SCREENING FOR ADVERSE CHILDHOOD EXPERIENCES IN PRIMARY CARE:

RECOMMENDATIONS FOR PRACTICE

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ABSTRACT

Adverse Childhood Experiences (ACE) increase the risk of childhood injury as well as long-term negative mental and physical health outcomes. ACE are defined as potentially traumatic events occurring during childhood and adolescence that can have negative, lasting effects on health and well-being (Centers for Disease Control and Prevention, 2010). Childhood trauma can lead to the development of chronic diseases, mental illness, violence and being a victim of violence, as well as financial and social problems later in life

Despite the clear links between childhood trauma and chronic diseases in adulthood, there continues to be a lack of ACE screening in primary care settings. Primary care providers are well positioned to minimize the gap between evidence-based research and clinical practice leading to chronic disease management that is founded on quality patient care (Sarvet, 2017). ACE screening, alone, can be an intervention that reduces the frequency of overall health care facility use by patients leading to an overall reduction in healthcare costs (American Academy of Pediatrics, 2014; Felitti et al., 1998; Glowa, Olson, & Johnson, 2016). Incorporating ACE screening as standard of practice in primary care can lead to earlier identification and treatment of high-risk patients.

The purpose of this project was to assess the feasibility of ACE screening in a primary care clinic in the Fargo area serving a population at high-risk for experiencing childhood trauma. Primary care providers are well equipped to close the gap between ACE research and clinical practice, however ACE screening is not widely conducted (Glowa et al., 2016). Identifying barriers to ACE screening in primary care and developing strategies to overcome them can improve the intention of healthcare providers to screen for ACE in their practice ultimately eliminating the gap between evidence-based ACE research and clinical practice.

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CHAPTER 1: INTRODUCTION

Background and Significance

Adverse Childhood Experiences (ACE) increase the risk of childhood injury as well as long-term negative mental and physical health outcomes. ACE are defined as potentially traumatic events occurring during childhood and adolescence that can have negative, lasting effects on health and well-being (Centers for Disease Control and Prevention, 2010). These experiences, including child abuse, parental divorce, family violence, parental psychiatric and/or substance abuse issues, absence of basic care, abandonment, deprivation of food or shelter, and lack of encouragement and support, are organized into three categories: abuse, neglect, and household dysfunction (Tanzman & Shea, 2015). The Centers for Disease Control and Prevention (CDC) and Kaiser Permanente (1997) examined the relationship between the experience of childhood abuse and household dysfunction and the development of many of the leading causes of death in adults. The ACE Study demonstrated that childhood trauma can lead to the development of chronic diseases, mental illness, violence and being a victim of violence, as well as financial and social problems later in life (see Figure 1) (CDC, 2016).

Figure 1. Mechanism by which Adverse Childhood Experiences influence health and well-being throughout the lifespan (CDC, 2016).

Negative and positive childhood experiences have an impact on current population health and the health of future generations. ACE can damage neurobiological and neuroendocrine functioning, affecting behavioral, emotional, social, physical, and cognitive development (Tanzman & Shea, 2015). Toxic stress caused by ACE can alter DNA function and be passed on from generation to generation. Toxic stress is defined as stress that is frequent, sustained, and severe in intensity (A. S. Garner, Forkey, & Szilagyi, 2015). When a person lacks social-emotional buffering, the physiological mediators of stress become toxic to brain development and alter the brain's ability to regulate stress, learn, and adopt healthy coping skills (A. S. Garner et al., 2015). Individuals without adequate coping skills turn to health-risk behaviors such as drug use, poor diet, smoking, alcoholism and risky sexual behavior to cope with the harmful effects of toxic stress. Engaging in health-risk behaviors as a means of coping ultimately leads to the development of chronic diseases, poor economic productivity, and the intergenerational propagation of health disparities (Garner et al., 2015).

Toxic stress during childhood and adolescence can lead to the underdevelopment of areas of the pre-frontal cortex and limbic systems leading to a decreased ability to successfully regulate emotions. Without the ability to manage stress and cope effectively, individuals are at a higher risk of suffering from anxiety, depression, and stress disorders (Ahmed, Bittencourt-Hewitt, & Sebastian, 2015).

The pre-frontal cortex is involved with executive function behaviors like planning, decision-making, problem-solving, self-control, and acting with long-term goals in mind (Miller, Chen, & Parker, 2011). Patients with an underdeveloped prefrontal cortex often display normal movement, sensory perception, and even intelligence. But they often display abnormalities in emotional responses, and difficulty functioning in their daily lives (Miller et al., 2011).

The limbic system is a complex set of structures that includes the amygdala and hippocampus, among others. The amygdala is responsible for the regulation of emotion and response to fear described as the "fight or flight" response. The hippocampus is responsible for making new memories about past experiences (Vermetten, Schmahl, Lindner, Loewenstein, & Bremner, 2006). The limbic system is an evolutionary adaptation system that overrides the thinking portion of the brain causing individuals to react before they can think about a stimulus. Trauma experienced as ACE can cause this system to breakdown leading to maladaptive health-risk taking behaviors (Vermetten et al., 2006).

The impact of ACE extends beyond children and families and can result in consequences for entire communities. Environments with high levels of poverty and household stress create higher levels of social vulnerability and lower levels of community resilience (Ellis & Dietz, 2017). Household stressors include high rates of unemployment, housing instability, and food insecurity. Communities that experience domestic violence, high rates of unemployment, inadequate educational systems, high crime rates, and social justice issues often lack the social supports needed to address these challenges resulting in high levels of toxic stress. Families living in environments in which a child's home, school, and community are a source of stress report a higher incidence of ACE (Ellis et al., 2017).

ACE are an important public health issue due to their overwhelming negative health consequences and primary care providers are in an ideal position to address them. There is an association between ACE and multiple chronic health conditions that are frequently seen in the adult primary care setting (Shafer, Shafer, Kalmakis, & Chandler, 2018). The primary care office visit offers providers ample opportunity to identify a history of ACE. Approximately 90% of the U.S. population visits a primary care provider annually, making primary care the best clinical

setting to assess for risk factors related to ACE as they see a very high volume of patients (Prewitt, 2014). ACE screening during the primary care office visit allows for timely recognition and management of negative physical and emotional impacts and corresponds to the CDC's Healthy People 2020 goals (Glowa et al., 2016). Healthy People 2020 is designed to build a healthier nation by identification of preventable health threats and creation of goals to reduce those threats. Some of the overarching goals are to attain high-quality, longer lives free of preventable disease, disability, injury, and premature death (CDC, 2014). Addressing ACE in the primary care setting is an important step towards achieving longer, healthier lives for all.

Problem Statement

The effects of early toxic stress are realized through the development of chronic physical and psychological disease in adulthood, with large costs to the individual as well as to society. Chronic disease management accounts for approximately 86% of the nation's healthcare costs (Gerteis & Schwerdtfeger, 2016). The leading causes of death and disability in the U.S. such as diabetes, heart disease, stroke, and cancer can be attributed to ACE (CDC, 2016). A meta-analysis by Huang et al. (2015) summarized the evidence on the link between ACE and type 2 diabetes in adults, concluding that there is a significant association between ACE and an elevated risk of type 2 diabetes in adulthood. Gilbert et al., (2015) reported on ACE exposure from 53,998 adults in ten US states and the District of Columbia, finding that exposure to ≥4 ACE was associated with a higher likelihood of heart disease compared to those with no ACE exposure. Additionally, in a systematic review of literature Holman et al. (2016) found a significant association between ACE scores and an increased risk of cancer in adulthood. Of the ACE identified, physical and psychological abuse had the highest association with the risk of any cancer (Holman et al., 2016).

Despite the clear links between childhood trauma and chronic diseases in adulthood, there continues to be a lack of ACE screening in primary care settings. Primary care providers are well positioned to minimize the gap between evidence-based research and clinical practice leading to chronic disease management that is founded on quality patient care (Sarvet, 2017). ACE screening, alone, can be an intervention that reduces the frequency of overall health care facility use by patients leading to an overall reduction in healthcare costs (American Academy of Pediatrics, 2014; Felitti et al., 1998; Glowa et al., 2016). ACE screening can provide patients an opportunity to talk about their early experiences, reflect on the ways early adversity has impacted their current health problems, and feel a sense of sympathetic acknowledgement about this history from a health care professional (Finkelhor, 2017). In addition, incorporating ACE screening as standard of practice in primary care can lead to earlier identification and treatment of high-risk patients.

Barriers to ACE screening in the primary care setting include not having enough time, not knowing which patients to screen, providers' lack of confidence with screening, and not knowing what to do with the results (Kalmakis et al., 2016). Increasing provider knowledge about ACE screening may increase confidence to screen for ACE and decrease ACE screening time (Dunphy, Winland-Brown, Porter, & Thomas, 2013). Identifying trends between specific demographic data and ACE scores may help categorize high-risk patient populations, making it easier for healthcare providers to target and treat high-risk patients. Additionally, providers who have an awareness of available community resources and the ability to collaborate with multiple disciplines for referral can facilitate quality patient care.

Project Description with Purpose and Objectives

Three major findings were established as a result of the 1998 Adverse Childhood Experiences study by Felitti and Anda: 1) ACE are common among all socioeconomic levels, 2) ACE are strong predictors of health risk and disease later in life (e.g. individuals exposed to high doses of ACE (5 or more) have a life expectancy that is 20 years shorter than those with no exposure (Felitti et al., 1998) and 3) ACE are the leading determinant of the health and social well-being of our nation. These findings underscore the importance of ACE education and screening in primary care in order to provide primary, secondary and tertiary prevention.

The purpose of this project is to assess the feasibility of ACE screening in a primary care clinic in the Fargo area serving a population at high-risk for experiencing childhood trauma. Primary care providers are well equipped to close the gap between ACE research and clinical practice, however ACE screening is not widely conducted (Glowa et al., 2016). Identifying barriers to ACE screening in primary care and developing strategies to overcome them can improve the intention of healthcare providers to screen for ACE in their practice ultimately eliminating the gap between evidence-based ACE research and clinical practice.

The following objectives will guide the project:

1. Identify current guidelines and evidence-based approaches to ACE screening and intervention in the primary care setting through a comprehensive review of the literature.

2. Describe barriers and facilitators to ACE screening in a primary care setting through key informant interviews with providers at Family Healthcare.

3. Develop recommendations for implementation of ACE screening to overcome barriers, support effective interventions, and facilitate community referrals specific to the Family Healthcare patient population.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Literature Review

Prevalence

ACE are prevalent in the U.S. and are experienced by approximately 60% of the population (CDC, 2010). A growing body of evidence demonstrates that the more exposure to ACE a person has, the greater the risk for chronic disease, mental illness, violence and being a victim of violence. The National Survey of Children's Health (NSCH, 2012) estimates that more than half the children in the U.S. have experienced at least one or more types of serious childhood trauma (see Figure 2). There are 10 types of ACE described in the study and they are present at every socioeconomic level. One third of U.S. youth age 12-17 years have experienced two or more types of ACE that are likely to affect their physical and mental health as adults. Data from the Behavioral Risk Factor Surveillance Survey (BRFSS, 2013) in 32 states demonstrate a range in prevalence of individual ACE reported for adults from 16.3% for New Jersey to 32.9% for Oklahoma. The prevalence of children in North Dakota who have experienced two or more ACE is 21.3% (U.S. Department of Health and Human Services, 2013). The top three ACE experienced by children in North Dakota include socioeconomic hardship, divorce, and living with someone who has a drug or alcohol problem, respectively (NSCH, 2012).

The ACE score is used to assess the amount of childhood stress reported by individuals. Individual ACE scores are calculated by answering a 10-question yes or no survey (see Appendix A). One point is added for every "yes" answer. The questions address family health history from birth to age 18. Study findings show a graded dose-response relationship between ACE and negative health and well-being outcomes across the lifespan (*What tools are effective*

in screening for adverse childhood experiences among children?, 2016). This means that as the dose of the stressor increases the intensity of the outcome also increases. Individuals who score a four or higher on the ACE screening tool are at a significantly higher risk for developing chronic disease and social and emotional problems compared to lower scores (Reuben et al., 2016).
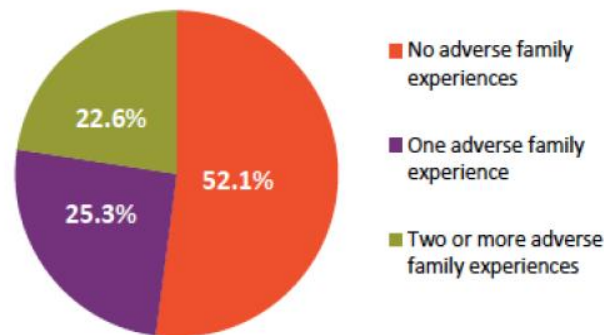
Figure 2. Prevalence of Adverse Childhood Experiences among U.S. children ages 0-17 years (NSCH, 2012).

Health Outcomes

Individuals with a history of ACE are at an increased risk for developing negative health outcomes. These negative health outcomes can be physical or psychological in nature (Afifi et al., 2008). Many studies have consistently linked ACE with risk factors for prevalent chronic diseases including diabetes, heart disease, and COPD, as well as, poor social and behavioral health outcomes such as limited social functioning, mental health disorders, and poor sexual health outcomes (Garner, 2014). Additionally, individuals with a history of ACE are at risk for developing biopsychosocial impairment symptoms including post-traumatic stress disorder (PTSD), anxiety, depression, and disturbed sleep (Chartier, Walker, & Naimark, 2010).

In addition to the impact of ACE on adult health, toxic stress among children most immediately contributes to physically damaging children's brains (Teicher, Samson, Anderson, & Ohashi, 2016). When children are exposed to toxic stress, there is a change in the serum level

of stress hormones including corticotrophin releasing hormone (CRH), cortisol, catecholamines and thyroid hormone. Increased levels of stress hormones are necessary for triggering the fight or flight response, but when levels remain high for long periods of time, they cause long-term consequences to the health and well-being of children's developing bodies and brains (Harvard Health Publishing, 2011). If this toxic stress is not addressed, children can develop feelings of helplessness, guilt, shame, and the inability to focus in school (Teicher et al., 2016). Children will often turn to drugs, alcohol, smoking, and risky sexual behavior later in life to relieve these feelings and buffer themselves from consistently toxic environments.

A history of ACE has been linked to higher likelihood of engaging in several health-risk behaviors (Dube, Cook, & Edwards, 2010). Health-risk behaviors include overeating, smoking, drug and alcohol abuse, high risk sexual behavior, and self-harm. Participating in risky behavior directly contributes to poor health outcomes and early death (see Table 1).

Table 1

Risk Behaviors and Health Outcomes

HIGH RISK BEHAVIORS	
Physical Inactivity	High Risk Sexual Behavior
Smoking	Interpersonal Violence
Alcohol Abuse	Self-Injury
Drug Abuse	Disordered Eating
Missed Work/ School	
RELATED HEALTH OUTCOMES	
Morbid Obesity	COPD/ Asthma
Depression/ Anxiety	Heart Disease/ Stroke
Diabetes	Cancer
Suicide/ Suicide Attempts	Broken Bones
Sexually Transmitted Infections	

Prevention

ACE are a significant public health problem, but the sequelae of poor health outcomes following traumatic experiences described above are preventable. The most effective way to prevent negative health outcomes caused by ACE is to promote resilience, decrease vulnerability, and improve an individual's relaxation response (Miller et al., 2011). Achieving this goal requires commitment on multiple levels, including individual, family, community, state, and the national level.

Resilience is the process of adapting well in the face of adversity, trauma, tragedy, threats, or significant sources of stress (American Psychological Association [APA], 2017). Resilience is a learned trait that anyone can acquire. It involves behaviors, thoughts, and actions that can be developed over time. The primary factor for developing resilience is the existence of caring and supportive relationships within families and the surrounding community (APA, 2017).

Resilience plays an integral role in preventing or reducing the negative effects of toxic stress caused by ACE. Implementing evidence-based programs for parents and caregivers that facilitate supportive adult-child relationships is an effective way to foster resilience in youth (Garner et al., 2013). Other strategies include building a sense of self-efficacy and perceived control; providing opportunities to strengthen adaptive skills and self-regulatory capacities; and mobilizing sources of faith, hope, and cultural traditions. Strengthening resilience factors through early intervention can help minimize the effects of toxic stress (Franke, 2014). Developing resilience is a personal journey. Each person reacts to stress and trauma in a different way and use varying strategies to cope. Building resilience involves maintaining flexibility and perseverance to deal with stressful circumstances and traumatic events (APA, 2017).

Vulnerability to the effects of toxic stress caused by ACE varies from person to person. Factors that increase a person's vulnerability to the effects of toxic stress include individual sensitivity to psychological stress, poor social support, and lack of cognitive-behavioral resources. Other factors include developmental delay, abusive parenting, and maladaptive coping mechanisms (Franke, 2014). Vulnerability to the negative health effects of toxic stress can be decreased through consistent, positive life routines, stable families, and the prevention of poverty (Franke, 2014).

The relaxation response opposes the stress response through a reduction in respirations, heart rate, blood pressure, and oxygen consumption (Franke, 2014). It can be achieved through practicing techniques such as meditation, yoga, Zen, and progressive muscle relaxation. These techniques can be easily learned by both children and adults and these skills could be helpful in building resilience against future stressors (Franke, 2014).

Individual and family level interventions play an integral role in reducing the negative effects of toxic stress. It is important to teach children, who are expressing signs of toxic stress, healthy ways to shut off their stress response. Evidence supports the use of parent-child interaction therapy, breathing techniques, guided imagery, and biofeedback for decreasing anxiety, improving well-being and building resilience (Garner et al., 2015). A focus on supporting stable relationships between caretakers reduces the incidence of toxic stress by creating a safe environment for children (Franke, 2014). Families are encouraged to participate in parenting classes, home visits, telephone support, and other family-based programs.

Community-based interventions that strengthen neighborhood-level resources may be most effective in buffering the toxic stress response in children (Shonkoff et al., 2012). Safe, stable, nurturing relationships and environments are essential to prevent ACE and to assure

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children reach their full potential (CDC, 2014) Positive environmental changes have proven to reduce the negative health effects of toxic stress, even in extreme cases of adversity (Garner, 2013). Creating safe, stable, nurturing relationships and environments begins with raising community awareness and support of this vision. As one example, the cycle of violence can be broken by promoting community norms for appropriate parenting behavior and creating programs that vigorously protect the well-being of children in the community (Gerwin, 2014). Other programs related to education, health, and social services play an important role in protecting the well-being of children and families.

Advocacy for the awareness, prevention, and early treatment of toxic stress on the national level provides the opportunity for the development of further interventions. The effects of early toxic stress can last a lifetime with large costs to individuals as well as to society (AAP, 2013). The onset of chronic diseases in adulthood can potentially be prevented through the promotion of healthy stress responses in childhood (Gerwin, 2014). National advocacy and financial support for healthcare providers to provide comprehensive ACE screening in the clinic can drastically reduce the long-term effects of toxic stress (Franke, 2014). The AAP recommends the involvement of schools, community and government to assist in toxic stress prevention and interventions.

Treatment

The treatment for individuals suffering from the negative physical and psychological health effects of ACE relies on identification of the underlying factors. Screening for factors related to ACE, such as, domestic violence, poverty, abuse, homelessness, substance abuse, and incarceration in the primary care setting can help identify individuals who require further treatment. The National Child Protection Training Center has identified effective treatment

interventions for those impacted by ACE including assessment and identification, reducing risk and exposure to toxic stress, and building resiliency and coping skills.

Treatment and management of toxic stress, caused by ACE exposure, requires timely interventions and an integrative approach. Interventions are tailored to the individual, but the effects of toxic stress also impact caretakers, family members, and the community (AAP, 2014). Preventing or reducing sources of toxic stress and increasing resilience for both children and adults can have widespread effects across society. Interventions focused on improving public health, safety, and economic security can improve quality of life and break the intergenerational effects of toxic stress (Shern, Blanch, & Steverman, 2011). Goals of treatment include reducing stress levels, minimizing vulnerability, and building resiliency.

It is important to teach individuals healthy ways to manage their stress response. Referrals to social-work, psychology, or psychiatry are beneficial but may be costly and of limited availability, especially in rural areas. Integrative approaches to reducing stress response and building resiliency include biofeedback, mindfulness-based cognitive therapy, breathing techniques, and music therapy (AAP, 2014). Learning these techniques takes time and may not be feasible to teach in a busy practice. Providers can help spread information on the importance of stress reduction by giving patients handouts describing the negative health effects of toxic stress and online resources containing step-by-step instructions on ways to reduce stress and how to access community resources (Johnstone et al., 2013).

Community-based interventions have been shown to have a positive effect by building resiliency and minimizing vulnerability, especially for children and teens (Clarke & Johnstone, 2013). Improving environments can lead to long-term positive health outcomes. Examples of ways to improve environments include, enhancing the beauty and safety of neighborhoods to

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retaining residents and businesses, providing parks for adults and youth to relax and play in

safety, programs dedicated to family support, education, and quality child care, and

comprehensive services to assist the homeless population (Shern et al., 2011). Providers should

communicate with volunteer groups, community resources, and early-intervention programs to

raise awareness of toxic stress caused by ACE. Patients can then be provided with a list of local

resources for individual, family, and community-based interventions to help reduce the impact of

toxic stress and prevent the continuation of ACE in future generations.

Role of the Primary Care Provider

Toxic stress caused by ACE is associated with negative physical and psychological health

outcomes in adulthood. Many patients who suffer from chronic disease rely on their primary care

provider to help manage these conditions. Evidence suggests that routine ACE screening can

lead to earlier intervention, decreased visits to a healthcare facility, decreased healthcare costs,

and improved health outcomes. Despite this fact, routine ACE screening has not become the

standard of practice in primary care (Schafer, Ferraro, & Mustillo, 2011).

A focus on prevention or reduction of toxic stress caused by ACE in young children is an

important component of health promotion and disease prevention. However, many individuals do

not seek care until adulthood when health conditions have already become chronic. Interventions

that primary care providers can offer as treatment for the negative effects of toxic stress in adults

focus on trauma-focused cognitive behavioral therapies (TF-CBT) and Eye Movement

Desensitization and Reprocessing (EMDR) therapy. TF-CBT shows the most evidence for

improving mental health and reducing health-risk behaviors (Korotana, Dobson, Pusch, &

Josephson, 2016).

Trauma-Focused Cognitive Behavioral Therapy

Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) is an evidence-based treatment approach that helps children, adolescents, and their families recover after trauma (Cohen, Mannarino, Berliner, & Deblinger, 2000). TF-CBT is a short-term treatment model that is structured to improves a wide range of trauma-related outcomes. Treatment takes place over 8-25 sessions with the child/adolescent and caregiver. TF-CBT can be used to address many impacts of trauma, including affective, cognitive, and behavioral problems, as well as addressing the parent's personal distress about the child's trauma, providing education on effective parenting skills, and promoting supportive interactions with the child (Cohen et al., 2000).

The Substance Abuse and Mental Health Services Administration has recognized TF-CBT as a Model Program due to the large amount of data from randomized controlled trials supporting its effectiveness (Deblinger, Mannarino, Cohen, Runyon, & Steer, 2011). Research shows that TF-CBT is effective in treating multiple and complex trauma experiences, for youth of different developmental levels and cultures (Deblinger et al., 2011).

Eye Movement Desensitization and Reprocessing Therapy

Eye movement desensitization and reprocessing (EMDR) therapy can be used to treat mental and physical illness related to ACE. It is an empirically validated psychotherapy approach that can rapidly treat unprocessed memories of these adverse experiences including anxiety, depression, and PTSD, as well as stress-induced physical disorders and medically unexplained symptoms (Shapiro, 2014a). The goal of EMDR therapy is to reduce subjective distress and strengthen adaptive cognitions related to the traumatic event (Bradley, Greene, Russ, Dutra, & Westen, 2005).

EMDR therapy is an eight-phase treatment approach that uses standardized protocols and procedures (See figure 3). The eight phases create a comprehensive evaluation of the clinical picture, and assist patients in processing past events, current disturbing situations, and future challenges using a three-pronged approach (Shapiro, 2014). Benefits of EMDR therapy include substantial improvement in a short period of time (often in 6-8 sessions), does not require detailed description of traumatic events, does not require hours of homework after sessions. EMDR therapy can allow providers to quickly determine the degree to which ACE are a contributing factor and to efficiently address the problem through memory processing that can help improve psychological and physical outcomes (Bradley et al., 2005).

Primary care providers are well positioned to screen at risk patients, provide a brief intervention, and refer patients for further treatment. The AAP recommends screening for risk factors such as social isolation, poverty, unemployment, low educational achievement, and family or intimate partner violence. Other factors that increase an individual's risk for experiencing toxic stress include social isolation, young parental age, low self-esteem, substance abuse, and depression. Primary care providers can identify high-risk patients through universal ACE screening of all patients. After patients have been identified as high-risk for experiencing the negative effects of toxic stress, providers can assess their individual need for further treatment. Primary care providers play a key role in referring patients to appropriate resources and maintaining interdisciplinary communication loops. Providers can also offer brief interventions during the office visit through motivational interviewing and health promotion.

Phase	Purpose	Procedures
History Taking	-Obtain background information	-Standard history-taking
	-Identify suitability for EMDR treatment	-Review of the selection criteria
	-Identify processing targets from events in client's life according to standard three-pronged protocol	-Techniques to identify 1) past events that have laid the groundwork for pathology 2) current triggers and 3) future needs
Preparation	-Prepare appropriate clients for EMDR processing of targets	-Education regarding the symptom picture
		-Metaphors and techniques that foster stabilization and a sense of personal control
Assessment	-Access the target for EMDR processing by stimulating primary aspects of the memory	-Elicit the image, negative belief, desired positive belief, current emotion, and physical sensation and baseline measures
Desensitization	-Process experiences toward an adaptive resolution	-Standardized protocols including eye movements (taps or tones) that allow the spontaneous emergence of insights, emotions, physical sensations, and other memories
Installation	-Increase connections to positive cognitive networks	-Enhance the validity of the desired positive belief and fully integrate the positive effects within the memory network
Body scan	-Complete processing of any residual disturbance associated with the target	-Concentration on and processing of any residual physical sensations
Closure	-Ensure client stability at the completion of an EMDR session and between sessions	-use of guided imagery or self-control techniques
		-Briefing regarding expectations and behavioral reports between sessions
Reassessment	-Ensure maintenance of therapeutic outcomes and stability of client	-Evaluation of treatment effects
		-Evaluation of integration within larger social system

Figure 3. Overview of eight-phase EMDR therapy treatment. (Shapiro, 2014).

There are many barriers to ACE screening in primary care. The most prominent barriers include lack of time, lack of provider knowledge, and lack of resources (Sarvet, 2017). Office visits are time limited and providers have multiple assessments to complete. However, ACE

screening gives providers a more complete picture of an individual's social determinants of health. Efficient assessment tools for use in the primary care setting are needed.

It is important for healthcare providers to understand the potential impact of ACE and toxic stress on the health and well-being of the patients they serve. Primary care providers are in a unique position to identify ACE in both children and adults and are expected to educate patients about the negative effects of toxic stress and provide interventions and referrals. Providers can learn more about toxic stress and ACE and how to talk to their patients by becoming trauma-informed.

Resources available for patient referral vary depending on clinic location. Underserved and rural communities often have inadequate funds, a shortage of primary care providers, and lack of behavioral health treatment resources. While ACE impact all socioeconomic levels, people living in poor communities report a higher incidence of ACE. Additionally, the impact of ACE is equal between those living in urban versus rural communities (Talbot, Szlosek, & Ziller, 2014). A survey conducted by Tink et al. (2016) to identify ACE screening practices by primary care providers found that nearly half of providers surveyed did not screen patients for ACE due to the belief that there were insufficient resources to help patients who displayed a history of ACE.

Simple, yet effective interventions that clinics can consider implementing include, standardizing a toxic stress screening upon entry into the exam room, posting handouts about toxic stress and ACE, and listing free smart phone applications, or websites on instructions for relaxation techniques and stress reduction. Providing patients with information on the harmful effects of ACE and toxic stress along with a list of community resources can be beneficial in raising awareness.

Current Practice Recommendations

In a 2015 interview for the Robert Wood Johnson Foundation, Jeffrey Brenner MD, stated:

ACE screening is the best predictor we've found for healthcare spending, healthcare utilization, poorly controlled chronic illness, obesity, substance abuse, smoking, out of wedlock teen birth, probably homelessness and incarceration…That's a pretty stunning correlation. We get obsessed with very small correlations in healthcare…Here's a huge relationship that has good, solid scientific evidence for it, and we're not doing anything about it.

Brenner goes on to say:

It's not a new idea that patients who have experienced abuse or any other adversities might have consequences later in life, but now we have a better understanding of the relationship between biology, neurobiology, genetics, sociology, and psychology and their effect on health" (Levins, 2015, p. 8).

Despite the overwhelming evidence linking ACEs to later poor health outcomes, little has been done to address ACE in primary care. A systematic review of 42 research articles was conducted by Kalmakis and Chandler (2015) to inform Nurse Practitioners in primary care practice. Recommendations for practice included the incorporation of routine ACE screening in primary care and the recognition of the association between ACE and negative health outcomes. Routine ACE screening in primary care can lead to earlier interventions, improved health outcomes, and decreased healthcare costs (Kalmakis & Chandler, 2015).

One approach to addressing ACE in a primary care setting is the Patient-Centered Medical Home (PCMH) model. The PCMH is a coordinated, collaborative public health

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approach to preventing and treating childhood toxic stress (Garner et al., 2015). PCMHs promote resiliency by facilitating safe, stable, nurturing relationships in hopes of reducing adversity and negative impacts of toxic stress. These goals are achieved through primary prevention, family-level screening, and accurate diagnosis with appropriate response (Garner et al., 2015). Primary prevention begins with promoting positive parenting skills at every prenatal and well-child visit to support healthy family functioning and child development. Family-level screening is important because it provides an opportunity to address parents coping with their own ACE. The PCMH uses validated screening instruments to identify risks and family strengths and then makes appropriate referrals to community-based resources. Studies have shown that some screening protocols result in decreased family distress and reduced child maltreatment (Garner et al., 2015).

PCMH models help organize primary care by facilitating coordination and communication between patients, providers, and the extended care team (see Figure 4). The model uses a centralized setting to ensure that patients receive appropriate care where and when they need it. Medical homes can lead to higher quality care, lower costs and can improve patients' and providers' experience of care (Academy of Family Physicians, 2011).

Figure 4. Patient-centered medical home model. (U.S. Department of Health & Human Services, 2011).

Although a medical home model would be ideal, it is not always feasible to establish. Establishing a medical home to address the needs of individuals, families, and communities requires an enormous strain on limited resources (Garner & Shonkoff, 2012). Another approach is that providers can address the negative health effects of toxic stress by implementing trauma-informed approaches to care in the primary care setting (Menschner & Maul, 2016). The institution of trauma-informed care in the primary care setting has been shown to improve patient engagement, treatment adherence, health outcomes, and provider and staff wellness (Menschener et al., 2016). The Center for Health Care Services (CHCS), the Substance Abuse and Mental Health Services Administration (SAMHSA), and the National Counsel for Behavioral Health (NCBH) offer certification courses for the primary care setting.

Many methods for assessing ACE exist. A study conducted by Bethell et al. (2017) compared 14 ACE methods and concluded that all the ACE assessment methods were similar and acceptable for use among patients and families. All assessment methods identified consistent

associations with negative health outcomes and lack of resilience along with patient education and health promotion geared towards mitigation of trauma and chronic stress (Bethell et al., 2017). Analysis of this study confirms the use of cumulative risk scoring for the ACE screening measure created by the NSCH and recommends use of a population-wide versus high-risk approach to assessing ACE (Bethell et al., 2017). In addition, the study concludes that broad ACE screening among all patient populations can be beneficial as an educational tool for engaging and educating families and children about the importance of safe, stable, and nurturing family relationships (SSNRs) and how to recognize and manage stress and learn resilience (Bethell et al., 2017).

Theoretical Framework

Trauma-Informed Approach is a theoretical framework developed by SAMHSA in 2014. The concept of a trauma-informed approach to care is grounded in a set of four assumptions and six key principles. The four assumptions are: "a trauma-informed organization "realizes the widespread impact of trauma and understands potential paths for recovery; recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; and responds by fully integrating knowledge about trauma into policies, procedures, and practices, and seeks to actively resist re-traumatization" (SAMHSA, 2014, p. 9). The six key principles include, safety, trustworthiness, empowerment, collaboration, peer support, and history, gender, and culture sensitivity (see Figure 5).

Safety	Trustworthines	Empowermet
•Prevent violence across the lifespan and create safe physical environments	•Foster positive relationships among residents, city hall, police, schools, and others	•Ensures opportunities for growth are available for all

Collaboration	Peer Support	History, Gender, Culture
•Promotes involvement of residents and partnership among agencies	•Engages residents to work together on issues of common concern	•Values and supports history, culture, and diversity

Figure 5. Six principles of a trauma-informed approach (SAMHSA, 2014).

The framework for the trauma-informed care theory was developed through the integration of knowledge attained from trauma focused research, practice-generated knowledge about trauma interventions, and information provided by survivors of traumatic experiences (SAMHSA, 2014). The framework was originally intended for use in the behavioral health sector, but has expanded into the criminal justice, education, and primary care sectors due to increasing requests for assistance with organizational change.

Development of an organizational trauma-informed approach to care requires change at every organizational level. Change begins with educating stakeholders, including all staff and clients using the six key principles of trauma-informed care and SAMSHAs concept of trauma. SAMHSA defines trauma as "an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being" (SAMHSA, 2014, p. 7). Providing trauma-informed services is an

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important approach to helping patients affected by ACE because it ensures that providers are using the latest evidence-based treatments linking traumatic experiences with physical, mental and emotional health and brain development (SAMHSA, 2014).

Ten implementation domains guide the development of a trauma-informed care organization. The ten domains include; governance and leadership, policy, physical environment, engagement and involvement, cross-sector collaboration, screening, assessment and treatment services, training and workforce development, progress monitoring and quality assurance, financing, and evaluation (Harris and Fallot, 2001). Organizations that desire to become trauma-informed should first examine how a trauma-informed approach will benefit all stakeholders. Implementing a trauma-informed organizational assessment and change process must include the ten domains and remain in alignment with the six key principles. Involvement of clients and staff at all levels of the organizational development process is imperative to successful change and improved patient outcomes (Penney & Cave, 2012).

CHAPTER 3: PROJECT DESIGN

Implementation and Data Collection

This practice improvement project (PIP) aimed to discover evidence-based guidelines and interventions through a comprehensive review of the literature, identify perceived barriers and facilitators to ACE screening as described by the staff at Family HealthCare (FHC), and to make recommendations based on the need, feasibility, and sustainability of ACE screening in the primary care setting. This project was developed in response to interest by a Family Nurse Practitioner (FNP) at FHC to incorporate ACE screening into her practice. The facility's goal was to ensure they are providing quality patient care using evidence-based guidelines for practice, and that the change in procedure will be sustainable for their growing practice.

Project Setting

Family HealthCare is a non-profit federally qualified community health center that provides medical and dental care to nearly 17,000 patients regardless of their race, age, or ability to pay. There are currently three clinic sites including the main clinic in downtown Fargo and clinics located South Fargo and West Fargo. The main clinic has been recognized by the National Committee for Quality Assurance (NCQA) as a Level 3 Patient-Centered Medical Home, which is the highest level. The facility contains 33 exam rooms, seven dental chairs, an automated pharmacy, on-site lab, x-rays, and offices for counseling, optometry, refugee health, interpreters, behavioral health, physical therapy, chiropractic care, and health education. Family HealthCare provides comprehensive primary care to a diverse patient population, many of whom are considered high-risk for experiencing toxic stress, such as homelessness, substance abuse, and poor mental health.

Design

The design of this PIP is outlined in Table 2. The objectives included evaluation of

evidence-based clinical guidelines, identification of barriers and facilitators to ACE screening

and intervention in a primary care setting (interview questions are included as Appendix B) and

development of best-practice recommendations. Information gained from the key informant

interviews and literature review were used to develop the evidence-based recommendations

presented to the providers at Family HealthCare.

Table 2

Project Objectives, Activities, Evaluation, and Timeline

Objective	Project Activities	Evaluation	Timeline
1. Identify clinical practice guidelines and protocols for implementing ACE screening and intervention in primary care.	Literature review Keywords: adverse childhood experiences (ACE), toxic stress, primary care, screening, trauma informed care Databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE, PROQUEST, and Health Source	Guidelines will be critically appraised using the Appraisal of Guidelines for Research and Evaluation (AGREE) instrument.	Late September – Early October 2018
2. Discover barriers and facilitators to ACE screening and intervention in primary care.	Conduct key informant interviews with 4-5 healthcare providers at Family Healthcare	Identify the main themes from key informant interviews and categorize them into barriers, facilitators and recommendations	January 2019
3.Develop recommendations for implementation of ACE screening and intervention at FHC.	Create report of recommendations. Present report to stakeholders at FHC.	A written report will be finalized and presented to the stakeholders	April 2019

Literature Review

The first step in this project was to conduct a review of current literature to identify clinical practice guidelines and protocols for implementing ACE screening and intervention in primary care. A review of current literature to identify evidence-based ACE screening and interventions was conducted beginning in September of 2017 (See Table 3). The data bases searched included the Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE, Cochrane Library, and Ovid Clinical Queries. Keywords included in the search strategy were, adverse childhood experiences, toxic stress, primary care, interventions, screening, guidelines, and current policy related to ACE screening in primary care.

Limiters were placed for those articles that were published between 2010-2017, full text availability through North Dakota State University's library access, written in the English language, and were peer reviewed. Findings from the extensive review of the literature review were reported and summarized in Chapter 2. Following synthesis of the existing literature, the interview guide was established.

Table 3

Search Strategies

THEME	MeSH TERMS	KEY WORDS
Adverse Childhood Experiences	Stress, psychological Stress disorders, PTSD Child abuse Domestic violence Adult survivors of child abuse	Trauma Adverse childhood experiences PTSD Child maltreatment
Screening	Intervention studies Primary prevention Secondary prevention Tertiary prevention Program evaluation Health promotion Social planning Evaluation studies Community psychiatry	Program Prevention
Intervention	Mass screening Symptom assessment Risk assessment Needs assessment Questionnaires Early diagnosis	Screening Assessment

Key Informant Interviews

Healthcare providers (n = 5) practicing at Family Healthcare were invited to participate in an individual, semi-structured interview via email. A list of providers was generated by an FNP working at Family Healthcare who provided initial contact information for the participants. Convenience sampling was used to conduct 5 interviews that were scheduled at the participants' convenience and conducted in private locations. A semi-structured interview guide was used that focused on each providers experience with ACE in the clinic setting, opinions on benefits and barriers to screening for ACE at Family Healthcare, and recommendations for making ACE screening feasible and sustainable (See Appendix B). The interview sessions ranged from 20 to

35 minutes. Each interview participant was given a $5 gift certificate to a local coffee shop. Interviews were audio recorded with the permission of each interviewee. The audio device holding the interview sessions was kept confidential and inaccessible to anyone other than the co-investigator. The sessions were transcribed verbatim excluding identifying data into password-protected Microsoft OneNote documents. After transcription, the audio recordings were deleted.

Developing Recommendations for Family Healthcare

The final step of this project was to develop recommendations for implementation of ACE screening and intervention at FHC based on findings from the literature review, current clinical practice guidelines, and key informant interviews. Triangulation of the three data sources lead to the development of recommendations regarding provider education, appropriate screening tools, and intervention options.

NDSU Institutional Review Board Approval

This project was declared exempt (category #2b) in accordance with federal regulations by the North Dakota State University Institutional Review Board on November 1st, 2018 (see Appendix C).

CHAPTER 4: EVALUATION

Each objective of the PIP was evaluated independently using the Plan-Do-Study-Act (PDSA) model for practice improvement. The PDSA model for improvement is an approach to testing a newly implemented process. Each task is broken down into four steps to evaluate the outcome, make improvements, and then test it again. The goal of the PDSA model for improvement is to answer three overarching questions; 1) What are we trying to accomplish? 2) How will we know that a change is an improvement? 3) What changes can we make that will result in improvement? (Institute for Healthcare Improvement, 2018).

Literature Review

A total of fifty-seven articles met search criteria and each article was evaluated using a rapid appraisal checklist to determine the validity, reliability and applicability to practice. Eighteen articles were excluded due to duplication of articles and irrelevant topic information. The remaining thirty-nine articles were reviewed and compared to identify common themes (barriers, recommendations, current practices) regarding ACE screening. In addition, relevant reference from included articles were reviewed to include an additional 11 articles.

Additionally, the websites of the Substance Abuse and Mental Health Services Administration (SAMHSA), United States Preventive Services Task Force (USPSTF) The National Child Traumatic Stress Network (NCTSN), American Academy of Pediatrics (AAP), The National Center for PTSD, and the American Academy of Child and Adolescent Psychiatry (AACAP) were reviewed to identify clinical practice guidelines and literature pursuant to the organization's expertise in the field of trauma and trauma informed care.

Key Informant Data Collection

Key Informant interviews were conducted using a semi-structured interview guide (Appendix B). The key informants included four Nurse practitioners and one Physician's Assistant working at Family Healthcare. Two providers work in the Homeless Health clinic and the other three work in Family Healthcare downtown and at the Southwest site. The interview questions were designed to identify each provider's experience with ACE in the clinical setting, opinions on benefits and barriers to screening for ACE at Family Healthcare, and recommendations for making ACE screening feasible and sustainable. The semi-structured format provided the co-investigator the ability to clarify or expand on topics that seemed to be of significance to the provider.

Data Analysis

Key informant interview data were analyzed using descriptive content analysis (Granaheim & Lundman, 2004) to identify themes in response to each interview question and establish trustworthiness (Thomas, 2006). The first step in analyzing each transcript was to carefully read them line by line and categorize the text into shortened usable codes. The co-investigator created a code for each section of the text for all five interviews. The codes were reused, and new ones were created as needed within each transcript. A unique color was assigned to each interviewee's code and pasted into a Microsoft Excel document. The color-coded Excel document allowed the co-investigator to group codes with similar meanings. Next, the codes were organized into categories using the a priori organizational structure of the interview guide. Finally, codes which did not fit into the a priori organizational structure were grouped into similar themes. The organized compilation of codes allowed the co-investigator to recognize when no new themes emerged from the data and theoretical saturation was achieved (Walker,

2012). The trustworthiness of the data analysis was assessed through consistency and stakeholder

checks of coding.

CHAPTER 5: RESULTS

Participants

The key informant interviews were completed by five healthcare providers. All five of the interviewees were female and employed by FHC. Their ages range from 29-38 years old. Three of the providers have a Doctor of Nursing Practice degree with an emphasis in family practice. One provider was a Physician Assistant and the other was a Registered Nurse who is currently attending graduate school to earn a Doctor of Nursing Practice degree with an emphasis in psychiatry/ mental health. The providers have been employed at FHC ranging from two to five years. Two providers work at the Homeless Health location. Two providers work at the southwest location and one provider works at FHC's main campus in downtown Fargo.

Table 4

Demographics

Categories	Participants
Female	5
Male	0
Years of Experience	2-5
Doctor of Nursing Practice	3
Physician Assistant	1
Registered Nurse	1
Age (years)	29-38
Family HealthCare (main campus)	1
Family HealthCare (Southwest campus)	2
Homeless Health	2

Using the semi-structured interview guide to create *a priori* analytic themes a total of 9 themes were identified including: 1) Provider experiences with ACE in the clinical setting, 2) Physical and mental effects of ACE seen in patients, 3) Potential benefits of ACE screening, 4)

Importance of ACE screening at FHC, 5) Perceived barriers to ACE screening at FHC, 6)

Addressing perceived barriers to ACE screening, 7) Using a standardized ACE screening tool, 8)

Determining who should be screened for ACE, and 9) Resources needed to screen for ACE in

the clinical setting.

Table 5

Interview Themes and Categories

Themes	Categories	Explanation
Provider experiences with ACE in the clinical setting	- Common - High-risk population	FHC sees a lot of patients at high-risk for having a positive ACE score (homeless, refugee)
Physical and mental effects of ACE seen in patients	- Substance abuse - Chronic pain - Poor coping skills - Difficult to treat	Positive ACE scores lead to poor health outcomes and stunted development
Potential benefits of ACE screening	- Holistic patient care - Harm reduction - Reduce healthcare cost - Encourage trauma-informed care	Screening allows providers to approach patient care through a trauma lens, ultimately leading to more appropriate care
Importance of ACE screening at FHC	- Comprehensive care - High importance - Aid in care planning	Same as above
Perceived barriers to ACE screening at FHC	- Lack of time - Lack of services - Efficacy of interventions - Provider perceptions	Some providers are initially overwhelmed by the thought of implementing ACE screening into practice
Addressing perceived barriers to ACE screening	- Provider training - Screening techniques - Intervention protocols.	Provider education and streamlining the process can improve intent to screen
Using a standardized ACE screening tool	- Standardization is important - Longer appointment times - Build trust - Education tool	A standardized screening tool can be used to structure the conversation about ACE between provider and patient, providing education and building trust
Determining who should be screened for ACE	- Universal vs. High-risk - Adults vs. Youth - Greatest impact	In the primary care setting universal screening for adult patients is recommended
Resources needed to screen for ACE in the clinical setting	- ACE education - Standardized screening - Interventions - Improved collaboration	Having the necessary resources available at FHC could improve the providers intention to screen their patients for ACE

Provider Experience with ACE in the Clinical Setting

Providers were asked to describe their experience working with patients who have been affected by ACE. Every provider reported having some background knowledge about ACE and its potential to influence physical and mental health outcomes in adulthood. One provider explained learning about ACE:

> I think I'd been working here for about a year before I even heard of ACEs and what that was…I went to a seminar where they explained what happens to the brain and the neurobiology with that psychiatric stuff and it made so much sense learning about that and applying that knowledge when we see all of these patients (4).

ACE specific screening is not done at FHC. However, every provider stated that most of their patient population has been affected by ACE. One provider reported the frequency with which she encounters patients who suffer from ACE: "I would say that I work with people like that daily…The majority of patients, or like all of them that I work with in the homeless clinic consistently have ACE histories of at least four if not significantly higher" (2).

The providers recognized that populations at highest risk for suffering the effects of ACE include refugees, the homeless population, and low-income families with limited access to healthcare. Another provider described her experience with at risk patient populations:

> I worked in a very poor neighborhood and so I think that was the first place where I was exposed to seeing like how the surroundings affect their health outcomes and also just the barriers to care for a lot of these kids and that carries over into adulthood…I think this is very much a part of our patient population and is probably seen mostly with our refugee population(3).

Physical and Mental Effects of ACE Seen in Patients

Providers described a range of negative physical and mental effects of ACE they see in their patients. One provider relayed her observations of ACE influencing the health of her patients by saying:

> I would say I experience a lot of the ramifications of ACE with the people I see in a lot of different ways, both the mental and the physical effects. Even just the chronic stress alone and what that does to the body and the brain… it's just so detrimental (4)!

Another provider described the effects of ACE: "I think that substance abuse is one of the biggest red flags that correlates to some sort of trauma in childhood…It's the most obvious…mental health, chronic pain, and substance abuse is what I see most" (3).

Providers also described different ways of identifying ACE among the patients they see including asking about a history of trauma, recognizing that appropriate treatments are not working, and "seeing it on their bodies". One provider discussed asking about a history of childhood trauma when patients come to the clinic with frequent somatic complaints: "I try to think of childhood trauma in the back of my head when patients come in for headaches, abdominal pain, or something that keeps happening with no other explanation" (1). Another provider identified patients with high ACE scores when treatment for chronic disease and mental health disorders are failing:

> They have very difficult to treat chronic disease…diabetes, coronary artery disease, hypertension…the medications don't seem to be working well… there is some research that says ACE causes systemic inflammation and if your C-reactive protein (CRP) is greater than 4 an SSRI probably won't work (2).

ACE is common among all populations. Some providers discussed a gap in evidence for understanding why some people with high ACE scores are doing well in adulthood and others are devastated by its effect. One provider reflected on this variation stating:

Something I haven't quite figured out about trauma is why some people are fine…I know it has to do with resilience which is a big field of study that I don't know anything about. When people don't do well with it, the effects are devastating…studies are pretty clear that the health consequences of ACE can run the gamut. Some you might intuitively know, like addiction or depression. But there is also heart failure, liver failure, and more physical diseases. One of my favorite statistics is people who have six or more ACEs are likely to die two decades earlier than people who don't have any! Lots can happen in 20 years (5).

Another provider believed that health outcomes in adulthood reflect the patient's choice of coping mechanisms:

You have to think about all of the self-treatment some patients are doing. Treating chronic stress with things like drugs and alcohol can definitely contribute to mental health and mood disorders, but there are also physical effects too. Tobacco use is huge and contributes to cardiovascular risk and all sorts of things (4).

Potential Benefits of ACE Screening

Four main categories were identified when providers were asked to discuss the potential benefits of ACE screening at FHC. Categories that emerged included: 1) providing holistic patient care, 2) harm reduction and ACE prevention in future generations, 3) decreasing healthcare related costs, and 4) movement toward becoming a trauma-informed care facility.

The providers believed that ACE screening is an important part of providing holistic patient care. Screening can influence the approach to care, allow for informed decision making, and strengthen the patient/provider relationship through a better understanding of the patient's background, social circumstances and perspective. As one provider described, "ACE screening really helps me, as a provider, to make informed decisions…just knowing that full picture of their social circumstances is huge" (2). Another provider talked about the potential for ACE screening to build trust between patients and providers: "One benefit is that it helps us to understand why some patients are acting the way they are…because when you can understand why, it gives you more patience and it helps you understand where the patient is coming from as well as helping to determine treatment approaches" (3). She went on to describe a patient scenario:

> Last week I saw a patient who had an ACE history… she's in her 40's now and living at one of the homeless shelters, but she had a history of multiple ACEs including abuse as a child and multiple different abusive relationships in adulthood. She now has a pretty strong, yet still to be diagnosed, personality disorder and it very much affects her ability to interact with people. She has been released from a few different treatment sites because she just hasn't been able to…when it doesn't go her way… she's not able to adjust and have those relationships. It affects her ability to get good care because of those barriers that goes with her behavior. A lot of times I think people like that can go undiagnosed because you think; oh, this person is just really hard to work with and I don't want to deal with them and they're non-compliant, but providers are not understanding that there is probably some sort of other mental health things that are going on with her and that is what is creating that barrier (3).

Health promotion and disease prevention is the number one goal for primary care providers. ACE screening allows providers to quickly identify patients who need an intervention. As one provider suggested, "It would be nice to be able to identify anybody who's been exposed and then figure out if it is affecting them in any way so we could connect them with the services they need" (1). Early intervention is imperative for achieving the greatest amount of harm reduction in patients who already have a positive ACE score. One provider explained the importance of intervening as soon as possible:

> I've seen many patients who started using drugs at age 11 or 12 to help them cope with trauma in their lives…they don't know how to live without their substances and so I think it is important to get them appropriate care earlier rather than later because I know it stunts development…that trauma, especially abuse. Their development was stunted, and they've never been able to move past that (4).

Harm reduction in a generation already affected by ACE has the potential to prevent ACE in future generations. One provider sees the greatest benefit of ACE screening for specific populations:

> I think the benefits can be huge in certain populations, especially new parents…you ask them what they have experienced in their lives from the ACE categories and how can we help you in a way that can help you heal from those experiences so that it doesn't affect your baby (5).

ACE screening at FHC has the potential to reduce healthcare costs for patients and the healthcare organization. Patients who have a high ACE score tend to visit the clinic more frequently. As one provider suggested, "The outcomes need to be measurable. One way we can do that is by helping someone with their ACE and then they stop coming to see you for every

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little thing, so it's cutting down on costs that way" (5). Many of the complaints cannot be fixed with medication because the symptoms are caused by their underlying trauma.

Trauma-informed care is an approach to healthcare that recognizes the physical and mental effects of toxic stress and lifelong trauma. Trauma-informed healthcare facilities specialize in the diagnosis and treatment of patients with a history of trauma. ACE screening at FHC can help providers become aware of the effects of ACE, put patient circumstances into context, and guide providers in the treatment of patients with a positive ACE score. Many of the providers who were interviewed are actively pushing for FHC to become a trauma-informed facility. One provider stated: "I think the best way that ACE screening works is to also implement trauma-informed care at the same time. I feel like trauma informed care is like universal precautions for people's behavioral health" (2).

Importance of ACE Screening at FHC

All participating providers endorsed the idea that ACE screening is extremely important at FHC due to their patient population. For example, one provider stated, "I think we care for some of the hardest patients in Fargo and the surrounding area…these patients are hard, a lot of times because of what they've been through" (3). The providers described ACE screening as a vital part of providing quality patient care, "If we want to be primary care providers, like really good primary care providers, we need to provide comprehensive care…it's just part of our jobs" (3). "I just think there are a lot of things we are missing out on by not screening these patients" (1).

Perceived Barriers to ACE Screening at FHC

The providers discussed several barriers to ACE screening at FHC, despite their belief that screening is important for their patient population. Four categories emerged when the

providers were asked about potential barriers to ACE screening at FHC. These barriers include lack of time, lack of services, efficacy of interventions, and provider perceptions.

Time was the barrier that all five of the providers listed as number one: "It's always a time thing because, like, we already screen for so many things and there is only so much time" (1). The providers all reported an already limited visit time with too many quality measures to get through, "It's always hard when you start adding more quality measures…but it could just be one of those things like you do a lipid panel, you have to do this too" (3). Most providers felt it would be hard to accommodate additional screenings. However, one provider questioned the difficulty of fitting it in: "I know everyone is going to say the time thing…but bigger than that, I think it is the perception of the time thing. We all think it's going to add like ten minutes. Well, does it? I've read studies that say it only adds two to five minutes so it's not necessarily adding that much time" (5).

Some providers felt that there is an overall lack of services for patients suffering from ACE in our community, "The services out there are just lacking" (1). Other providers felt that there are enough services available but there is a lack of access to those services available for the patients in need, "I know services are out there, but it's not easy to get patients in. Some places are so booked that they won't even consider outside referrals and other places are booking three to six months out! These patients just can't wait that long" (4). Additional providers described a personal lack of knowledge regarding referral options and the services they provide, "I struggle with knowing which location would be best…it would be nice to just have a list in place, so I know where to send kids, or adults, or homeless, or patients who need an interpreter" (1).

The providers each expressed a concern about how to measure the outcomes of ACE screening. As one provider described: "From a facility standpoint, the endpoint needs to be clear

and the outcomes measurable, and to me that's not clear right now…Their ACE score isn't going to change. How can you measure prevented ACE in the next generation? You can't" (5). One provider explained her concern about providing appropriate interventions for her patient population:

> What do you do with a patient population that doesn't always follow through with what you tell them to do…because they can't follow through. Like if you send them to neurology at Sanford, can they even get there? Do they even have a ride? Not to mention, can they pay for it when the bill comes (4).

> Another major barrier identified by all the providers was the perception of ACE screening by providers who lack awareness. A few misperceptions identified by the providers interviewed included provider fear of patients' reaction to screening, risk of retraumatizing patients by asking sensitive questions, and provider perception of the time invested into screening. "The possibility of it dredging up something for someone is a barrier because we have a pretty limited behavioral health service right now" (2).

Other barriers related to provider perception involve work flow issues, difficulty streamlining screening into the routine, and gaining employee buy-in from an already overwhelmed staff.

> It would have to be posed to providers and nursing staff at a meeting to explain how and why we want to do this and how it would affect work flow… our current medical director is overwhelmed with the stuff we have to do already within the electronic chart. So, I don't know how willing he would be (4).

Addressing Perceived Barriers to ACE Screening

Implementation of a new protocol into healthcare practice cannot be successful until the barriers to implementation have been addressed. The providers came up with several suggestions for minimizing barriers and making ACE screening easier at FHC. The suggestions were categorized into three categories including provider training, screening techniques, and intervention protocols.

Provider training should be aimed at reducing providers' fear regarding ACE screening through a comprehensive understanding of ACE evidence and screening techniques. One provider elaborated on provider education:

> We need training to educate people. Like, look, this isn't going to be as hard as you think it might be. You might not be able to sell it to some people because they don't want to open up that can of worms, and that's fine…I think for providers who really are putting the patient first, it's an easier sell…when you see the evidence, I think people will be on board (5).

Another provider discussed fear of patient reactions:

> I think provider education would take a lot of the fear out of it that some providers may have like, OMG they're going to start crying in my office…well, yeah, then you can hand them a Kleenex, it's fine. Patients cry in my office all the time, so I'm not afraid of it but I understand that some people might be (2).

ACE screening at FHC cannot be implemented without a standardized screening tool. The providers recommended that the screening tool be brief, efficient, and easy to evaluate.

I think the screening tool would have to be super brief, like one question. And then if that

question is positive it might lead into a few more questions…I don't know what that

question would be or how it would be worded (4).

Some providers suggested that the screening tool be filled out by the patient outside of the clinic

visit.

I think it is better to have patients fill them out on their own because they don't have to

look at you in your face while they say like, yes, my brother committed suicide or

whatever their trauma might be. It gives them the opportunity to do that themselves…and

it can save time as far as the office visit goes (2).

Other providers preferred to ask the ACE screening questions directly to the patient during the

clinic visit.

You are asking questions that bring up a lot of stuff that's maybe been covered up for a

long time…I think that is something that I would want to do in person…because I think

you would get a more honest answer…you have to build that trust first (3).

All providers agreed that they would like to find an implementation format that has been used

successfully by another organization.

What I wonder is, has this been done? Is there anybody out there who is actively

screening for ACE in their clinic? I'm assuming there are some places out there that have

some data or a format that other facilities could follow. That would be really helpful as

far as knowing the best approach for implementation. Like, what works or what doesn't

work (1).

It does not make sense to screen for anything unless you have a plan for what you will do

with the results. Intervention protocols can make ACE screening at FHC feasible. Intervention

protocols at FHC could include a plan for responding to patients' reactions in the clinic, a plan for brief interventions, and a point of education in the electronic medical record.

It would be really helpful if there was a button or like, point of education talking about what ACEs are with the patient in the room. Like, hey, this may be how trauma is affecting you and it's something to just consider… Here is what we typically recommend in the way of counseling or some kind of therapy…or something like that (4).

Other intervention protocols suggested by the providers included expansion of in-house services, development of a categorized referral list specific to insurance type and interpreter needs, and close communication between interdisciplinary teams. One provider described her frustration with interdisciplinary communication:

I think one of the biggest barriers we see in homeless health is communication with other disciplines. So, like, patients who are hospitalized at other facilities are discharged… they come to me for follow-up care and I have no, like nothing as far as information about what had gone on during the hospitalization, what meds they are on or anything. Sometimes we get the note, but often we don't. We need more continuity of care (3).

Using a Standardized ACE Screening Tool

The providers were asked to describe what screening their patients for ACE using a standardized screening tool would be like for them. When describing the type of screening tool, every provider stated that they would like it to be standardized. "It wouldn't be hard to implement a standardized screening tool. We already do it with the GAD-7 and the PHQ-9 and we have other standardized screening questionnaires during our well-child checks" (1).

One provider explained the need for longer appointment times in order to accommodate ACE screening:

They give us 20 minute appointment slots at FHC…so that's 20 minutes for a well-child

exam, 20 minutes for a physical, and 20 minutes for any other episodic…and as you

know, once the patient gets there and gets registered, the nurse rooms them and does

their hearing check, vision screen, and whatever else, their appointment time slot is done

before I even get into the room…and so there is a push to get longer appointment slots,

specifically for annual exams (2). Other providers discussed using a standardized ACE

screening tool on an as needed basis instead of at every annual or well-child exam.

Some providers observed that it is important to build a trusting relationship with patients

before initiating ACE screening. "This is not something you jump into at the first visit…I've

known these patients for a few visits before we jump into something like that, like sexual or

physical abuse" (3). Another provider stated: "I don't know that everyone would be honest right

away…give them a chance to know you as a provider and building that trust. That can take a

while with these people" (4).

The providers discussed the benefits of using a standardized ACE screening tool.

I think it would make the conversation that I'm already having about ACE more

structured. Because, right now, you might say it's a little bit nebulous…I ask if they've

been through a lot in their childhood and sometimes they will elaborate and sometimes

they won't…I still have the conversation about how trauma can manifest in our bodies

and I think this is a manifestation of your trauma (5).

Another provider explained how standardized ACE screening tools can be a great education tool

for patients:

Maybe when they see ACE in a big bold heading, they realize oh, this is a thing! And

maybe they google it and realize oh my gosh, I'm not alone! Maybe it spurs on a more

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educated approach to their trauma as well. It can be really helpful for people to realize

that they are not alone and ACE causes problems for a lot of people (2).

Determining Who Should Be Screened for ACE

When discussing who should be screened, the providers had varying opinions. Some

providers believed in universal screening for all patients. "In our population we should probably

just be universally screening at every well visit" (1). Another provider stated: "It's definitely

something that everyone should have at least once. It would be nice just to have sort of, just for a

baseline so we, as providers, can get a feel for where they are coming from" (2).

Other providers felt screening should be reserved for patients who are at high-risk for

having a positive ACE score including the homeless population, patients with difficult to

diagnose/ manage conditions, and the refugee population.

> I think like probably our new American/ refugee population and our homeless
>
> populations for sure. They are at high-risk. It would be great to have that in our toolbelt,
>
> especially for those patients who you just don't know what to do with (3).

When discussing the refugee or new American populations one provider did not believe ACE

screening was appropriate:

> I don't know if I get the intuition as much about trauma with that population. I think
>
> sometimes it's a different type of trauma, so it's not on my radar…it's more of a war type
>
> trauma which probably manifests in the body differently…I don't refer to psych a lot for
>
> that population, and the reason is when I ask about depression or anxiety they start
>
> giggling, because it's not considered culturally appropriate to have depression or
>
> anxiety(5).

This provider explained how ACE screening is only beneficial if the patient is ready to hear the information ACE screening will lead to:

I just feel like so much of it in my own practice is a vibe. You have a vibe with your patient where you just know this person is here because of trauma and they need to learn about how that is affecting their health. Whatever it is, like I said, whether its high blood pressure, anxiety or heart disease. I saw a patient one time who was in his 40's and he seemed like he was in his 70's, and I was like, I don't know what this patient has experienced, but they've been through some stuff. Because this doesn't manifest within your body without something going on. Something going down in your brain. Or your exposure something. It was really significant. I haven't broached that topic with that patient yet because we don't have that relationship established. I can't speak that into his life at this point. But some patients you can speak it into their life at the first visit (5).

Some providers believe it is important to screen children and teens. "I think kids should definitely be screened" (4)! One provider explained why she thinks ACE screening is important for children:

I think kids every year at well-child visits because kids are in this perfect time in their life…I don't want to say adults are without hope….but children, especially before they hit seven or eight years old are in a really precarious stage of their development and you could potentially be creating a PTSD brain that's going to be that way for their whole life if you don't intervene quickly. And frankly, the payment for that kind of stuff is better when you're a kid and you have better accessibility (2).

Another provider does not think that it is feasible to screen children, but she does think that it would be appropriate for teenagers:

There is just so much we need to get done at a well-child check. There isn't time to ask those questions…and do we need parents to step out?... I don't know how that would work. However, I do have the parents step out during my well visits with teens so that I can ask about drugs, alcohol, tobacco, and sex and just have a better chance of getting an honest answer without mom or dad in the room…so I can see adding ACE screening at that time (1).

Other providers believed ACE screening was only appropriate for adult patients. "Yeah, I don't think we're asking these questions to kids. I think we're asking them after age18 because the data is for adults" (3). "If kids are having trauma right now, that's a totally different ballgame. That's like police and CPS and that's something that we're already screening for by asking, "Do you feel safe in your home?" And those types of questions" (4). "This is always going to be adults. The questions ask, "during the first 18 years of your life" so they have to be at least 18 for that to even be a valid questionnaire" (5).

One provider explained that ACE screening should be done with patients who will benefit the most. She identified those patients to include pregnant women and new parents.

I think that when you have kids, you will do whatever it takes to make sure they have the best future possible and don't experience the trauma that you might have experienced when you were growing up. I think that is the most vulnerable point for change (5).

The providers had varying opinions about when and how often ACE screening should be done. The providers who believed children should be screened at every well-child check. "I would say that yearly screening at well-child checks would be an appropriate time" (4). Other providers didn't think the well-child check offered enough time to complete an ACE screening. "The hard thing is adding that requirement at the well-child's. There is already so many

requirements and it's hard to fit it all in…things like asking about ACE are not something you want to rush through so you can check a box" (3).

 One provider suggested ACE screening should be done in the school setting:

The school setting was a big one they talked about when I went to a trauma-informed care seminar. You look at a classroom and there are a couple kids with a score of three and a couple kids with a score of four, but most kids have a score of one or two. Then you look at that one kid who seems sort of troubled and his score is like an eight! There needs to be safeguards for those kids with screenings in school…school is an ideal setting because parents are not there, and the teachers see these kids every day and we really only see them once a year (4).

The providers who believe ACE screening should only be done with adults recommended screening everybody at least once after age 18 and then as needed after that depending on patient severity and provider preference. "I say you screen once after age 18 because their ACE score is not going to change. It is not something we should be doing at every visit like the PHQ-9 or GAD-7. It's not going to change. You put it in their chart once and move on" (5). "People who have every scored a four or higher I would want to screen probably once a year" (2). "I don't know if it needs to be mandated right away. Maybe it's just a tool available to providers for now…after we get some experience with screening and providing interventions, we will know more about how best to approach ACE screening" (3).

One provider suggested ACE screening be directed at parents during well-child visits, or prenatal visits, or at the six-week post-partum visit:

My best idea is pregnant patients or well-child visits on behalf of the parents…it's a prevention thing in that case and an education thing which helps our endpoint because the

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endpoint is just education…the endpoint is the conversation. It doesn't have to be a referral to psychiatry. Research shows that just addressing it can be an intervention…just like obesity or diabetes, you have a conversation with the patient and encourage lifestyle changes (5).

Resources Needed to Implement ACE Screening at FHC

Lastly, providers were asked to make recommendations for additional resources they think FHC would need in order to successfully implement ACE screening. The categories that emerged included ACE education for providers and patients, ACE screening tools, intervention options, and collaboration opportunities.

The providers verbalized a need for further training regarding ACE and the implications for health outcomes. "I think we need training, "what are ACEs?", you know, "why is this important?", "what are we going for?" …just making sure everyone knows why we are trying to do this" (5). "We need the education component for providers and nurses, so we know how to advocate for our patients" (2). "Maybe some extra education for our staff about why we're doing this and why we think it is important for our population…what research has shown about childhood trauma and the impacts that it is having later on and the importance of intervening as soon as possible" (1).

The topic of ACE screening tools was brought up several times. Providers expressed a need for a brief and efficient tool. "There's a ton of tools out there to choose from…a bunch of different versions…just adopting one tool and knowing how to interpret it and what it means" (2). Some providers wondered about an additional tool to use for the refugee population. "There should be something that can be part of the initial refugee encounter…to screen them and figure out kind of their baseline background information" (1).

Intervention options were an important resource identified by the providers during the interview process. Some providers expressed a need for further education regarding responding to a positive ACE screen:

> I think we need to know what to do with a positive screen… not how to screen, but at least having more education… positive screens indicate this…keep this in mind when you are treating your patients or keep this in mind when you are addressing whatever they came in for that day (3).

Another provider discussed therapeutic communication and motivational interviewing skills:

> That's probably a big component once you identify it. It's something that they won't tell anyone else…so like learning how to listen to that and not devalue what they say…how to best help them through it because it can be traumatizing just to verbalize some of these things. We need to help them recognize that their trauma is probably is a bigger deal than they are letting themselves believe (5).

> Other providers discussed referral options: We have a couple of in-house counselors at

FHC and that is really helpful. We also have the ability to refer anywhere around town for counselors, social workers, or psychiatry. The issue is getting patients in quickly and finding places that will work with them, financially (5)

> There are a lot of trauma therapists in the community, unfortunately the barrier is the reimbursement from North Dakota, they cut it dramatically. The places that are available to patients who don't have insurance, or any money are often group therapy based. Personally, as a person who has a high ACE score myself, there is no way I would want to discuss my traumatic experiences in front of a group of 40 strangers. That's just not realistic (2).

I would really like to have some educational materials we can go over with patients who have a positive screen… like something easy to understand that they can also take home with them. Maybe even some pamphlets or something in the waiting room for anybody to use. It would also be helpful if FHC had a list of outside services… there's so many places out there…I don't know what place has what type of services…there's 50 different places and I don't know who provides what type of service (1).

It's important for our patient population that we ensure they are able to physically get to any needed referral appointments. I think that FHC needs to build up our in-house services. We need some addictions counselors. Psychiatry, and providers who can provide alternative therapies like PTSD treatment or EMDR. The endpoint needs to be at FHC because most of our patients can't get in anywhere else (4).

The providers suggested that implementing ACE screening at FHC could be made easier through collaboration with other organizations who have experience with the process.

I would want to know if there is a sector that's implemented already that we could kind of learn how they've used it appropriately and how we might be able to adapt that four our purposes…but I know there are organizations in this area, like PATH, that would be able to meet with us and kind of talk us through it (4).

Another provider recommends that FHC become a trauma-informed facility:

I really feel that our facility, especially as a healthcare facility, should become certified as a trauma-informed facility…there is a group of us that have pushed for this to happen…I guess it wasn't really a priority but I do think that is a problem because I think a lot of people would benefit from that and there is just a lot of misunderstanding…we could be providing better care if we did that approach (2).

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CHAPTER 6: DISCUSSION AND RECOMMENDATIONS

Interpretation of Results

Content examined during the comprehensive literature review and key informant interviews regarding the implementation of ACE screening in primary care revealed three major themes: (1) ACE prevention and intervention requires additional responsibilities for the healthcare provider including: screening, assessment, and referrals, (2) early identification of ACE has the potential to reduce healthcare costs related to chronic disease and mortality, and (3) healthcare providers do not routinely screen for ACE. Barriers reported by providers for not routinely screening for ACE included insufficient time, lack of confidence due to inadequate knowledge and a desire for standardized intervention algorithms.

A growing body of research clearly reflects the significant impacts of ACE and chronic stress on negative health outcomes and that the cumulative effects of ACE have both public health and societal consequences (Aponté & Kalmakis, 2017). Effective ACE screening in the primary care setting is lacking and research reveals a significant gap between ACE research and practice. The implementation of ACE screening in the primary care setting can fill the gap by facilitating early identification and efficient intervention.

Assessing the feasibility of ACE screening within FHC is the first step to establishing the implementation of ACE screening as a standard of care. Increasing provider knowledge and comfort in screening for ACE can improve the effective management of chronic disease. Nurse practitioners should be encouraged to screen for ACE in primary care. Additionally, primary care settings like FHC should provide ACE education to all patients in order to minimize the knowledge deficit regarding ACE and how those experiences may contribute to their overall health.

Information gathered from the provider interviews led to a deeper understanding regarding barriers and facilitators to the implementation of ACE screening at FHC. This information can be used to eliminate preventable barriers, identify ways to minimize unavoidable barriers, and promote facilitators of ACE screening at FHC. Overall, the providers at FHC desire a standardized ACE screening system including provider education, patient education, and an efficient ACE screening tool.

Recommendations for Addressing ACE at Family Healthcare

FHC is an ideal healthcare organization for implementing ACE screening due to their high-risk patient population. The providers working at FHC provide comprehensive, holistic care to their patients and they believe ACE screening is a vital step affecting their approach to care. One of the barriers to implementing ACE screening identified by all the providers was lack of knowledge about and comfort with the screening and intervention process. This barrier and many others identified throughout the process of this project could be addressed by adoption of a trauma-informed approach to care on the organizational and clinical level.

The trauma-informed approach to care uses emerging best practices to benefit patient outcomes, improve patient engagement, address provider and staff wellness, and decrease unnecessary utilization of organizational resources (Menschner & Maul, 2016). FHC is well positioned to become a trauma-informed organization as described in Chapter3. The following recommendations reflect primary, secondary and tertiary prevention strategies guided by the trauma-informed approach to care theory.

Table 6

Prevention Recommendations

Primary Prevention Recommendations	Discussion and Examples
• Organizational reform	-Hire or develop a trauma-informed workforce -Create a safe environment - Integrate knowledge about trauma into policies, procedures, and practices
• Provider and staff training	-Train staff in trauma specific treatment approaches - Recognize the signs and symptoms of trauma in individual clients, families, and staff -Leadership in the transformation process
• Patient/ public education	- Realize the widespread impact of trauma and understand potential paths for recovery -Public education campaigns -Build awareness and reduce stigma
• Prevention for future generations	-Understand the multigenerational nature of trauma -Improve care for new mothers and young children -Support violence prevention programs

Secondary Prevention Recommendations	Discussion and Examples
• Screening	-Understand who, where, when, and how to screen for trauma -Identify of efficient standardized screening tool (Adverse Childhood Experiences questionnaire, Parental ACE screening tool and Resilience questionnaire, Refugee Health Screener-15)
• Prevent staff burnout	-Raise awareness of secondary traumatic stress - Encourage and incentivize physical activity, yoga, and meditation - Allow "mental health days" for staff.

Tertiary Prevention Recommendations	Discussion and Examples
• Interventions	-Treatment options for adults (Prolonged Exposure Therapy, Eye Movement Desensitization and Reprocessing, Seeking Safety) -Treatment options for children (Child-Parent Psychotherapy, Attachment, Self-Regulation, and Competency, Trauma-Focused Cognitive Behavioral Therapy)
• Referrals	-Engage referral sources and partnering organizations -Trauma-informed referral network

Primary Prevention

Primary prevention aims to reduce the incidence of disease through interventions that

take place before negative health effects occur. Primary prevention strategies related to

addressing ACE at FHC include organizational reform, provider/staff training, patient/public

education, and development of prevention initiatives. FHC should consider these strategies

before implementing ACE screening in their practice.

Changing the culture of a healthcare setting can help the organization recognize the

impact of trauma in patients and staff. Creating a safe environment imperative for reducing the

risk of re-traumatizing patients who have a history of ACE. feelings of physical, social, or

emotional vulnerability can impede the patient's ability to engage in their care. Examples of

creating a safe environment include:

- Well-lit parking lots, common areas, and bathrooms

- Close monitoring of people coming and going

- Presence of security personnel

- Quiet, welcoming waiting areas

- Cultural awareness

- Compassionate, respectful communication

Changing organizational practices such as hiring or developing trauma-informed staff and

integrating knowledge about trauma into policies and procedures to fit trauma-informed

principles will transform the culture of a health care setting to reflect the core principles of a

trauma-informed approach to care. The core principles are outlined in figure 6.

Patient Empowerment	Choice	Collaboration	Safety	Trustworthiness
Using individuals' strengths to empower them in the development of their treatment.	Informing patients regarding treatment options so they can choose the options they prefer.	Maximizing collaboration among healthcare staff, patients, and their families in organizational and treatment planning.	Developing healthcare settings and activities that ensure patients' physical and emotional safety.	Creating clear expectations with patients about what proposed treatments entail, who will provide services and how care will be provided.

Figure 6. Trauma-informed practice principles. Adapted from Benedict, 2014.

Providing trauma training is important for both clinical and non-clinical staff. Appropriate education will ensure that both groups can recognize the signs and symptoms of trauma in individual clients, families, and co-workers. Healthcare providers need to perfect therapeutic communication and motivational interviewing skills that facilitate open and honest communication between patients and the healthcare team. Non-clinical staff including receptionists and front desk workers are often the first people to greet patients when they arrive to the clinic and the last people to speak to them before they leave. Friendly, respectful, and helpful communication skills can ease patients' anxiety so they feel secure, can engage in their own care and encourage them to return for follow-up appointments.

Organizational leadership plays a strong role in successful trauma-informed care implementation. Generating buy-in from staff can be achieved through open communication and clear rationale promoting the benefits of the changes in organizational function (Benedict & Associates, 2014). A stakeholder committee should be established to oversee the process. The committee should include varying levels of staff and individuals from the community who have experience with trauma.

Primary care providers have a responsibility to learn about the devastating health impacts related to childhood trauma and then to go out and spread public awareness. Public education campaigns are needed. They could be treated similarly to anti-smoking or texting and driving campaigns and placed on social media and public service announcements. Building awareness can reduce the stigma surrounding an individual's need for trauma-informed services thus improving treatment strategies and access to care.

It is known that ACE have a multigenerational effect and the negative health outcomes can be passed down from generation to generation. Primary interventions for the prevention of

ACE in future generations would have the most impact in populations of pregnant women or families with new babies. FHC should support prevention initiatives that focus on improved care for new mothers and young children and violence prevention programs.

Secondary Prevention

Secondary prevention aims to reduce the impact of a disease or injury that has already occurred through screening and early treatment. Secondary interventions related to addressing ACE at FHC include ACE screening, preventing secondary traumatic stress in staff, and measurement of patient outcomes, staff wellness, and overall cost.

There are differing viewpoints when it comes to who, where, when and how to screen for trauma. Most studies recommend universal ACE screening for all adults in the primary care setting. Universal screening is preferred because it reduces the risk of racial bias by screening everyone (Reuben et al., 2016). Some studies recommend screening children for past or recent trauma (Reuben et al., 2016). However, for the purposes of this project, ACE screening will only pertain to patients who are 18 years old or older. FHC does screen children for exposure to violence or trauma through the bright futures assessment guide at every well-child visit.

Screening with a standardized questionnaire is the preferred method of screening because it allows patients to fill out the form ahead of time and only share their score instead of identifying specific experiences. There are several standardized screening tools available for screening patients for potential trauma histories. Three screening tools appropriate for use at FHC include the Adverse Childhood Experiences questionnaire, the Parental ACE screening tool with Resilience questionnaire, and the Refugee Health Screener-15. The Adverse Childhood Experiences questionnaire is most appropriate for most patients over the age of 18 who are not pregnant, a new parent, or a refugee (Barry, Gallagher, Ryan, & O'mahony, 2007). The Parental

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ACE screening tool with Resilience questionnaire is recommended for patients who are pregnant

or who have an infant or young child. This screening tool asks about the parent's ACE history

and includes a separate form that asks the patient perception of outside support, resilience and

protective factors. The Refugee Health Screener-15 is a 15-question form that gives providers

some baseline background information by sensitively detecting the range of emotional distress

common across refugee groups. A positive score indicates the patient is experiencing multiple

symptoms related to mental health disorders such as anxiety, depression and PTSD. Emotional

distress among refugees is primarily related to their experiences of political or religious

oppression, war, migration, and resettlement. Many have endured imprisonment, torture, loss of

property, malnutrition, physical assault, extreme fear, rape and loss of livelihood (Tinghög et al.,

2017).

Despite differences in screening tools, there are four core aspects of ACE screening that

are widely agreed upon from a trauma-informed perspective (see figure 7.)

Treatment setting should guide screening practices.	Screening should benefit the patient.	Re-screening should be avoided.	Ample training should precede screening.
Universal screening may be more effective in primary care settings and later screening may be more appropriate in behavioral health settings.	Providers who screen for trauma must ensure that, once any health risks are reported, they can offer appropriate care options and referral resources.	Frequently re-screening patients any increase the potential for re-traumatization because it requires patients to revisit their traumatic experiences.	All healthcare professionals should be proficient in trauma screening ad conducting appropriate follow-up discussions with patients that are sensitive to their cultural and ethnic characteristics

Figure 7. Aspects of ACE screening. Adapted from Menschner & Maul, 2016.

Addressing ACE in primary care can be mentally and emotionally draining for healthcare

providers. Hearing first-hand about other people's traumatic experiences over time can lead to

symptoms of secondary traumatic stress. Secondary traumatic stress can cause feelings of

emotional detachment, fatigue, poor concentration, and physical illness (Menschner & Maul,

2016). These symptoms can worsen over time and lead to burn out and ultimately high rates of

staff turnover. Prevention of secondary traumatic stress can be achieved by raising awareness,

offering a service for employees to meet with supervisors regularly to address feelings regarding

patient interactions, incentivizing physical activity, yoga, and meditation, and allowing "mental

health days" for all employees (Menschner & Maul, 2016).

Tertiary Prevention

Tertiary prevention refers to active treatment for individuals to restore functioning and

prevent long-term negative health outcomes. Prevention strategies related to addressing ACE at

FHC include development of a trauma-informed care referral network, staff training in trauma-

specific treatment approaches, and individualized, patient specific interventions.

Individuals with positive ACE scores often have complex healthcare needs and see a

variety of healthcare professionals. It is important that the different providers are in close

communication with one another in order to provide continuity of care. Developing a trauma-

informed care network ensures that the patient gets the highest quality of care specific to their

individual needs. The network also reduces the risk of patients "falling through the cracks".

Staff training in trauma-specific treatment approaches gives providers the opportunity to

provide patient education through motivational interviewing and mindfulness training. Research

has shown that for many patients simply making the connection that ACE can be contributing to

their health conditions, is an effective intervention reducing frequency of overall health facility

utilization by as much as 35% (Glowa et al., 2016). Providers can refer patients to form peer

support group programs to connect with other people who have a history of trauma and realize

that they are not alone.

Individual, adult-focused models for trauma interventions include Prolonged Exposure

Therapy (PE Therapy), Eye Movement Desensitization and Reprocessing (EMDR), and Seeking

Safety. PE Therapy is a specific type of cognitive behavioral therapy that teaches individuals to gradually approach trauma-related memories, feelings and situations (Markowitz et al., 2015). Patients attend 8-15 sessions lasting 60-90 minutes and occurring1-2 times per week. The sessions focus on four objectives including ACE education, stress reducing breathing techniques, exposure practice with real-world situations, and talking through trauma (Markowitz et al., 2015).

EMDR is a structured therapy consisting of eight phases. Throughout each phase the patient is encouraged to briefly focus on the trauma memory while simultaneously experiencing bilateral eye movements, which is associated with a reduction in the vividness and emotion associated with the trauma memories (Phillips, Freund, Fordiani, Kuhn, & Ironson, 2009). EMDR is endorsed by the World Health Organization and Department of Veterans' Affairs.

The Seeking Safety intervention targets adults who have a history of trauma and substance abuse. It is a present-focused treatment designed to help individuals attain a sense of safety by prioritizing safety, integrating trauma and substance use, and rebuilding a sense of hope for the future (Najavits, 2017). Providers also benefit from practicing the Seeking Safety intervention method by building cognitive, behavioral, interpersonal, and case management skill sets, and refining clinicians' attention to processes.

Child-focused models for trauma interventions are targeted towards children and their families who have experienced a wide range of trauma, parents with chronic trauma, or ongoing exposure to adverse life experiences. Treatment approaches include Child-Parent Psychotherapy, Attachment, Self-Regulation, and Competency (ARC), and Trauma-Focused Cognitive Behavioral Therapy (TF-CBT).

Child-Parent Psychotherapy is for children ages 0-6 and their parents who have experienced a wide range of trauma. The primary goal is to strengthen the caregiver-child relationship and restore and support the child's mental health (Atzl, Narayan, Rivera, & Lieberman, 2018). Child-Patient Psychotherapy focuses on the way trauma has affected the caregiver-child relationship and affected the child's development.

ARC designed for youth ages 2-21. It is grounded in attachment theory and early childhood development and focuses on how a child's entire system of care can become trauma-informed (Ford & Blaustein, 2013). ARC is developed around the goal of supporting the child, family, and system's ability to engage in the present moment. This method has shown to reduce a child's posttraumatic stress symptoms as well as increase their adaptive and social skills (Menschner & Maul, 2016).

TF-CBT is designed for youth ages 3-21 to reduce negative emotions and behaviors related to child sexual abuse, domestic violence and trauma. The focus of TF-CBT is to address distorted beliefs related to abuse or trauma, provide supportive environments for children to talk through traumatic experiences, and help parents cope with their own trauma history and learn skills to support their children (Murray et al., 2013). TF-CBT has been recognized by the National Child Traumatic Stress Network and SAMHSA as a model program and promising treatment practice.

Implementation Logistics

Information gathered from the key informant interviews revealed the providers had varying opinions regarding how best to administer an ACE screening tool. Some providers believed that the nurse rooming the patient should administer the screening tool like the way the PHQ-9 and GAD-7 are done. Other providers felt that they would like to conduct the screening

with their patients face-to-face due to the sensitive nature of the questions. Providers who were concerned about time felt it would be best for the patients to fill out the questionnaire online, or by mail before they arrive to the clinic.

Recent literature recommends that the questionnaire should be administered 1:1 in a confidential space with minimal distraction (Bright, Alford, Hinojosa, Knapp, & Fernandez-Baca, 2015). Regardless of who administers the screening, it is imperative to address the questions carefully and let the client know that they may be distressing and explain the importance of the screen. Comprehensive screening tools that include guidelines for determining the need for further intervention should be used. The clinician administering the screen should be prepared for possible overwhelming emotions that the patient may not yet be ready to deal with (Bright et al., 2015). Finally, the clinician must ensure the patient feels safe and emotionally regulated before leaving the office (Murray et al., 2013).

Limitations

Limitations related to this practice improvement project included small sample size, the possibility of researcher bias, overrepresentation of positive attitudes towards ACE screening by the convenience sample, and overrepresentation of ACE experience due to the FHC setting. Due to the scope of the project, a limited number of providers were available for interviewing. Qualitative data can be interpreted in more than one way depending on the opinion and expertise of the person interpreting the data. The data in this project were collected by one co-investigator new to qualitative data interpretation leading to the possibility of researcher bias. The convenience sample consisted of healthcare providers working at FHC. Providers who responded to the request for an interview did so due to their interest in addressing ACE in their practice. Their interest in ACE research may overrepresent the opinions of all providers at FHC. The

FHC setting provides care to a primarily underserved population at high-risk for having a positive ACE score. Therefore, the FHC setting may be more sympathetic to ACE screening than other primary care settings.

Implications for Future Research

Future research is needed on implementation strategies for ACE screening in a primary care setting. Nurse practitioners working in primary care are in the perfect position to implement ACE screening. Especially those who strive to practice trauma-informed care. Information gained through ACE screening in clinical practice will provide a holistic view of the patient allowing the provider to tailor individualized interventions for reducing risk behaviors and mitigate the long-term impacts of ACE.

Incorporating ACE screening during routine care is feasible and can provide a more complete picture of health determinants that are not routinely assessed. A 2016 study by Glowa et al. found that using the ACE screening tool did lengthen the visit but in 90% of encounters with any ACE risk, it only added 5 minutes or less. The development of clinical care pathways and trauma-specific interventions should be done in the primary care setting as an important step for future progress.

Providers at FHC expressed interest in studying the formats of other organizations who have been successful in trauma-informed care implementation. Learning what worked well and what did not work well for other organizations can help in the development of successful implementation strategies at FHC. Organizations in our region that can guide FHC in trauma-informed approaches to care include DeCoteau Trauma-Informed Care and Practice and PATH of North Dakota.

DeCoteau Trauma-Informed Care and Practice is a counseling and psychological services organization who provide mental health services to people of all ages. They are a trauma-informed practice consisting of a nurse practitioner, psychologists, and master's level social workers. DeCoteau Trauma-Informed Care and Practice is committed to providing care that respects culture, race, ethnicity, gender, age, sexual orientation, disability, and socio-economic status. They provide outpatient mental health services, psychological evaluations, and consulting services including training workshops and consultations to agencies and organizations.

PATH of North Dakota is a non-profit child and family services agency. PATH provides many services including adoption, foster care, in-home, and community-based family services. The innovative programming at PATH is rooted in trauma-informed practices. They offer a Trauma and Stress Clinic led by licensed therapists who are specially trained in treating traumatic stress with evidence-based, trauma-focused therapy.

Additional resources available to FHC include The Center for Healthcare Strategies, the American Institutes for Research, the National Council for Behavioral Health, and the US Substance Abuse and Mental Health Services Administration. These organizations are focused on the development of trauma-informed care practices with the goal of advancing innovations for healthcare delivery among underserved populations.

Conclusion

Providers at FHC believe addressing ACE is an important aspect of providing high-quality, comprehensive care to the patient population they serve. Researchers recommend healthcare professionals be proficient in trauma screening and intervention prior to the implementation of ACE screening in their practice. The most effective and comprehensive

approach to educating clinical and non-clinical staff at FHC is for the entire practice to commit to becoming a trauma-informed care organization.

The patient population at FHC consists largely of those who are at high-risk for having a positive ACE score. Therefore, universal screening of all patients over the age of 18 is recommended. There are three screening tools appropriate for use at FHC including the Adverse Childhood Experiences questionnaire, the Parental ACE screening tool with Resilience questionnaire, and the Refugee Health Screener-15. All the forms are appropriate for the patient to fill out prior to the office visit.

ACE screening should be done once. Providers can use clinical judgement when deciding to re-screen certain patients. Information gathered from the screening should be kept in the patients' medical chart where it can be accessed by appropriate interprofessional care team members. The background knowledge of trauma history can be useful in guiding patient care.

The patient population at FHC are not always able to comply with treatment referrals recommended by their providers. Intervention options are likely to be successful if they occur within the organization. Providers should be prepared to discuss trauma histories with their patients while they have them in their office. Research has shown that interventions do not always have to include a referral to mental health services and sometimes having the conversation about the way ACE is affecting the patient's health is enough of an intervention. FHC is a patient-centered medical home and therefore has a limited amount of mental health services available. Becoming a trauma-informed care organization could help improve patients' ability to comply with recommended treatments.

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APPENDIX A: ADVERSE CHILDHOOD EXPERIENCES QUESTIONNAIRE

Adverse Childhood Experience (ACE) Questionnaire Finding your ACE Score

While you were growing up, during your first 18 years of life:

1. Did a parent or other adult in the household often … Swear at you, insult you, put you down, or humiliate you? **or** Act in a way that made you afraid that you might be physically hurt? **Yes No** If yes enter 1 _____

2. Did a parent or other adult in the household often … Push, grab, slap, or throw something at you? **or** Ever hit you so hard that you had marks or were injured?

 Yes No If yes enter 1 _____

3. Did an adult or person at least 5 years older than you ever… Touch or fondle you or have you touch their body in a sexual way? **or** Try to or actually have oral, anal, or vaginal sex with you?

Yes No If yes enter 1 _____

4. Did you often feel that … No one in your family loved you or thought you were important or special? **or** Your family didn't look out for each other, feel close to each other, or support each other?

 Yes No If yes enter 1 _____

5. Did you often feel that … You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? **or** Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?

Yes No If yes enter 1 _____

6. Were your parents ever separated or divorced?

Yes No If yes enter 1 _____

7. Was your mother or stepmother: Often pushed, grabbed, slapped, or had something thrown at her? **or** Sometimes or often kicked, bitten, hit with a fist, or hit with something hard? **or** Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?

Yes No If yes enter 1 _____

8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs? **Yes No** If yes enter 1 _____

9. Was a household member depressed or mentally ill or did a household member attempt suicide?

Yes No If yes enter 1 _____

10. Did a household member go to prison?

Yes No If yes enter 1 _____

 Now add up your "Yes" answers: _____ This is your ACE Score

APPENDIX B: KEY INFORMANT INTERVIEW QUESTIONS

1. What are your experiences with Adverse Childhood Experiences in the clinical setting?

    a. What are the effects of ACE among the patients you see?

    b. What are some of the challenges you face providing care for patients who have ACE?

2. What are potential benefits of ACE screening in your clinical setting?

    a. How important is ACE screening in your practice?

3. What are potential barriers to ACEs screening at FHC?

    a. What are some of the concerns you have about ACE screening at FHC?

    b. How can these barriers and concerns be addressed or minimized?

4. What could make implementing ACE screening easier at FHC?

5. What would screening your patients for ACE using a standardized screening tool be like for you?

6. Who should be screened for ACEs? Why? How often?

7. What additional resources would FHC need to implement ACE screening?

    a. At the individual patient level?

    b. At the individual provider level?

    c. Family level?

    d. Community level?

    e. What about community referral options?

APPENDIX C: IRB EXEMPT DOCUMENT

NDSU NORTH DAKOTA
STATE UNIVERSITY

November 1, 2018

Dr. Molly Secor-Turner
School of Nursing

Re: IRB Determination of Exempt Human Subjects Research:
Protocol #PH19081, "Addressing Adverse Childhood Experiences in Primary Care: Recommendations for Practice"

Co-investigator(s) and research team: Julie Emerson
Date of Exempt Determination: 11/1/2018 Expiration Date: 10/31/2021
Study site(s): Family HealthCare
Sponsor: n/a

The above referenced human subjects research project has been determined exempt (category #2b) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, Protection of Human Subjects). This determination is based on the revised protocol submission (received 10/31/2018).

Please also note the following:
• If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.
• The study must be conducted as described in the approved protocol. Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
• Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
• Report any significant new findings that may affect the risks and benefits to the participants and the IRB.

Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.
Sincerely,

Kristy Shirley, CIP, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult
http://www.ndsu.edu/research/integrity_compliance/irb/. This Institution has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

APPENDIX D: CONSENT FORM

NDSU   North Dakota State University
                Department of Nursing
                Campus Address
                NDSU Dept. 2670
                PO Box 6050
                Fargo, ND 58108-6050
                701.231.7395

Title of Research Study: Addressing Adverse Childhood Experiences in Primary Care: Recommendations for Practice

Dear staff member:

My name is Julie Emerson. I am a graduate student in the School of Nursing at North Dakota State University (NDSU), and I am conducting a research project to identify current guidelines and evidence-based approaches to ACE screening and intervention in the primary care setting. It is our hope, that with this research, we will learn more about barriers and facilitators to ACE screening in a primary care setting through key informant interviews with all levels of staff at Family Healthcare, and develop recommendations for implementation of ACE screening to overcome barriers, support effective interventions, and facilitate community referrals specific to the Family Healthcare patient population.

Because you are a staff member at Family Healthcare who is directly involved with patient care, you are invited to participate in this research project. You will be one of approximately 12 people being interviewed for this study.

You may find it interesting and thought provoking to participate in the interview. If, however, you feel uncomfortable in any way during the interview session, you have the right to decline to answer any question(s), or to end the interview.

It should take about 20 minutes to complete the interview. We will ask you about your experience with ACE in the clinical setting, perceived barriers to ACE screening at Family Healthcare, and resources needed to implement ACE screening at Family Healthcare. The interview will be audio recorded. We will keep private all research records that identify you. When the interview is transcribed, you will be given a pseudonym, and other potentially identifying information will be left out of the transcripts. In any written documents (including publications) regarding the study, only the pseudonym will be used.

Audio files will be stored in a password protected file on a computer that is only accessible to the principal investigator and co-investigators. Electronic copies of the interview transcripts will be

saved and protected in the same fashion. After the data has been analyzed, the audio recordings will be deleted.

If you have any questions about the study, please contact me at 701.371.2479 or julie.emerson@ndsu.edu, or contact my advisor Molly Secor-Turner at 701.231.7517 or molly.secorturner@ndsu.edu.

You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program at 701.231.8995, toll-free at 1-855-800-6717, by email at ndsu.irb@ndsu.edu, or by mail at: NDSU HRPP Office, NDSU Dept. 4000, P.O. Box 6050, Fargo, ND 58108-6050.

Thank you for your taking part in this research. If you wish to receive a copy of the results, please e-mail me at julie.emerson@ndsu.edu.