TURNING STRAW INTO GOLD ACE SCREENING FOR ADULT AGRICULTURAL WORKERS IN PRIMARY CARE: A QUALITY IMPROVEMENT PROJECT

by

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DEDICATION

This project is dedicated to my patients and colleagues.

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ABSTRACT

History of adverse childhood experiences (ACEs) is common among adults and associated with nine of the ten leading causes of death in the United States. ACEs screening, coupled with patient education and support from behavioral health promotes resilience and healing from trauma. ACEs screening was not a routine component of the annual assessment visit at the primary care clinic, a federally qualified health center serving agricultural workers and their families. The purpose of this project was to implement ACEs screening as a routine part of the annual assessment visit for adult agricultural workers, coupled with education and, for patients at increased risk, prompt referral to behavioral health. Prior to implementation, training was provided to clinical staff to prepare them for ACEs screening. During the ten-week data collection period, 75% of annual assessment visits included ACEs screening with documentation in the patient's medical history. 17% of the patients screened were determined to be at increased risk due to ACEs, and 57% of patients referred to behavioral health secondary to ACEs screening completed a visit with a behavioral health provider within two weeks of screening. Recommendations to increase ACEs screening and behavioral health referrals in this primary care clinic include adding ACEs screening to the organization's At-a-Glance Checklist for chart preparation, adding ACE score documentation to peer review chart audit, and identifying ACE-specific diagnoses to list in the medical history to facilitate data extraction and meaningful use for population health.

CHAPTER ONE

TURNING STRAW INTO GOLD ACES SCREENING FOR ADULT AGRICULTURAL WORKERS IN PRIMARY CARE: A QUALITY IMPROVEMENT PROJECT

History of childhood adversity is associated with nine of the ten leading causes of death in the United States, including cancer, heart disease, and suicide (Felitti et al., 1998; State of California Department of Health Services, 2020; Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). In the United States, 60.9% of adults have a history of childhood adversity and nearly one in six (15.6%) surveyed reported childhood exposure to four or more adverse childhood experiences (ACEs) (Merrick et al., 2019). Health problems related to a history of childhood adversity account for an estimated $748 billion in annual financial cost across North America (Centers for Disease Control & Prevention, 2021). This paper presents the evidence supporting implementation of screening for ACEs to improve the quality of care provided to adult primary care patients served by the clinic, a federally qualified health center (FQHC) with headquarters in Montana. Accordingly, the quality improvement (QI) project detailed within this paper describes the planning, implementation, and evaluation completed to successfully actualize ACEs screening in this primary care practice setting.

Background and Significance of the Problem

History of ACEs is common among adult patients with lifelong consequences impacting onset and management of chronic health problems later in life (Alcala`, Mitchell, & Keim-Malpass, 2018; Felitti et al., 1998; Galli et al., 2021; Goldstein et al., 2017; Kalmakis et al.,

2018; Rocca et al., 2017). SAMHSA (2014) conceptualizes trauma as "Individual trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening" (p. 7). Agricultural workers who migrate for work in the fields are at increased risk for history of childhood trauma mainly related to low-income household environment (Andrews et al., 2020; Garcia, 2015) and increased risk for mental health concerns related to poor working conditions, separation from families, and discrimination (Mucci et al., 2020). The practice setting for the QI project is a FQHC serving "agricultural workers and their families, and others living in rural poverty" (V. Thuesen, personal communication, July 14, 2021) with primary care, dental, behavioral health, and outreach services provided to eligible patients. The clinic was not routinely screening adult patients for history of ACEs, but it is my assertion that patients would benefit from routine ACEs screening. Patients screened and identified to be at intermediate risk or higher are referred to behavioral health services for therapeutic support since those with higher ACEs scores are at increased risk of falling through the cracks and missing needed care (Alcala`, Mitchell, & Keim-Malpass, 2018; Goldstein et al., 2017). Proposed practice change directed all patients completing ACEs screening to receive education about ACEs and the effects of toxic stress, in addition to support for health promotion and resilience. Evidence supports ACEs screening of adults as an integral component of high quality, trauma-informed primary care.

Some primary care providers express concern that ACEs screening is not a priority in the primary care setting due to lack of behavioral health resources, lack of time to complete ACEs screening during a routine primary care visit, and risk for retraumatizing patients with discussion of childhood adversity (Kalmakis et al., 2018; Maunder et al., 2020). Safe practice dictates that

clinicians must be prepared to address needs revealed by screening results, so effective referral procedures to facilitate access to behavioral health care are a necessary component of ACEs screening in primary care (Kalmakis et al., 2018). Evidence indicates that ACEs screening takes less than five minutes to complete, and patients actually appreciate their primary care provider asking about trauma history within the context of a trusting therapeutic relationship (Guidelines & Protocols Advisory Committee, 2019; Schulman & Maul, 2019; State of California Department of Health Care Services, 2020). Finally, clinicians should provide education about ACEs, toxic stress, and resilience when ACE screening is completed, so that patients understand the impact childhood adversity can have on lifelong health and management of chronic health conditions (State of California Department of Health Care Services, 2020). My ultimate goal for this project is to empower patients to improve lifelong management of their own health, to promote resilience, and positively impact future generations.

The Primary Care Organization

The organization operating the primary care clinic, or the QI project site, was established in 1972 and initially provided medical referrals for agricultural workers and their families in select locations in Montana (V. Thuesen, personal communication, July 14, 2021). Since 1972, the organization has grown into a FQHC with five permanent clinics across Montana and northern Wyoming. The organization is funded by the Health Resources and Services Administration (HRSA) through a competitive grant designated to support health services for agricultural workers, as well as fees paid by patients for services, and insurance reimbursement for care provided to patients with health insurance coverage. Eligibility for grant-funded care is limited to patients who meet the following criteria: at least one member of the patient's

household must have earned a minimum of 50% of their income from agricultural work in the previous two years (V. Thuesen, personal communication, July 14, 2021). Patients seeking care from the organization must complete an annual registration process to determine their eligibility for health services through the organization every year. Under the requirements associated with the HRSA funding, at least 70% of the organization's annual patient load must consist of patients meeting eligibility requirements. Up to 30% of the organization's patient load may consist of community-at-large (CAL) patients who have not been engaged in agricultural work in the previous two years (V. Thuesen, personal communication, July 14, 2021). While it is not a free clinic, eligible patients receive grant-funded clinic services regardless of ability to pay.

Internal Evidence to Support ACE Screening at the Primary Care Clinic

In 2011, 60% of adults surveyed in Montana reported a history of childhood adversity, with 39% reporting two or more ACEs (Montana Department of Public Health & Human Services [MT DPHHS], 2019). A higher ACEs score is associated with lower educational attainment and lower annual income for adults in Montana (MT DPHHS, 2019). Montanans with an ACEs score greater than or equal to four are more likely to report poor physical or mental health, have higher rates of smoking and substance abuse, as well as higher obesity rates than Montanans with lower ACEs scores (MT DPHHS, 2019). In its state health improvement plan for 2019-2023, MT DPHHS recommended ACEs screening in healthcare settings serving patients at-risk due to low income, less than high school education, or members of a minority group, with referral to support services for patients with positive results (MT DPHHS, 2021).

As stated at the beginning, a history of childhood adversity is associated with nine of the ten leading causes of death in the United States, including cancer, heart disease, and suicide

(Felitti et al., 1998; State of California Department of Health Services, 2021; SAMHSA, 2014). Monthly clinicians' meetings conducted at the primary care clinic frequently included discussion of the significant prevalence of childhood adversity and the negative lifelong impacts experienced by their patients (S. Asbell, personal communication, September 1, 2021). Annual reports prepared by the organization for submission to HRSA and accreditation agencies document the fact that most patients receiving care at the clinics have at least one diagnosed chronic health condition, are uninsured, and are not utilizing behavioral health services available to them (V. Thuesen, personal communication, July 14, 2021). Clinicians in the organization report that patients often voluntarily report adverse childhood experiences and other traumatic events during clinic appointments, but most patients are not aware of the lifelong health impacts of those ACEs or that exposure to trauma and toxic stress can complicate management of chronic health conditions such as diabetes, hypertension, depression, anxiety, and obesity (S. Asbell, personal communication, July 14, 2021). Behavioral health clinicians working with the organization have requested routine ACEs screening for adult patients (M. Giraud, personal communication, July 14, 2021) and implementation of this QI project was in response to that request.

Quality Improvement Project to Implement ACEs Screening.

This QI project to implement ACEs screening for adult patients at an annual assessment appointment was necessary to allow early detection and intervention to reduce life-long negative effects for patients at risk due to ACEs. By identifying patients at-risk for negative effects of ACEs, providing education and support at screening, and initiating referral to behavioral health services for follow up and support, healing would be promoted. Implementation of ACEs

screening for adult patients would provide a more complete picture of the patient's health history facilitating improved health management and promoting the development of resilience among adult patients (Guidelines & Protocols Advisory Committee, 2019; Kalmakis et al., 2018; Schulman & Maul, 2019; State of California Department of Health Care Services, 2020).

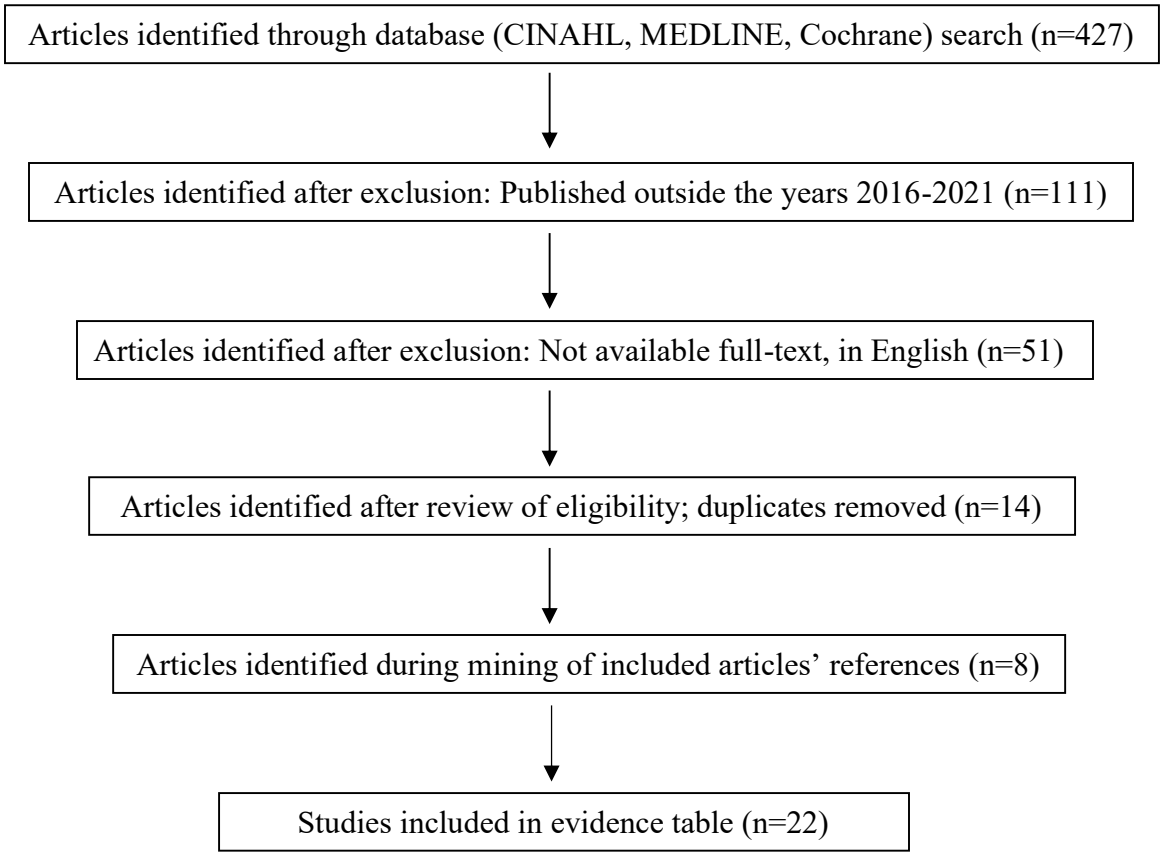
Although the following are beyond the scope of this project, implementation of ACE screening with adult patients at the clinic would improve the therapeutic alliance between patients and clinicians, may increase utilization of behavioral health services, and improve management of ACE-associated chronic health conditions (Kalmakis et al., 2018; State of California Department of Health Care Services, 2020). Clinical staff, including providers, nurses, and behavioral health clinicians, were prepared to respond therapeutically to patients' childhood adversity and to work with patients to build on personal strengths and promote resilience for long term health. Clinicians benefited from the training and support to implement ACEs screening as they developed competence, and ultimate proficiency as providers of trauma-informed care (State of California Department of Health Care Services, 2020).

CHAPTER TWO

LITERATURE REVIEW

This QI project started with a review of the literature to identify clinical practice guidelines for ACEs screening for adult patients in primary care settings. A review of the literature within the past five years was conducted in September 2021 (See Figure 1). The data bases searched included the Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE, and Cochrane Library. Keywords included in the search strategy were adverse childhood experiences, ACE, screening, adult, primary care, and toxic stress. Limiters were placed for those articles published between 2016-2021, full text availability through the Montana State University's library, English-language, and were peer-reviewed. Findings from the extensive review of the literature are reported and summarized in this chapter. The chapter was organized with headings of assessment and treatment, ACEs prevalence, health outcomes, and role of the primary care provider.

Figure 1. PRISMA Flow of Literature Search Results



Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., Mulrow, C., Gotzsche, P. C., Ioannidis, J. P. A., Clark, M., Devereaux, P. J., & Kleijnen, J. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: Explanation and elaboration. *British Medical Journal, 339,* b2535. DOI: http://dx.doi.org/10.1136.bmj.b2535.

ACEs Prevalence

The ACEs score represents an individual's exposure to toxic stress during developmentally critical periods of childhood (SAMHSA 2014; State of California Department of Health Services, 2020). Having a history of childhood adversity is common among adult patients (Felitti et al., 1998; SAMHSA, 2014; State of California Department of Health Services, 2020) with at least 60% of surveyed adults in Montana reporting at least one ACE in 2011 (MT

DPHHS, 2019). There is a high prevalence of ACEs among migrant agricultural workers with 66.4% reporting at least one ACE, and 17.8% reporting a history of four or more ACEs (Andrews et al., 2020). Poverty is another factor associated with a higher risk of ACEs (SAMHSA, 2014).

Assessment and Treatment

Assessment for the deleterious effects of toxic stress experienced due to childhood adversity starts with adoption of a trauma-informed approach to care, followed by screening and identification of patients at risk (SAMHSA, 2014). Trauma-informed care (TIC) is an approach that assumes an individual is more likely than not to have a history of trauma, recognizes trauma symptoms and acknowledges the role trauma may play in the individual's life (SAMHSA, 2014). A trauma-informed organization resists retraumatizing their patients and operates from the understanding that the effects of trauma are widespread, and recovery is possible (SAMHSA, 2014). Trauma-informed care requires health care providers to apply the knowledge that the patient's history of trauma influences their ability to cope with life circumstances and affects their interactions with the healthcare system (Maunder et al., 2020; Mishra et al., 2021; SAMHSA, 2014). Trauma-informed providers recognize that some challenging patient behaviors may be rooted in the patient's previous traumatic experiences with the healthcare system, and work to avoid retraumatizing patients while providing care (Lewis et al., 2021; SAMHSA, 2014).

Development of this QI project involved review of several nationally recognized ACEs screening guidelines (Guidelines & Protocols Advisory Committee, 2019; Schulman & Maul, 2019; State of California Department of Health Services, 2020). Among them, the ACEs Aware

Toolkit (State of California Department of Health Services, 2020) was selected because it was developed to prepare health care providers in various settings, including primary care, to implement ACEs screening. It is comprehensive in nature and available in both Spanish and English. Potential future changes in Montana Medicaid reimbursement may allow reimbursement for ACEs screening in primary care, as is currently allowed in California.

Screening for ACEs can help guide treatment of chronic health conditions. For example, knowing that certain ACEs are associated with lower odds of cancer screening, an ACEs score greater than zero prompts the provider to explore any barriers the patient might have to completing recommended cancer screenings (Alcala`, Mitchell, & Keim-Malpass, 2018). Brody, Yu, Chen & Miller (2017) reported that once subjects were identified with high ACEs scores, a family-centered prevention intervention was effective in lowering the risk of developing pre-diabetes at age 25 years. Besides use to improve management of chronic health conditions, Mishra et al. (2021) reported that ACEs screening itself may be therapeutic for the patient as it can help to diminish the shame patients feel related to their traumatic history.

In the primary care setting, treatment for ACEs involves recognizing the role that past and current stressors play in the patient's current health status. Treatment involves education about toxic stress and strategies to increase the dose and impact of protective factors present in the patient's life. Protective factors or strengths, known to ameliorate the effects of past and current stressors include positive, nurturing relationships; adequate sleep; daily physical activity; healthy diet; positive stress management and coping strategies; and behavioral health care when indicated (State of California Department of Health Services, 2020).

Health Outcomes

A patient's history of trauma is more likely to be a barrier to positive health outcomes when it is not acknowledged and addressed (SAMHSA, 2014). Multiple studies have demonstrated that a history of childhood adversity negatively impacts health outcomes, both mental and physical, across the lifespan (Felitti et al., 1998; MT DPHHS, 2019; Rocca et al., 2017; SAMHSA, 2014; State of California Department of Health Services, 2020). Research findings suggest ACEs among rural persons have a greater impact on health outcomes than among persons living in urban areas, primarily attributed to higher poverty rates and lower access to health services in rural areas (National Advisory Committee on Rural Health and Human Services, 2018). High doses of toxic stress are associated with pathophysiologic changes in metabolic and immune system function, neuroendocrine stress dysregulation, and chronic inflammation, all of which increase the patient's risk of morbidity and premature death (Berens, Jensen, & Nelson, 2017; State of California Department of Health Services, 2020).

Limitations of ACEs Screening with Adult Primary Care Patients

Limitations associated with implementation of ACEs screening for adults in primary care settings are discussed in the pertinent literature. Time constraints associated with typical primary care visits, lack of preparation to manage patients' response to ACEs screening, and difficulties getting patients a timely appointment with behavioral health support related to a shortage of behavioral health clinicians are the most frequently cited limitations (Goldstein et al., 2017; Kalmakis et al., 2018; Maunder et al., 2020; Mishra et al., 2021). Patients who seek care only for acute episodic complaints will not benefit from ACEs screening if they do not utilize screening health care services. Research regarding ACEs screening of adults in primary care settings

demonstrated that the entire process of screening, reviewing results with the patient, providing education, and initiating referral to behavioral health actually takes about five minutes during a routine visit (Kalmakis et al., 2018). Evidence indicated that the therapeutic relationship between patient and provider can be enhanced when ACE screening and education is provided during a primary care visit (Kalmakis et al., 2018; Mishra et al., 2021). Patients benefited from discussion of ACEs with their primary care provider, coupled with education and support for healing and resilience.

Role of the Primary Care Provider

Primary care providers are the leaders to provide patient-centered care. Adherence to principles of trauma-informed care includes creating an environment where patients feel safe, establishing trust, and engaging the patient in developing the plan of care (Lewis et al., 2021; SAMHSA, 2014; State of California Department of Health Services, 2020). Health care workers must acknowledge the potential for retraumatization. Primary care clinicians can improve the quality of care offered to patients by maintaining effective working relationships with referral providers, assuring warm hand-offs to behavioral health providers, and monitoring for appropriate follow up (Kalmakis et al., 2018; Lewis et al., 2021; Selwyn & Lathan, 2021; State of California Department of Health Services, 2020).

Current Practice Recommendations

ACEs screening among adult primary care patients is not currently standard practice although there is a relationship between ACEs and negative health outcomes in adulthood (Felitti et al., 1998; National Advisory Committee on Rural Health and Human Services, 2018). Many researchers and organizations recommend screening adult patients, as well as children, in the

primary care setting to help patients overcome trauma and adversity (Metzler et al., 2017; MT DPHHS, 2021; National Advisory Committee on Rural Health and Human Services, 2018; Rariden et al., 2021; SAMHSA, 2014; State of California Department of Health Services, 2020). ACEs screening and assessment of trauma history enables clinicians to avoid practices and behaviors that may retraumatize patients (Kalmakis et al., 2018; Lewis et al., 2021; Selwyn & Lathan, 2021). ACEs screening may be impeded in communities or practice settings without sufficient behavioral health resources to accept referrals (Goldstein et al., 2017; Maunder et al., 2020; Rariden et al., 2021). Evidence-based ACEs screening toolkits are available to facilitate implementation in a variety of healthcare settings, including primary care clinics (Schulman & Maul, 2019; State of California Department of Health Services, 2020).

The ACEs score informs the plan for treatment of the patient's overall health and justifies supplementing usual care with evidence-based strategies that address the effects of toxic stress (Alcala`, Mitchell, & Keim-Malpass, 2018; Berens, Jensen, & Nelson, 2017; Brody et al., 2017; Galli et al., 2021; Kalmakis et al., 2018; State of California Department of Health Services, 2020). Interventions that are effective to mitigate the toxic stress response include healthy sleep, regular physical exercise, balanced nutrition, mindfulness, mental wellness, and positive social relationships (Berens, Jensen, & Nelson, 2017; SAMHSA, 2014; State of California Department of Health Services, 2020).

Philosophical Underpinning

Trauma-informed care (TIC) provided the philosophical underpinning for this QI project. SAMHSA (2014) introduced the concept of TIC as an approach to delivering services to individuals and populations who may have a history of childhood adversity or trauma. TIC is

based on over 40 years of research on the harmful effects of toxic stress. It is currently recommended to improve quality of care in physical and behavioral health care settings and sets the stage for ACEs screening in primary care (SAMHSA, 2014; State of California Department of Health Services, 2020). Because trauma can impact virtually all aspects of an individual's life, the trauma-informed approach to service delivery is appropriate and recommended in a large variety of settings, including primary health care, education, public safety, and public health. This approach is particularly important in primary care settings since many long-standing, traditional business-as-usual practices commonly utilized in healthcare settings have the potential to retraumatize individuals with a history of toxic stress (Palmieri & Valentine, 2021; SAMHSA, 2014).

Three "E's" of Trauma-Informed Care

Within the TIC approach, trauma is characterized by three "E's": event(s), experience of event(s), and effect (SAMHSA, 2014). Traumatic events include situations involving actual or perceived threat of serious harm or pervasive neglect that threaten the life of the child and impair development. Traumatic events may occur once in a child's life or repeatedly over time. The individual's experience of the event plays an important role in determining whether the person perceives the event as traumatic or not. Trauma is associated with feelings of powerlessness and questioning, which will vary according to the individual and the support available to them at the time of trauma. Adverse effects of trauma, which can occur immediately or be delayed, tend to persist with time. The individual may not even associate the adverse effects with the trauma they have experienced. Adverse effects impose on virtually all aspects of the individual's life,

including physical health, mental health, cognitive function, spirituality, social function, and interpersonal relationships (SAMHSA, 2014).

Four Key Assumptions of Trauma-Informed Care

Four key assumptions support the trauma-informed approach to care. The four assumptions are: realization, recognize, respond, and resist re-traumatization (SAMHSA, 2014). Realization means that the people providing services in a system understand the diverse consequences trauma can have on individuals, families, and populations. Realization also means that the trauma-informed approach to care is useful and appropriate in all sectors serving those who may have experienced childhood adversity and should not be limited only to behavioral health providers (SAMHSA, 2014).

Recognize means that individuals working in the system can recognize the signs of trauma in the individuals they serve, their coworkers, and themselves. Systems prepare for recognition of trauma through implementation of screening, assessment, workforce development and training, policy development as well as management of human resources (SAMHSA, 2014).

Respond means that the organization's or system's approach to service delivery "involves a universal precautions approach in which one expects the presence of trauma in lives of individuals being served, ensuring not to replicate it" (SAMHSA, 2014, p. 10). Being prepared to respond to trauma also means that the organization understands that traumatic events affect individuals directly and indirectly, and implicated policies and practices have been changed in acknowledgment of the role trauma plays in people's lives. The organization seeks to actualize a culture that promotes resilience and healing from trauma for members of the organization, as well as individuals served by the organization (SAMHSA, 2014).

Trauma-informed practice involves active resistance to retraumatization. The organization understands that many long-held practices in health care may tend to unintentionally retraumatize individuals with a history of trauma and become barriers to effective health care delivery. The organization seeks to identify practices that cause patients to feel unsafe, break trust, or retraumatize those involved, and replaces or discards those practices to avoid creating toxic stress for patients or workers (SAMHSA, 2014).

Limitations and Strengths of Trauma-Informed Care

Limitations associated with TIC include lack of a clear and concise definition; implementation requires the translation of TIC to specific settings; and lack of consistency in application across settings (Hodas, 2006). Although there is no concise definition of TIC, this allows for flexible application of the underlying philosophy based on the user's ability to translate TIC to their practice.

Benefits associated with TIC are multiple. The overarching goal of TIC is promoting the patient's safety and well-being. TIC employs a strengths-based approach and fosters self-advocacy in the patient (Hodas, 2006; SAMHSA, 2014). In summary, this DNP project employed the TIC philosophy throughout the QI process. Thus, screening for ACEs conveys to adult patients that their history matters to their health care providers and those clinicians are prepared to work with them to address risk factors and build on their strengths for optimal health (Hodas, 2006; SAMHSA, 2014).

CHAPTER THREE

METHODS

The objective of this QI project was implementation of ACEs screening for the adult agricultural workers at the primary care clinic serving patients from around Montana and neighboring states. The CEO and clinical director for the organization granted me permission to complete this QI project at the clinic as my DNP scholarly project. Administrative support fostered buy-in for this project among clinical staff, medical interpreters, and administrative staff. I delivered ACEs training to clinical staff to prepare them to implement ACEs screening with adult patients.

The patient's responses to the ACEs screening tool (Appendix D) determined their ACEs score. If the patient's ACEs score indicated intermediate risk or higher, the clinician provided support and education regarding the potential impacts of childhood adversity and offered a referral to behavioral health for additional support and appropriate follow up (State of California Department of Health Care Services, 2020). Documentation of the ACEs score as part of the patient's medical history informed the plan of care for ongoing management of health conditions (SAMHSA, 2014, State of California Department of Health Services, 2020). The output for this process, documentation of the ACEs score in the patient's medical history portion of the electronic chart, was the foundation for validation of the patient's experiences and empowerment to improve personal health and resilience. I chose two frameworks, Donabedian's model (Donabedian, 2005) and TIC to lead the project.

Quality Improvement Framework

The Donabedian (2005) model emphasized three factors to improve health care quality: structure, process, and outcomes. Table 3 illustrated application for this project. Structural factors were the clinical staff providing care to patients, buy-in from administration and clinicians, and the well-established and validated ACEs screening tool (Florida State University College of Medicine, 2020; State of California Department of Health Care Services, 2020). The process factors were training of staff, chart preparation to remind providers to complete ACEs screening, and completion of the ACEs screening. Process outputs were the number of staff educated, number of visits with ACEs screening reminder in chart preparation, documentation of the ACEs score as part of the complete medical history in the patient's electronic chart, and documentation of behavioral health referral associated with ACEs score. Two short term outcomes were: 100% documentation of ACEs score in the patient's medical history and 100% referral to behavioral health for patients at intermediate risk or higher. Evaluation of long-term patient outcome was the percentage of behavioral health referral appointments completed within two weeks of ACEs screening.

Site Description

The setting for this DNP QI project was a primary care organization with multiple clinic sites serving agricultural workers, their families, and others living in rural poverty across Montana, northern Wyoming, and western North Dakota (see Appendix B). The ambulatory clinic was accredited as a FQHC and a certified patient-centered medical home (PCMH). Clinical staff numbered nineteen and include nurse practitioners, registered nurses, licensed

practical nurses, registered dental hygienists, a case manager, licensed clinical professional counselors, and licensed addiction counselors. There was a total of ten administrative staff including medical interpreters, outreach workers, reception staff, medical coder/biller, and chief executive officer (CEO) (V. Thuesen, personal communication, July 14, 2021). The total number of patients served per year averaged 6000 individuals (V. Thuesen, personal communication, July 14, 2021). All adult patients receiving their annual assessment visit at the clinic between January 1, 2022, and March 1, 2022, comprised the patient population for this project. The clinical staff (APRNs/NPs, nurses, and behavioral health clinicians) implemented the QI project. Project stakeholders included patients, clinical staff, and administration.

Six Principles of a Trauma Informed Approach

Integral to the trauma-informed approach to care was the understanding that identifying and addressing trauma is the first step toward recovery and resilience. SAMHSA (2014) identified six key principles to a trauma-informed approach to care (Table 1)

Table 1. Six Principles of Trauma-Informed Care (SAMHSA, 2014)

Six Principles of Trauma-Informed Care (SAMHSA, 2014)	Application to the DNP project
1. Safety	1. Philosophical underpinning
2. Trustworthiness	2. Transparency
3. Peer Support	3. Self-help
4. Collaboration and Mutuality	4. Relationship development
5. Empowerment, Voice, and Choice	5. Level power differences
6. Cultural, Historical, and Gender Issues	6. Cultural competence

Implementation of ACEs screening for adult patients demonstrated the organization's commitment to the six principles of trauma-informed care. ACEs screening enabled staff to better protect the physical and psychological safety of those they serve by knowing more about any previous trauma. The ACEs screening process, along with patient education about ACEs and toxic stress, was intended to promote transparency and trust between patients and staff. Patient education was provided with ACEs screening to promote self-help, healing, and recovery. ACEs screening fostered collaboration and mutuality between patient and clinician and acknowledged that "healing happens in relationships" (SAMHSA, 2014, p. 11). As an integral component of TIC, the process of ACEs screening helped to level power differences between patients and the healthcare team in the spirit of true collaboration and respect. ACEs screening and education recognized and built upon the strengths and experiences of all those involved. Finally, implementation of ACEs screening helped the organization recognize and move beyond cultural, historical, and gender issues which have perpetuated power differences and harmed individuals and groups (SAMHSA, 2014). The role and importance of ACEs screening was reinforced by the underpinning philosophy of TIC as providers were able to explain management of chronic health conditions by addressing physiologic results of toxic stress with the patient's language and experiences.

Implementation Plan

The implementation plan detailed the steps necessary to successfully complete this QI project. I identified project goals and described the data collection and analysis plan.

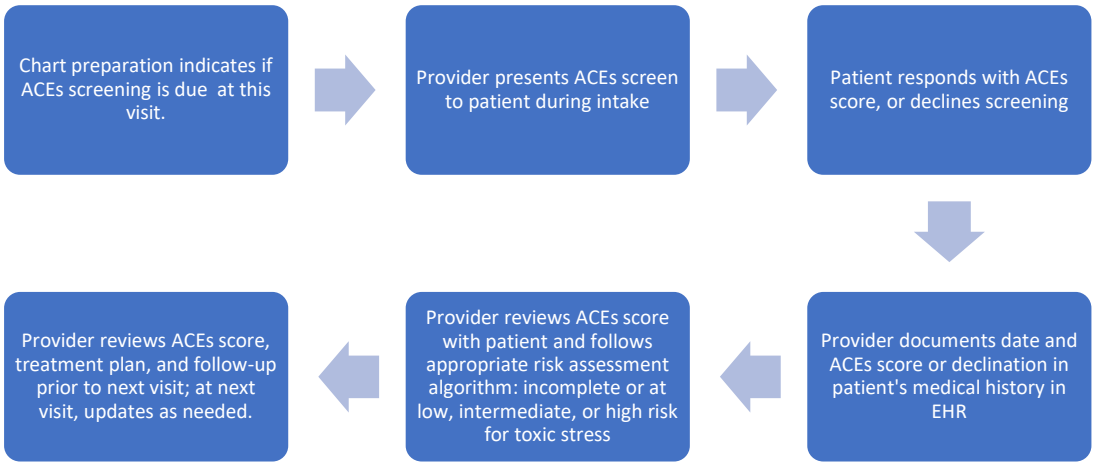
Short-term Goal One: Staff
Training for ACEs Screening

The project's first short-term goal: By 12/31/2021, 100% of clinical staff will receive in-service training to implement ACEs screening with adult patients. Resources provided in the ACEs Toolkit (State of California Department of Health Services, 2020) were utilized to train clinic staff. I recorded a presentation outlining the purpose, process, and rationale of ACEs screening (Appendix C). After obtaining approval from the Institutional Review Board (IRB) at Montana State University (MSU), I shared the recorded presentation via email to clinic staff approximately one week prior to the December 2021 monthly clinicians' meeting. An electronic copy of the ACEs Toolkit (State of California Department of Health Services, 2020) accompanied the recorded presentation. Incentive was access to a continuing education credit by the State of California to prepare providers to successfully implement ACEs screening for their patients.

During the scheduled 90-minute December 2021 clinicians' meeting, I reserved 60 minutes to review the planned process for implementation of ACE screening in the clinic as outlined in Figure 2 Adult ACEs Screening Clinical Workflow. I provided live education to the entire group consisting of all clinical staff, including nine primary care providers, five nurses, two behavioral health providers, two registered dental hygienists and one case manager. Staff practiced completing the ACEs screening tool, providing ACEs-related education and support to patients verbally through roleplay, documenting the ACE score in the patient's medical history, and initiating a referral to behavioral health if indicated. Staff reviewed Spanish- and English-language patient education handouts from the ACEs Aware Toolkit. Staff knew how I planned to collect process measures (Appendix A) weekly to assess progress and evaluate the project.

Anticipated challenges to the project were discussed and processed, for example, lack of time to complete ACEs screening during a visit, and patient refusal to be screened for ACEs. While attendance at all clinicians' meetings is expected of clinical staff, I provided food during the training in appreciation for their participation and support of this QI project.

Figure 2. Adult ACEs Screening Clinical Workflow



Short-term Goal Two: Implementation of ACEs Screening

The second short-term goal was: By 1/15/2022, the primary care clinic would implement ACEs screening at adult annual assessment visits. Implementation of ACEs screening entailed: chart preparation prior to the visit; completion of ACEs screening during the visit; and documentation of ACEs score in the medical history of the patient's chart. Clinicians and the case manager completed chart preparation at least one day prior to each scheduled visit to determine any missing data and document reminders to the clinician to complete care per clinical practice guidelines (Data 1). As part of routine chart preparation, staff preparing charts identified patients aged 18 years and older scheduled for annual assessment without an ACEs score in their medical history (Data 2). During the visit, the nurse or provider completed the ACEs screening

and education with the patient and documented the ACEs score (Data 3), or declination in the medical history of the patient's chart. If the patient's ACEs score indicated intermediate risk or higher (Data 4), the provider offered the patient a referral to behavioral health for additional therapeutic support (Data 5). ACEs screening was complete when the provider reviewed the ACES score, treatment plan, and recommendation for follow up prior to the patient's next visit.

Data Collection and Analysis Plan

See Table 2 Calculations for data analysis for explanation of data measures. All data collected was recorded in aggregate to avoid identifying any patient or provider.

Table 2. Calculations for data analysis

Data analysis	Calculations	Possible factors resulting in unmet goals
% of patients with ACEs screening reminder in chart preparation	Data 2 ÷ Data 1	67.4% of chart prep did not include ACEs reminder.
% of patients receiving ACEs screening	Data 3 ÷ Data 1	25% of patients were not screened for ACEs; provider ran out of time or did not complete screening.
% of patients referred to behavioral health due to ACEs score	Data 5 ÷ Data 3	10% of patients screened were referred to BH
% of patients with intermediate/high ACEs score referred to behavioral health	Data 5 ÷ Data 4	58.3% of patients who should have been referred accepted the referral; 41.7% of patients declined offer of BH referral due to time constraints, or perceived adequate support from primary care provider
% of patients completing referral to behavioral health within two weeks of ACEs screening	Data 6 ÷ Data 5	57.1% of patients referred to BH completed the visit within two weeks of ACE screening; 42.9% of referred patients did not have time to complete BH visit within two weeks of screening

Midpoint Goal: Documentation of
ACEs Score in Medical History

I evaluated completion of ACEs screening via weekly chart review (Appendix A) with a process measure midpoint goal of: By 2/2/2022, 100% of adult annual assessment visits (Data 1) would include documentation of ACE score in medical history of chart (Data 3). Data collection of process measures continued through mid-March 2022.

Long-term Goal and Outcomes

There were two QI project long-term goals. First was: By 3/01/2022, 100% of patients with documented ACE score indicating intermediate risk or higher would be referred to Behavioral Health (BH) for therapeutic support and education. Second was: By 3/01/2022, 100% of patients referred to BH would be seen by a behavioral health provider within two weeks of referral. Additional long-term patient outcomes for ACE screening were beyond the scope of this project but anticipated to include 100% of patients referred to BH will complete referral visit for further education and therapeutic support, improved therapeutic alliance between patient and providers, improved management of chronic health issues, and improved patient resilience and well-being.

I reported cumulative aggregate data and progress toward goals to the clinic's medical director via email on a weekly basis. Weekly evaluation of the progress toward short-term and midpoint goals allowed for continuous improvement in the QI process. I presented final analysis of the aggregate data along with evaluation of the project to the organization at completion, and via public defense of the DNP project at Montana State University in April 2022.

Human Subjects Protection

This DNP project was approved by the Montana State University Institutional Review Board (IRB). I strictly protected and maintained patients' and staff members' safety and privacy throughout the course of the project, in accordance with the privacy practices of the project site and human subject's protections dictated by Montana State University IRB. I recorded all data collected for this QI project without staff or patient identifiers, maintained said data on a secure electronic document saved on my MSU-associated OneDrive on a password-protected computer.

CHAPTER FOUR

RESULTS & DISCUSSION

This QI project resulted in implementation of ACEs screening for adult agricultural workers during an annual assessment visit with the primary care clinic. Chapter 4 reports the results of the project and discusses findings within the context of the organization and the broader literature.

Results

Data collection and analysis is reported in Table 4. The number and characteristics of participants, as well as findings from process measures and outcome evaluation are presented in Table 3. Results were evaluated and analyzed according to established SMART goals. ACEs screenings completed during the data collection period are reported in Figure 3. By the end of the data collection period, 69 out of 92 (75%) patients received ACEs screening during their annual assessment visit; 7 out of 12 (58.3%) patients with an ACEs score indicating intermediate risk or higher were referred to behavioral health; and four out of seven (57.1%) of patients referred to behavioral health secondary to ACEs screening were seen within two weeks of referral (Figure 4).

Table 3. Donabedian's model, application, and results

Categories	Application to the DNP project	Goals	Measures/data collected	Analysis
Structure	Clinical staff providing care to patients		19 Clinical staff involved in project (9 NPs, 3 RNs, 2 LPNs, 2 RDHs, 1 Case Manager, 2 LCPCs)	
	Buy-in from administration and clinicians			
	ACEs screening tool			

Table 3. Donabedian's model, application, and results, continued

Process	Staff training	By 12/31/2021, 100% of staff will receive education to implement ACEs screening.	19/19 clinical staff received training for ACEs screening on 12/22/2021.	100% of clinical staff received training to implement ACEs screening by 12/31/2021.
	Chart preparation	By 1/15/2022, 100% of chart preparation for adult annual assessment visit will include reminder to complete ACEs screening.	8/16 charts included a reminder to complete ACEs screening in chart preparation	50% of chart preparation included ACEs reminder by 1/15/2022.
	Screening	By 2/2/2022, 100% of adult annual assessment visits will include documentation of ACEs score in medical history.	32/47 charts with ACEs score documented	By 2/2/2022, 68% of charts documenting adult annual assessment visit included ACEs score documented in medical history.
Outcome	Referral to behavioral health for patients at intermediate risk or higher	By 3/01/2022, 100% of patients with documented ACEs score indicating intermediate risk or higher will be referred to behavioral health.	7/12 patients with ACEs score indicating intermediate or higher were referred to behavioral health	By 3/01/2022, 58.3% of patients with ACEs score indicating intermediate risk or higher were referred to behavioral health.
	Referral completed within two weeks of ACEs screening	By 3/01/2022, 100% of patients referred to behavioral health secondary to ACEs screening will be seen by behavioral health within two weeks of referral.	4/7 patients referred to behavioral health secondary to ACEs screening were seen by behavioral health within two weeks of referral	By 03/01/2022, 57.1% of patients referred to behavioral health secondary to ACEs screening were seen by behavioral health within two weeks of referral.

Table 4. Data Analysis

Week ending	Data 1	Data 2	Data 3	Data3/ Data1	Data 4	Data 5	Data 5/ Data 4	Data 6	Data 6/ Data 5
1/6/2022	8	5	5	62.5%	2	1	50%	0	0%
1/13/2022	8	3	5	62.5%	2	1	50%	1	100%
1/20/2022	9	3	6	67%	3	2	67%	1	50%
1/27/2022	8	3	5	62.5%	1	0	0%	0	NA
2/3/2022	14	2	11	78.5%	1	1	100%	1	100%
2/10/2022	14	1	12	85.7%	1	0	0%	0	NA
2/17/2022	11	5	10	90.1%	0	0	0%	0	NA
2/24/2022	10	3	7	70%	1	1	100%	0	NA
3/3/2022	10	5	8	80%	1	1	100%	1	100%
Totals	92	30	69	75%	12	7	58.3%	4	57.1%

Note. Data 1: # of annual assessment visits completed in week. Data 2: # of annual assessment visits with ACEs screening reminder in chart preparation. Data 3: # of charts with ACEs score documented in medical history. Data 4: # of charts documenting ACEs score indicating intermediate risk or higher. Data 5: # of patients referred to behavioral health secondary to ACEs screening. Data 6: # of patients seen by behavioral health within two weeks of referral secondary to ACEs screening.

Figure 3. Patients screened for ACEs

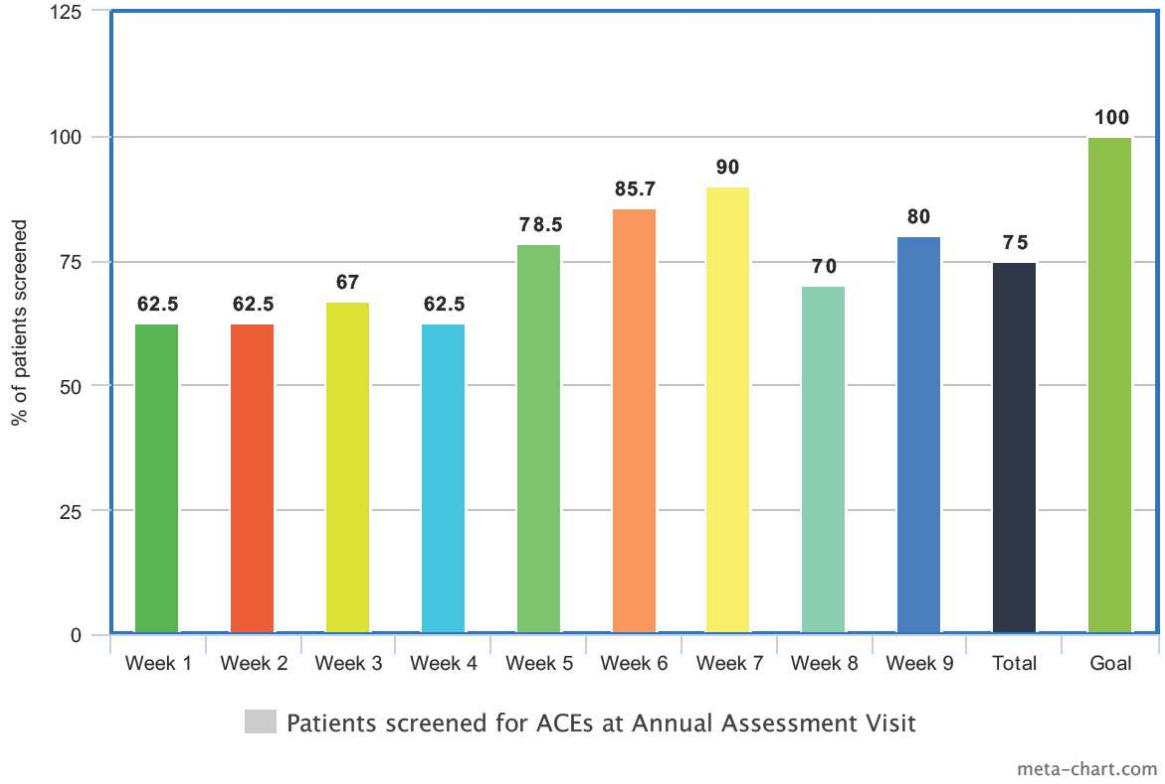
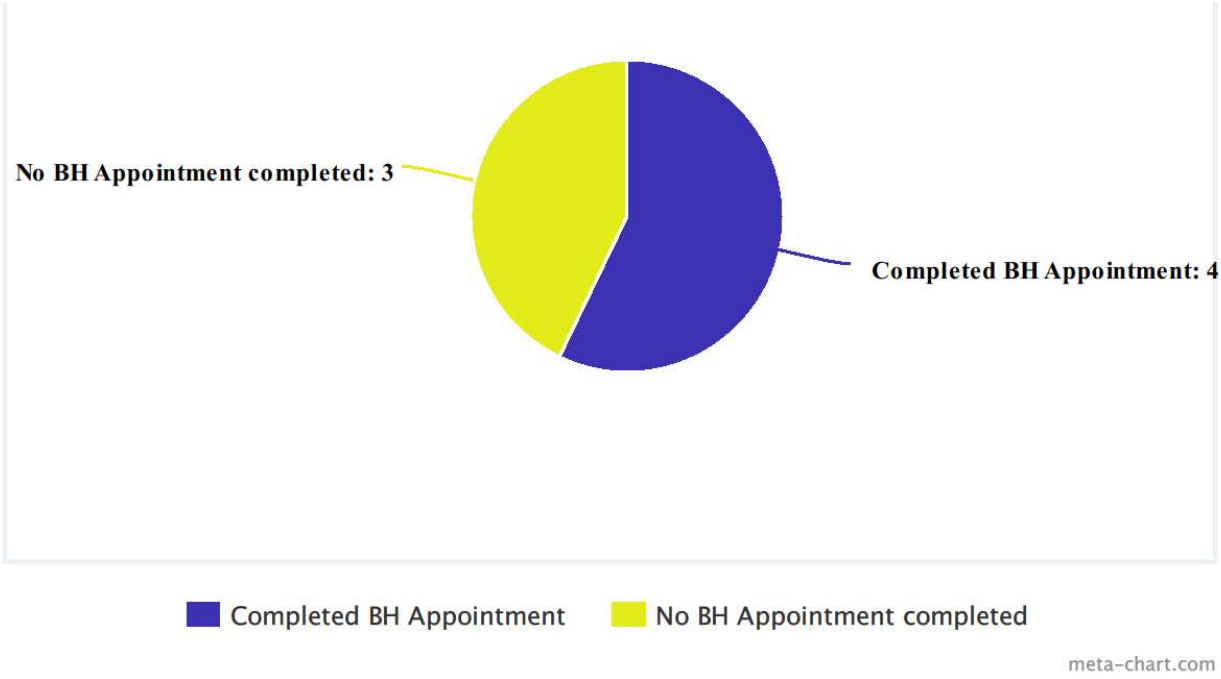


Figure 4. Patients completing BH appointment within two weeks of referral



Discussion

This QI project implemented systematic ACEs screening for adult agricultural workers in the primary care setting with the aim of early detection and intervention to reduce the life-long negative effects for patients at risk due to ACEs. All providers were trained to screen adult patients for ACEs, to respond therapeutically to their patients' report of ACEs, to provide education and support for self-care, and to provide referral to behavioral health for patients at intermediate-risk or higher, according to ACEs score. The training promoted the clinical staff's ability to provide TIC as a matter of general practice because ACEs screening permitted a more complete picture of the patient's health history thereby facilitating improved health management. Anecdotally, clinical staff felt that ACEs screening promoted resilience among patients when

education and support for self-care was provided as part of the screening process, which was consistent with the literature (Maunder et al., 2020).

The goal of 100% of charts including a reminder for ACEs screening in chart preparation was not met in that only 50% of charts included the ACEs reminder during the first two weeks of implementation and only 30 out of 92 charts (32.6%) included the reminder by the end of the data collection period. The organization uses an "At-a-Glance Checklist" developed in-house to standardize chart preparation, or pre-visit planning, a sub-process utilized so that providers are prompted to complete recommended screenings, vaccinations, and follow up with the patient during a specific visit. Thorough chart preparation avoids reliance on the provider's memory to complete all necessary components of the patient visit. During the data collection phase of the project, ACEs screening was not included on the "At-a-Glance Checklist" which likely contributed to a failure to include ACEs reminder in chart preparation 100% of the time. Thus, I recommended the clinic add ACEs screening to the "At-a-Glance Checklist" for chart preparation to increase the number of ACEs reminders included in chart preparation.

At the project's midpoint, 68% of patients received ACEs screening at their adult annual assessment, partially meeting our goal of 100%. By the end of data collection, 75% of patients had received ACEs screening at their annual assessment visit. Overall, patients accepted ACEs screening when offered, which was consistent with the literature (Goldstein et al., 2017; Kalmakis et al., 2018). Some patients were not offered ACEs screening during their annual visit because the provider forgot, ran out of time in the visit, or was concerned about causing distress to the patient (S. Asbell, personal communication, February 23, 2022).

Seven out of 12 (58.3%) individuals with ACE scores indicating intermediate risk or higher were referred to BH, falling short of the 100% goal. Documentation in the patients' charts demonstrated that each of the 12 patients was offered referral at the time of screening, but only 7 patients accepted the referral. Anecdotally, providers reported that patients who declined the referral indicated they did not need additional support from BH at that time. The total number of referrals to BH by the end of data collection was 7 out of 69 (10%) completed screenings. This figure was lower than the referral rate reported in another study of ACEs screening in primary care where 28% of patients screened were referred to BH services (Kalmakis et al., 2018).

The final long-term goal of 100% of patients referred to BH secondary to ACEs screening completed a referral appointment within two weeks of ACEs screening was partially met. Four out of seven (57%) patients referred were seen by BH within two weeks as documented in their chart. Patients were offered a warm handoff to BH at the time of their ACEs screening, but none accepted, as documented in their charts. Three of the completed BH visits were appointments with in-house licensed clinical professional counselors (LCPCs) and one visit was completed with a BH provider at another local agency.

Lessons Learned

Several lessons were learned during the planning and implementation of this QI project. I had expected more patients' ACEs scores to indicate intermediate risk or higher, triggering referral to BH. ACEs screening results for this project indicated 17.3% of patients scored at intermediate risk or higher, which was consistent with ACEs scores of migrant farmworkers in the United States reported by Andrews et al. (2020). Although demographic data were not collected formally in this project, a significant number of the patients screened in this project

were born and grew up outside the United States which raises the question of whether the ACEs screening tool developed and validated in the United States is valid for patients born and raised in other countries. I reached out to the State of California Department of Health Care Services with this question and their response is pending.

During the leadup to the project start date, clinical staff verbalized concern to me about the amount of time the ACEs screening would add to an already full annual assessment visit. The literature indicated that once providers became familiar with the screening tool and process, it would add less than five minutes to the length of an average visit (Kalmakis et al., 2018). Within the first four weeks of the project, clinical staff were reporting that the screening was adding less than five minutes to the length of the visit, and patients were responding positively to screening and the education provided during screening.

Prior to beginning the project, clinical staff also expressed concern that the ACEs screening questions would cause excessive distress to patients with a history of trauma, resulting in a retraumatization of the patient. I reinforced the evidence presented in the literature that ACEs screening in primary care is acceptable to patients, can improve trust and the therapeutic alliance between patient and provider, and that as primary care providers they were well-prepared to provide education and support for self-care to their patients (Goldstein et al., 2017; Kalmakis et al., 2018; Maunder et al., 2020). Additionally, use of the de-identified screening tool was associated with less patient distress when used in primary care settings (State of California Department of Health Care Services, 2020). After implementation, providers reported positive experiences with ACEs screening and that their patients readily accepted ACEs screening when

provided with education and support for self-care, positive stress management, and information about the effects of toxic stress.

Chart preparation, a sub-process in place to support thorough completion of all recommended care at patient visits, did not include ACEs screening reminders as often as anticipated which likely contributed to a lower screening rate during the data collection period. With good chart preparation, there is less reliance on the provider's memory to complete all recommended services during a visit. Clinicians use an "At-A-Glance Recommended Screenings, Tests, and Vaccines" checklist developed in-house to prepare charts prior to visits. During the data collection period for this project, ACEs screening was not yet included on the checklist used for chart preparation, so instead there was a reliance on the memories of clinicians preparing charts to include ACEs screening reminders. At the end of the data collection period, I recommended, and the clinical director agreed to update the "At-A-Glance Recommended Screenings, Tests, and Vaccines" checklist to include ACEs screening at an annual assessment visit.

The clinical director was an early supporter of this QI project, which encouraged buy-in from administration and staff. The clinical director learned about an ACEs screening smart form developed for the organization's EHR shortly before the project start date and in the interest of sustainability, convinced the organization to purchase the smart form. I had designed the project to incorporate manual documentation of the patient's ACEs score in the medical history, assuming that the cost of a smart form would be too expensive for the organization to purchase. Upon my review, the smart form did not allow de-identified ACEs screening as recommended by the evidence (State of California Department of Health Care Services, 2020). Use of the smart

form resulted in the ACEs score being documented within the note of a single visit, not carrying forward in the patient's record as was accomplished with manual documentation of the score in the medical history. Upon my recommendation, the clinical director determined that the ACEs screening smart form could be used by BH staff receiving the referral, but they would still need to manually document the patient's ACEs score in the medical history to avoid unnecessary re-screening.

Limitations

This QI project had some limitations and results are not transferable to practice outside of the project site. First, all the clinical staff involved in this project were experienced in primary care; all staff had greater than five years of clinical practice experience. Results may have differed if less experienced clinical staff were involved. Second, this project was implemented, and data collection was completed during the COVID-19 pandemic. Roughly 25% of clinical staff spent multiple days in quarantine or isolation due to COVID-19 during the data collection period, resulting in fewer completed annual assessment visits during the data collection period. Third, since a considerable percentage of the patient population served by the clinic was born and raised outside the United States, it is yet to be determined whether the ACEs screening tool has been validated with foreign-born adults.

Recommendations for Future Practice

The primary care practice is challenged to create high-quality interventions that will assist patients with chronic health conditions to manage their health more effectively. ACEs screening was well-received by patients and clinical staff and the organization has committed to

continue with routine ACEs screening of adult patients. Staff training for ACEs screening was integral to success in this project. Successful ACEs screening required allotment of adequate appointment time, since rushing through the screening process is not in alignment with the underpinning philosophy of TIC. ACEs screening should be included on the peer review chart audit checklist utilized by the organization to promote provider accountability and assurance for quality care. Utilization of a diagnosis code specific to the patient's ACEs score within the medical history would facilitate data extraction from the electronic health record and could promote meaningful use of the data to improve population health. This QI project demonstrated that ACEs screening of adults by primary care providers was beneficial and should be continued, as evidenced by patients' acceptance of screening and acknowledgement of the increased importance of BH for long term management of chronic health conditions. Future collaboration with a nurse researcher is recommended to identify long term outcomes of ACEs screening with adults in the primary care setting.

Conclusion

This evidence-based practice QI project successfully implemented ACEs screening for adult agricultural workers in a primary care clinic. The results support the use of a brief, compassionate, culturally sensitive intervention to address the patient's history of ACEs in a primary care appointment. This intervention utilized a TIC approach in which the provider partnered with their patient to understand how a history of ACEs may contribute to health problems later in life and then to provide education and support for self-care, positive stress management and resilience. This QI project was an acceptable and affordable way for the

organization to address the impact of ACEs on adult patients and demonstrate its commitment to high-quality, trauma-informed care.

CHAPTER FIVE

REFLECTION ON DNP ESSENTIALS AND EDUCATIONAL JOURNEY

My educational journey to the DNP degree actually began many years ago when my academic advisor suggested I consider graduate school during an advising meeting at the end of my first undergraduate year. I was the first in my family to complete a baccalaureate degree and my advisor's suggestion was an influential statement of faith in my potential to successfully achieve a graduate degree in nursing and serve my patients as an advanced practice nurse. This challenging and satisfying path has allowed me to meet all eight of the DNP Essentials (AACN, 2006).

DNP Essential I: Scientific Underpinnings for Practice

DNP Essential I was addressed and met through work completed regarding evidence-based practice as I integrated nursing science, theories, and concepts to identify approaches to care that embody best practice. Learning how to critically appraise research reports and other scholarly articles, as well as clinical practice guidelines, has improved my ability to incorporate evidence into my practice. Successful completion of my DNP QI project demonstrated my ability to develop, implement and evaluate practice initiatives. My DNP project provided an excellent opportunity to develop and evaluate a new practice approach based on the philosophical underpinning of trauma-informed care. In the process of designing and planning the DNP

project, I greatly enhanced my knowledge about the scientific basis for trauma-informed care and of the effects and implications of trauma on human health over the lifespan.

DNP Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking

Essential II was met with successful implementation of my DNP QI project. I worked with stakeholders and other members of the healthcare team to create positive change in the health clinic to better meet current and future needs of our patients. I demonstrated effective leadership to assess organizational performance, identify areas for improvement, and facilitate organization-wide changes in practice. Over the course of my graduate studies, I had several opportunities to exercise and develop my leadership skills while completing group projects on addressing health needs of rural patients, leading a system through change initiatives, and advancing clinical practice guidelines. I actively engaged with a group project for NRSG 611 Program Planning & Evaluation, Outcomes & Quality Improvement to increase access to breast cancer screening for rural residents. For NRSG 615 Translational Research for Advanced Practice, my group's work culminated in a project titled "ACE Screening in Primary Care: Plan of Action". I ensured accountability for quality of health care and patient safety while completing groupwork for graduate courses, and ultimately while successfully implementing my QI project.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

Essential III was addressed as I learned how to use analytic methods to critically appraise evidence to promote safe, efficient, and patient-centered care. While completing coursework for evidence-based practice and translational research for advanced practice, I developed clinical practice guidelines for trauma informed care to improve care for agricultural workers. I used information technology to design an evidence-based intervention and examine patterns of data for my DNP QI project. I applied findings obtained while collecting data for my QI project to propose system changes and improve practice.

Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

Essential IV was met through use of the EHR to document the ACEs screening implemented through the QI project. Effective use of the information systems utilized by the practice site allowed me to manage individual and aggregate-level information and recommend changes in the use of technology to promote population health and meaningful use. While completing coursework focused on health care informatics, I evaluated consumer health information sources for accuracy, reliability, and appropriateness. My QI project involved collection of patient health information and documentation of screening results in the electronic health record. This project provided the opportunity to lead my clinical practice site in the evaluation and resolution of ethical and legal issues such as confidentiality relating to the use of information, information technology and patient care technology.

Essential V: Health Care Policy for Advocacy in Health Care

Essential V was met as I advocated for practice change to address the needs of patients and promote trauma-informed care within the organization. While working in administration over the course of my DNP journey, I demonstrated leadership in the development of institutional policy establishing partnerships with rural health facilities so graduate and undergraduate students could complete clinical experiences and gain experience with underserved populations in rural settings. Ethics coursework granted me opportunities to critically analyze health policies and proposals from the perspective of patients, nurses, and other health professionals. My clinical practice serves patients from vulnerable populations, including uninsured, low income, non-English speaking, and undocumented immigrants. Doctoral education has strengthened my capacity to advocate for social justice, equity, and ethical policies within the healthcare system.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

Essential VI was met as I worked on interdisciplinary teams to design, plan and implement systems change in healthcare settings. DNP coursework incorporated multiple opportunities to function as a member of interprofessional teams. I have worked on teams of graduate students to develop clinical practice guidelines, improve healthcare system design, plan a health promotion program to increase mammography access in rural areas, and analyze the ethics associated with the epidemic of opioid addiction in the United States. As a member of an interprofessional team of graduate students, I examined the health impacts experienced by

women living in rural areas. In my teaching role at MSU, I facilitated interprofessional education experiences for my students whereby nursing students worked through a variety of patient care scenarios with students from pharmacy, medicine, and physician assistant studies.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

Essential VII represents an overriding theme in my DNP education and my clinical practice. Clinical prevention with a focus on population health was addressed through the development of clinical practice guidelines, and coursework that required me to examine healthcare delivery to vulnerable populations. Population health is addressed during peer review chart audits my colleagues and I complete routinely over the course of each year to promote evidence-based care and desirable outcomes for our patients. Clinical practice guidelines are routinely updated and discussed during monthly clinicians' meetings in the primary care clinic to assure practice alignment with health promotion and disease prevention directives.

Essential VIII: Advanced Nursing Practice

I have addressed Essential VIII through my active clinical practice at the FQHC where I have been providing primary care services as a family nurse practitioner since 2013. I conduct comprehensive and systematic assessments of my patients' complex situations to work collaboratively with them to manage health problems and meet needs. I incorporate diverse and culturally sensitive approaches in the care that I provide to my patients. My DNP journey has developed my competence to design, implement and evaluate therapeutic interventions used to meet the primary care needs of my patients.

DNP coursework has significantly increased my capacity to develop and sustain therapeutic relationships with my patients and other professionals to realize positive patient outcomes. Since becoming a family nurse practitioner in 2013, I have learned from working in clinic with a number of more experienced nurse practitioners. A major impetus for earning the DNP was to develop myself as a leader in my clinical practice site, and as an administrator for my faculty role. DNP coursework has deepened the knowledge base I use to educate and guide patients and groups through complex health and situational transitions, such as new diagnosis of a chronic health condition, family dynamics surrounding health concerns, and changes in personnel or practices in the primary care clinic. In my role as a clinician, and as a teacher, my DNP education has prepared me to guide, mentor, and support other nurses to achieve excellence in nursing practice.

My QI project utilized trauma-informed care as the philosophical underpinning for practice change to implement ACEs screening. Incorporating trauma-informed care into the systematic approach to patient care in the clinic required me to enhance my understanding of the effects of trauma, in order to apply trauma-informed care in practice. I have grown in my knowledge of the health effects of trauma and the ability to recognize a trauma-induced response in my patients, colleagues, and myself. I have examined my own history of childhood adversity as well as trauma resulting from interactions with the healthcare system. Through this educational journey, I realized that my own trauma history influences my approach to caring for patients and working with other health professionals. I recognized a strong desire to do all I can as an advanced practice nurse to eliminate healthcare-associated trauma for my patients. I realized a connection between my desire to grow as a leader in health care, and my embrace of

trauma-informed care in my practice. The culmination of trauma-informed leadership and high-quality, evidence-based care exemplifies my own personal ideal of advanced practice nursing. Earning the DNP degree has established the professional path I intend to pursue as I continue to grow and develop as an advanced practice nurse.

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APPENDICES

APPENDIX A

DATA ANALYSIS PLAN

ACE Screening at Annual Health Assessment visit in Primary Care

Tracking: Weekly review of electronic charts by DNP student.

Short-Term Goal 1: By 12/31/2021, 100% of clinical staff will receive in-service education by DNP student to complete ACEs screening with adult patients at annual assessment visit.

Short-Term Goal 2: By 1/15/2022, 100% of scheduled annual assessment visits without ACEs score documented in medical history will identify ACEs screening needed in chart preparation reminding provider to complete and document ACE screening at that visit.

Midpoint goal: By 2/2/2022, 100% of adult annual assessment visits will include documentation of ACE score in medical history portion of chart.

Long-term goal: By 3/01/2022, 100% of patients with documented ACE score indicating intermediate risk or higher will be referred to Behavioral Health for therapeutic support and education. Intermediate risk or higher: ACE score ≥1 accompanied by ACE-Associated Health Conditions in problem list.

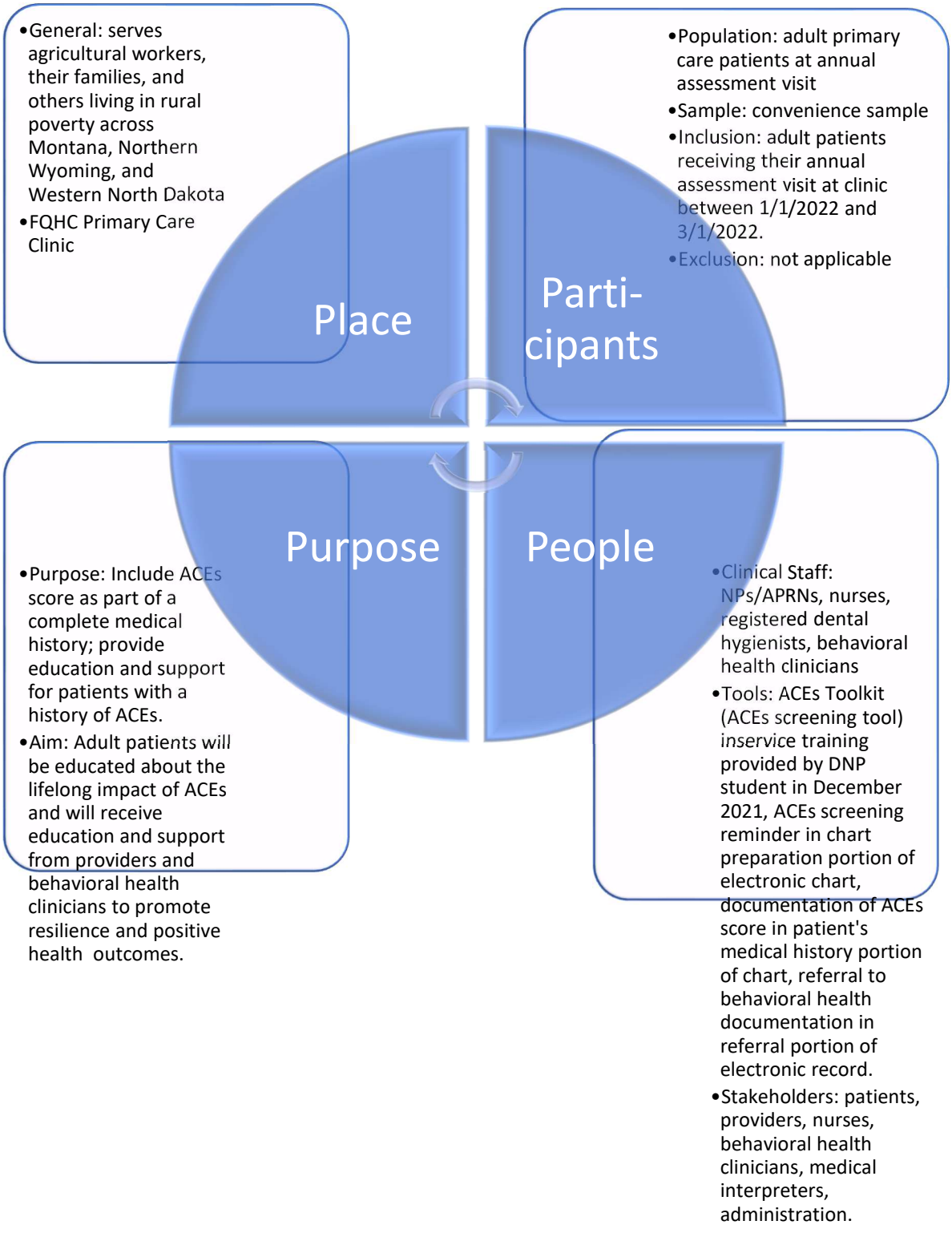
Long-term outcome: By 3/01/2022, 100% of patients referred to behavioral health secondary to ACEs screening will complete referral appointment within two weeks of referral.

Week ending	Data 1	Data 2	Data 3	Data 4	Data 3 ÷ Data 1	Data 5	Data 5 ÷ Data 4	Data 6	Data 6 ÷ Data 5
1/6/22									
1/13/22									
1/20/22									
1/27/22									
2/3/22									
2/10/22									
2/17/22									
2/24/22									
3/3/22									

Note. Data 1: # of annual assessment visits completed in week. Data 2: # of annual assessment visits with ACEs screening reminder in chart preparation. Data 3: # of charts with ACEs score documented in medical history. Data 4: # of charts documenting ACEs score indicating intermediate risk or higher. Data 5: # of patients referred to behavioral health secondary to ACEs screening. Data 6: # of patients seen by behavioral health within two weeks of referral secondary to ACEs screening.

APPENDIX B

DESCRIPTION OF PRACTICE SETTING


•General: serves agricultural workers, their families, and others living in rural poverty across Montana, Northern Wyoming, and Western North Dakota
•FQHC Primary Care Clinic
Place
•Population: adult primary care patients at annual assessment visit
•Sample: convenience sample
•Inclusion: adult patients receiving their annual assessment visit at clinic between 1/1/2022 and 3/1/2022.
•Exclusion: not applicable
Parti-cipants
Purpose
•Purpose: Include ACEs score as part of a complete medical history; provide education and support for patients with a history of ACEs.
•Aim: Adult patients will be educated about the lifelong impact of ACEs and will receive education and support from providers and behavioral health clinicians to promote resilience and positive health outcomes.
People
•Clinical Staff: NPs/APRNs, nurses, registered dental hygienists, behavioral health clinicians
•Tools: ACEs Toolkit (ACEs screening tool) *inservice* training provided by DNP student in December 2021, ACEs screening reminder in chart preparation portion of electronic chart, documentation of ACEs score in patient's medical history portion of chart, referral to behavioral health documentation in referral portion of electronic record.
•Stakeholders: patients, providers, nurses, behavioral health clinicians, medical interpreters, administration.

APPENDIX C

OUTLINE FOR RECORDED TRAINING

PREPARED FOR CLINICAL STAFF

1. Introduction
    a. Background information regarding the DNP project, including timelines
    b. Background information for Trauma-Informed Care
    c. Role of ACEs Screening in Trauma-Informed Care
    d. How ACEs Screening is in alignment with the organization's mission
2. Present the ACEs Screening tool
3. Instructions for completing the ACEs screening tool in this clinic
    a. Patients selected for screening
    b. ACE screening to be listed in chart preparation
    c. Education to be provided to patients when ACEs screening is completed
    d. Documenting ACE screening in patient's chart
    e. Documenting referral to BH in patient's chart
4. Evaluation of ACEs screening implementation for DNP project
    a. Weekly review of charts by DNP student
    b. DNP Student will report weekly results to clinical director
    c. Project report by DNP student at clinicians' meeting in April 2022
    d. DNP Project defense by DNP student in April 2022
5. DNP student to meet with clinical staff during clinicians meeting in December 2021 to answer questions, review process.

APPENDIX D

ACE SCREENING TOOL DE-IDENTIFIED

Adverse Childhood Experience Questionnaire for Adults

California Surgeon General's Clinical Advisory Committee

aces aware
SCREEN. TREAT. HEAL.

Our relationships and experiences—even those in childhood—can affect our health and well-being. Difficult childhood experiences are very common. Please tell us whether you have had any of the experiences listed below, as they may be affecting your health today or may affect your health in the future. This information will help you and your provider better understand how to work together to support your health and well-being.

Instructions: Below is a list of 10 categories of Adverse Childhood Experiences (ACEs). From the list below, please add up the number of categories of ACEs you experienced prior to your 18th birthday and put the total number at the bottom. (You do not need to indicate which categories apply to you, only the total number of categories that apply.)
Did you feel that you didn't have enough to eat, had to wear dirty clothes, or had no one to protect or take care of you?
Did you lose a parent through divorce, abandonment, death, or other reason?
Did you live with anyone who was depressed, mentally ill, or attempted suicide?
Did you live with anyone who had a problem with drinking or using drugs, including prescription drugs?
Did your parents or adults in your home ever hit, punch, beat, or threaten to harm each other?
Did you live with anyone who went to jail or prison?
Did a parent or adult in your home ever swear at you, insult you, or put you down?
Did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way?
Did you feel that no one in your family loved you or thought you were special?
Did you experience unwanted sexual contact (such as fondling or oral/anal/vaginal intercourse/penetration)?

Your ACE score is the total number of yes responses.	

Do you believe that these experiences have affected your health? **Not Much** **Some** **A Lot**

Experiences in childhood are just one part of a person's life story.
There are many ways to heal throughout one's life.

Please let us know if you have questions about privacy or confidentiality.

5/5/20