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# ADVERSE CHILDHOOD EXPERIENCE (ACE) SCREENING IN RURAL NORTHERN CALIFORNIA

Exploring Provider Perspectives  
and Experiences



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# EXECUTIVE SUMMARY

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Communities across California are impacted by Adverse Childhood Experiences (ACEs) and toxic stress, although regions are affected differently. This paper focuses on the six-county region in rural Northern California served by the [Public Health Institute's \(PHI\) Population Health Innovation Lab's \(PHIL\)](#) [Northern ACEs Collaborative \(NAC\)](#) where exist some of the highest rates of ACEs per capita in the entire state.<sup>1</sup> NAC works in Butte, Colusa, Glenn, Shasta, Tehama, and Trinity counties through a multisector collaborative of 28 agencies.

In addition to high rates of ACEs, rural communities in Northern California face unique challenges with increased rates of poverty and a shortage of primary care and mental health services.<sup>2,3,4,5</sup> The region has experienced devastating wildfires in the past five years which, while distinct from ACEs, contribute to the collective trauma of the region.<sup>1,6</sup> The COVID-19 crisis has also contributed to stress in the region while simultaneously exacerbating existing barriers to ACE screening and increasing strain on a healthcare system with demonstrated shortages.<sup>4,5</sup>

Through key-informant interviews, Medi-Cal providers shared barriers for implementing ACE screening including 1) time, 2) referral resources, 3) clinical infrastructure & workflow, and 4) skilled support staff. Providers also identified factors that helped support screening such as 1) the presence of a champion that advocates for ACE screening and 2) availability of an inventory of local referral resources.

## Key Insights

This paper identifies key opportunities to support successful screening, referral, and treatment processes for ACEs in rural Northern California.

### Findings include:

1. Leveraging a regional approach
2. Increasing access to local referral resources
3. Sharing best practices specific to the rural context
4. Expanding the local workforce

# INTRODUCTION

The impact of Adverse Childhood Experiences (ACEs) can be seen in communities across the state of California and beyond. The prevalence of ACEs varies across counties yet, rural Northern California has a toxic stress crisis that affects not only the current well-being of the communities but also future generations: the region has the highest rate of ACEs in the state, per capita.<sup>1</sup> In some counties in the region, more than 75% of adults ages eighteen years and older have experienced one or more ACE, in comparison to 60% for the state as a whole.<sup>1,7</sup> As transmission of ACEs and toxic stress can be intergenerational, the high rates of ACEs, and their impacts, will continue unless robust, region-specific interventions are put into place.<sup>7</sup>

This paper explores how the unique factors influencing the health and wellbeing of rural Northern California residents impact implementation of ACE screening and trauma-informed care in the region. Drawing on the perspectives and experiences of Medi-Cal pediatric and family practice providers, the areas of focus for this paper include understanding the barriers and facilitators for the implementation of ACE screening and the impact of the COVID-19 crisis on the screening process,

particularly with respect to referral resources and supportive interventions available across the region.

This research focuses on the six counties participating in the [Public Health Institute's \(PHI\) Population Health Innovation Lab's \(PHIL\) Northern ACEs Collaborative \(NAC\)](#). NAC works to implement policy and systems change to mitigate issues of trauma and build resilience in rural Northern California counties whose rates of ACEs are known to be higher per capita than the state average.<sup>1</sup> NAC is a multisector collaborative of 28 agencies working in Butte, Colusa, Glenn, Shasta, Tehama, and Trinity counties.



**Figure 1. Butte, Colusa, Glenn, Shasta, Tehama, and Trinity counties of Northern California.**

# WHAT ARE ACEs?

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ACEs, or Adverse Childhood Experiences, are potentially traumatic events that occur in childhood (up to age 18). The term ACEs specifically refers to 10 categories of adversities in three domains – abuse, neglect, and household challenges:

- **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 strongly associated, in a dose-response fashion, with some of the most common, serious, and costly health conditions facing our society today, including **at least nine of the 10** leading causes of death in the United States, as well as earlier mortality.<sup>8</sup>

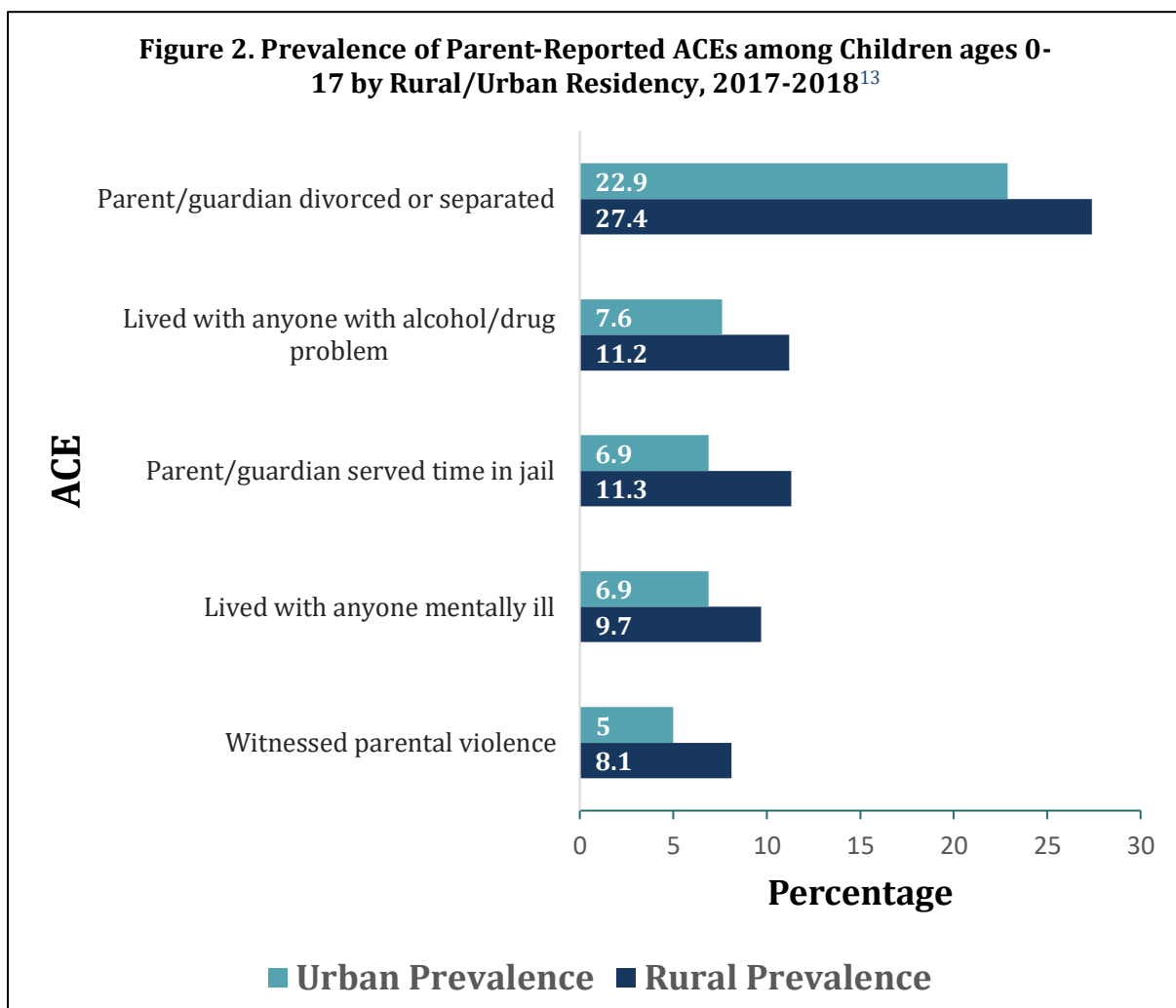
## People with four or more ACEs are:

- **2-2.3 times** as likely to have a stroke, cancer, or heart disease<sup>9,10,11</sup>
- **3.1 times** as likely to have chronic lower respiratory disease<sup>9</sup>
- **11.2 times** as likely to have Alzheimer's or dementia<sup>1</sup>
- **1.4 times** as likely to have diabetes<sup>9</sup>
- **37.5 times** as likely to attempt suicide<sup>9</sup>

Additional adversities faced throughout childhood are risk factors for the toxic stress caused by ACEs. Trauma and health disparities can intersect with the conditions in which people grow up and live. These social determinants of health (SDOH) are conditions found in the environments in which people live, work, learn, and play and they impact a wide range of health risks and outcomes.<sup>12</sup>

# ACEs & THE RURAL CONTEXT

Rural communities are disproportionately affected by ACEs and the impacts of toxic stress. In a recent study, five out of eight ACEs were more prevalent among children in rural areas compared to children in urban areas [see Figure 1].<sup>13</sup> In California, 62% of California adults have experienced at least one ACE and 16% have experienced four or more ACEs.<sup>7</sup> The rate of ACEs is higher in rural Northern California, where, in some counties, more than 75% of adults ages eighteen years and older have experienced one or more ACE, and more than 20% have experienced four or more ACEs.<sup>1,7</sup> In addition, those living in rural areas are more likely to experience symptoms from five of the leading causes of death in the United States, including heart disease, stroke, chronic lower respiratory disease, and cancer – of which ACEs are strongly associated.<sup>9,10,11,14</sup>



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In our clinic, there are very rarely patients with a score of 0. For the most part the numbers are between 1 and 7, a few 9s.

- *Rural Pediatric Provider*

## Contributors to ACEs

Rurality is an important consideration when designing and implementing health interventions, such as ACE screening and treatment, as rural communities experience unique health barriers that differ from those in more urban settings.<sup>15</sup> These barriers include limited access to primary and behavioral health care, shortages in the health professional workforce, poverty, and diminished economic opportunities.<sup>16</sup> These factors contribute to rural health disparities, which impact children and families living across rural Northern California and may contribute to higher ACEs than the rest of the state.

**Table 1. Ratio of the population to primary care providers and mental health providers<sup>17,18</sup>**

<i>County</i>	<b>Population: Primary Care Provider</b>	<b>Population: Mental Health Provider</b>
<i>Butte</i>	1,650:1	140:1
<i>Colusa</i>	3,600:1	600:1
<i>Glenn</i>	7,010:1	920:1
<i>Shasta</i>	1,330:1	260:1
<i>Tehama</i>	2,130:1	580:1
<i>Trinity</i>	4,180:1	230:1
<b>California State Average</b>	<b>1,250:1</b>	<b>270:1</b>

In rural Northern California, access to primary care and mental health services is much more limited than in other counties throughout the state.<sup>17,18</sup> The six counties of focus for this paper are designated as Health Professional Shortage Areas (HPSAs) and Medically Underserved Areas/Populations (MUAs) by the Health Resource and Services Administration for shortages of primary medical care, dental, and/or mental health providers.<sup>4,5</sup> Overall, the ratio of the population to primary care physicians and to mental health providers is much higher in the rural north, and represent some of the worst ratios in the state.<sup>17,18</sup> With few exceptions, there is an extreme lack of providers to do ACE screening and to provide the referral services needed, like mental health services.



Rural areas experience higher rates of poverty, which can be a reinforcing factor in the accumulation of ACEs.<sup>2,3</sup> Children living in poverty are more likely than their peers to experience frequent and intense adversities.<sup>3</sup> Counties across rural Northern California experience higher rates of poverty than the rest of the state. In California, the percent of persons in poverty is 11.8% compared to almost 1.5 times that in Trinity, Tehama, and Butte counties in the rural north.<sup>19</sup>

Over the past five years, rural Northern California has experienced unprecedented wildfires, devastating lives throughout the region. Though traumatic experiences like these are distinct from ACEs, factors associated with such adversity and trauma, such as the environmental trauma of a natural disaster, may contribute to ACE exposure and toxic stress risk particularly when experienced repeatedly.<sup>1,20</sup> There is evidence that child abuse and neglect as well as intimate partner violence and sexual violence increase in communities affected by natural disasters, such as fires, which may contribute to higher ACE scores in the region.<sup>21,22</sup>



Although this section highlighted numerous aspects of rural life that impact health negatively, it is important to recognize that there are also positive and resilience-building characteristics of the rural experience.<sup>23</sup> Smaller and more closely knit communities can be an ideal source for connection and support. Primary care providers are also able to have more in depth knowledge of their patients, families, and associated life experiences to help support care and interventions.

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As a rural community, I think we might be more in touch with our patients than in urban settings. Even though we see a lot of patients, we pretty much know who they are. That's helpful. We often know if they are having hard times and we want to help them.

- *Rural Family Practice Provider*

# METHODOLOGICAL APPROACH

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This paper explores experiences regarding ACE screening from the perspective of Medi-Cal pediatric and family practice providers in rural Northern California. Key informant interviews were conducted with nine Medi-Cal pediatric and family practice providers in rural Northern California. The primary goal of the interviews was to identify and explore barriers and facilitators in the implementation of ACE screening and best practices for trauma-informed care in the region. Additionally, the interviews explored the impact of the COVID-19 crisis on the screening process, particularly with respect to referral resources and supportive interventions.

Key informant selection drew on existing partnerships with health plans and healthcare providers that participate in the [Public Health Institute's \(PHI\) Population Health Innovation Lab's \(PHIL\) Northern ACEs Collaborative \(NAC\)](#). Leveraging these existing partnerships, a purposive approach was used to sample providers to ensure geographic diversity in the key informants interviewed. The sample also considered completion of the online [Becoming ACEs Aware in California Training](#) provided through the Office of the California Surgeon General, to collect information from providers who had, as

well as those who had not, participated in the training. Providers selected for the key informant interviews included pediatric and family practice physicians, nurse practitioners, and physician assistants, serving patients in the six rural counties participating in NAC. NAC works in Butte, Colusa, Glenn, Shasta, Tehama, and Trinity counties.

Interviews took place between December 2020 and March 2021. Using a semi-structured interview guide, interviews were conducted by telephone and Zoom. An informal thematic analysis was used to identify common characteristics and strategies that contributed to providers conducting ACE screening and referrals, as well as to identify barriers that providers experience in the implementation of these processes. The impact of the COVID-19 crisis was also examined.

# RESULTS

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All the key informants interviewed (n=9) were knowledgeable about ACEs and understood the impact ACEs have on long term health outcomes for their patients. Six out of the nine providers interviewed had completed the [Becoming ACEs Aware in California Training](#). Of those six, three attested to completing the training and are included in the [ACEs Aware Provider Directory](#). Of those that had not completed the training, one had participated in training on ACEs as part of general rounds and one other had attended numerous lectures and trainings on ACEs from other sources.

There was exceptionally low utilization of the [Pediatric ACEs and Related Life-events Screener \(PEARLS\)](#) and the [ACE Questionnaire for Adults](#) to screen for ACEs as part of standard practice among the providers interviewed. Only one provider reported using the ACE screener often/always. Two providers reported using the screener infrequently and the majority have never used the screener. Three of the providers not currently using the ACE screener indicated they were in the process of developing systems that would integrate use of it as part of standard clinical workflow.

**Figure 3. Providers completion of Becoming ACEs Aware in California Training**



■ Completed ■ Did Not Complete

**Figure 4. Frequency of use of P.E.A.R.L.S. and/or ACE Questionnaire for Adults**



■ Often/Always ■ Infrequently ■ Never

## Facilitators

Despite the lack of implementation of ACE screening for patients among the key informants interviewed, common factors were identified that helped support screening practices among those that screened often, those that screened infrequently, and those that were in process of establishing systems for screening. The main factors identified as facilitating ACE screening included 1) the presence of a *champion* that strongly advocates for ACE screening and 2) having an inventory of referral resources readily available.



### **ACE Screening Champion**

The presence of a champion that strongly advocates for, or models, ACE screening was a driving factor in the screening practices of the providers interviewed. All the key informants that did ACE screening or were in the process of implementing systems for screening, had, or were themselves, an ACE screening champion.

### **Referral Resource Inventory**

For all the key informants that screened for ACEs, both often and infrequently, having a compiled inventory of available referral resources was key in their screening and referral process, despite the shortage of referral resources in the area.

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Time is the main barrier we face. It is already hard to fit in all that needs to be fit into the time of one visit. Adding another form just adds one more thing.

*- Rural Family Practice Provider*

## Barriers

Common themes emerged from the key informant interviews with respect to barriers for implementing ACE screening, including lack of time, lack of referral resources, difficulty navigating referrals across county lines, clinical infrastructure and workflow limitations, and shortage of skilled support staff. These themes were universal across key informants, although the perception of the severity of impact of each barrier varied slightly across those interviewed. This section highlights key issues related to each common theme, as identified through the interviews.

### Time

All providers interviewed identified time as the greatest barrier in implementing ACE screening. Medi-Cal providers are required to complete numerous screenings with patients in the short time allocated for a patient visit. The incorporation of another screening form, and subsequent conversation, is perceived as challenging to fit into that short time. Although cited first by all providers, the issue of time was often closely associated with other barriers identified through the interviews, including time to figure out referral resources and staffing and clinical infrastructure to support administering the screening, entering the information into the EHR, and billing procedures.

### Referral Resources

Referral resources were the next most common barrier identified by all key informants. Unless a patient has a very serious mental health condition, there are often very few, if any, options for referral. Many of the providers in the region see patients from multiple counties and therefore must navigate referrals to different sets of available referral resources, which differ by county. Referral resources available to one patient may not be available to another, requiring additional clinic staff capacity to navigate a complicated, and often inequitable, referral process.

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You also fear that you will uncover something you can't handle in the time of the visit. You won't know where to send them or have time to ensure they are referred to the appropriated service.

*- Rural Family Practice Provider*

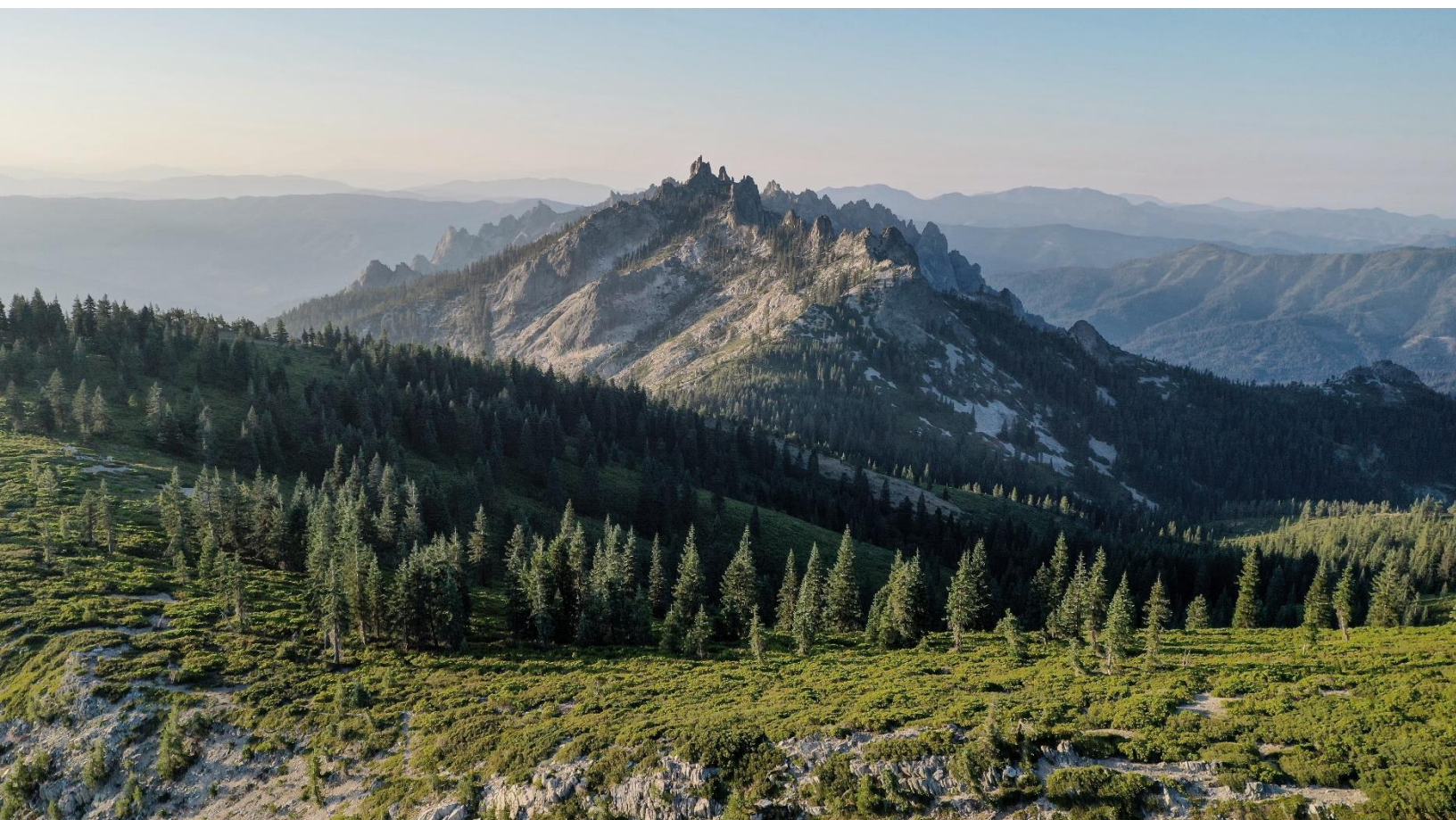


### **Clinical Infrastructure & Workflow**

Issues related to clinical infrastructure and workflow, such as incorporation in the electronic health record (EHR) and how best to fit screening into clinical operations were also identified as a barrier by most of the key informants. There was an overall lack of incorporation of the ACE screener and ACE-related information in the EHR systems of the providers interviewed. Lack of integration into clinic electronic systems, was also a barrier to billing reimbursement for screening.

### **Skilled Support Staff**

Another barrier identified by most of the key informants related to shortage of skilled support staff to assist with screening, identifying referrals, and billing reimbursement. Medical assistants and scribes were noted to be in short supply.



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Patients from one county go to certain places and patients from another county go to certain places and Medi-Cal makes it so they can't utilize certain services in other areas. So, the services might be there, but they can't use them.

*- Rural Pediatric Provider*

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## The COVID-19 Crisis

Although not identified as a primary barrier, the COVID-19 crisis has exacerbated some of the identified barriers and created new challenges for providers in the implementation of ACE screening. Of the primary barriers identified through the interviews, the COVID-19 crisis has particularly impacted availability and access to referral resources and the supply of skilled support staff. There are fewer referral resources available for providers due to closures or suspension of services. For the referral resources that are available, there are significant challenges in access due to the volume of patients competing to access scarce resources. The diversion of medical staff to COVID response activities has impacted clinical operations for many of the key informants interviewed. This has resulted in challenges for administrative activities such as coding, billing, and referrals.

Key informants also identified the transition to telemedicine and virtual visits as a barrier to implementing ACE screening with patients. In general, telemedicine has increased access for patients for routine visits and was cited overall as a positive outcome of the pandemic. However, the providers that did ACE screening, both frequently and infrequently, all reported a significant decline in the frequency of screening after the transition to telemedicine, due to preference for in-person screening and challenges in providing compassionate support in a virtual environment. When doing ACE screening, being in person with a patient was identified as an important facilitator for both the screening and any resulting conversations and trauma-informed care.



# CALL TO ACTION

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The implementation of ACE screening for Medi-Cal pediatric and family practice providers in rural Northern California comes with many barriers to success. Some of these barriers may not be singular to the rural experience, while others are unique to this context. In depth background research and findings from the key informant interviews highlight opportunities to better support the implementation of ACE screening in rural Northern California. Rural providers need resources and support to establish successful screening, referral, and treatment processes for patients across the region. Key opportunities include:

## **Leveraging a regional approach to address ACEs through a regionally connected trauma-**

**informed network of care:** Given the unique characteristics of the rural context and the fluidity of the population across county lines to access healthcare and other resources, establishing a trauma-informed network of care that connects resources across county lines has the potential to effectively prevent, treat, and heal toxic stress in rural Northern California.

## **Increasing access to, and availability of, local referral resources for patients with high**

**ACE scores:** By identifying existing referral resources and systems for access, providers will have clarity on the options available and paths for access for patients with high ACE scores. In addition, this will highlight gaps that need to be addressed as part of building a robust trauma-informed network of care across the region.

## **Sharing best practices that are specific to the rural context:**

Learning about challenges and best practices from counterparts can help with incorporation of new practices into clinic workflow. Identifying opportunities where rural providers can share experiences and learn best practices will help support the implementation of ACE screening in rural practices.

## **Expanding the local health**

**workforce:** Increasing the local health workforce, including community health workers (CHWs) and other skilled clinic staff, will support implementation of ACE screening and the referral process. CHWs can serve as a community clinical linkage, facilitating referrals, and crucial buffering resources within their communities. Clinic capacity relies on clinic staff and the availability of support staff would greatly help providers in implementation of screening and referral processes.



Though most of the key informants were not, or infrequently, using the ACE screener, all providers indicated that they were “screening” for ACEs using existing tools and/or as part of conversations and observations during a patient visit. The importance of addressing ACEs was universally acknowledged despite the barriers identified by the providers interviewed. As part of the recent ACEs Aware Trauma-Informed Network of Care grants, there are several projects being implemented in rural Northern California that will begin to address the barriers identified in this research and help build a robust network of care across the region. These grants will help support providers, such as those interviewed, in the implementation of ACE screening processes and the building up of local referral resources to provide trauma-informed care to those that need it most.

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Individually, we are one drop.  
Together, we are an ocean.

- *Ryunosuke Satoro*

# REFERENCES

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- 1) Center for Youth Wellness. (2014). Data Report: A Hidden Crisis. Findings on Adverse Childhood Experiences in California. <https://centerforyouthwellness.org/wp-content/themes/cyw/build/img/building-a-movement/hidden-crisis.pdf>. Accessed March 1, 2021.
- 2) Centers for Disease Control and Prevention. (2017, August 2). *About Rural Health*. <https://www.cdc.gov/ruralhealth/about.html>. Accessed March 1, 2021.
- 3) Hughes, M., & Tucker, W. (2018). Poverty as an Adverse Childhood Experience. *North Carolina Medical Journal*. 79(2). 124-126. DOI: <https://doi.org/10.18043/ncm.79.2.124>. Accessed March 3, 2021.
- 4) Health Resources & Services Administration. (2021). *HPSA Find*. [query for Butte, Colusa, Glenn, Shasta, Tehama, and Trinity Counties]. <https://data.hrsa.gov/tools/shortage-area/hpsa-find>. Accessed April 10, 2021.
- 5) Health Resources & Services Administration. (2021). *MUA Find*. [query for Butte, Colusa, Glenn, Shasta, Tehama, and Trinity Counties]. <https://data.hrsa.gov/tools/shortage-area/mua-find>. Accessed April 10, 2021.
- 6) Bernstein, A. (2019, October 23). Making young minds resilient to disasters [Blog Post]. <https://www.health.harvard.edu/blog/making-young-minds-resilient-to-disasters-2019102318037>. Accessed April 4, 2021.
- 7) California Department Public Health, Injury and Violence Prevention Branch and the California Department of Social Services, Office of Child Abuse Prevention, California Essentials for Childhood Initiative, the University of California, Davis Violence Prevention Research Program, the University of California, Firearm Violence Research Center. (2020). *Adverse Childhood Experiences Data Report: Behavioral Risk Factor Surveillance System (BRFSS), 2011-2017: An Overview of Adverse Childhood Experiences in California*. [https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/SACB/CDPH%20Document%20Library/Essentials%20for%20Childhood%20Initiative/ACEs-BRFSS-Update\\_final%2010.26.20.pdf](https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/SACB/CDPH%20Document%20Library/Essentials%20for%20Childhood%20Initiative/ACEs-BRFSS-Update_final%2010.26.20.pdf). Accessed March 1, 2021.
- 8) Center for Disease Control and Prevention. *10 Leading Causes of Death by Age Group, United States – 2017*. <https://www.cdc.gov/injury/images/lc-charts/leading-causes-of-death-by-age-group-2017-1100w850h.jpg>. Accessed May 8, 2019.

- 9) Hughes, K., Bellis, M.A., Hardcastle, K.A., Sethi, D., Butchart, A., Mikton, C., Jones, L., & Dunne, M.P. (2017). The Effect of Multiple Adverse Childhood Experiences on Health: A Systematic Review and Meta-Analysis. *The Lancet Public Health*, 2, e356–66.
- 10) Dube, S.R., Felitti, V.J., Dong, M., Giles, W.H., & Anda, R.F. (2003). The Impact of Adverse Childhood Experiences on Health Problems: Evidence from Four Birth Cohorts Dating Back to 1900. *Preventive Medicine*, 37, 268–77.
- 11) Petruccelli, K., Davis, J., & Berman, T. (2019). Adverse childhood experiences and associated health outcomes: A systematic review and meta-analysis. *Child Abuse & Neglect* 2019, 97(104127). <https://doi.org/10.1016/j.chiabu.2019.104127>
- 12) Center for Disease Control and Prevention. (2020, August 19). *Social Determinants of Health: Know What Affects Health*. <https://www.cdc.gov/socialdeterminants/index.htm>. Accessed February 26, 2021.
- 13) Health Resources & Services Administration . (2020). *Rural/Urban Differences in Children’s Health: NSCH Data Brief*. <https://mchb.hrsa.gov/sites/default/files/mchb/Data/NSCH/rural-urban-differences.pdf>. Accessed March 1, 2021.
- 14) Center for Disease Control and Prevention. (2019, November 7). *Leading Causes of Death in Rural America*. <https://www.cdc.gov/ruralhealth/cause-of-death.html>. Accessed May 27, 2021.
- 15) Association of State and Territorial Health Officials. (n.d.). State Approaches for Addressing Rural Social Determinants of Health. <https://www.astho.org/Programs/Clinical-to-Community-Connections/Documents/State-Approaches-for-Addressing-Rural-Social-Determinants-of-Health/>. Accessed March 1, 2021.
- 16) National Advisory Committee on Rural Health and Human Services. (2018). *Exploring the Rural Context for Adverse Childhood Experiences (ACEs): Policy Brief and Recommendations*. United States Department of Health & Human Services. <https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/rural/publications/Rural-Context-for-ACEs-August2018.pdf>. Accessed March 1, 2021.
- 17) County Health Rankings & Roadmaps. (2021). *California: Primary care physicians*. <https://www.countyhealthrankings.org/app/california/2021/measure/factors/4/map>. Accessed April 4, 2021.
- 18) County Health Rankings & Roadmaps. (2021). *California: Mental health providers*. <https://www.countyhealthrankings.org/app/california/2021/measure/factors/62/map>. Accessed April 4, 2021.

- 19) United States Census Bureau. (2021). *QuickFacts*. [Query for California, Butte, Colusa, Glenn, Shasta, Tehama, and Trinity counties]. <https://www.census.gov/quickfacts/fact/table/US/PST045219>. Accessed March 3, 2021.
- 20) Bernstein, A. (2019, October 23). Making young minds resilient to disasters [Blog Post]. <https://www.health.harvard.edu/blog/making-young-minds-resilient-to-disasters-2019102318037>. Accessed April 4, 2021.
- 21) World Health Organization. (2005). *Violence and Disasters* [Fact Sheet]. [https://www.who.int/violence\\_injury\\_prevention/publications/violence/violence\\_disasters.pdf](https://www.who.int/violence_injury_prevention/publications/violence/violence_disasters.pdf). Accessed April 4, 2021.
- 22) Gearhart, S., Perez-Patron, M., Hammond, T. A., Goldberg, D. W., Klein, A., & Horney, J. A. (2018, June 1). The Impact of Natural Disasters on Domestic Violence: An Analysis of Reports of Simple Assault in Florida (1999-2007). *Violence and Gender*, 5(2), 87-92. DOI: <https://doi.org/10.1089/vio.2017.0077>. Accessed March 3, 2021.
- 23) Glendinning, A., Nuttall, A., Hendry, L., Kloep, M., & Wood, S. (2003). Rural communities and well-being: a good place to grow up? *The Sociological Review*, 51(1) 129-156.

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