, if the QI team implements a cloud-based solution for better integration of referrals between clinical care teams and partners within the Trauma-Informed Network of Care, the team should document the solution used, the time the solution went live, any system implementation challenges, and how the solution was utilized, etc.

Study

The study portion of the PDSA cycle refers to the post-implementation analysis. The QI team will analyze the data collected in the “do” step and study the results by comparing the data collected post-implementation to the baseline data. Using the measures identified, the QI team will determine whether the change resulted in an improvement and by how much.

Act

The act portion of the PDSA cycle refers to the actions taken in response to the analysis. The QI team should refine the change based on what was learned from analysis of the data. Successful changes should be sustained and broadened, though the team should continually look for ways to improve processes. This is often the phase where teams plan out future incremental tests of change based on knowledge learned from the current PDSA.

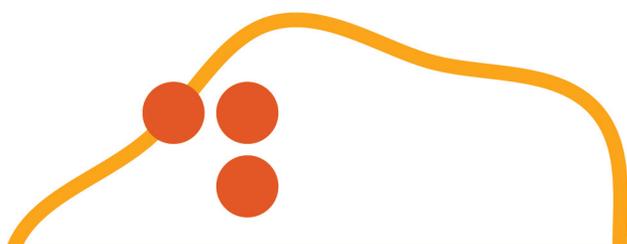
For example, if the enhanced outreach program from #3 above is to test the effectiveness of incorporating asthma education into early intervention and school-based services, and parents were able to reduce asthma triggers in the home, the QI team may then decide to test the effectiveness of incorporating education for other toxic stress-related childhood conditions into early intervention and school-based services.

The evidence-based PDSA cycle is meant to guide a continuous process of community assessment, reflection, and incremental improvement toward achieving identified goals.

Conclusion

This Trauma-Informed Network of Care Roadmap outlines actionable ways for establishing a robust and effective system for responding to ACE screenings and mitigating the toxic stress response. We hope you will use this Roadmap to assess where your practice and your community stands in its ability to screen for, treat, and heal toxic stress and to identify opportunities for continued expansion and maturation of your community Network of Care.

Toxic stress is a health condition amenable to treatment. Children, adults, and families are resilient – they can withstand and recover from stressors. It is our responsibility as health care clinical care teams, community-based organizations, and government agencies to work together to ensure that communities across California have systems in place to effectively and comprehensively screen for ACEs and toxic stress, respond with trauma-informed care, and leverage a network of evidence-based clinical and community interventions to support primary, secondary, and tertiary prevention efforts. Join the movement to make California ACEs Aware and support the health and well-being of our children, adults, and families – now and for generations to come!



Appendices

Appendix A Information Needed from each Network of Care Entity

Name of Agency	
Location	
Office Phone	
Service Area	
Services Provided	
Interpretation and Translation Services	
Eligibility Criteria for Services	
Cost of Services	

Point of Contact at Agency	
Phone Number	
E-mail Address	

Referral Process <i>(For example, is there a form to submit? Is there an online portal for clients to access? Can client self-refer?)</i>	
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Appendix B: Potential Network of Care Financing Mechanisms

Creating the infrastructure needed to support active integration of primary care clinical care teams into their local Trauma-Informed Networks of Care requires relationship building as well as financial commitment. All interventions and responses have a cost associated with them, some of which can be reimbursed through Medi-Cal and other state and/or federally-funded programs. However, additional dedicated funding sources to fill the gaps in a robust Trauma-Informed Network of Care are critical to long-term success and sustainability.

It is widely accepted that care coordination works most effectively when there are one or more dedicated people who are responsible and accountable for managing the referral and response process. This function can be performed by a range of individuals – community health workers, care coordinators, social workers, or others – provided they are properly trained and resourced. Securing an ongoing, stable funding source to support this key element of the Trauma-Informed Network of Care will provide the means to support community infrastructure, which in turn supports relationships and closed-loop referrals. Infrastructure funding can also allow for trauma-informed care training, networking, and shared learning.

Financing Options

Following are several broad-based strategies that should be considered when engaging in an ACEs Aware Network of Care:

- **California’s “Delegated Model”:** Most primary care clinicians in California are members of Independent Practice Association (IPA) physician groups or medical groups, which in turn negotiate and contract with managed care plans to receive a monthly capitated payment for providing care to each of their patients enrolled in Medi-Cal.

Capitated arrangements mean that primary care clinical care teams serving Medi-Cal populations rarely bill on a fee-for-service basis for individual services. It is important that primary care clinical care teams understand at a high level how these capitation arrangements work to consider ways in which resources can be otherwise allocated.

- For example, IPAs may assume financial risk for the outcomes of patients assigned to a group of clinicians.
- Some of those outcomes would likely benefit from wrap-around services that would be organized and followed through by a care coordinator or community health worker.
- As a result of taking on financial risk, IPAs may be more involved in managing clinical practices.
- If your clinic can demonstrate the benefit of care coordination for those at risk for toxic stress through improved health outcomes, the IPA may be willing to allocate the resources needed to fund this role. Often it is this proof, even on a relatively small number (roughly hundreds) of patients, that can get IPAs and payers interested in value-based arrangements.
- **Non-Delegated Model Counties:** Not all counties in California operate under the delegated model. Northern California's counties operate under the more traditional managed care contracting approach, where clinicians bill managed care plans on a fee-for-service basis.
 - Get to know your Local Governmental Agency and talk with them about partnering to provide [Targeted Case Management \(TCM\)](#) services for adults, children, and families at risk of toxic stress. TCM is the most directly related, federally-matched Medi-Cal service category that can be used for helping adults and families navigate the health and social service system.
 - Although most clinicians get paid on a capitated basis, it is also important that primary care billing and reimbursement teams are trained and prepared to bill Medi-Cal for services provided, including the following:
 - » Medi-Cal covers a range of [provider types](#) that could be involved in helping patients navigate the system;
 - » All individuals must be enrolled with the state as a [participating Medi-Cal provider; and](#)

- » Teams need the appropriate billing codes and documentation requirements for submitting claims for Medi-Cal payment.
- For clinical care teams that contract directly with Medi-Cal managed care plans, it is possible to negotiate for an increase in capitation rates for certain patients.
- **Behavioral Health Organizations:** California managed care plans are also responsible for mild to moderate mental health services for children and adults. Most managed care plans contract the provision of those mild to moderate services out to a behavioral health organization, which is also paid within the plan’s capitation rate.
- **County Behavioral Health System Services:** Each county has a county-based Medi-Cal behavioral health plan responsible for:
 - Adults with serious mental illness;
 - Adults with substance use disorders;
 - Children with a diagnosable serious emotional disturbance or substance use disorder need under EPSDT.

In addition, county behavioral health systems provide behavioral health services to Medi-Cal and non-Medi-Cal populations (including privately insured and uninsured Californians) under various categorical funding streams, including, but not limited to:

- Prevention and early intervention funds under California’s Mental Health Services Act;
- Full-service partnership models, which provide a “whatever it takes” approach to services and supports for individuals of all ages with serious mental illness under the Mental Health Services Act;
- Community prevention and emergency response initiatives, including warm lines, and mobile response teams;

- Responsibility for crisis continuum services, including involuntary holds and commitments.
- **Medi-Cal and the Early and Periodic Screening, Diagnostic and Treatment Benefit:** The Early and Periodic Screening, Diagnostic and Treatment (EPSDT) benefit provides comprehensive and preventive health care services for children under age 21 who are enrolled in Medicaid. EPSDT is key to ensuring that children and adolescents receive appropriate preventive, dental, mental health, and developmental, and specialty services.
 - **Early:** Assessing and identifying problems early
 - **Periodic:** Checking children’s health at periodic, age-appropriate intervals
 - **Screening:** Providing physical, mental, developmental, dental, hearing, vision, and other screening tests to detect potential problems
 - **Diagnostic:** Performing diagnostic tests to follow up when a risk is identified, and
 - **Treatment:** Control, correct or reduce health problems found.

States are required to provide comprehensive services and furnish all Medicaid coverable, appropriate, and medically necessary services needed to correct and ameliorate health conditions, based on certain federal guidelines. Under the EPSDT benefit, clinicians can bill Medi-Cal for screening, diagnostic, and treatment services.

- **Federally Qualified Health Centers (FQHCs) and the Prospective Payment System (PPS):** Because FQHCs serve many patients who are uninsured, they are paid on a cost-based reimbursement basis to help make up for the shortfall. FQHCs and community health centers often have care coordinators, case managers, and integrated behavioral health available to serve a variety of population needs.

Looking to the Future

Finally, it is important that clinical care teams and communities understand and follow the evolution of large-scale Medi-Cal initiatives such as the California Advancing and Innovating Medi-Cal (CalAIM). The CalAIM initiative seeks to improve health outcomes of Medi-Cal beneficiaries by restructuring the financing of services currently paid for through different mechanisms or payers, such as through the new Enhanced Care Management benefit and changes to how California assesses medical necessity for behavioral health services. Understanding the way these incentives work under managed care capitation arrangements will be key to making the case for the role of primary care teams, Networks of Care, and the resources and referrals that that will integrate them on behalf of communities and families.



Appendix C

Characteristics of Effective Digital Health Resource Platforms

Broad scale utilization of a specific technology platform within a community can be achieved by setting up seamless EMR/EHR integration, developing privacy policies and procedures to govern data sharing between platforms and clinical care teams, providing appropriate training and incentives for adoption, and creating effective workflows in both clinical and non-clinical environments that thoughtfully integrate use of the platform.

Clinicians often have proprietary EMR/EHR systems that are standard across the clinical organization used for tracking patient health information and history, including diagnoses, treatment plans, and referrals. Digital health resource platforms can facilitate bi-directional referrals and effective data sharing by providing the tools necessary for clinical and non-clinical care teams across care environments to communicate between one another as they provide care to their patients and clients.

Community-based organizations often have their own record keeping systems, whether through technology platforms, spreadsheets, Word documents, or routinely updated resource binders.

A mature Trauma-Informed Network of Care allows for seamless, secure, closed-loop referrals across the ecosystem of partners. Given the diversity and range of digital record-keeping systems, and as the history of technology innovations in health care suggest, it may take some time for communities to reach that desired level of maturity.

Efforts towards robust interoperability should be seen as evolving along a spectrum. Importantly, system interoperability should not be the starting point for discussions; technology should not drive the discussion nor should integrations be built out simply for integration's sake. Rather, the technical discussions should evolve as the Network of Care itself evolves and specific use cases and workflows mature.

If clinic and community-based organization systems are early in their partnership discussions, there are ways that modern and current technology can help bridge the divide. Planning and forethought at the outset can help facilitate future interoperability and integrations.

The following are concepts that can be explored with technologists. The platform(s) should have:

- Patient-centered workflows;
- Cloud-based solutions;
- Core Security and Compliance Principles;
- A single person history and identifier with capabilities to match across platforms;
- Standardized, structured data capture;
- Alignment with industry-wide data and interoperability standards (e.g., HL7 FHIR®); and
- Modern Application Programming Interfaces (APIs).

In order to provide sophisticated interoperability such as bidirectional referrals, vendors need to be able to:

- Harmonize resources;
- Match clients/patient profiles using patient level demographics and identifiers; and
- Support relevant data standards and provide APIs to facilitate workflow transactions such as referrals.

Partners should look for incentives to encourage integration as well as consider whether to use the same platform.

Endnotes

ⁱ Roos LE, Mota N, Afifi TO, Katz LY, Distasio J, Sareen JJAJoPH. Relationship between Adverse Childhood Experiences and homelessness and the impact of axis I and II disorders. 2013; 103(S2): S275-S81.

ⁱⁱ Hughes K, Bellis MA, Hardcastle KA, et al. The effect of multiple Adverse Childhood Experiences on health: A systematic review and meta-analysis. *The Lancet Public Health* 2017; 2(8): e356–e66.

ⁱⁱⁱ Bhushan D, Kotz K, McCall J, Wirtz S, Gilgoff R, Dube SR, Powers C, Olson-Morgan J, Galeste M, Patterson K, Harris L, Mills A, Bethell C, Burke Harris N. Office of the California Surgeon General. Roadmap for Resilience: The California Surgeon General’s Report on Adverse Childhood Experiences, Toxic Stress, and Health. Office of the California Surgeon General, 2020. DOI: [10.48019/PEAM8812](https://doi.org/10.48019/PEAM8812).

^{iv} Ibid.

^v Centers for Disease Control and Prevention. Adverse Childhood Experiences Vital Signs. <https://www.cdc.gov/vitalsigns/aces/index.html>

^{vi} Roos LE, Mota N, Afifi TO, Katz LY, Distasio J, Sareen JJAJoPH. Relationship between Adverse Childhood Experiences and homelessness and the impact of axis I and II disorders. 2013; 103(S2): S275-S81.

^{vii} Hughes K, Bellis MA, Hardcastle KA, et al. The effect of multiple Adverse Childhood Experiences on health: A systematic review and meta-analysis. *The Lancet Public Health* 2017; 2(8): e356–e66.

^{viii} Bhushan D, Kotz K, McCall J, Wirtz S, Gilgoff R, Dube SR, Powers C, Olson-Morgan J, Galeste M, Patterson K, Harris L, Mills A, Bethell C, Burke Harris N. Office of the California Surgeon General. Roadmap for Resilience: The California Surgeon General’s Report on Adverse Childhood Experiences, Toxic Stress, and Health. Office of the California Surgeon General, 2020. DOI: [10.48019/PEAM8812](https://doi.org/10.48019/PEAM8812).

^{ix} Ibid.

^x Ibid.

^{xi} Ibid.

- ^{xii} Bucci M, Marques SS, Oh D, Harris NB. Toxic Stress in Children and Adolescents. *Advances in Pediatrics* 2016; 63: 403–28. DOI: [10.1016/j.yapd.2016.04.002](https://doi.org/10.1016/j.yapd.2016.04.002).
- ^{xiii} Bhushan D, Kotz K, McCall J, Wirtz S, Gilgoff R, Dube SR, Powers C, Olson-Morgan J, Galeste M, Patterson K, Harris L, Mills A, Bethell C, Burke Harris N. Office of the California Surgeon General. Roadmap for Resilience: The California Surgeon General’s Report on Adverse Childhood Experiences, Toxic Stress, and Health. Office of the California Surgeon General, 2020. DOI: [10.48019/PEAM8812](https://doi.org/10.48019/PEAM8812).
- ^{xiv} Ibid.
- ^{xv} Ibid.
- ^{xvi} Ibid.
- ^{xvii} Ibid.
- ^{xviii} Ibid.
- ^{xix} Dayton, Lauren, et al. “Practical Steps to Integrate Family Voice in Organization, Policy, Planning, and Decision-Making for Socio-Emotional Trauma-Informed Integrated Pediatric Care.” *Current Problems in Pediatric and Adolescent Health Care* 46.12 (2016): 402-410.
- ^{xx} Purewal, Sukhdip K., et al. “Screening for adverse childhood experiences (ACEs) in an integrated pediatric care model.” *Zero to three* 37.1 (2016): 10-17.
- ^{xxi} Bay Area Research Consortium on Toxic Stress and Health (BARC) investigators. Personal communication with the Bay Area Research Consortium on Toxic Stress and Health (BARC) investigators. 2019.
- ^{xxii} Hughes K, Ford K, Davies A, Homolova L, Bellis M. Sources of resilience and their moderating relationships with harms from adverse childhood experiences. Report 1: Mental Illness. 2018.
- ^{xxiii} Bhushan D, Kotz K, McCall J, Wirtz S, Gilgoff R, Dube SR, Powers C, Olson-Morgan J, Galeste M, Patterson K, Harris L, Mills A, Bethell C, Burke Harris N. Office of the California Surgeon General. Roadmap for Resilience: The California Surgeon General’s Report on Adverse Childhood Experiences, Toxic Stress, and Health. Office of the California Surgeon General, 2020. DOI: [10.48019/PEAM8812](https://doi.org/10.48019/PEAM8812).

^{xxiv} Ibid.

^{xxv} Waehrer, Geetha M., et al. "Disease burden of adverse childhood experiences across 14 states." *PLoS one* 15.1 (2020): e0226134. Hughes, Karen, et al. "The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis." *The Lancet Public Health* 2.8 (2017): e356-e366.

^{xxvi} Bellis MA, Hughes K, Ford K, Ramos Rodriguez G, Sethi D, Passmore J. Life course health consequences and associated annual costs of adverse childhood experiences across Europe and North America: a systematic review and meta-analysis. *Lancet Public Health* 2019; 4: e517-28. DOI: [10.1016/S2468-2667\(19\)30145-8](https://doi.org/10.1016/S2468-2667(19)30145-8).

^{xxvii} Bellis MA, Hardcastle K, Ford K, et al. Does continuous trusted adult support in childhood impart life-course resilience against Adverse Childhood Experiences - A retrospective study on adult health-harming behaviours and mental well-being. *BMC Psychiatry* 2017; 17(1): 110.

^{xxviii} Bethell CD, Gombojav N, Whitaker RC. Family resilience and connection promote flourishing among US children, even amid adversity. *Health Affairs* 2019; 38(5): 729-37.

^{xxix} Bethell C, Jones J, Gombojav N, Linkenbach J, Sege R. Positive Childhood Experiences and adult mental and relational health in a statewide sample: Associations across Adverse Childhood Experiences levels. *JAMA Pediatrics* 2019: e193007.

^{xxx} Bhushan D, Kotz K, McCall J, Wirtz S, Gilgoff R, Dube SR, Powers C, Olson-Morgan J, Galeste M, Patterson K, Harris L, Mills A, Bethell C, Burke Harris N. Office of the California Surgeon General. Roadmap for Resilience: The California Surgeon General's Report on Adverse Childhood Experiences, Toxic Stress, and Health. Office of the California Surgeon General, 2020. DOI: [10.48019/PEAM8812](https://doi.org/10.48019/PEAM8812).

^{xxxi} ACEs Aware definition based on Kimberg LS, Wheeler M. Trauma and trauma-informed care. In: Trauma-informed healthcare approaches: a guide for primary care. New York, NY: Springer Berlin Heidelberg, 2019. DOI: [10.1007/978-3-030-04342-1](https://doi.org/10.1007/978-3-030-04342-1).

^{xxxii} Bhushan D, Kotz K, McCall J, Wirtz S, Gilgoff R, Dube SR, Powers C, Olson-Morgan J, Galeste M, Patterson K, Harris L, Mills A, Bethell C, Burke Harris N. Office of the California Surgeon General. Roadmap for Resilience: The California Surgeon General's Report on Adverse Childhood Experiences, Toxic Stress, and Health. Office of the California Surgeon General, 2020. DOI: [10.48019/PEAM8812](https://doi.org/10.48019/PEAM8812).

^{xxxiii} Bethell C, Jones J, Combojav N, Linkenbach J, Sege R. Positive Childhood Experiences and adult mental and relational health in a statewide sample: Associations across Adverse Childhood Experiences levels. *JAMA Pediatrics* 2019; e193007.

^{xxxiv} Bellis MA, Hughes K, Ford K, et al. Adverse Childhood Experiences and sources of childhood resilience: A retrospective study of their combined relationships with child health and educational attendance. *BMC Public Health* 2018; 18(1): 792.

^{xxxv} Bhushan D, Kotz K, McCall J, Wirtz S, Gilgoff R, Dube SR, Powers C, Olson-Morgan J, Galeste M, Patterson K, Harris L, Mills A, Bethell C, Burke Harris N. Office of the California Surgeon General. Roadmap for Resilience: The California Surgeon General's Report on Adverse Childhood Experiences, Toxic Stress, and Health. Office of the California Surgeon General, 2020. DOI: [10.48019/PEAM8812](https://doi.org/10.48019/PEAM8812).

^{xxxvi} Ibid.

^{xxxvii} Ibid.

^{xxxviii} Langley GL, Moen R, Nolan KM, Nolan TW, Norman CL, Provost LP. [The Improvement Guide: A Practical Approach to Enhancing Organizational Performance](#) (2nd edition). San Francisco: Jossey-Bass Publishers; 2009.

^{xxxix} Ibid.