Provider Knowledge and Confidence with Implementing Pediatric Adverse Childhood Experiences (ACEs) Screening Tool in an Alaskan Family Practice Clinic

A Scholarly Project

Submitted to the

Faculty of Liberty University

In partial fulfillment of

The requirements for the degree

Of Doctor of Nursing Practice

By

Lisa Marie Wangberg

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Scholarly Project Chair Approval:

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Vickie B. Moore, DNP/FNP July 22, 2022

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Abstract

Adverse childhood experiences (ACEs) have been known to be associated with negative developmental and long-term health sequalae since Felitti and colleagues (1998) presented their groundbreaking research nearly a quarter of a century ago. Pediatric and primary care settings have been relatively slow to implement any type of ACEs screening at regular intervals such as at well-child exams (WCEs). A scholarly project implementation was used to present ACEs education and screening training to pediatric primary care providers in a small, private, rural family health care practice in Alaska. The goal of the project was to determine if providers felt more knowledgeable and confident with pediatric ACEs screening after an educational intervention and if screening would increase in clinical practice as a result. Three quantitative Likert-style surveys were administered to providers pre- and post-education as well as three months postimplementation (two qualitative questions were also asked on each survey). A total of 225 pediatric patients aged nine months to 18 years were screened at WCEs by six nurse practitioners over the three-month intervention timeframe. Providers demonstrated a statistically significant increase in ACEs knowledge, especially related to the Center for Youth and Wellness ACE Questionnaire (CYW ACE-Q; $p < 0.001$), and screening confidence ($p = 0.005$) from pre- to post ACEs education. Qualitative provider feedback postimplementation was generally positive and included statements like *learned so much, enjoyed educating patients, great process,* and *highly valuable*. Pediatric ACEs screening was found to be feasible in primary care with provider ACEs education and training, which improved provider knowledge and confidence with ACEs screenings at WCEs.

Keywords: adverse childhood experience(s), ACEs, ACEs screening, provider(s) confidence with ACEs screening, pediatric ACEs screening, pediatric primary care

Dedication

First, I want to dedicate this project and work to my wildly creative, door-opening, growth-encouraging, Triune God. If not for God, I am unsure that I would feel the courage to do this risky and rewarding work. Next, I want to dedicate this work to my precious, supportive, and encouraging family: my faithful husband, Jerry; my firstborn son, Blake; my daughter-in-love, Chelsea; and their daughter—our first granddaughter—Merritt; my second born and oldest daughter, Haley; son-in-love, Nathan; and their son—our first grandson—Asa; and my youngest daughter, MacKenzie, and college "study buddy." There are not enough adjectives to describe all that I think of you! I am so blessed to have all of you in my life, and I am forever grateful! Finally, this project is dedicated to all those who have known and experienced big-T Trauma and little-t trauma in the form of ACEs, and maybe been further harmed by the medical care that was supposed to help. May this ACEs project be one small step toward a more trauma-informed, holistic, thoughtful, and safer health care system for everyone.

Acknowledgments

I would like to acknowledge the many contributions that people have made to the success of this scholarly project. First, I thank the owners, providers, and staff at the project implementation site. If not for their commitment to champion and fully support this vital topic within their clinical practice, this project would not have come to pass. I particularly want to thank Aubrey Spangler, medical director, project champion, and DNP preceptor at the project site. You were curious and inviting, and excited to be a part of the mission toward more holistic health care. I thank office manager Tiffany Mouritsen who was an invaluable resource for needed connections and information from the early stages of the project. I also thank community ACE educators available for the project, the United Way of Mat-Su and R.O.C.K. Mat-Su, and their dedication to spreading awareness on this topic. I thank Dr. Robert Boesch for his DNP preceptorship and mentorship during my DNP education. I am grateful for the dedication of all the Department of Nursing faculty and staff and their support over the course of my FNP/DNP training. And last but certainly not least, I want to acknowledge and give my heartfelt thanks to my faculty chair for her role in the DNP scholarly project, Dr. Vickie Moore. She provided the perfect combination of guidance and direction as well as encouragement along the way. I am so grateful for her dedication to mentoring and teaching.

List of Abbreviations

Adverse childhood experience(s) (ACE(s))

American Academy of Pediatrics (AAP)

Centers for Disease Control and Prevention (CDC)

Certified medical assistant (CMA)

Center for Youth and Wellness (CYW)

Center for Youth and Wellness Adverse Childhood Experience Questionnaire (CYW ACE-Q)

Doctor of Nursing Practice (DNP)

Electronic health record (EHR)

Institutional Review Board (IRB)

Nurse practitioner (NP)

Positive childhood experience (PCE)

Registered nurse (RN)

Raising Our Children with Kindness (R.O.C.K.)

Statistical Package for the Social Sciences (SPSS)

Trauma-informed care (TIC)

Well-child exam (WCE)

Provider Knowledge and Confidence with Implementing Pediatric Adverse Childhood Experiences (ACEs) Screening Tool in an Alaskan Family Practice Clinic

Adverse childhood experiences (ACEs) and their associated negative long-term health sequelae were introduced to the medical community nearly two and a half decades ago with the landmark Centers for Disease Control and Prevention (CDC)-Kaiser Permanente ACEs study by Felitti et al. (1998). Exposure in childhood (0–18 years) to adverse experiences in the form of abuse (physical, emotional, or sexual), neglect, or household dysfunction was found to increase leading causes of adult diseases and death in exposed individuals in a dose-dependent manner (Felitti et al., 1998). After that pioneering study, Liming and Grube (2018) found that all aspects of a child's well-being are vulnerable when exposed to multiple ACEs. Early ACEs exposure can lead to "toxic stress" from harmful levels of stress biochemicals chronically released in response to ACEs, which can alter normal physical development (Quizhpi et al., 2019).

It has been nearly 25 years since the original groundbreaking ACEs research. The health care community still lacks coordinated movement toward screening and appropriate referrals for patients in the primary care setting. Primary health care providers often have the only health care connection with patients of all ages. Unfortunately, these providers have often been reticent to implement ACEs screenings or interventions in primary care. The reasons for provider reticence have been cited as time constraints, lack of resources, not feeling knowledgeable about the subject, not knowing how to implement a screening tool, and fearing that screening might open up an emotional "Pandora's box" (Albaek et al., 2018; Popp et al., 2020).

Recent CDC (2021b) statistics show that over 60% of the U.S. population has been exposed to at least one ACE. One ACE is highly correlated with other adversities (Liming & Grube, 2018). Nearly one in six adults has had four or more ACE exposures (CDC, 2021b; Felitti

et al., 1998). Women and minorities have a greater risk of being exposed to more ACEs (CDC, 2021b). Exposure to ACEs comes at a tremendous social and economic cost to families, communities, and nations, with the financial cost estimated to be in the hundreds of billions of dollars annually in the United States alone (CDC, 2021b).

The CDC (2021b) has estimated that millions of cases of adverse health consequences could be averted by implementing screening and preventive ACE efforts. The need to utilize ACE screening and develop and collaborate mitigating interventions for all age groups, especially pediatrics, has been highlighted across disciplines (Liming & Grube, 2018). Therefore, the purpose of this scholarly project was to educate pediatric providers in an Alaskan family practice on ACE screening to improve their knowledge of, confidence with, and compliance with screening. In addition, the providers were given educational materials, local resources, and referral options to assist patients who were positively identified via the ACE screening.

Background

For this project, ACEs are defined as adverse or traumatic experiences that happen to a child between 0 and 18 years of age called *stressors* (Nelson et al., 2020). The child's cumulative negative physical and emotional responses to these unmitigated stressors are called *toxic stress responses* (Nelson et al., 2020). With each added unmitigated stressor, the child's body endures a response that is beyond its normal ability to recover from and regulate. Duration, number, timing, and types of adversity as well as the child's own biology, stage of development, and personality play a part in ACEs' overall effects (Nelson et al., 2020).

Toxic stress response from prolonged ACE exposure puts the child at risk for disrupted organ system development. Multiple body systems can be impacted negatively, such as brain,

cardiovascular, immune, and metabolic functions. Altered brain development can lead to cognitive damage and stress-associated diseases (Nelson et al., 2020). Stressors can be emotional, physical, or sexual abuse, neglect, and household dysfunction. Damaging stress can also be in the form of caregiver mental illness, family member substance use disorders, violence against mother, and an incarcerated household member, as described in Felitti and colleagues (1998) original screening work. These toxic stressors are the backbone assessment categories of many ACEs screenings today. Unfortunately, toxic stressors are associated with increased maladaptive behavioral responses in the exposed child, such as substance abuse and unsafe sexual practices linked with sexually transmitted infections, HIV, and unintended pregnancies (CDC, 2021b). Additionally, mental health complications and household instability have been implicated with increased ACEs exposures (CDC, 2021b).

Countless stressors can negatively affect a child. Many current researchers feel the original 10 ACEs do not encompass enough categories and believe the list of ACEs should include bullying, loss of caregivers, foster care placement, life-threatening illness, and the like (Oh et al., 2018). Stressors can cumulatively and negatively affect the child's normal physical and emotional development and lead to short and long-term health consequences (Felitti et al., 1998). Felitti and colleagues (1998) found a positive correlation or graded response between the number of ACEs and adverse health outcomes in adulthood. Their significant research findings from nearly a quarter century ago make it surprising that further research was slow to gather momentum until recent years. The cost of unmitigated ACEs to the individual, family, community, and nation appears far too great to ignore longer.

ACE's Epidemiology and Risk Factors

The high cost of ACEs cannot be overstated. ACEs have been associated with numerous health conditions such as asthma, COPD, arthritis, cardiovascular disease, and depression, as well as with behavioral risk factors such as substance use disorders (alcohol and drugs), smoking, and obesity (Miller et al., 2020). A recent CDC survey (2021b) conducted in 25 states found that nearly 61% of adults have experienced at least one ACE, while one in six adults reported a history of four or more ACEs. The cumulative effects of ACEs create a tremendous financial, social, and physical burden for those individuals affected, as well as their families, communities, and nations.

The cost outlay of ACEs has been estimated in the hundreds of billions of dollars annually in the United States alone (CDC, 2021b; Miller et al., 2020). In California, Miller et al. (2020) found exposure rates of 1 to ≥ 4 ACEs accounted for over $17.5 million to their residents, a total health cost of nearly $10.47 billion, and over $102 billion in disability-adjusted life years. They found that treatment of those with ≥ 4 ACEs accounted for 36% of California's health care spending, and annual out-of-pocket health care expenses for these individuals were double that of those with only one reported ACE (Miller et al., 2020).

ACEs have a dose-dependent association with lifelong negative health consequences and top mortality causes, causing cardiovascular, cancer, fractures, and liver and chronic lung disease in adults (Felitti et al., 1998; Liming & Grube, 2018). Currently, research has identified over 40 adverse health associations with ACEs (Nelson et al., 2020). The developing child is vulnerable to toxic stress and its negative developmental impact from a history of unmitigated ACEs (Liming & Grube, 2018). Childhood research reveals that unmitigated ACEs can lead to altered neurological and physiological development, increased inflammatory indices, genetic and

endocrine changes, and more frequent chronic medical conditions (asthma, attention deficit disorder/attention deficit hyperactivity disorder obesity, arthritis, depression, cardiovascular disease). In addition, children may experience poor socialization skills (coping, relational, play) plus internalizing (somatic complaints, anxiety) and externalizing (negative attention activities, aggression) behaviors (Deighton et al., 2018; Liming & Grube, 2018). Poor employment opportunities and academic performance may be caused in part by decreased literacy and language skills associated with ACEs (Deighton et al., 2018; Liming & Grube, 2018). ACEs can lead to abnormal changes in the developing brain, adding to chronic dysregulation of the stress response (Miller et al., 2020).

A growing body of evidence strongly supports the financial impact of ACEs on individuals, families, communities, and nations, given the associated physical, relational, social, and behavioral dysregulation (Liming & Grube, 2018; Miller et al., 2020). The unaddressed cost of ACEs is significant. Miller et al. (2020) explained that the national lifetime fiscal burden of child maltreatment has been estimated at nearly $124 billion. More ACEs are associated with increased odds of needing greater amounts of medical care (Miller et al., 2020). The California study by Miller and colleagues (2020) revealed an estimated $3.8 billion in health care costs for individuals with ≥ 4 ACEs, when having any five associated chronic diseases (COPD, depression, anxiety, asthma, heart disease), plus any three health risk factors (smoking, heavy drinking, obesity). In addition, these individuals had 155,000 disability-adjusted life years. Alaska 2015 ACE research (Advisory Board on Alcoholism and Drug Abuse & Alaska Mental Health Board, 2015) estimated that early ACE prevention could save nearly $350 million in adult Medicaid costs, $246 million in costs related to substance use disorders, and $186 million in costs related to smoking annually. Alaska’s research revealed higher ACE scores in eight

measured categories of abuse and household dysfunction than five comparative states. These results give the health care community valuable insight into ACEs' staggering negative consequences and costs.

The Institute for Healthcare Improvement's Triple Aim goals are to become more fiscally responsible and improve patient satisfaction and health care delivery (Berwick et al., 2008). The health care community should implement ACEs screening, education, resources, and referrals in primary care settings for pediatric patients and their caregivers to move toward these goals. Not only have early efforts toward pediatric ACEs caregiver screening implementation in primary care shown potential for significant fiscal improvement, but they have improved patient satisfaction and health, meeting all three aims of the Institute for Healthcare Improvement (Eismann et al., 2021). Therefore, it is more cost effective to address ACEs early rather than after unmitigated exposure. The health care community must continue to look for ways to screen, educate, and introduce mitigating measures at well-child exams (WCEs) to prevent damaging developmental consequences in both the short and long term during childhood (Liming & Grube, 2018). Primary care settings are ideal settings to introduce screening and education regarding ACEs, in part because of the likelihood patients and families will be seen for health care in these locations (Quizhpi et al., 2019).

Parental/Caregiver History of ACEs

Recent evidence suggests that the effects of unaddressed ACEs can be passed from one generation to the next (Gillespie, 2019). Inheriting these effects could cause offspring to have higher rates of asthma and poorer overall health as well as behavioral health issues (Gillespie, 2019). Past caregiver ACEs and current stressors can disrupt the well-being of children because

stressors combined with poor caregiver coping have demonstrated disruption in normal childhood development (Gillespie, 2019).

Parental or caregiver ACEs history can increase cost burden to their children. Sun et al. (2017) reported that mothers with a history of ACEs put their children at developmental risk when the parent's own history of ACEs were left unaddressed. Schickedanz and colleagues (2018) found that parents, especially mothers, with four or more ACEs had children more likely to have behavioral health disruptions and diagnoses. Their research found 2.1 times higher odds of attention deficit hyperactivity disorder and 4.2 times higher odds of emotional disturbances in children of parents with ACESs than in children of parents without ACEs history (Schickedanz et al., 2018). Parental maltreatment was more likely when there was a parental history of ACEs, making ACEs history a primary independent variable (Panisch et al., 2020). Thus, parental and caregiver ACEs provide important data for primary health care considerations, so, pediatric ACEs screening has the benefit of touching two generations. Not only does screening potentially uncover harmful stress exposure early in a child's life, prior to developmental damage, but it also illuminates the caregiver's ACE history, leading to potential care (Sun et al., 2017).

Resiliency and Positive Childhood Experiences

Research has shown that healthy social relationships and other resilience factors help mitigate the harm of ACEs (Panisch et al., 2020). The introduction of mitigating actions (i.e., six self-care measures: nutrition, sleep, physical activity, healthy relationships, mental health, and mindfulness) should occur early in a person's development to help prevent developmental injury from ACEs (Ballard et al., 2019; Liming & Grube, 2018). Screening for ACEs and educating families in ways to mitigate ACE harm is vital. Bethell et al. (2016) found that emotional, mental, and behavioral conditions were 1.65–4.46 times higher in children in all ACEs categories

(1 to ≥ 4) compared to children without ACEs. Without resilience factors, individuals with higher ACE counts have almost 11 times higher adjusted odds of having an emotional, mental, and behavioral condition than their counterparts with greater resilience and without ACEs (Bethell et al., 2016). Resilience factors support one's ability to overcome toxic stressors by both internal and external influences (Morgart et al., 2021). Resiliency was found to be twice as great for children with higher ACEs when parents reported more engagement and less stress (Bethell et al., 2016), further demonstrating that parental factors play a vital role in a child's resilience.

Panisch et al. (2020) categorized protective factors into several domains: (a) parental resilience, (b) social connection, (c) concrete support in times of need, and (d) social and emotional competence of children (p. 3). Fewer parental social connections and parental lack of resilience correlate with higher ACE scores and decreased protective factors in children (Panisch et al., 2020). Resiliency factors help counter toxic stress response, especially when combined with a sense of self-efficacy (Morgart et al., 2021; Panisch et al., 2020). Courage, positive life outlook, motivation to overcome, social skills, self-esteem (Panisch et al., 2020), and problem-focused coping skills (Morgart et al., 2021) all play a role in a person's ACE resilience.

Positive childhood experiences (PCEs) shore up a child's resilience. PCEs improve physical health and emotional regulation in ACE-exposed individuals (Baglivio & Wolff, 2021). PCEs include family-child communication and support, the presence of adult mentors, a feeling of a sense of belonging, supportive friends, and involvement in organized activities (Baglivio & Wolff, 2021). PCEs show a neutralizing type effect on ACEs' health outcomes, most notably with the highest PCEs (Baglivio & Wolff, 2021). Importantly, 72% lower adjusted odds for poor mental health and depression were associated with six to seven PCEs compared with zero to two PCEs (Baglivio & Wolff, 2021). One study identified PCEs as an attenuating pathway to the

adverse health effects of ACEs in juveniles with criminal histories (Baglivio & Wolff, 2021). High PCEs (six or seven out of seven) and high ACE scores (≥ 4) in these juveniles had an associated positive effect on recidivism rates, compared to low PCEs (< 6) and high ACEs, showing lower rearrests and reconvictions by 22% and 23% respectively (Baglivio & Wolff, 2021). Additionally, higher PCEs predicted less risky individual behavior with substance use and sex, decreased depression, and increased positive body image. However, PCEs' effects may decrease significantly in light of extreme ACEs (Baglivio & Wolff, 2021).

Trauma-Informed Care

Identifying and addressing ACEs in primary care are essential elements of holistic and trauma-informed health care (Hornor et al., 2019; Schneider et al., 2021). The American Academy of Pediatrics (AAP) clinical report on trauma-informed care (TIC) supported the significance of ACEs on the developing body system and recommended ACE screening in pediatric primary care (Forkey et al., 2021). The practice of TIC translates evidence-based, robust ACE science into clinical practice to improve patient outcomes (Forkey et al., 2021). Oral and colleagues (2020) explained that ACE screening is a part of TIC and trauma-informed medical environments:

> TIC organizations strive to improve practice domains: education of providers to change practice, early identification of children experiencing adversity, treatment through evidence supported and resiliency-focused services, and collaboration within and across agencies that serve children and families in the broader community. (p. 907)

Trauma-informed health care organizations that practice these domains support the goals and aim of this project.

Problem Statement

Given the high incidence of ACEs and the high cost of associated negative health sequelae, it is crucial for primary care providers, especially pediatric caregivers, to implement pediatric ACEs screening so that mitigating education, support, and resources can be provided before negative short-term and long-term health outcomes manifest in these children.

Purpose of the Project

The purpose of the project was to educate providers in an Alaskan family practice clinic about pediatric ACEs and screening to improve their knowledge of, confidence with, and compliance with screening at WCEs. In addition, providers were given educational materials, local resources, and referral options to assist patients identified for ACEs via the screening.

Clinical Question

For providers in an Alaskan family practice clinic, does implementation of the pediatric ACEs screening tool combined with provider education increase provider screening with the ACEs tool and provider confidence over a three month period?

Section Two: Literature Review

Search Strategy

A literature search of the Jerry Falwell Library was performed for all English language studies on ACEs and provider screening in the primary care setting using keywords of *adverse childhood experiences*, *provider screening*, and *primary care*. CINAHL and Medline, databases with full text articles, yielded 53 studies, of which five fit inclusion criteria. The search was performed again with keywords of *adverse childhood experiences*, *provider screening* or *ACE screening*, and *primary care* or *family practice,* which yielded 56 articles, of which 13 fit inclusion criteria. The search was limited to articles that were published from 2016 to present

and peer reviewed. The search included the text of article, and the setting to apply equivalent subjects were selected. Both PubMed Central and Cochran were searched with the same modifiers, and 25 articles populated within each, and one and zero met inclusion criteria respectively. Finally, the Jerry Falwell Library database was searched with the same last modifiers plus "or" *adverse childhood experiences screening*, which yielded 13,797 articles, of which the first 100 were considered, and 17 met criteria. Another 21 were hand searched and found through Google Scholar and other sources.

Inclusion criteria were original research studies, systematic reviews, scoping reviews, and pilot studies that examined provider pediatric ACEs screening via caregivers in primary or family care settings. Articles focusing on parent and provider comfort, acceptability, and feasibility were included, as were ACEs screening tools. Resiliency measures assessing ACEs and TIC were also included. Finally, articles on chronic health concerns associated with ACEs and opposition to ACEs screening were included. Exclusion criteria were studies too narrow and not generalizable to provider screening in primary care, such as studies on specific ACE experiences (e.g., sexual abuse or violence in the home) or illnesses. Twenty-eight studies remained after applying exclusion criteria. Of the remaining 28 studies, 13 were quantitative, seven were qualitative, and eight were mixed methods. Two of the 28 were gray literature sources from reputable and pertinent organizations: the AAP and the Center for Youth and Wellness (CYW).

Critical Appraisal

The critical appraisal was accomplished by utilizing Melnyk's Levels of Evidence (University of Michigan, 2021) as an evidence-based tool for article appraisal and leveling (Appendix A). The 28 articles were assessed according to Melnyk's pyramid of evidence that

peaks with the highest level of evidence named *meta-synthesis* (Level I), while the lowest level of evidence sits at the bottom of the pyramid and is known as *expert opinion* (Level VII).

Synthesis

The following section of the paper presents a literature review and theoretical framework on ACEs. The literature review highlights current research related to family practice providers' knowledge of, confidence with, and compliance with pediatric ACEs screening. The review then highlights ACEs screening tools for discussion and appraisal. Finally, the analysis evaluates opposition to provider ACEs screening practices.

Provider Knowledge

Until recently, providers in primary care settings were largely unaware of the value and use of pediatric ACE screening. Felitti et al. (1998) brought awareness of ACEs into health care nearly 25 years ago in their landmark work. Felitti and fellow researchers discussed the need for primary, secondary, and tertiary prevention measures around ACEs based on their discovery of dose-dependent negative health effects associated with increased ACE exposure. They identified the need for providers to get ACEs training to build knowledge and confidence in caring for ACE-exposed patients (Felitti et al., 1998). Provider knowledge around the topic of ACEs has been lacking as recently as five years ago and continues to lag even with promotion by the CDC and the AAP. Except for the original ACEs study and large confirmatory cross-sectional studies of the same nature, most reviewed research was still generally small in scale, and studies overall were somewhat sparce.

Kerker et al. (2016) learned that out of 302 surveyed pediatricians, just over 10% knew of the original ACEs study by Felitti and colleagues, and only about one third did any type of screening related to pediatric ACEs. Four years later, Popp et al. (2020) noticed that though

providers believed they should screen for ACEs, just under half of the providers involved in their research study did so. Though provider knowledge appears to be improving, health care organizations cannot assume providers are knowledgeable and able to educate others regarding ACEs (Bodendorfer et al., 2020). DiGangi and Negriff (2020) reported in their research that continued training and education of providers was vital for ACEs screening success. Hargreaves et al. (2019) urged provider training for better patient health outcomes. Importantly, Popp et al. (2020) discovered that providers were more likely to screen for ACEs if they were familiar with or had been trained on the subject. Previous studies found similar provider training needs that guide provider-patient conversations around ACEs (Gillespie & Folger, 2017).

Though specific research studies regarding provider pediatric screening were few, a growing body of research highlights the importance of provider ACEs knowledge, supporting the idea that originated with Felitti et al. (1998). This expanding body of knowledge demonstrates associations between ACEs and additional adverse outcomes. These associations make it vital that providers understand the potential long-term impact of ACEs and ways to mitigate their effects within clinical practice. Additionally, Haynes et al. (2020) concluded in their research that adopting TIC approaches (of which ACEs screening is a part) in clinical practice can build patient resilience by addressing potential health consequences. Koball et al. (2021) concluded that TIC adoption in primary care settings was an important health care measure. Schneider et al. (2021) found TIC practices important, especially for lower socioeconomic communities. Panisch et al. (2020) further recommended TIC interventions to enhance protective factors among families, especially for parents with high ACEs exposure themselves.

Greater health care utilization for individuals with more ACEs was observed by Hargreaves et al. (2019). Koball et al. (2021) discovered statistically significant evidence in

follow-up “no-shows” and increased emergency room usage for patients with any history of ACEs compared to those with no ACEs. Lê-Scherban et al. (2018) and Sun et al. (2017) found intergenerational associations with ACEs, especially between the mother’s increased number of ACEs and children’s poorer health outcomes. The offspring of parents that have had high ACEs exposure often have increased behavioral health problems (Schickedanz et al., 2018). Bethel et al. (2016) noted 11 times greater adjusted odds ratio for behavioral health issues among children without resiliency and with histories of numerous ACEs compared to their non-ACE, resilient counterparts.

These studies continue to shed light on the growing list of harmful health associations seen as ACEs are further investigated. As the research mounts, it is increasingly important for providers to be ACEs educated and trained. The AAP calls providers to serve their young constituents and their families in a trauma-informed environment (Forkey et al., 2021). Children who experience trauma without early intervention may not recover from biophysical changes associated with trauma that can assail the developing body. Research evidence supports building provider knowledge toward ACEs screening confidence and compliance in the primary health care setting.

Provider Confidence and Screening Compliance

Jones et al. (2021) explained that increased compliance with and confidence in implementing pediatric ACEs screening in primary clinical practice are linked with ACEs educational training. Barriers to ACEs screening need to be addressed and overcome to support providers in the implementation process. Clark and Jones (2021) performed a pilot study surveying 103 nurse practitioner (NP) participants to determine their understanding of ACEs and barriers to ACEs screening (not pediatric-specific) in practice. Lack of time to both counsel and

screen and time spent on competing issues were ranked the three most substantial barriers to provider compliance. Additional barriers included lack of resources, education, and awareness, fear of retraumatizing patients, discomfort addressing the topic, nonreimbursement for services, ACEs not being a prevalent concern, and screening not being the provider's responsibility (Clark & Jones, 2021). The top responses aligned with results from other studies showing similar provider confidence and screening barriers (Gillespie & Folger, 2017; Popp et al., 2020).

Once implemented, barriers to pediatric ACEs screening generally have not materialized within the body of research. This evidence should boost provider confidence and compliance. Kia- Keating et al. (2019) identified that initial provider screening ambivalence changed as providers experienced improved patient-provider relationships and overall quality of care. Preemptively addressing provider concerns prior to implementing an ACEs screening (e.g., provider scripts, rehearsals/role play) made the process more successful (Kia- Keating et al., 2019).

Providers discovered that parents who offered disclosures of their child's ACEs allowed them to suggest appropriate anticipatory guidance, thus improving the therapeutic relationship (Gillespie & Folger, 2017). Goldstein et al. (2017) found that most patients were very comfortable with reporting a history of ACEs and posttraumatic stress disorder to their provider regardless of the number of ACEs or overt electronic health record (EHR) documentation. They found that patients preferred documentation and the sense that providers would address problems that might arise from their exposure to ACEs (Goldstein et al., 2017). These findings should dispel provider concern that patients would not want to discuss sensitive topics and significant histories of trauma, building provider confidence and compliance with an ACEs screening process.

ACE Screening Tools

Little consistency was found among ACEs screening measures or tools in the pediatric setting. This may be in part due to the comparatively recent discovery of ACEs and their health effects, making the "best" ACEs screening instrument not yet determined. Lack of consistent screening measures could be due to the nature of the provider that screens the patient or the complexity surrounding ACEs, including but not limited to the child's environment, genetics, and psychosocial factors. Though still in its infancy, finding the "right" instrument or tool for pediatric ACEs screening has been a rather elusive task for researchers. Reasons for this can be seen in Jones's et al. (2021) U.S. behavioral health screening research done among providers. They found highly informal and diverse behavioral health risk screening practices among 319 providers and 292 NPs in pediatric and family practice settings. However, parts and pieces of these informal provider screens could be seen in formalized ACEs screening instruments, like those used to screen for substance use or domestic violence. The problem has lay in the fact that informal and inconsistent screening processes are often used among providers and lack standardization (Jones et al., 2021).

A lack of standardized universal pediatric screening instruments has been noted in the research. Oh et al. (2018) explained that several challenges hinder the implementation of universal pediatric ACEs screening tools in clinical practice. Further study needs to include universal agreement regarding ACE adversity, target populations, and administrative methods appropriate to age to overcome this barrier (Oh et al., 2018). While advocating for feasible, reliable, and validated pediatric ACEs screening tools, these authors asserted that screening for resilience factors should be considered in future processes (Oh et al., 2018).

Oh et al. (2018) reviewed 32 ACEs screening tools in an attempt to measure validity and reliability using five categories: (a) four ACE categories (abuse, neglect, household dysfunction, other), (b) target populations (age groups), (c) number of items/minutes (estimated time to answer screening questions), (d) administration qualifications (training requirements for staff), and (e) administration methods (self-report, parent report, clinician report, structured or semi-structured interview) (p. 567). Fourteen ACEs screening tools came out on top. They were chosen from 32 instruments for their feasibility and acceptability in practice; among them was the CYW Adverse Childhood Experience Questionnaire (ACE-Q) screening tool chosen for this project.

The CYW (2017) has developed and made available a pediatric caregiver ACEs screening tool and provider utilization guide on their website. This screening tool has been used or described in a number of recent quality initiatives and research studies in pediatric and primary care (DiGangi & Negriff, 2020; Koita et al., 2018; Quizhpi et al., 2019; Selvaraji et al., 2019). The CYW ACE-Q instrument is composed of two sections. The first contains the original 10 ACE questions, and the second includes either seven (CYW ACE-Q Child) or nine (CYW ACE-Q Teen) questions that address additional potential toxic stressors.

This instrument was presented to parents or caregivers at check-in during WCEs. The CYW ACE-Q was given to all new pediatric patients ≥ 9 months of age at WCEs and then at 24 months and annually thereafter. Scores were derived from an aggregate total of both sections of the survey in which an affirmative response to each of the 17 or 19 questions counted for one point. For example, if the parent endorsed two questions in Section One and three in Section Two, their total aggregate score would be five. A patient with a score of zero to three, without symptoms, was given anticipatory guidance. Patients with a score of one to three with symptoms

or four or more ACEs with or without symptoms were referred for appropriate supportive treatment (social services, behavioral health). Symptoms could include sleep disturbance, weight gain or loss, failure to thrive, bowel changes, hair loss, etc. CYW is also carrying out an ongoing longitudinal research study around ACEs and their CYW ACE-Q (child and teen) instruments. CYW has pioneered pediatric ACEs screening and research within the past five to 10 years (Koita et al., 2018; Purewal et al., 2016), and their instrument has been endorsed in a number of journal articles (Quizhpi et al., 2019; Selvaraj et al., 2018).

Opposition to Pediatric ACE Screening

The most significant opposition to ACEs screening pertains to the choice of instrument. Though research has shown positive outcomes for providers and patients regarding ACEs screening, there were some cautionary considerations surrounding full-scale implementation without further research and standardization (Anda, 2020; McLennan et al., 2019). Anda, one of the authors of the original ACEs study (Felitti et al., 1998), reminded well-intentioned health care organizations and policymakers that the original ACEs scoring was not a standardized measure of exposure to childhood toxic stress but rather an epidemiological outcome measure (Anda et al., 2020). One's ACE score does not describe the intensity, chronicity, or frequency of harmful exposures (Anda et al., 2020). Additionally, the score does not account for resiliency factors that might buffer exposure or account for the genetic makeup of the individual. Anda and colleagues (2020) and others (McLennan et al., 2020) criticized full-scale screening use of the original ACEs questions in clinical practice where it may cause over- or underestimation of the individual's risk and lead providers to assign treatment accordingly. McLennan and colleagues (2020) stated these instruments should fully disclose their limitations so the reader can be wholly informed. Potential pitfalls might prevent providers from attempting pediatric ACEs screening as

discussed. On the other hand, the literature shows that screening was rife with possibilities (Gillespie, 2019).

Health care organizations should not shy away from screening efforts despite criticism; there is too much at stake. Logically, a considerate and iterative implementation process should accompany ACEs screening and attempts should be made to address complex issues related to ACEs. Screening allows patients the option to tell their stories and receive therapeutic primary care. Primary care is an optimal place to screen for ACEs and unmitigated toxic stress experiences, as it allows providers to educate, offer resources, and refer for appropriate care. While critics need to be heard, similarly, critics need to observe current data.

Research on pediatric ACEs screening to date has revealed improved patient-provider relationships. Moreover, both providers and patients feel pediatric primary care should be one of the first locations to address the topic of ACEs. It can be a healing process to discuss these challenging topics within a trusted provider-patient relationship in primary care and a vital reason for screening. Care for ACEs should be sensitively discussed and offered within a TIC environment. The provider-patient ACEs discussion, when using a trauma-informed approach, can be a healing balm. Currently, health care may not have the complete solution for addressing ACEs, but many advocates for screening believe that this type of TIC can help curtail further harm and avert associated adverse health outcomes.

To date, small-scale research efforts related to ACEs have proven fruitful. The broader health care system needs providers who are willing to have ACEs discussions with patients. Critics may fear over- or undertreatment based on nonstandardized ACEs instruments. However, research indicates that even if health care organizations do not find the ideal ACEs screening

tool, an effort should still be made to screen. ACEs screening data, gathered and discussed, has proven therapeutic to both provider and patient.

Conceptual Framework

The conceptual model used to direct this scholarly project was the Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care (Iowa Model Collaborative, 2017), which was used with permission (see Appendix E). First, the triggering clinical issue was identified, which was the lack of provider screening for pediatric ACEs in primary care. The clinical question was then formulated: For providers in an Alaskan family practice clinic, does implementation of the pediatric ACEs screening tool combined with provider education over a three-month period increase provider screening with the ACEs tool and provider confidence?

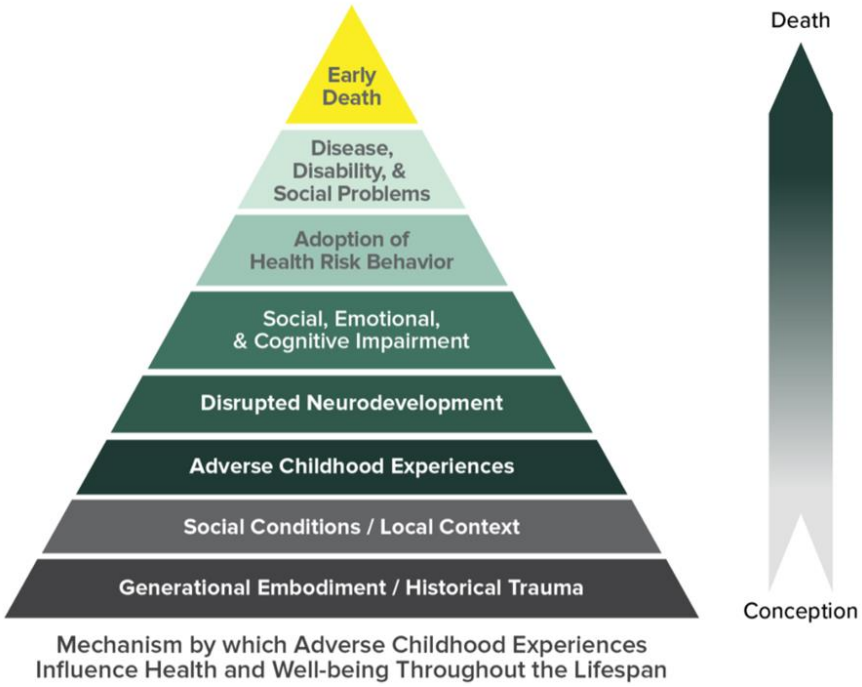
This issue was deemed a clinical priority by the project lead and family practice medical director, and a small team was formed and was composed of the primary Doctor of Nursing Practice (DNP) project lead, medical director, office manager, and project chair. A systematic literature review was accomplished and is described in the literature review section. Based on the literature review, there was sufficient evidence for the need to implement ACEs screening in family practice. Practice change was designed and was piloted March 7, 2022, until May 27, 2022. The process was continually evaluated and monitored through biweekly staff meetings as well as via emails, texts, or phone calls. ACEs screening forms were filled out at WCEs by the parent or caregiver with an aggregate total documented on the form. Pre- and post provider education and postimplementation surveys were conducted, and data were evaluated after collection.

Theoretical Framework

The theoretical framework (Figure 1) used to underpin this research project was *The ACE Pyramid*, an ACEs mechanism model first presented by Felitti et al. (1998) in their original ACEs research. The modified version developed and garnered from the CDC (2021a) expanded on the original model and included two foundational influencers of health seen in the bottom two layers of the pyramid: (a) generational trauma/historical trauma (as previously explained), and (b) social conditions/local context, which might include socioeconomic and neighborhood safety factors. Placed just above these bottom two layers, after the ACEs layer, is the newly added *disrupted neurodevelopment*, which refers to early dysregulation and harm to the child's developing brain and neurological system associated with ACEs exposure. The subsequent higher layers of the pyramid remain unchanged since the original version of the model. The model depicts the intergenerational harmful effects of ACEs and their associated health risk behaviors, morbidities, and early mortality as the individual ages. This project aimed to support a family practice in becoming a more trauma-informed organization by using pediatric ACEs screening. The focus of the project was strengths based and built upon PCEs and resiliency while educating families regarding ACEs and connecting them to appropriate resources and referrals. The goal was to build provider screening confidence to help prevent and mitigate further dose-dependent ACEs harm.

Figure 1

The ACE Pyramid



Note. Retrieved from *Violence Prevention: About the CDC-Kaiser ACE study*, by CDC, 2021 (https://www.cdc.gov/violenceprevention/aces/about.html). In the public domain. Use of image does not imply endorsement of this project by the CDC.

Summary

Given the high prevalence of ACEs and their adverse effects on both cost and health outcomes, the health care community must find and implement ways to mitigate their damage (Quizhpi et al., 2019). Pediatric ACEs screening shows acceptability and feasibility in primary care with both providers and caregivers (Baglivio & Wolff, 2021; Bodendorfer et al., 2020; Quizhpi et al., 2019; Selvaraj et al., 2019). Recent studies have demonstrated that providers found ACEs training improved their knowledge of, confidence with, and compliance with implementing pediatric ACEs screening in clinical practice on behalf of the child (Baglivio & Wolff, 2021; Bodendorfer et al., 2020; Quizhpi et al., 2019; Selvaraj et al., 2019).

Authors opposing ACE screening acknowledged its utility. However, they want to see standardized ACE measurements and instruments while moving forward cautiously to prevent unintended consequences. It should be noted that these opposing pieces of literature were opinion journal articles, the lowest level of Melnyk's evidence. Arguably, instruments have been used in primary care for the last decade without adverse outcomes. Providers and patients both report appropriateness and therapeutic benefits with ACE screening implementation. ACE screening is a secondary prevention method in primary care with the added benefit of deeper holistic care and conversation between provider and patient. Primary care providers do not have to be experts on the topic of ACEs (though helpful), but rather knowledgeable conduits for appropriate referrals and resources as with other primary care screenings. Waiting longer to address the pandemic of ACEs for the sake of further proof, at the expense of continued generational harm, is unacceptable.

Primary care providers are well positioned to partner with patients and their families to help mitigate ACEs and their effects. A 2018 systematic review focused on well-being outcomes for children with multiple ACEs concluded that if the health care community does not act on the knowledge around ACEs today, it will be challenging to attain optimal health outcomes for exposed children (Liming & Grube, 2018). Unmitigated ACEs exposure has been associated with short- and long-term adverse health outcomes and risk behaviors (Felitti et al., 1998). ACEs prevention and intervention services are needed to protect and improve the lifetime health of children and their families (Liming & Grube, 2018).

The literature review was accomplished for the purpose of this project, which was to improve provider knowledge of, confidence with, and compliance with implementing pediatric ACEs screening in an Alaskan family practice clinic through provider education. Other aims

were to equip providers with ACEs mitigation tools that can be offered to patients and their caregivers through anticipatory guidance, educational materials, local resources, and referral options. This project intended to support a TIC network in the primary care community as recommended by Forkey et al. (2021) in their AAP endorsed publication and clinical report on TIC, and like their report states on its cover, this project is "dedicated to the health of all children" (p. 1).

Trauma-informed practice recognizes and responds to toxic stress while simultaneously fostering resiliency and recovery (Forkey et al., 2021). With the growing amount of indicting ACEs research, preventing and mitigating ACEs should be at the forefront of health care practice. By implementing pediatric ACEs screening via caregiver in family practice, the medical community no longer ignores this significant health care challenge. Instead, it faces the problem with courage and care for the sake of current families and future generations.

Section Three: Methodology

Design

This scholarly project was an evidence-based implementation project utilizing the Iowa Model for Evidence-Based Practice as its foundational conceptual framework and the ACEs pyramid as its theoretical framework. Practice change was assessed through the implementation of a pilot quality initiative according to the Iowa Model (Iowa Model Collaborative, 2017). The initiative used a quasi-experimental and mixed method design. Three provider surveys were administered during the project course preeducation, posteducation, and postimplementation. The CYW ACE-Q child or teen aggregate screening tool was administered to caregivers at the time of their child's appointment. Measurable outcomes, descriptive data, and provider

quantitative and qualitative data were calculated and assessed at the end of the project implementation.

Measurable Outcomes

Outcomes were measured against three goals: (1) Upon completion of the ACEs educational training program, providers will show increased knowledge of ACEs screening. This will be evidenced by increased provider posteducational test scores compared to pretest scores. (2) After the three-month ACEs screening tool implementation period, the clinic will show an increase in screening compared to screening practices three months prior to implementation. (3) After completion of the ACEs educational program and the three-month implementation period for ACEs screening, providers will show an increase in confidence with ACEs screening. This will be evidenced by an increased score on the postimplementation provider survey.

Setting

This scholarly project was accomplished in a family practice clinic located in Wasilla, Alaska, which is considered an "urban cluster" area of Alaska based on the 2010 U.S. Census (Alaska Department of Transportation and Public Facilities, n.d.). According to the U.S. Census Bureau (2021), Wasilla has nearly 11,000 people, of whom 5.9% are Alaska Native, 3.4% Asian, 1.8% Black or African American, 81.5% Caucasian, 6.6% Hispanic or Latino, and 6.9% are of two or more races. Most of the patient population at the practice is Caucasian, as are providers and staff. Though not a greatly diverse community or clinic, the clinic provides a holistic practice. One reason for the lack of clinic diversity is the local federally funded Alaska Native hospital and clinic available to the Alaska Native population.

Implementing ACEs screening at WCEs aligned with the clinic's mission, values, and strategic plan to bring holistic care to their patient population to optimize their health. Key

organizational stakeholders were supportive of this scholarly project and its process from the time it was presented as a potential undertaking in the summer of 2021, and the medical director wrote a letter of support for the project implementation at that time (Appendix D). The organization's enthusiasm for the project made it an ideal place to implement the intervention. Some of the clinic's patient population seek a functional medicine perspective, which focuses on innate and holistic ways to improve health. Screening for ACEs aligned with that desire.

The family practice employed five family NPs on site, one NP offsite, three registered nurses (RNs), one certified medical assistant (CMA), an office manager, a patient care coordinator, and two front desk staff. Two of the NPs were also certified nurse midwives. The practice has four shareholders and six board of director members. In addition, the practice has a clinical director for family practice and a clinical director for the birthing center as well as an administrative director. From January 1, 2021, to November 9, 2021, the clinic saw 1,059 pediatric clients, 1,355 adult clients, and 92 prenatal clients on the family practice side of the clinic (the other side is a midwifery practice). Interestingly, this is an all-female organization. The organization endorses trauma-informed practices like a calming environment providing comfortable décor, spacious well-designed rooms, and providers spending a minimum of 30 minutes with each client. They work very collaboratively to support one another in day-to-day practice. The whole staff gathers once a month during lunch to address communication needs and disseminate information. The NPs have biweekly meetings during lunch to discuss any issues pertinent to their practice and review challenging patient cases.

The medical director and the office manager were the main points of contact for this project and provided access to necessary data. These two individuals were instrumental in moving the project forward and were local project support champions. Though most of the

photocopying and laminating was accomplished prior to project implementation, there was a need for additional photocopies during the process, and a photocopier was available at the clinic. The project leader had access to the Sevocity EHR computer system and helped develop a pediatric ACEs documentation algorithm for the providers and organization, which recorded aggregate ACEs score, patient symptomatology, responses to four symptom confirmatory questions, and CYW ACE-Q provider documentation protocol with resources, treatment, and optional notes.

It was anticipated that about 250–300 pediatric clients would participate based on 2021 data. Other studies from clinics of this size had similar statistical data (Gross, 2020). It was assumed that not all clients would participate in the screening project.

Population

The study gathered quantitative and qualitative data from the six family practice providers, including the medical director, around their knowledge of, compliance with, and confidence with pediatric ACEs screening via the parent or caregiver after ACEs education was given to the providers and staff. The six clinical providers that participated during the project agreed to participate. The medical director was a key stakeholder and project champion within the clinic. The office manager, also a key stakeholder, responded to project needs promptly such as by providing access to Sevocity and scheduling meetings.

The ACE screening tool (CYW ACE-Q child or teen) was filled out at the time of the patient appointment by parents and caregivers. Providers, nurses, and clinic staff were given a tailored lunch at the end of the project as a “thank you” for their participation. Parents and families received an ACEs, PCEs and resiliency educational brochure, which included local resources and pertinent websites.

The project included a purposive and nonrandom sample of providers and parents or caregivers of pediatric patients based on convenience. The medical director told the providers and staff that they were going to participate in the project; however, providers agreed to take part. All parents or caregivers were given the CYW ACE-Q pediatric screening at the time of their appointment in paper-and-pencil format. Data were tabulated and confirmed by the DNP project lead and chair after the project was accomplished using the Statistical Package for the Social Sciences (SPSS) software. Both quantitative and qualitative data were collected from provider surveys, and descriptive data was collected from patient screening. Provider surveys that were completed in their entirety were included in the analysis. ACE screening forms included were those with answered ACE score aggregates for both Sections One and Two.

Ethical Considerations

The DNP project leader and chair completed Collaborative Institutional Training Initiative training (see Appendix C) for the Institutional Review Board (IRB) authorization process. Ethical integrity was assured through IRB approval process (see Appendix B). Collected provider and staff surveys as well as completed pediatric ACE screenings (CYW ACE-Q child or teen) have been kept in protected locations with zero and minimal identifiable personal data respectively. All paperwork will be destroyed in a secure office shredder once all data points are confirmed in patient EHRs and the project has been defended by project lead. Data have been stored on the project lead's password-secured computer.

Tools

CYW ACE-Q Child and Teen Instruments

Two pediatric validated screening tools were used for ACE screening: the CYW ACE-Q child (0–12 years) and the CYW ACE-Q teen (13–18 years; see Appendices G and H). The

CYW ACE-Q tools have been validated and found acceptable for use in primary care settings (Gross, 2020; Koita et al., 2018; Oh et al., 2018; Purewal et al., 2016; Schulman & Maul, 2019). Several articles and organizations have endorsed the CYW ACE-Q tools as useful in pediatric ACE screening (Gross, 2020; Koita et al., 2018; Oh et al., 2018; Purewal et al., 2016; Schulman & Maul, 2019). ACEs screening has been endorsed by the CDC (2021b) and AAP (Forkey et al., 2021). Research has shown that parents feel the pediatrician should support parenting skills and give pertinent education to help mitigate ACEs through screening efforts (Conn et al., 2018; Popp et al., 2020). Additionally, numerous studies have found the CYW ACE-Q tools feasible for pediatric ACEs screening use (Gross, 2020; Koita et al., 2018; Oh et al., 2018; Purewal et al., 2016; Schulman & Maul, 2019). The project lead used the CYW ACEs screening user guide protocol to inform the application of the CYW tools in practice.

Section One, or the top portion of the CYW ACE-Q child and teen screening, displayed the original 10 questions from the Felitti and colleagues (1998) study. Caregivers placed an aggregate score, one point given for an affirmative response to each of the 10 questions, into the upper section score box. The two ACE screening tools (child vs. teen) diverged in the second, or bottom, section. The CYW ACE-Q child had seven 1-point questions, and like the top section, the aggregate point score for the bottom section was placed (0 to 7) into the lower section score box. The CYW ACE-Q teen had two additional questions in the bottom section compared to the CYW ACE-Q child for a total possible aggregate score of 9. Both screening tools called for the provider to add the scores from Section One and Section Two together for an overall aggregate score that was used for their decision and treatment process.

A patient with a “0–3 score without symptoms” received anticipatory guidance after the provider asked confirmatory questions about some of the symptoms. Patients with a “1–3 score

with symptoms or [score of] ≥ 4" received ACEs education plus appraisal for needed resources and/or referrals such as social or behavioral health services. Confirmatory questions about symptoms were asked per the CYW ACE-Q user guide protocol. The confirmatory questions focused on weight changes, school concerns, sleep disturbances, and chronic illness changes.

Relevant Symptomatology Checklist

Similarly, the relevant symptomatology checklist (see Appendix I) was utilized from the CYW ACE-Q user guide. At WCEs, parents or caregivers of pediatric patients checked any observed symptoms per the relevant symptomatology checklist, which included a "none" category. There were 18 relevant symptoms that helped differentiate between the two scoring categories previously named (with or without symptoms). Symptom categories included sleep disturbances, weight gain or loss, failure to thrive, enuresis, depression, anxiety, and poor disease control, to name a few.

Provider Preeducation and Implementation Survey

This modified survey (see Appendix J), originally developed by Gross (2020) for a similar project, was completed by providers and staff prior to ACE education and screening training. The survey asked for nonidentifying demographic data: job title, how long the participant had been employed at the clinic, highest education level, and age category (20–29, 30–39, 40–49, 50–59, and ≥ 60 years). Nine questions made up the bulk of the survey and provided quantitative data, with responses given on a Likert-style scale where 1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, and 5 = *strongly agree*. Questions measured providers' understanding of ACEs, CYW ACE-Q tools, the screening process, and their role in screening, as well as their ability to perform screening, how they value screening, if they believe patients will be receptive to screening, and their confidence in implementing ACEs screening.

Two qualitative questions rounded out the survey and inquired about the providers' questions or concerns and asked for their comments. Permission to use and permission to reproduce this one and the following two surveys was given by the primary survey creator (see Appendices E and M).

Provider Posteducation Survey

The posteducation survey (see Appendix K) was designed with the same questions as the preeducation survey. The posteducation survey was administered after the ACE and CYW user protocol education given by the United Way Mat-Su, Raising Our Children with Kindness (R.O.C.K.) Mat-Su, and project lead.

Provider Postimplementation Survey

The provider and staff postimplementation survey (see Appendix L) was similar to the first two surveys with the addition of two Likert-style questions that asked if providers believed that the screening was feasible and if they would like to continue with pediatric ACEs screening. This totals 11 Likert-style questions for the final survey. The same two qualitative questions were found at the end of the survey, and the survey was administered during the final week of the three-month intervention.

Data Collection

Provider and Staff Surveys

After the preeducation survey was administered, provider education regarding ACEs, PCEs, and resiliency was conducted by local United Way and R.O.C.K. Mat-Su ACEs educators. The two-part ACEs education was conducted on March 1 and 2, 2022, the week prior to project implementation (March 7, 2022). The two educators have trained groups and individuals in Wasilla and surrounding area for several years. They delivered two one-hour sessions to cover

both ACE and PCE educational and training needs for all providers and staff within the family health clinic. The presenters were willing to return and deliver follow-up ACEs training as needed. The project lead addressed provider and staff questions and concerns during the education week and was available in person during that time and during implementation for three weeks (February 18 to March 12, 2022). Thereafter, the lead was available by email, Microsoft Teams, Zoom, text, and phone for further questions, assistance, ideas, and/or concerns related to the project implementation. Posteducation surveys were given to the providers and staff within 24 hours of the United Way and R.O.C.K Mat-Su ACEs and PCEs education. Similar provider and staff surveys were given postimplementation during the final week of the three-month intervention.

The project lead followed the two one-hour training sessions with a review of the CYW ACE-Q user guide protocol for providers and staff, then fielded questions about ACEs, PCEs, resiliency, and the implementation process. The user guide had sample dialogue for all staff involved in the project. Copies of the user guide and specific dialogue was made available for providers and staff as a reference during the pediatric ACE screening process.

Data collection from the three separate provider paper surveys was accomplished by the project lead while in person at the clinic. Any missing surveys were gathered through email as necessary. Each survey response was placed into an Excel spreadsheet, and then data were calculated using IBM's SPSS. The Likert scale responses were tabulated, and pre- and post ACEs education scores were compared using paired *t*-test statistics. The postimplementation survey mean was compared in similar fashion, by aligning pre- and posteducation surveys with the postimplementation survey results. As discussed, the three surveys included two qualitative questions that asked for problems or concerns about screening and for any comments providers

or staff wanted to share. These responses were also placed in the Excel document for gathering of qualitative themes. Provider and staff survey data were kept by the project lead in a password-secured computer. Surveys were kept in a secure location at the clinic or with the project lead and will be shredded after all data have been confirmed and input to a password-secured computer and the project presentation defense finished.

ACEs Screening

The CYW user guide protocol directed the intervention process of the clinical ACEs screening. Guiding scripts were made available for all staff and providers from the CYW user guide. Scripts gave detailed examples of ACEs dialogue screening process, its purpose, treatment guidance, and patient discussion. They were appropriate to the role the provider or staff member played in the screening process. In keeping with the CYW pediatric ACE screening protocol, the CYW ACE-Q child (0–12 years) and teen (13–18 years) surveys were given to all pediatric caregivers at WCEs for patients between nine months and 18 years of age during a three-month period (March 7 to May 27, 2022). The aggregate screening results were reviewed by providers, and treatment options were offered per CYW's ACEs scoring algorithm and shared decision-making with caregivers (and child as age appropriate). As previously discussed, patients with scores of "0–3 without symptomology" received CYW anticipatory guidance relating to ACEs, which included how to recognize potential signs of ACEs, when to come to the clinic for evaluation, and how to build resiliency factors. Patients with scores of "1–3 with symptomology or ≥ 4" received information on local resources and/or referrals per the provider and caregiver decision process. Follow-up was determined per provider and caregiver as to the type of referral (social worker, behavioral health, pediatric neuropsychologist, etc.).

A two-generational care effect is provided with pediatric ACEs screening. Caregivers receive ACEs education and anticipatory guidance as well as resources and referrals that could benefit both parties. There were no anticipated exclusions to this study except those who refused to participate, emancipated youth, and those less than nine months of age. However, it was found that there were a couple of screenings done by providers on children less than nine months.

The front desk staff handed the screening tool (CYW ACE-Q child or teen) to the patient caregiver when they arrived for the WCE. The caregiver placed the aggregate score in both sections of the CYW ACE-Q and then checked appropriate symptomatology on the back side using a pencil or pen. The CYW ACE-Q form was collected by the RN in the exam room and given to the provider as part of the patient's intake paperwork. The provider examined the aggregate score and placed it into the patient EHR. Providers confirmed the ACEs aggregate score with the caregiver through confirmatory questions about sleep, school, weight, and chronic illness changes, and these answers were then placed into the patient's EHR. The intervention the provider implemented was based on the CYW ACE-Q scoring algorithm and was documented into the EHR (with space for optional notes) in categories of anticipatory guidance, provided resources, and/or given referral(s).

ACEs screening aggregate numbers and symptomology were placed in the patient's chart by the provider. The CYW algorithm auto-populated for the providers' discussion. For example, if the patient ACE score was 1 with no symptoms, anticipatory guidance was checked in the patient's EHR. A hard copy of the ACE scoring algorithm was available for reference in all provider and staff work areas in the case of computer downtime or malfunction or information technology problems. In the latter case, the provider would be instructed to place the ACE score into the patient EHR notes section or patient plan so the provider could later document the EHR

ACEs algorithm. The front desk scanned the screening tool caregiver responses into the patients' charts. The project lead conferred with the medical director and/or the project chair as needed with questions and concerns throughout the project intervention. Providers had the option to review and offer caregivers ACE, PCE, and resiliency informational handouts as well as other supportive resources from organizations such as the CDC, CYW, United Way Mat-Su, R.O.C.K. Mat-Su, and ACE Aware based on patient needs.

Once scanned into the patient EHR, the completed ACE screening forms were kept in a folder in a secured file location at the front desk. The project lead collected the forms to confirm entry into the patient EHR at the end of the study, and the forms will be shredded in project lead's shredder. Minimal identifying patient information (patient and caregiver initials and date of exam) was on these forms for further security.

The project lead worked with the creators and managers of Sevocity to customize the pediatric EHRs. The added pediatric psychiatric section included the ACEs screening total (0–19) and categories of 0–3 and 1–3 or ≥ 4 with or without symptomatology, types of symptomatology, and responses to confirmatory questions. This information was placed in the EHRs for added ease of documentation and to allow for notation of preferred treatment (anticipatory guidance, resources, and/or referrals).

Relevant ACE Symptomatology Checklist

The relevant symptomatology checklist was found on the back side of the ACE screening tool given to the patient's caregiver to fill out. Symptoms helped differentiate the ACE categories and treatment plan into the two categories previously reviewed. Category 1 patients (patients with ACE scores of 0 to 3 without symptomatology) were asked confirmatory questions about weight, school, sleep, and chronic illness changes. If no symptoms existed, they were

given anticipatory guidance about ACEs, what signs to look for, and when to return to the clinic for further evaluation. Category 2 patients (patients with ACE score from 1 to 3 with symptomatology or ≥ 4) were asked the same confirmatory questions, and resources and/or referrals were offered and documented in the EHR. These forms were kept securely with the ACE screening tools and confirmed in the EHR before shredding by the project lead.

Timeline of Interventions

- December 2021: The project proposal was completed, and surveys were created and approved. The project lead obtained permission to use letters for conceptual model and surveys and selected United Way ACE training to be used for the intervention.
- January 2022: The project lead successfully defended the proposal. The provider and staff education program was scheduled, and the project lead reviewed educational material from United Way. The proposal was sent for IRB review and was approved on January 27, 2022.
- February–March 2022: The pretest was administered on February 28 and March 1 to all providers and staff before the education began. Provider and staff education took place on March 1 and 2. After the education, the posteducation test was administered to all providers and staff. The posteducation tests were completed by March 4. The project lead met daily with providers and staff the week prior to project implementation to field questions or concerns.
- March 7–May 27, 2022: The project was implemented over 12 weeks. During this time, the project lead attended biweekly NP and staff meetings via Zoom to address questions, concerns, and potential barriers. During the last week of implementation, May 23–27, the

postimplementation test was administered to all providers and staff. May 25, thank you luncheon arranged for providers and staff involved in project implementation.

- May 27, 2022: Final provider surveys and ACE screenings were collected from the provider office. ACE screens were compared with EHRs, and statistical work and writing began.

Feasibility Analysis

The budget for implementing this scholarly project included educational training time costs for providers and staff, printing, and gift expenditures (lunch, cards, etc.). The project lead covered the initial printing costs and gift expenditures. The clinic covered ACEs educational training expenditures for providers and staff that was attended during their lunch hour for two consecutive days.

Table 1

Project Costs

Activity/materials	Cost per unit ($)	Actual time/number	Estimated total ($)	Actual total ($)
Printing*				
Black and white	0.15 (estimate)	300 x 2 (150 each of 2 screens and symptomatology checklist on back)	90.00	72.60
	0.121 (actual)	45 surveys	6.75	5.40
Color	0.29 (estimate)	8 x 20 user guides	46.40	18.00
	0.22 (actual)	200 x 2-sided ACE, PCE and resiliency handout	87.00	32.00
Training hours	(estimates)			
Providers (6)	55.00	2 x 1-hour trainings	440.00	660.00
RNs (4)	35.00	2 x 1-hour trainings	280.00	350.00
Staff (4)	14.00	2 x 1-hour trainings	56.00	84.00
Catered lunch	25.00 x 20 (estimate)	12+ people	500.00	489.64
Miscellaneous**			100.00	73.25
Total			1606.15	1.742.89

*****Any subsequent printing was done at the office-no cost estimate for internal printing.
**Miscellaneous includes cards, gifts, and snacks

Future costs should be negligible as the clinic has chosen to continue with ACEs screening since the project conclusion. Training costs should be minimal as new hires can be taught by veteran screeners using the same implementation processes. Annual ACEs refresher training could be completed either through mandatory employee training updates via computer or by the same community training used for the project during the lunch hour. ACEs screening could be done through the patient portal to save on printing costs, though patients that did not fill it out prior to their appointment or lack computer access would still need to have the printed version. These factors would make ongoing implementation costs very low for an already feasible process.

Data Analysis

SPSS was utilized for statistical measurements associated with this project. Provider pre- and posttests were measured by a paired *t*-test of each 5-point Likert style questions. The providers' perceived knowledge of and confidence with ACEs and screening was tested preeducation and after ACEs education. Comparisons were also made at the end of the project implementation. The independent variable was ACEs education given after the pretest and prior to the posttest. The dependent variable was the providers' knowledge of and confidence with ACEs and the screening process.

Responses to qualitative questions at the end of each provider and staff survey were entered into the project leader's secure database using Excel. Three groups of qualitative data were collected: (1) provider pretest education and implementation survey qualitative responses, (2) provider posteducation survey responses with qualitative responses, and (3) provider postimplementation qualitative responses.

Quantitative and qualitative data from a convenience sample of all six family practice providers were gathered. Similar data were collected from staff. Demographic data were gathered from the provider and staff surveys: age group, length of employment at the clinic, and highest education level. A convenience sample of pediatric WCE clients that completed the ACE screening through their caregivers was used. The number of participants was based on the number of WCEs conducted during the three-month implementation period. It was anticipated that 250–300 patients would be screened, but 225 actual screenings took place.

Outcomes were measured through three goals described previously: (1) Upon completion of the ACEs educational training program, providers will show increased knowledge of ACEs screening. This will be evidenced by increased provider posteducational test scores compared to

pretest scores. (2) After the three-month ACEs screening tool implementation period, the clinic will show an increase in screening compared to screening practices three months prior to implementation. (3) After completion of the ACEs educational program and the three-month implementation period for ACEs screening, providers will show an increase in confidence with ACEs screening. This will be evidenced by an increased score on the postimplementation provider survey.

Section Four: Results

Descriptive Statistics

Provider Surveys

All six clinical NP providers at the clinic participated and completed the three required surveys for the scholarly project: the pre and posteducation and postimplementation surveys. One of the six NP providers expressed her reluctance to complete the postimplementation survey, as she only provided care for one child at a WCE when she was at the Wasilla office. Incidentally, eight staff, which included front desk administration, RNs, and CMAs, completed the pre- and posteducation survey, while seven of them completed the post implementation survey.

Data from provider paired samples *t*-test survey questions revealed that the increase in scores from pre- to post-ACEs education was statistically significant for five out of the nine survey questions ($p < 0.05$). Results from two other questions out of the nine were borderline for statistical significance ($p = 0.051$); they related to providers' understanding of what an ACE was and their role in the implementation process. Of particular importance to this project was Question 9, which stated, "I feel confident implementing ACEs screening." Question 9 was statistically significant both with one-sided and two-sided *p* values ($p = 0.005$ and $p = 0.010$

respectively). Other statistically significant results were from Questions 3, 4, 5, and 8 focused on how the CYW ACE-Q tool worked and the process to use it, the providers' understanding of their role in the implementation process, and their prediction that caregivers would be receptive to the ACEs screening process ($p < 0.001$, < 0.001, 0.006, and 0.038 respectively). Results from two questions that were not statistically significant (Questions 2 and 7) asked about understanding why it was important to identify ACEs in pediatric populations and valuing the concept of screening for ACEs in the clinic ($p = 0.087$ and 0.305 respectively).

The third provider survey was given postimplementation and presented the same nine questions as the pre- and posteducation surveys (some in slightly different order and wording) but included two added questions about feasibility and continuing pediatric ACEs screening ($M = 4.17$ and 4.5 respectively) for a total of 11 Likert-style questions. The mean of the responses on the final survey stayed the same for three of the questions as compared to the posteducation survey questions, one mean increased modestly, and five means decreased slightly. Provider confidence mean decreased slightly (by 0.17 from 4.50 to 4.33) from posteducation to postimplementation.

Qualitative Provider and Staff Survey Data

Three main themes emerged from pretest feedback: (a) "no" or "not yet" was the frequent most written comment when providers were asked for questions, concerns, or comments, (b) providers felt they "need to" or were "ready to" learn about ACEs and the screening process, and (c) providers thanked the project lead for doing this important work. One provider asked how the ACEs information would be used, and another provider raised a concern over potential time constraints.

Three main themes arose from the posteducation feedback: (a) frequent "no" responses when asked for any questions or concerns, (b) positive expressions (including "excellent," "wonderful," "great," "eye-opening," and "enjoyed" educational presentations), and (c) providers were excited to start implementation.

Finally, postimplementation feedback provided similar themes as the previous two surveys: (a) "no" when asked for any questions or concerns, (b) positive expressions (including "pleased," "learned so much," "enjoyed educating patients," "great process," "highly valuable," "well explained program," "very professional," "excellent resources," and "amazing job orchestrating and implementing the program"), and (c) thanks and appreciation for implementing the project. A few providers and one staff member had individual comments that expressed continued concerns about time limitations and mentioned receiving screening questions or "pushback" from caregivers that was "easily redirected" and "for the most part people were receptive." Postimplementation provider comments included: "I learned so much during this process"; "I am pleased we are implementing the scoring. . .. Amazing job orchestrating and implementing the program"; "I have enjoyed educating patients"; "It was a great learning process"; and "I feel like some providers are totally bought in, whereas others aren't, so that has been a little challenging. I am so glad you did this project!"

ACEs Screening

A total of 225 documented pediatric ACE screenings were accomplished during the three-month implementation period. Patients' gender was evenly split at 48.9% females and 49.8% males. Mothers were most likely to fill out the ACE screening (90.2%). Approximately 97.8% of the screenings had the ACE scores filled in properly. Scoring revealed 74.2% had an ACE score of 0, 12% had one ACE, 4.9% had two ACEs, and 1.3% and 1.8% had three and four

ACEs respectively. Less than 1% of patients had five or more ACEs. ACEs-relevant symptomatology was filled out as directed 65.3% of the time, whereas 34.2% of respondents did not check any symptomatology boxes, including “none” category. The most common symptomatology marked was “none” on 40.9% of the screenings, one symptom followed at 9.8%, two at 4.4%, three at 2.7%, four and five at 1.3% each, eight at 0.4%, and eleven at 0.9%. When there were symptoms checked, the most common was sleep disturbances (20) followed by anxiety (15), poor impulse control (11), aggression (10), interpersonal conflict (10), constipation (9), weight loss/gain (7), restricted affect/numbing (7), unexplained somatic complaints (6), enuresis (5), and depression (5), school failure/absenteeism (4), and frequent crying (4), failure to thrive (3), hair loss (3), developmental regression (3), and finally, encopresis (1)and poor control of chronic diseases (1).

Provider ACEs Documentation

Providers documented giving anticipatory guidance in 37.8% of the cases, resources were offered in 4%, and referrals made in 2.2%. It should be noted that 200 ACE/PCE/resiliency handouts were designed and provided for the clinicians’ use at the WCEs, and all the handouts were gone by the end of the implementation; however, the distribution was not documented by providers in most of the patient EHRs. Providers documented asking the four confirmatory symptomatology questions about weight, school, chronic illnesses, and sleep disturbances in the EHR only 8.4% of the time.

The project pretest, posttest and postimplementation surveys revealed both provider knowledge of and confidence with pediatric ACEs screening improved after ACEs education and during the three-month implementation period. Presumably, the clinic increased their pediatric

ACEs screening by 100% during the three-month project window, going from no pediatric ACEs screening at WCEs to screening all children from nine months to 18 years of age.

Measurable Outcome 1

The first goal of the project was that upon completion of the ACEs educational training program, providers would show increased knowledge of ACEs screening, evidenced by increased provider posteducational test scores compared to pretest scores. Providers demonstrated significant improvement of ACEs knowledge as evidenced by their increased posteducational survey response mean scores compared to the preeducational survey mean scores (see Table 2). This was also evidenced by *p*-value scores < 0.05 for most of the nine Likert-score questions (see Appendix F).

Table 2

Provider Pretest and Posttest Survey Data

Aggregate Item	*N*	Average *M* (Likert 1-5)	Average *SD*	Average *SE* mean
Preeducation survey	6	3.39	0.655	0.267
Posteducation survey	6	4.63	0.538	0.220
Postimplementation survey	6	4.47	0.921	0.376

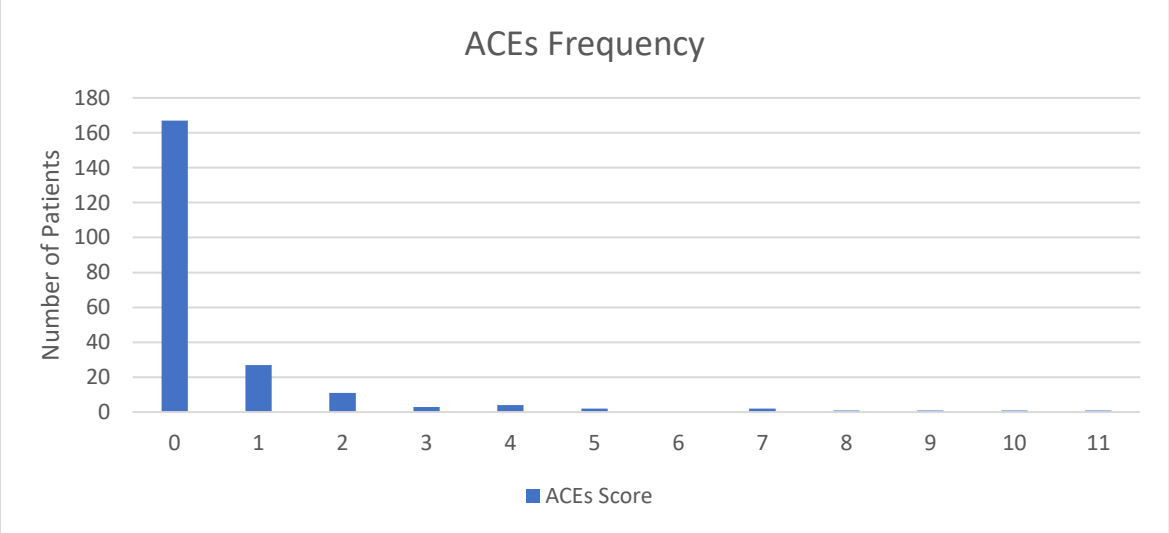
Measurable Outcome 2

The second goal of the project was that after the three-month ACEs screening tool implementation period, the clinic would show an increase in screening compared to screening practices three months prior to implementation. The clinic presumably increased their pediatric ACEs screening efforts by 100% because prior to the project implementation, the organization did not screen for ACEs within their pediatric population. No verification process was put in place to attain the exact percent of the increase in pediatric ACEs screening. Some families may have refused the screen or staff may have forgotten to implement screening at WCEs. However,

the intervention called for every patient from nine months to 18 years of age be screened for ACEs during the three-month intervention window, and the organization had not practiced screening prior. Figure 2 reflects the frequency of reported ACE scores.

Figure 2

Frequency of Reported ACE Scores



Note. ACEs = Adverse childhood experiences

Measurable Outcome 3

The third goal of the project was that after completion of the ACEs educational program and the three-month implementation period for pediatric ACEs screening, providers would show an increase in confidence with ACEs screening. This would be evidenced by an increased score on the postimplementation provider survey. The nine mean posteducation survey questions scores increased compared to the preeducation survey scores (see Table 2). Important to the project was Question 9, which asked the provider to rate the statement, “I feel confident implementing ACEs screening.” The mean score for this question increased from 3.17 to 4.50 between pretest and posttest. A slight decrease from the posteducation score to the

postimplementation score mean (4.33) of 0.17 was observed, although it should be noted that the postimplementation score was still higher than the pretest/preeducation score.

Section Five: Discussion

Implication for Practice

Clear research data in health care associating increased risk of negative short- and long-term health sequalae with increased ACEs in a dose-dependent manner was discovered. The health care system must find innovative ways to improve the screening and educating of families around the topic of ACEs. To date, early efforts to educate and screen for pediatric ACEs has been limited, which is unacceptable considering the enormous costs to patients, families, communities, and the broader health care system. The time is now for health care providers to start implementing pediatric ACEs education and screening at WCEs. This scholarly project demonstrated that ACEs screening can be incorporated into daily family practice given provider and staff ACEs education and support.

Research indicates that educating and supporting providers results in positive pediatric ACEs screening outcomes in primary care. This scholarly project supports those findings. Locating area ACEs educators for the task of provider education connects health care organizations with community resources, as was the case in the project. The patient-provider relationship benefits from this collaborative effort, as providers know where to connect patients to resources. ACEs are best treated communally, of which primary care should be an integral part.

Primary health care settings may be the only place for patients and their caregivers to receive ACEs information and education directly. Most children and their families are seen in primary care at some point, making primary care providers and their organizations important

conduits to screening and allowing them to bring mitigating information to their clients. Importantly, screening can connect patients to community resources and behavioral health expertise, thus potentially relieving some of ACEs' harmful health outcomes, the main purpose of ACEs screening.

Limitations

Several limitations were observed for this project. First, the limited sample of patients who received ACEs screenings and timeframe for the project could have affected ACEs treatment documentation. With a greater sample size and time to improve EHR documentation, more accurate and detailed inferences about provider ACEs treatment could be made and disseminated. However, the wide pediatric screening age range used in the project could be applicable to multiple pediatric primary care settings. Second, the project was conducted at one small rural private practice clinic, so the interventions may not work in larger, federally funded, low-income clinical settings. However, the project's universal-type interventions would likely prove effective in other clinical settings. Finally, there was a limited number of providers (6), and they were all female NPs (in addition to an all-female staff), which could affect translatability to other clinical settings with providers such as medical doctors and/or largely of the male gender. Again, the screening intervention was a fundamental type of health care practice, easily added to other WCE screenings in any pediatric primary care setting as long as ACEs educational opportunities are available to providers and staff. The results of this scholarly project are not generalizable to any other clinical setting; however, the project findings add value to and concur with recent ACEs quality improvement projects and research discussed previously.

Response bias as an all-female organization as well as providers being told they were going to participate as a group in the project was possible. Discussions and surveys affirmed

providers were generally interested in the project. Results might have been different had the providers been less interested in the intervention, whether they were male or female. Another response bias consideration was that surveys were not able to be kept fully anonymous, partly due to the small number of respondents and acquired descriptive data. The project lead was able to match pretest, posttest, and postimplementation test surveys to each other based on the descriptive data. Additionally, a few surveys were sent to the project lead via email rather than placed in an envelope at the clinic. Respondents could have felt the need to be more or less positive or negative in their responses based on perceived lack of anonymity.

A slight lack of improvement from the posteducation survey to the postimplementation survey was largely due to one provider not being comfortable with the ACEs screening process in terms of time concerns, which did not deviate from survey to survey. She practiced in another part of the state and did not have the day-to-day interactions with supportive staff during the intervention. She also did not generally see pediatric patients, so was unable to practice pediatric ACEs screening. The provider had much lower overall Likert scores than the other providers on the third and final survey. Her survey responses fit with current research. Without ongoing support and education, providers will be reticent to deliver ACEs screening.

Sustainability

Sustainability is a challenging consideration when implementing health care process changes. Organizational leaders may struggle to find ways to keep providers and staff engaged in the screening process when they are overworked, have other screenings and questions to implement at WCEs, and do not see immediate results from the ACEs screening process as they might with other, more tenured screenings such as the Ages and Stages Questionnaire. Primary care is challenged with provider shortages and increased demand for improved practices at

lowered costs. Without immediate and specific improved health results, it is understandable that organizations may not see the benefit of adding this type of screening. This could be partly why there has been slow uptake of ACEs education and screening in primary care.

Feasibility

ACEs screening is a feasible and sustainable health care process based on the results of this project. The project implementation in a small rural private health care organization was manageable and supported by leadership, which stands as a vital factor in implementation success. The organization has chosen to move forward with a modified version of the screening at two years, five years, and during the teen years at WCEs. The project lead will modify the ACEs handout for potential use in the perinatal period (the primary care is connected to a midwifery clinic) and earlier WCEs (0–2 years) to help build knowledge and educate families in a nonthreatening manner prior to direct ACEs screening. With early ACEs education, families will be less likely to be surprised by screening and feel it as a natural part of holistic health care. During the project implementation, families were generally open to and supportive of ACEs screening, which supports current research data regarding family comfort and sense of appropriateness with primary care screening for ACEs.

Community support is growing for ACEs awareness and education. Local organizations like the United Way and R.O.C.K. Mat-Su are educating families and groups about ACEs and were utilized for this project as resource connections and for ACEs training. Two local clinics either recently started screening for ACEs or want the results of this project for possible screening implementation. The project lead has been contacted for further information about the results of this project for a local foundation supporting ACEs education and awareness. The time

is right for this type of implementation in the community, which is important for continued success.

Lessons Learned

Lessons learned come from data and feedback around provider documentation, nursing support, and continued education. The main purpose of this project was to ascertain whether providers improved their knowledge of and confidence with ACEs screening after ACEs education, and that was established. However, provider documentation was lacking in the patient charts even after the addition of the ACEs categories in the pediatric EHRs and final adjustments to the placement of ACEs documentation per provider request. ACEs scores or clear documentation of the provider treatment were not always found in the patient EHR, so an accurate assessment of provider actions was not readily available. Though the project lead was present at the biweekly NP meetings and asked providers and staff how the process was going and how the lead could be supportive of their process, including through documentation, documentation issues were not expressed. On the contrary, providers and staff gave positive feedback on the process and stated that the screening was going well. For better descriptive statistical data around ACEs screening in the EHR in the future, the project lead would audit documentation weekly for improved accuracy and EHR entry processes. The project lead would need to have ready access to the processed ACE screening forms to help with that process.

Though the organization was supportive of the scholarly project from its inception, postimplementation discussion with leadership revealed that there was some discomfort by RNs with the added sense of burden in providing the screens, answering caregivers' initial questions, and possible misinterpretation of the screenings purpose by families. Qualitative survey question analysis revealed preeducation excitement about the project and an overall desire to learn more

about ACEs and the implementation process by all three categories of participants (front desk/managers, RNs/CMAs, and providers). As previously examined, posteducation qualitative data revealed no questions or concerns by staff or providers, rather praise for the presentations such as “eye opening,” “wonderful,” “so great and could be weeks of training,” and “so excited to get started with this.” For the most part, it was felt by staff and providers that caregivers were receptive to the new additional screening at WCEs despite qualitative data describing some “pushback from parents” which was “easily redirected” during the screening process.

Discussions with organizational leadership also revealed that one or two providers out of the six expressed some concern for the overall burden of ACEs screening in terms of time and potential sense of threat to families. Postimplementation qualitative data corroborated the latter points. One provider expressed concern about potential extended time that might be absorbed with positive screens, though she does not usually see pediatric patients. Another provider thought screening was “highly valuable” but was concerned about how to convey the importance of screening without making caregivers feel threatened. One provider stated that “families questioned the change but were easily redirected most of the time” and she “learned so much during the process . . . and appreciated the help with resources.”

To address the lessons learned in the future, project lead would consider asking for 15 minutes at meetings to directly present research around provider and staff concerns prior to ACEs screening implementation and have it placed in the implementation plan. Topics could include timeframe or “opening Pandora’s box” so providers and staff could express their own similar concerns. Research revealed that these fears did not become reality in practice. Hopefully, the added educational process would alleviate provider and staff fears and help them feel they are not alone in the screening process by validating their concerns and countering the

fears with research data. The presentation would include ways those concerns have been overcome in research practice. Overall, provider postimplementation comments included being pleased with ACEs scoring, learning a lot during the process, enjoying educating patients, the learning process being great, and expressing gratitude for this project.

Research suggests that regularly engaging staff and providers with the screening process and ACEs topics helps with screening momentum and reinforces its purpose for a robust project implementation. The project lead emailed pertinent ACEs research articles, including the original ACEs study, to providers and staff throughout the implementation period. Journal articles were meant to keep staff engaged in the screening process, educated of the most recent evidence-based material, and alerted to ACEs' importance in health care. Also, community ACEs educators and the project lead were available as resources to the staff and providers for further education and patient support. Finally, biweekly nursing staff and provider meetings were joined by the project lead and meant to support the screening implementation process by allowing the project lead to address questions and concerns as they arose. However, qualitative data revealed that some concerns were not discussed in the biweekly meetings as intended. Project lead preemptive research presentations may be one improvement to future implementations as previously described.

Dissemination Plan

Evidence revealed by this scholarly project supports the use of pediatric ACEs screening in primary care. Provider confidence and knowledge demonstrated a positive relationship with ACEs education and training during the implementation process. This scholarly project achieved three measurable outcomes over the three-month implementation period. First, provider knowledge was increased after the completion of an ACEs educational training program. Second,

there was an increased use of the pediatric ACEs screening tool over the three-month period contrasted to prior to the intervention. Finally, provider ACEs screening confidence increased over the three-month implementation period as compared with preimplementation. Thus, evidence demonstrated improvement of both provider knowledge and confidence over the intervention timeframe as well as increased screening with the ACEs screening tool.

Submission and dissemination of the scholarly project research will follow university protocol. Beyond that, results will be presented to the project clinic as well as another larger Alaskan primary care clinic with mostly medical doctors interested in implementing ACEs screening. Local organizations that helped educate the clinic staff and providers for the project want to promote ACEs screening efforts in primary care, and project lead will consider making a poster presentation for their educational work. A local foundation promoting ACEs awareness wanted to discuss the project results and implications, and a poster or a PowerPoint presentation may be utilized. Further dissemination of this project results will be accomplished using an informational trifold ACEs handout promoting education, screening, PCEs, and resiliency measures. The handout will have websites and local resources for patients and providers to access.

The project lead will consider disseminating results of the scholarly project through a poster presentation at Liberty University Research Week in April of 2023 and or Liberty University School of Nursing Research Day. Because of their holistic approach to patient care, nursing research journals will be considered for dissemination of the project results and lessons learned to positively impact ACEs screening processes in health care and add to research knowledge.

Conclusion

Addressing ACEs in primary health care has been far too slow of a process. More is now known about ACEs and their associated developmental and long-term health consequences, and this issue cannot be ignored in health care any longer. Unaddressed ACEs carry far too great a cost physically, mentally, spiritually, and financially on individuals, families, communities, and nations around the globe. Addressing ACEs should start in primary health care settings where the potential for educating, building trust, offering resources, and giving referrals to patients and their families is greatest. This makes it vital for health care organizations to have an ACEs champion to advance ACEs training and support. Pediatric ACEs screening is feasible in primary care with provider ACEs education and training to improve provider knowledge and confidence with ACEs screenings at WCEs and to mitigate negative developmental and long-term health outcomes for generations to come.

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Kia-Keating, M., Barnett, M. L., Liu, S. R., Sims, G. M., & Ruth, A. B. (2019). Trauma-responsive care in a pediatric setting: Feasibility and acceptability of screening for adverse childhood experiences. *American Journal of Community Psychology*, *64*(3–4), 286–297. https://doi.org/10.1002/ajcp.12366

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Koita, K., Long, D., Hessler, D., Benson, M., Daley, K., Bucci, M., Thakur, N., & Burke Harris, N. (2018). Development and implementation of a pediatric adverse childhood experiences (ACEs) and other determinants of health questionnaire in the pediatric medical home: A pilot study. *PloS One, 13*(12), Article e0208088. https://doi.org/10.1371/journal.pone.0208088

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Appendix A

Evidence Table

Name: Lisa Wangberg

Clinical Question: For providers in an Alaskan family practice clinic, does implementation of the pediatric ACEs screening tool combined with provider education increase provider screening with the ACEs tool and provider confidence over a three month period?

Author (year)	Study Purpose/ Objective(s)	Design, Sampling Method, & Subjects	LOE*	Intervention & Outcomes	Results	Study Strengths & Limitations
Anda, R. F., Porter, L. E., & Brown, D. W. (2020). Inside the adverse childhood experience score: Strengths, limitations, and misapplications. *American Journal of Preventive Medicine*, *59*(2), 293–295. https://doi.org/10.1016/j.amepre.2020.01.009	Expert opinion regarding the original 10 ACE questions use in screening	N/A	Level 7- Expert opinion	N/A	N/A	Opinion article from one of the leading authors of the original ACEs research. They discuss What the ACEs questions and score was intended for; epidemiolocal data, not screening. Many health conditions have complex etiologies.

Bethell, C., Gombojav, N., Solloway, M., & Wissow, L. (2016). Adverse childhood experiences, resilience and mindfulness-based approaches: Common denominator issues for children with emotional, mental, or behavioral problems. *Child and Adolescent Psychiatric Clinics of North America*, *25*(2), 139–156. https://doi.org/10.1016/j.chc.2015.12.001	To determine resilience and mindfulness mitigating measures to ACEs in children with EMB (emotional, behavioral problems).	Data from NHIS 2007 and MEPS 2008 sample 95,677 children with approximately 1,800 per state. Parents were surveyed about their children who were ages 2 to 17 about EMB. Chi-square test, t tests, bivariate analyses, rate ratio analyses plus multivariate logistic regression models to evaluate variations in prevalence of EMB by ACE level of the child. Age, income, resilience, and protective relationship factors were	Level 3 Cross-sectional survey, quasi-experimental	Children diagnosed with EMB problems are usually older especially with several ACEs, more likely male regardless of ACEs status. Several ACEs live at lower income homes and have public insurance independent of EMB status, but both are more likely to have public insurance. Higher ACEs are 1.4 x more likely to be uninsured without EMB.	Highlights: -EMB 1.65-4.46x higher across ACEs categorical levels than with zero ACEs -11x greater adjusted odds of EMB without resilience and several ACEs than zero ACEs with resilience -improved school engagement of 1.85 x higher rates with resilience, EMB and several ACEs and 1.32 x less likely to miss two or more weeks of school. - Less parenting stress and more child engagement improves child resilience nearly 2 x with EMB and several ACEs. - Child resilience, stress management of parents and child engagement promotes protective, attenuating factors - Mindfulness based mind body methods show promise for	Strengths: It emphasizes the importance of resilience and the quality of relationships within a family. Limitations: Cross-sectional nature and does not have longitudinal information on EMB ACEs and other factors. Lacks sensitivity, specificity and comprehensiveness of the factors studied. These surveys are biased toward positive reporting.

		further evaluated. School impact was also evaluated.			attenuating effects	
Bodendorfer, V., Koball, A. M., Rasmussen, C., Klevan, J., Ramirez, L., & Olson-Dorff, D. (2020). Implementation of the adverse childhood experiences conversation in primary care. *Family Practice, 37*(3), 355–359. https://doi.org/10.1093/fampra/cmz065	To "examine parent/guardian and provider acceptability/feasibility of the [ACEs] conversation during well-child visits in primary care" (p. 355).	Cross-sectional survey study of primary care providers, residents, and PA's (n=13). Convenience sampling of parent/guardian participants (n=238) were surveyed for acceptability and feasibility.	Level 3 quasi-experimental	Providers engaged in ACEs conversation with parents/guardians at WCEs. ACEs conversation card was adhered to exam room door for providers. 76% and 81% of parents felt positive and comfortable with this process respectively. 97% thought it should be done with the provider and 71% of parents were receptive to providers. 60% took 1-2 minutes and only 9% disclosed adversity with no mandatory reporting required.	ACEs conversation well received by parents/caregivers and it's feasible to implement in primary care settings. Could be a standalone conversation or complimentary to screening.	They found that ACEs conversation was acceptable and feasible at WCEs from parents of 6 months to 17 years of age children and may avoid the discomfort of disclosures. Done where workflow change is acceptable so may not be generalizable. Implied consent by filling out survey (so no consent form needed).
Clark, A. M., & Jones, H. M. (2021). Barriers to	To provide baseline knowledge of NPs	Design, Sampling Method, &	Level 6-single descriptive	Interventions and outcomes: 23-question survey sent	Results: (in order of importance) Barriers: -Lack of time (LOT)	Strengths: Response rate successful with

screening for adverse childhood experiences. *Journal for Nurse Practitioners*, *18*(2), 190–194. https://doi.org/10.1016/j.nurpra.2021.11.004	and NP students knowledge and barriers to ACEs screening (not pediatric specific)	Subjects: Cross-sectional pilot study used descriptive statistics to summarize ACEs screening and barriers. 98 surveys were completed by 66 NPs and 30 student NPs and 2 "other" aged 26-45	study	by email to NP and NP students in 2 local state NP chapters	to discuss and counsel -LOT to screen LOT d/t competing issues -Lack of resources -Lack of education -Unaware of ACEs -retraumatize concerns -uncomfortable discussing -Lack of reimbursement -Not prevalent concern -Not NP responsibility	diversity. Older providers lacked ACE training. Limitations: NP and students not separate, didn't ask if they currently screen, not asked time as provider.
DiGangi, M. J., & Negriff, S. (2020). The implementation of screening for adverse childhood experiences in pediatric primary care. *The Journal of Pediatrics*, *222*, 174–179.e2. https://doi.org/10.1016/j.jpeds.2020.03.057	Assess ACEs screening implementation in large healthcare system. Pilot study at six sites with variation in provider buy-in by site. Parents may be more likely to under-report.	Started with 1 of the medical centers and implemented ACEs screening of 3 and 5 yo at WCE and then expanded to a total of six	Level 4 evidence. Non-experimental.	ACE screening of 3 and 5 yo at WCE found feasible	It is feasible to do ACEs screening (though a few challenges were encountered -- more related to follow up to positive ACE screens)	Strengths: Highlights the importance and feasibility of early ACEs screening and education to mitigate toxic stress effects. Emphasizes early leadership and stakeholder buy-in Limitations: ensuring follow-up
Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss,	To determine if there is a relationship between ACEs and poor health	A convenience sample of Kaiser Permanente patients seen in	Level 4: correlational study design.	Surveys sent out to patients with 10 questions placed in 3 categories: abuse, neglect, household	Positive correlation between ACEs and poor health outcomes. Graded relationship between ACEs and	Strength: Landmark ACEs study. Limitations: Can only demonstrate associations because

M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine, 14*(4), 245–258. https://doi.org/10.1016/S0749-3797(98)00017-8	outcomes.	clinic and mailed survey one week after visit, 70.5% (9,508/13,494) ACEs survey respondents. 10 health risk factors were considered with respondents of the ACE questionnaire. 8506 surveys were used after review of their response (if they left anything blank it was discarded).risk factors were considered with respondents of the ACE questionnaire. 8506 surveys were used after review of their response (if they left anything blank it was discarded). Non-		dysfunction	health risk behaviors and studied diseases.	it was a self-reported, retrospective study. Responders may not have responded fully transparently and/or underreported or overreported ACEs.

		experimental Correlational design. SAS for analysis and direct method to age adjust the prevalence. Logistic regression analysis used to adjust for any confounders (sex, age, race, education).				
Forkey, H., Szilagyi, M., Kelly, E. T., & Duffee. J. (2021). Trauma-informed care. *Pediatrics 148*(2), Article e2021052580. https://doi.org/10.1542/peds.2021-052580.	Clinical report on trauma-informed care.	247 articles reviewed	Level 5-Systematic review of descriptive studies (Clinical Report-Grey paper from AAP)	TIC=relational HC.	TIC recognizes ACE exposure is common that can have long-term health consequences. Pediatricians are positioned to promote recovery, resilience and respond to trauma.	Endorses TIC: Train all staff in TIC, integrated health care (BH, social support, primary care), 2-generation approach, Community partnerships (schools, welfare, comm. Services etc), Provider and staff support.
Gillespie, R. J. (2019). Screening for adverse childhood experiences in pediatric primary care: Pitfalls and	Reviews current ACEs screening and toxic stress, overcoming screening pitfalls by providers in primary care and	N/A	Level 6-Descriptive design	Table of resources for ACEs, positive parenting and resilience.	Many examples of positive screening efforts.	Found screening feasible, accessible, time appropriate, little parent resistance, skills to navigate difficult conversation can be learned and

possibilities. *Pediatric Annals*, *48*(7), e257–e261. https://doi.org/10.3928/19382359-20190610-02	considered future screening.					overcome. Parents desire parent support as primary need and then educational information.
Gillespie, R. J., & Folger, A. T. (2017). Feasibility of assessing parental ACEs in pediatric primary care: Implications for practice-based implementation. *Journal of Child & Adolescent Trauma*, *10*(3), 249–256. https://doi.org/10.1007/s40653-017-0138-z	"To determine feasibility and provider acceptability of implementing assessments for parental ACEs within the context of an outpatient pediatric clinic, and to compare parental ACE detection rates between an item-level response tool and an aggregate-level response tool" (p. 249).	A convenience sample of 2 parent cohorts.	Level 4 correlational design. Non-experimental	Shows feasibility with limited resources of implementing surveys at 4 month WCC which is important for my research. Providers and parents were receptive to the research and discussing past trauma.	Feasible and embraced by both providers and caregivers. Both provider and caregiver receptive to implementation of the project. Positive provider feedback; improved clinic visits and no undue burden of time or resistance to ACE assessment.	Strengths: Parents may want increased privacy if talking of their own trauma. the researchers used 2 ACE detection assessment tools for > = 4—detection higher Limitations: Conducted in only one private practice setting.
Goldstein, E., Athale, N., Sciolla, A. F., & Catz, S. L. (2017). Patient preferences for discussing childhood trauma in primary care. *Permanente*	"Assess patience preferences for discussing traumatic experiences and posttraumatic stress disorder (PTSD) with clinicians in	A cross-sectional study. Adult patients were evaluated with a questionnaire regarding their comfort with discussing	Level 3 evidence: quasi-experimental	ACEs study questionnaire and the PC-PTSD screen were used to assess ACEs of 178 eligible primarily Latino patients. It was in a federally qualified health	ACEs and PTSD symptoms were statistically significant in association. Patients were found to be agreeable to screening and support.	Limitations: Patient responses may be skewed. Generalizability may be limited due to utilizing largely Latino population and for some English was their second language

Journal, *21*, Article 16–055. https://doi.org/10.7812/TPP/16-055	underserved, predominantly Latino primary care patients" (p. 119).	ACEs and PTSD. The questionnaire evaluated patient's confidence in their providers ability to help with trauma related concerns. n=178 adult patients sampled		clinic and had both medical and behavioral health services in Napa, California. Most are below poverty level, female and 31% are uninsured.		so comprehension may have been compromised. Strengths: Shows need to provide screening in patient centered way.
Hargreaves, M. K., Mouton, C. P., Liu, J., Zhou, Y. E., & Blot, W. J. (2019). Adverse childhood experiences and health care utilization in a low-income population. *Journal of Health Care for the Poor and Underserved*, *30*(2), 749–767. https://doi.org/10.1353/hpu.2019.0054	Objective was to determine any associations with ACEs and adult healthcare utilization in a low-income and underserved population.	Data from the Southern community cohort study of 38,200 mostly AA adults were recruited from community health centers to complete an extensive computer-based ACEs questionnaire from 12 SE states	Level 4 Prospective cohort study. They recruited from CHCs (85%) and the rest from general population (15%).	Higher ACEs were found associated with increased ED visits, primary care visits of ≥11, and 3 or more chronic diseases the past year. Interestingly, as ACEs expose increased, private clinic doctor use declined for increased CHCs, EDs, hospital or no setting. Associations were generally similar between black and white individuals. Adults between 40-70 years	High ACEs for adults between 40-70 years were statistically significantly associated with higher chronic disease burden and healthcare utilization into adulthood. Training healthcare providers about ACEs effects and appropriate treatments are important for improved patient health outcomes.	Strengths: Validity in data outcomes with Behavioral Risk Factor Surveillance System (BRFSS-state studies) Limitations: ACEs screen developed elsewhere and relies on self-report and recall but previous studies have shown good reliability for many variables such as smoking, obesity and DM.

				with higher ACEs		
Haynes, E., Crouch, E., Probst, J., Radcliff, E., Bennett, K., & Glover, S. (2020). Exploring the association between a parent's exposure to adverse childhood experiences (ACEs) and outcomes of depression and anxiety among their children. *Children and Youth Services Review, 113*, Article 105013. https://doi.org/10.1016/j.childyouth.2020.105013	This study sought to examine the part parental ACEs might play in their children's experiences with anxiety and/or depression.	It used South Carolina BRFSS and Children's Health Assessment Survey (CHAS) between 2014-16…families called if a child under 18 and adult answers questions related to ACEs. CHAS 1515 adult primary caregivers with children ≥ 8 included and 11 ACEs measured. Adult asked if their child ever had diagnoses of anxiety or depression.	Level 4 Retrospective cohort study.	Of 2,696 adults considered as primary guardians living with their children 8-15 years of age (n = 1,515) 11 ACEs were measured on the SC BRFSS survey. Then the children of this adult study group were coded for anxiety and/or depression using parent responses to four CHAS questions. If a response was affirmative to 1 of 4 questions the child was considered to have anxiety or depression for the purposes of this study. A Chi-square test was used to examine child and caregiver characteristics and caregiver ACE exposure. Multinomial logistic	The research found that caregivers exposed to ≥4 ACEs increased threefold their children's developing anxiety and/or depression. Statistically significant correlation between caregiver ACEs and increased child anxiety and/or depression measures.	Strengths: Few studies of this type to explore the relationship between caregiver ACEs and their children's anxiety and/or depression. Limitations: 1) There may be excluded data variables due to 13.7% observations ineligible which can reduce the power of the study and increase error. 2) Possible inaccurate recall of caregiver information. 3) Possible underreporting of variables and response fatigue.

				regression was used to capture the correlation between caregiver ACE exposure and child anxiety and/or depression status.		
Jones, L. M., Nolte, K., O'Brien, A. J., Trumbell, J. M., & Mitchell, K. J. (2021). Factors related to providers screening children for behavioral health risks in primary care settings. *Journal of Pediatric Nursing, 59*, 37–44. https://doi.org/10.1016/j.pedn.2020.12.014	Examine provider screening of children for mental health risks from a large pediatric/primary care clinic	MDs (n=319) and NPs (n=292) from across the US were examined for their child maltreatment routine screening practices through a computer based self-interview.	Level 4- Cross-sectional correlational design	Notable differences were found in provider screening practices. One-third screened family social support, abuse, bullying, caregiver mental health or substance abuse and transportation difficulties. Two-thirds screened for anxiety/depression, behavior problems, caregiver mental health, domestic violence, child substance abuse and financial difficulties. Face-to-face screening was less common.	Providers that universally screened for ACEs had greater confidence to respond to positive screens and felt higher available community resources.	Strengths: Large random sampling, see previous column. Limitations: Though large sample size, couldn't calculate response rates. May overestimate providers that want to screen.
Kerker, B. D., Storfer-Isser, A., Szilagyi, M., Stein,	To examine how often pediatricians ask caregivers	302 pediatricians' responses to	Level 3 Cross-sectional	AAP survey results were collected from 302 pediatricians	Few pediatricians asked about all 10 original ACEs	Strengths: Illuminated lack of pediatrician knowledge of ACEs

R. E. K., Garner, A. S., O'Connor, K. G., Hoagwood, K. E., & Horwitz, S. M. (2016). Do pediatricians ask about adverse childhood experiences in pediatric primary care? *Academic Pediatrics*, *16*(2), 154–160. https://doi.org/10.1016/j.acap.2015.08.002	about pediatric patient ACEs, what pediatricians know of the original ACEs study, the attitude of pediatricians regarding ACEs screening and their background and behavioral health training.	2013 AAP Periodic Survey and asked if they screen for ACEs and their familiarity with ACEs in practice using a 3-point ordinal response scale. Logistic regression and weighted descriptive analyses were performed on data.	study, quasi-experimental	with 32% not usually asking about ACEs and only 7% usually asked. <11% were familiar with Fellitti et al. (1998) landmark ACEs study. When screening was accomplished, it was only done in part. Those that screened most often were interested in the subject and felt they could influence outcomes.	questions. Pediatric provider ACEs training to identify risk factors could identify pediatric ACEs in primary care.	and screening. Revealed pediatrician attitudes and beliefs toward ACEs that were associated with screening. Limitations: Sub-optimal response rate typical of physician surveys but usually little non-response bias in AAP surveys.
Kia-Keating, M., Barnett, M. L., Liu, S. R., Sims, G. M., & Ruth, A. B. (2019). Trauma-responsive care in a pediatric setting: Feasibility and acceptability of screening for adverse childhood experiences. *American Journal of Community Psychology*, *64*(3–4), 286–297.	The purpose was to examine acceptability and feasibility of infant and parent/caregiver ACEs screening at a community clinic.	Feasibility data was collected from 164 patients at well-child exams for infants 4-12 months of age and their parents over a 13-month period. Simultaneous mixed methods approach was used to determine acceptability	Level 3 Quasi-experimental study	Among the 164 parents screened, scores ranged from 0 to 13 and children's ACEs scores ranged from 0 to 5. Of the infant-parent pair screened 47% met inclusion criteria to receive prevention services and most consented to receiving services (77.4%). Time constraints and receiving other	Both parents and providers found screening acceptable and explained: 1) it promoted a deeper relationship between patient and provider, 2) it assisted making a clear way between physical heath and behavioral health, 3) it emphasized the value of holistic care.	Strengths: Integration of behavioral health and primary care system (co-located) which allowed for direct referral. It emphasizes the importance of screening both infants and parents and offers prevention services for either person who is positive for ACEs. Screening at infant well-child exams promote resilience.

https://doi.org/10.1002/ajcp.12366		and feasibility of ACEs screenings for both infants and parents. Qualitative interviews with providers and staff helped elaborate quantitative data.		services (14.1%) were the most common reasons for not participating. 8.5% had external circumstances and no longer sought clinic services. Qualitative interviews recommended appropriate timing, flow and training.		Limitations: May have limited generalizability given the small community and ACEs champions because there may have been more buy-in from patients. Qualitative experience of parents were not included.
Koball, A. M., Domoff, S. E., Klevan, J., Olson-Dorff, D., Borgert, A., & Rasmussen, C. (2021). The impact of adverse childhood experiences on healthcare utilization in children. *Child Abuse & Neglect, 111*, Article 104797. https://doi.org/10.1016/j.chiabu.2020.104797	Examine the impact of ACEs on childhood healthcare utilization, medical diagnosis and pharmacological treatment.	Original 10 question ACEs screening was done on children 6 months to 17 years old in a behavioral health clinic or in primary care who had at least one repeat healthcare visit during the study. The data was found retrospectively from EHR the year prior to the study.	Level 3 Quasi-experimental study	1,183 children met inclusion criteria	Any reported ACEs increased the likelihood of no-show appointments and emergency services than children with none. Interestingly, insurance status was more strongly associated with healthcare utilization than ACEs score. 1 to 3 ACEs is more likely to be diagnosed with ADHD than 0. No relationship between anxiety diagnosis and ACEs score, but 1 to 3 ACEs more likely to be diagnosed with	Strengths: Age, gender and insurance status controlled for in the analysis Limitations: high-risk pt sample, parent may underreport, 58% not included for various reasons-refused, missed parts, not asked because clinic process breakdown

					depression, mood disorders, and behavioral disorders. ≥4 ACEs more likely to have developmental delays than 0. Asthma had no significant relationship to ACEs in this study accept for age. Lower ACEs scores were associated with private insurance as compared to non-insured and those with state insurance. Higher ACEs scores were associated with greater challenges accessing healthcare and higher rates of ED and urgent care use, no-show appointments and they were less likely to use the telephone nurse resource.	
Koita, K., Long, D., Hessler, D., Benson, M., Daley, K., Bucci, M., Thakur, N., & Burke Harris, N. (2018). Development and	To fill the gap related to validated ACEs screening tools for pediatrics.	Pilot study for developed pediatric ACEs screening tool for children 12 years and under via parent/caregiver	Level 4 - Case-control or cohort study	The final ACEs instrument merged 2 items and split one item into 3. No new items were added to the tool.	17 item validated tool for pediatric ACEs caregiver screening in primary care was found acceptable and feasible.	Strengths: Validated tool research and the CYW ACE Q tool to be used for my research.

implementation of a pediatric adverse childhood experiences (ACEs) and other determinants of health questionnaire in the pediatric medical home: A pilot study. *PloS One, 13*(12), Article e0208088. https://doi.org/10.1371/journal.pone.0208088		report. Participants were interviewed for cognitive ability and language fluency. 28 caregivers participated in this study.				
Lê-Scherban, F., Wang, X., Boyle-Steed, K. H., & Pachter, L. M. (2018). Intergenerational associations of parent adverse childhood experiences and child health outcomes. *Pediatrics, 141*(6), Article e20174274. https://doi.org/10.1542/peds.2017-4274	The authors hypothesized that there were intergenerational correlations between parental ACE exposure and worse childhood outcomes in health, health behaviors and their access and utilization of health care.	Linked data from 2012 SE Pennsylvania Household Health Survey (HHS) and the Philadelphia ACE survey. HHS interviewed 10,018 adults and 2,745 parents. The Phil. ACE survey was a f/u to the HHS. 1,784 ACE	Level 4-Correlational design	I&O: Compared parent ACEs and child health outcomes. Child health behaviors and health care use were not SS correlation to parental ACEs.	Higher poorer health of child with parent ACE exposure.	S: controlled for both child and parent confounders. W: rely on parent report, don't know severity differences of ACEs, relatively small sample size. May not be generalizable. Could not predict community factors influence or proximal family.

		surveys completed. 350 parent-child dyads were used for this study.				
McLennan, J. D., MacMillan, H. L., & Afifi, T. O. (2020). Questioning the use of adverse childhood experiences (ACEs) questionnaires. *Child Abuse & Neglect, 101*, Article 104331. https://doi.org/10.1016/j.chiabu.2019.104331	Expert opinion-commentary	N/A	Level 7-Expert opinion	N/A	N/A	Authors concerned about deficiencies in the original 10 ACE questions (most used questionnaire). It lacks psychometric assessment, limited questions, condensed items and response options, and simplistic scoring
Oh, D. L., Jerman, P., Purewal Boparai, S. K., Koita, K., Briner, S., Bucci, M., & Harris, N. B. (2018). Review of tools for measuring exposure to adversity in children and	Reviewed pediatric ACEs screening instruments.	32 tools examined for categories, target population, time to administer, qualifications and methods of admin. Feasibility, reliability and validity of tools	Level 5-Sytematic review of descriptive studies	Specific inclusion criteria used with ACE categories-others excluded. Used in more than one study than original designers. Large surveys excluded because surveillance focused. And study specific tools	14 tools found feasible for primary care.	CYW ACE-Q found a feasible and useful tool among the 14.

adolescents. *Journal of Pediatric Health Care, 32*(6), 564–583. https://doi.org/10.1016/j.pedhc.2018.04.021		reviewed.		excluded. And those used for retrospective studies excluded.		
Panisch, L. S., LaBrenz, C. A., Lawson, J., Gerlach, B., Tennant, P. S., Nulu, S., & Faulkner, M. (2020). Relationships between adverse childhood experiences and protective factors among parents at-risk for child maltreatment. *Children and Youth Services Review, 110*, Article 104816. https://doi.org/10.1016/j.childyouth.2020.104816	This study examined the associations between ACEs and protective factors via survey results of 581 parents of children ≤5 years enrolled in child maltreatment programs.	Data from Texas child maltreatment programs with 581 participating parents of children ≤5 years and the primary independent variable was parental ACEs score.	Level 4-Cross-sectional correlational design	Studied relationship between protective factors and parent ACEs scores using multivariate regression analysis between ACEs scores, living arrangements, health insurance, and employment status were done. Bivariate correlations of variables (certain characteristics) used in the study were calculated which included Parents Assessment of Protective Factors (PAPF) survey (36 item self report scale asseing strength in 4	Evidence of a relationship between decreased protective factors, of both social connections and resilience, among at risk parents with higher ACE scores. ≥4 ACEs associated with lower parental resilience than 0 ACEs. No health insurance and only household adult differed from 0 ACEs. Resilience not statistically significant association with employment, living with relatives nor having <4 ACEs. Social connections scores were attenuated by ≥4 ACEs, living alone, on	Strengths: Found many associations with number of ACEs Limitations: Need study replications. Parents may not have answered honestly and there was missing survey data which could have indicated parent reluctance to answer survey questions.

				domains of PFs): PAPF Resilience, PAPF, social connection, PAPF concrete support and PAPF social/emotional competence of children. Also, living situation (alone, partner, relatives), and insurance (private, Medicaid/CHIP, none) were calculated with number of ACEs from 0-≥4. Calculations on PAPF were 0-4 (low to high PFs).	Medicare/caid and no insurance. Having Concrete support with no insurance was inversely related and concrete support was not stat. significantly related to ACEs scores or other covariates. Develop: TIC interventions when working with at risk parents (for child maltreatment) who have an ACEs history. Authors noted in the discussion: Social connections advantages and thus resilience may be tempered by ACEs. Poverty plus ACEs can worsen ACEs effects. Resilience and concrete support were associated with self-efficacy.	
Popp, T. K., Geisthardt, C., & Bumpus, E. A. (2020). Pediatric practitioners' screening for	This pilot study focused on provider pediatric provider perspectives related to ACEs	700 web-based surveys were distributed to practitioners of which 51 returned and 48	Level 4 - Case-control or cohort study	The online survey consisted of 61 questions divided into 7 sections.	Indicated 59% of the practitioners were familiar with ACEs research and 24% had received ACEs screening training.	Strengths: Study provides insight into current ACEs screening and barriers from pediatric providers perspective.

adverse childhood experiences: Current practices and future directions. *Social Work in Public Health*, *35*(1–2), 1–10. https://doi.org/10.1080/19371918.2020.1711839	screening and barriers.	were included in the study (n=48).			47% screened for ACEs while all providers believed that ACEs negatively impact adult and children's health. Provider stated barriers were lack of professional education on the topic, lack of time and lack of tools.	Limitations: Sample was small, low response rate (true to other provider surveys) and should not be generalized. Potential bias because providers unfamiliar may not have responded.
Purewal, S. K., Bucci, M., Gutierrez Wang, L., Koita, K., Silverio Marques, S., Oh, D., & Burke Harris, N. (2016). Screening for adverse childhood experiences (ACEs) in an integrated pediatric care model. *Zero to Three*, *36*(3), 10–17.	"Describes the theoretical framework and rationale for ACE screening in a primary care pediatric setting, introduces the CYW ACE-Q and describes the BDHC-CYW Integrated Pediatric Care Model aimed at addressing the effects of ACEs and toxic stress" (p. 10).	N/A	Level 6- Descriptive Design	Implemented CYW ACE Q in an integrated health care setting.	Screening can help prevent long-term negative health consequences of ACEs	Template for CYW program of pediatric ACE screening. Provided CYW ACE-Q screen and guide online. Symptomatology check-list in this article.
Quizhpi, C., Schetzina, K., Jaishankar, G., Tolliver, R. M.,	Develop a process for addressing ACEs in pediatric primary care with	Assessed baseline knowledge and perceptions of	Level 4 - Case-control or cohort	Pre-test for providers for their knowledge and perceptions of	Phase 1: 51 parents/caregivers and 16 healthcare providers were	Strengths: 1) Identify ACEs training needs for providers, 2) consider preferences

Thibeault, D., Kwak, H. G., Fapo, O., Gibson, J., Duvall, K., & Wood, D. (2019). Breaking the cycle of childhood adversity through pediatric primary care screening and interventions: A pilot study. *International Journal of Child Health and Human Development*, *12*(4), 345–354. http://ezproxy.liberty.edu/login?qurl=https%3A%2F%2Fwww.proquest.com%2Fscholarly-journals%2Fbreaking-cycle-childhood-adversity-through%2Fdocview%2F2445581720%2Fse-2%3Faccountid%3D12085	integrated resource team and behavioral health.	ACEs among pediatric providers and local parents/guardians. Developed and tested ACEs screening, brief intervention and referral protocol to resources and supportive measures that would mitigate ACEs and promote resilience in families. They surveyed caregivers to obtain their feedback on the ACEs screening process. Academic pediatric primary care clinic co-located with a resource team and mental health in South Central Appalachia.	study	ACEs. Consisted of three phases: 1) testing provider knowledge of ACEs, 2) screening and intervention protocol development (champion team and CYW ACE-Q screen), 3) parent/caregiver feedback regarding ACEs screening process	surveyed. Only 50% of the providers knew what ACEs were prior to education. Phase 2: 96 parents/caregivers screened for ACEs. Phase 3: 18 of 29 parents screened for ACEs completed feedback survey and researchers found acceptability, feasibility, and appropriateness of ACEs screening from their feedback. Continue to explore optimal ways to accomplish pediatric ACEs screening.	and perceptions of caregivers, and 3) assess local resources. Limitations: None noted.

		85% of children publicly insured.				
Schickedanz, A., Halfon, N., Sastry, N., & Chung, P. J. (2018). Parents' adverse childhood experiences and their children's behavioral health problems. *Pediatrics, 142*(2), Article e20180023. https://doi.org/10.1542/peds.2018-0023	Purpose is to estimate the risk of childhood behavioral health problems as a function of parental ACEs counts.	Retrospective information by parents and parents' reports of their children of 9 ACEs looking at: 1) behavioral problems, 2) ADHD diagnosis, and 3) emotional disturbance diagnosis from two panel studies.	Level 4-Retrospective cross sectional	Multivariate linear and logistic regression models were used to estimate child behavioral outcomes by parent ACE count.	Parents with 4 or more ACEs had children with an average of 2.3 point higher score on BPI, 2.1 x higher odds of hyper activity and 4.2 x higher odds of an emotional disturbance compared to children with parents with no ACEs.	Strengths: National sample of families. First report showing an association between parental ACEs count and children's behavioral diagnosis. Limitations: Retrospective reports of ACEs. Unmeasured confounding factors. Unmeasured resilience factors.
Schneider, M., Mehari, K., & Langhinrichsen-Rohling, J. (2021). What caregivers want: Preferences for behavioral health screening implementation procedures in pediatric primary care. *Journal of Clinical Psychology in*	Examined pediatric caregiver preferences and comfort with psychosocial (mental or behavioral health symptoms and/or ACEs) screening procedures in clinical setting.	Mixed method sequential explanatory design examining caregivers of (n=149) pediatric patients between 0 and 11 years of age comfort and preferences with screening of psychosocial	Level 3 – Quazi experimental (with qualitative interviews)	Chi-square goodness-of-fit tests were utilized to test screening preferences. They found a preference to complete screening in the exam room rather than in the lobby. Parents preferred PCP and MBH providers to give recommendations	Highlights the need to understand how screenings are administered and reviewed in primary care to promote comfort, honesty and follow through. Procedure matters to caregivers. Family centered care supports adherence to care plan as well as quality of patient/provider	Strengths: Attempt to understand parent preferences to improve screening practices. Caregivers must feel comfortable sharing sensitive information. Limitations: Study done in only one rural primary care clinic, may not be generalizable.

Medical Settings, 28(3), 562–574. https://doi.org/10.1007/s10880-020-09745-1		factors such as ACEs in one rural primary care clinic.		and screenings.	relationship. Organizations and providers that use TIC demonstrate trustworthiness, openness and understanding of the child that may relieve the burden on PCPs. No single best practice pediatric screening approach was found.	
Selvaraj, K., Ruiz, M. J., Aschkenasy, J., Chang, J. D., Heard, A., Minier, M., Osta, A. D., Pavelack, M., Samelson, M., Schwartz, A., Scotellaro, M. A., Seo-Lee, A., Sonu, S., Stillerman, A., & Bayldon, B. W. (2019). Screening for toxic stress risk factors at well-child visits: The addressing social key questions for health study. *The Journal of Pediatrics, 205*,	Determine demographics and prevalence associated with toxic stress risk factors in universal screening, referral rates from screening impact on community resources and acceptability and feasibility of screening in the medical home.	Researchers developed a 13 question ACEs and unmet social needs screening tool called the Addressing Social Key Questions for Health Questionnaire. Between August 1, 2016 to February 28, 2017 parents/caregivers of 0 to 17 year old children received this	Level 3 - Quasi-experimental	2,569 families were surveyed with 6% having ≥1 ACE, 47% had ≥1 unmet social need and 49% reporting ≥1 stressor. Referral rates at one of the clinics increased from 2% to 13.% with screening. 86% of families indicated that they wanted to continue screening.	Screening for risk factors of toxic stress improved identification and care of families in pediatric primary care. Families found screening acceptable and feasible. Found ASK screening tool was suboptimal and may be beneficial to use a aggregate screening tool such as the CYW ASE-Q.	Strengths: Screen inquires about unmet social needs. Limitations: No control group or randomization.

244–249.e4. https://doi.org/10.1016/j.jpeds.2018.09.004		questionnaire during well child exams at four teaching clinics.				
Sun, J., Patel, F., Rose-Jacobs, R., Frank, D. A., Black, M. M., & Chilton, M. (2017). Mothers' adverse childhood experiences and their young children's development. *American Journal of Preventive Medicine, 53*(6), 882–891. https://doi.org/10.1016/j.amepre.2017.07.015	Examined how mother's ACEs correlate to their children's developmental risk. Assessed how this association is mediated through mother's poor health and depressive symptoms.	Mothers and children between 4 months and 4 years were recruited from a children's hospital ED. From March 2012 to June 2015. Mothers were interviewed about ACEs, depressive symptoms and heath status as well as children's developmental risks. 1,293 mothers were recruited for the study.	Level 4- Cross-sectional correlational design	Caregiver demographic survey, health of caregiver and child rated by caregiver, and food security questions were filled out. Depressive tool was rated (Rand screening tool) and Children's developmental risk was reported with PEDS tool. Statistical analysis was accomplished.	Increased mother's ACEs were significantly associated with their children's developmental risk. ACEs may cross generations.	Strengths: Mother's unmitigated Aces puts their child at potential developmental risk. Sentinel sample in poverty area and children's hospital ED. Limitations: Parental response to all variables increases variable bias.

*Note: Melnyk's Level of Evidence (LOE) Pyramid is required for appraising the level of evidence.

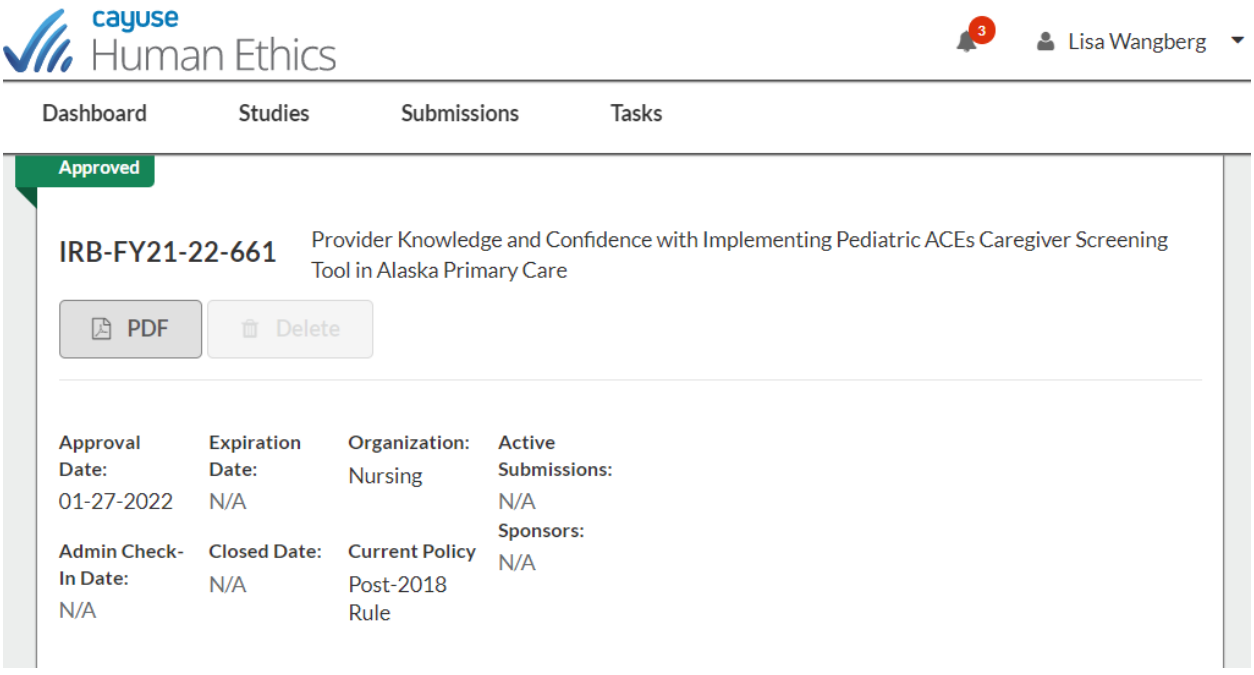
Appendix B

IRB Approval Documentation

IRB #: IRB-FY21-22-661
Title: Provider Knowledge and Confidence with Implementing Pediatric ACEs Caregiver Screening Tool in Alaska Primary Care
Creation Date: 1-24-2022
End Date:
Status: Approved
Principal Investigator: Lisa Wangberg
Review Board: Research Ethics Office
Sponsor:

Study History

Submission Type	Review Type	Decision
Initial	Exempt	No Human Subjects Research



Appendix C

Collaborative Institutional Training Initiative Certificate

CITI PROGRAM

Completion Date 07-Dec-2021
Expiration Date 06-Dec-2024
Record ID 46292459

This is to certify that:

Lisa Wangberg

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Biomedical Research - Basic/Refresher
(Curriculum Group)
Biomedical & Health Science Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

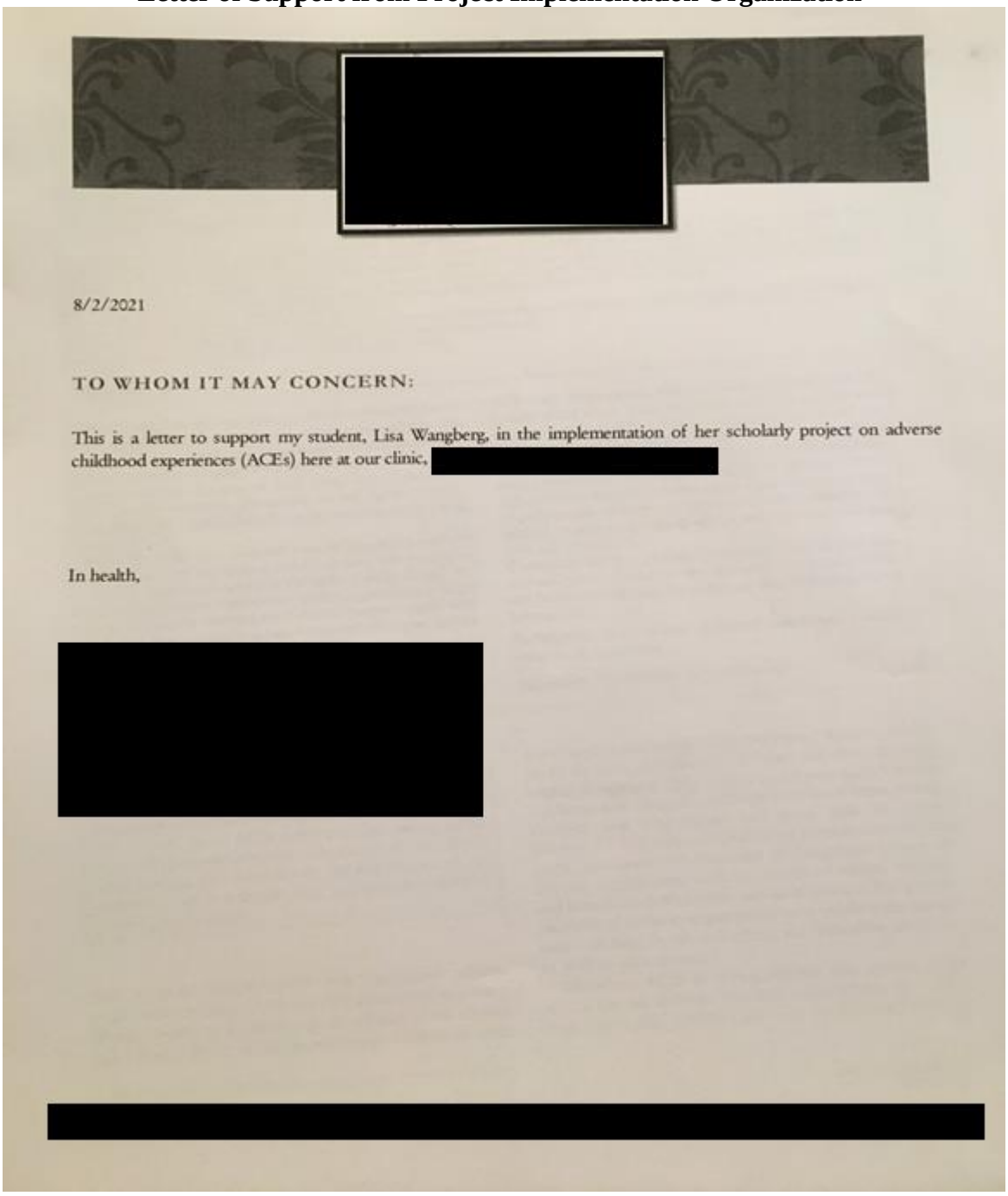
Liberty University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wd0e4d487-1dc9-4c99-b7e0-121adebcb160-46292459

Appendix D

Letter of Support from Project Implementation Organization



[redacted]

8/2/2021

TO WHOM IT MAY CONCERN:

This is a letter to support my student, Lisa Wangberg, in the implementation of her scholarly project on adverse childhood experiences (ACEs) here at our clinic, [redacted]

In health,

[redacted]

[redacted]

Appendix E

Permission Letters to Use Tools and Models

Permission to Use The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care

Kimberly Jordan - University of Iowa Hospitals and Clinics <survey-bounce@survey.uiowa.edu>
Wed 10/27/2021 8:14 PM
To: Wangberg, Lisa [redacted]

You have permission, as requested today, to review and/or reproduce *The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care*. Click the link below to open.

The Iowa Model Revised (2015)

Copyright is retained by University of Iowa Hospitals and Clinics. **Permission is not granted for placing on the internet.**

Reference: Iowa Model Collaborative. (2017). Iowa model of evidence-based practice: Revisions and validation. *Worldviews on Evidence-Based Nursing, 14(3), 175-182. doi:10.1111/wvn.12223*

> In written material, please add the following statement:
> *Used/reprinted with permission from the University of Iowa Hospitals and Clinics, copyright 2015. For permission to use or reproduce, please contact the University of Iowa Hospitals and Clinics at 319-384-9098.*

Please contact UIHCNursingResearchandEBP@uiowa.edu or 319-384-9098 with questions.

From: Sarah Gross, CPNP <[redacted]>
Sent: Friday, December 10, 2021 1:04 PM
To: Wangberg, Lisa <[redacted]>
Subject: [External] DNP Project Permission to Use

> You don't often get email from sgross@thepedcenter.com. Learn why this is important

[EXTERNAL EMAIL: Do not click any links or open attachments unless you know the sender and trust the content.]

Hi Lisa,

It was so nice speaking with you! In case you end up using it, you have my full permission to use any tools from my DNP project, including the Pre-, Mid-, and Post-Implementation Stakeholder Surveys. I also give permission for you to modify any tools you decide to use as you see fit for your project.

Best of luck, and please don't hesistate to reach out!
Sarah

Sarah Gross, DNP, CPNP-PC

Appendix F

SPSS Paired *t*-Test Statistics Pre- and Posteducation

Response statement	*N*	*M*	*SD*	*SE*	One-sided *p* value
1-pretest	6	4.33	0.816	0.333	0.051
1-posttest	6	5.00	0.000	0.000	
2-pretest	6	4.67	0.516	0.211	0.087
2-posttest	6	5.00	0.000	0.000	
3-pretest	6	1.50	0.548	0.224	< 0.001
3-posttest	6	4.50	0.548	0.224	
4-pretest	6	1.50	0.548	0.224	< 0.001
4-posttest	6	4.17	1.169	0.477	
5-pretest	6	3.00	1.265	0.516	0.006
5-posttest	6	4.83	0.408	0.167	
6-pretest	6	3.67	0.516	0.211	0.051
6-posttest	6	4.33	1.211	0.494	
7-pretest	6	4.67	0.516	0.211	0.305
7-posttest	6	4.83	0.408	0.167	
8-pretest	6	4.00	0.000	0.000	0.038
8-posttest	6	4.50	0.548	0.224	
9-pretest	6	3.17	1.169	0.477	0.005
9-posttest	6	4.50	0.548	0.224	

Appendix G

Center for Youth and Wellness ACE Questionnaire (CYW ACE-Q) Child

CYW Adverse Childhood Experiences Questionnaire (ACE-Q) Child

To be completed by Parent/Caregiver

Today's Date: _____ *Appointment Time:* _____

Child's Initials: _____ *Provider:* _____

Your Initials: _____ *Relationship to Child:* _____

Many children experience stressful life events that can affect their health and wellbeing. The results from this questionnaire will assist your child's doctor in assessing their health and determining guidance. *Please read the statements below. Count the number of statements that apply to your child and write the total number in the box provided.*

Please DO NOT mark or indicate which specific statements apply to your child.

1) Of the statements in Section 1, HOW MANY apply to your child? Write the total number in the box. ☐

Section 1. *At any point since your child was born...*

- Your child's parents or guardians were separated or divorced
- Your child lived with a household member who served time in jail or prison
- Your child lived with a household member who was depressed, mentally ill or attempted suicide
- Your child saw or heard household members hurt or threaten to hurt each other
- A household member swore at, insulted, humiliated, or put down your child in a way that scared your child OR a household member acted in a way that made your child afraid that s/he might be physically hurt
- Someone touched your child's private parts or asked your child to touch their private parts in a sexual way
- More than once, your child went without food, clothing, a place to live, or had no one to protect her/him
- Someone pushed, grabbed, slapped or threw something at your child OR your child was hit so hard that your child was injured or had marks
- Your child lived with someone who had a problem with drinking or using drugs
- Your child often felt unsupported, unloved and/or unprotected

2) Of the statements in Section 2, HOW MANY apply to your child? Write the total number in the box. ☐

Section 2. *At any point since your child was born...*

- Your child was in foster care
- Your child experienced harassment or bullying at school
- Your child lived with a parent or guardian who died
- Your child was separated from her/his primary caregiver through deportation or immigration
- Your child had a serious medical procedure or life threatening illness
- Your child often saw or heard violence in the neighborhood or in her/his school neighborhood
- Your child was often treated badly because of race, sexual orientation, place of birth, disability or religion

CYW ACE-Q Child (0-12 yo) © Center for Youth Wellness 2015

Note. Adapted from *ACE-Q Materials: ACE-Q Child*, by CYW, 2017 (ACE-Q Materials - Center for Youth Wellness). In the public domain. Use of materials does not imply endorsement of this project by the CYW.

Appendix H

Center for Youth and Wellness ACE Questionnaire (ACE-Q) Teen

CYW Adverse Childhood Experiences Questionnaire Teen (ACE-Q) Teen

To be completed by Parent/Caregiver

Today's Date: _____ *Appointment Time:* _____

Child's Initials: _____ *Provider:* _____

Your Initials: _____ *Relationship to Child:* _____

Many children experience stressful life events that can affect their health and wellbeing. The results from this questionnaire will assist your child's doctor in assessing their health and determining guidance. *Please read the statements below. Count the number of statements that apply to your child and write the total number in the box provided.*

Please DO NOT mark or indicate which specific statements apply to your child.

1) Of the statements in Section 1, HOW MANY apply to your child? Write the total number in the box. ☐

Section 1. *At any point since your child was born...*

- Your child's parents or guardians were separated or divorced
- Your child lived with a household member who served time in jail or prison
- Your child lived with a household member who was depressed, mentally ill or attempted suicide
- Your child saw or heard household members hurt or threaten to hurt each other
- A household member swore at, insulted, humiliated, or put down your child in a way that scared your child OR a household member acted in a way that made your child afraid that s/he might be physically hurt
- Someone touched your child's private parts or asked them to touch that person's private parts in a sexual way that was unwanted, against your child's will, or made your child feel uncomfortable
- More than once, your child went without food, clothing, a place to live, or had no one to protect her/him
- Someone pushed, grabbed, slapped or threw something at your child OR your child was hit so hard that your child was injured or had marks
- Your child lived with someone who had a problem with drinking or using drugs
- Your child often felt unsupported, unloved and/or unprotected

2) Of the statements in Section 2, HOW MANY apply to your child? Write the total number in the box. ☐

Section 2. *At any point since your child was born...*

- Your child was in foster care
- Your child experienced harassment or bullying at school
- Your child lived with a parent or guardian who died
- Your child was separated from her/him primary caregiver through deportation or immigration
- Your child had a serious medical procedure or life threatening illness
- Your child often saw or heard violence in the neighborhood or in her/his school neighborhood
- Your child was detained, arrested or incarcerated
- Your child was often treated badly because of race, sexual orientation, place of birth, disability or religion
- Your child experienced verbal or physical abuse or threats from a romantic partner (i.e. boyfriend or girlfriend)

Note. Adapted from *ACE-Q Materials: ACE-Q Teen*, by CYW, 2017 (ACE-Q Materials - Center for Youth Wellness). In the public domain. Use of materials does not imply endorsement of this project by the CYW.

Appendix I

Relevant Symptomatology Checklist

Relevant Symptomatology Checklist

(Please check any current symptoms that you have noticed with your child – this will help in giving your child more complete care)

- ☐ None
- ☐ Sleep disturbance (changes in sleep)
- ☐ Weight gain or loss
- ☐ Failure to thrive (not gaining weight or growing at rate of peers)
- ☐ Enuresis (involuntary urination after potty trained or bedwetting)
- ☐ Encopresis (resists bowel movements that may cause impaction/leakage)
- ☐ Constipation
- ☐ Hair loss
- ☐ Poor control of chronic disease (such as asthma or diabetes)
- ☐ Developmental regression (child not doing what they used to do)
- ☐ School failure or absenteeism
- ☐ Aggression
- ☐ Poor impulse control
- ☐ Frequent crying
- ☐ Restricted affect or numbing (decreased expression range/lack response)
- ☐ Unexplained somatic complaints (such as headaches or abdominal pain)
- ☐ Depression
- ☐ Anxiety
- ☐ Interpersonal conflict (conflict between two or more people)

Adapted from the Center for Youth and Wellness
Symptomatology Checklist Used for ACE Screening

Note. Adapted from *ACE-Q Materials: ACE-Q User Guide, Relevant Symptomatology* (p. 13), by CYW, 2017 (ACE-Q Materials - Center for Youth Wellness). In the public domain. Use of materials does not imply endorsement of this project by the CYW.

Appendix J

Preeducation and Implementation Survey

ACEs Screening Pre-Education and Implementation Survey

Date: _____ Job Title: _____

How long have you been employed here? _____ Highest Education Level? _____

Please circle your age group: 20-29 30-39 40-49 50-59 >60

Thank you for attending the ACEs Trainings. For the following questions, please rate your answer on a scale from 1 through 5, with 1 being "strongly disagree," and 5 being "strongly agree."

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I understand what an Adverse Childhood Experiences (ACEs) is.	1	2	3	4	5
2. I understand why it is important to identify ACEs in the pediatric population.	1	2	3	4	5
3. I understand how the *Center for Youth Wellness ACE Questionnaire* (CYW *ACE-Q*) works.	1	2	3	4	5
4. I understand the screening process using the *CYW ACE Q* tool.	1	2	3	4	5
5. I understand my role in the screening process.	1	2	3	4	5
6. I predict I will be able to perform my role in the ACEs screening process with no difficulty.	1	2	3	4	5
7. I value the concept of screening for ACEs in our office.	1	2	3	4	5
8. I predict patients and/or their caregivers will be receptive to and appreciative of the ACEs screening program.	1	2	3	4	5
9. I feel confident implementing ACEs Screening.	1	2	3	4	5

Do you have any questions or concerns about screening for ACEs?

_____

_____

_____

Do you have any comments you would like to share?

_____

_____

Thank you for taking the time to complete this survey! If you have any questions or concerns you would like to discuss, please contact Lisa at [redacted] Adapted from S. Gross, 2020)

Note. Adapted from *Screening for Adverse Childhood Experiences in Pediatric Primary Care*, by S. Gross, 2020, DNP project; University of Maryland. (http://hdl.handle.net/10713/12951). Adapted and reproduced with permission.

Appendix K

Posteducation Survey

ACEs Screening Post-Education Survey

Date: _____ Job Title: _____

How long have you been employed here? _____ Highest Education Level? _____

Please circle your age group: 20-29 30-39 40-49 50-59 >60

Thank you for attending the ACEs Trainings. For the following questions, please rate your answer on a scale from 1 through 5, with 1 being "strongly disagree," and 5 being "strongly agree."

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I understand what an Adverse Childhood Experiences (ACEs) is.	1	2	3	4	5
2. I understand why it is important to identify ACEs in the pediatric population.	1	2	3	4	5
3. I understand how the *Center for Youth Wellness ACE Questionnaire* (CYW *ACE-Q*) works.	1	2	3	4	5
4. I understand the screening process using the *CYW ACE.Q* tool.	1	2	3	4	5
5. I understand my role in the screening process.	1	2	3	4	5
6. I predict I will be able to perform my role in the ACEs screening process with no difficulty.	1	2	3	4	5
7. I value the concept of screening for ACEs in our office.	1	2	3	4	5
8. I predict patients and/or their caregivers will be receptive to and appreciative of the ACEs screening program.	1	2	3	4	5
9. I feel confident implementing ACEs Screening.	1	2	3	4	5

Do you have any questions or concerns about screening for ACEs?

_____

_____

_____

Do you have any comments you would like to share?

_____

_____

Thank you for taking the time to complete this survey! If you have any questions or concerns you would like to discuss, please contact Lisa a[redacted] (Adapted from S. Gross, 2020)

Note. Adapted from *Screening for Adverse Childhood Experiences in Pediatric Primary Care*, by S. Gross, 2020, DNP project; University of Maryland. (http://hdl.handle.net/10713/12951). Adapted and reproduced with permission.

Appendix L

Postimplementation Survey

ACEs Screening Post-Implementation Survey

Date: _____ Job Title: _____

How long have you been employed here? _____ Highest Education Level? _____

Please circle your age group: 20-29 30-39 40-49 50-59 >60

Thank you for your support and feedback during implementation of the ACEs Screening Program. For the following questions, please rate your answer on a scale from 1 through 5, with 1 being "strongly disagree," and 5 being "strongly agree.".

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I understand what an Adverse Childhood Experience is.	1	2	3	4	5
2. I understand why it is important to identify ACEs in the pediatric population.	1	2	3	4	5
3. I understand how the *Center for Youth Wellness ACE Questionnaire (CYW ACE-Q)* works.	1	2	3	4	5
4. I understand the screening process using the *CYW ACE-Q* tool.	1	2	3	4	5
5. I understand my role in the screening process.	1	2	3	4	5
6. I was able to perform my role in the ACEs screening process with no difficulty.	1	2	3	4	5
7. It was feasible to screen for ACEs at well visits and consults.	1	2	3	4	5
8. I value screening for ACES in our office.	1	2	3	4	5
9. Patients and/or their caregivers seem to be receptive to and appreciative of the ACEs screening program.	1	2	3	4	5
10. I would like to continue screening for ACEs at our office.	1	2	3	4	5
11. I feel confident implementing ACEs Screening.	1	2	3	4	5

Do you have any questions or concerns about screening for ACEs?

_____

_____

_____

Do you have any comments you would like to share?

_____

_____

_____

Thank you for taking the time to complete this survey! If you have any questions or concerns you would like to discuss, please contact Lisa at [redacted] (Adopted from S. Gross, 2020)

Note. Adapted from *Screening for Adverse Childhood Experiences in Pediatric Primary Care*, by S. Gross, 2020, DNP project; University of Maryland. (http://hdl.handle.net/10713/12951). Adapted and reproduced with permission.

Appendix M

Permission Letter to Reproduce Surveys

From: Sarah Gross, CPNP <[redacted]>
Sent: Sunday, July 17, 2022 8:06 PM
To: Wangberg, Lisa Marie <[redacted]>
Subject: [External] Re: Permission to reproduce your DNP surveys in adapted form

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[EXTERNAL EMAIL: Do not click any links or open attachments unless you know the sender and trust the content.]

Hi Lisa,

So great to hear from you. That's amazing that you're giving your final defense and so close to the finish line! I hope your project went well!!

Yes, you have my full permission to reproduce. How exciting your paper is getting published in your university's (and possibly ProQuest's) databases! I believe this response should suffice as permission to reproduce, but if not, please let me know what I need to provide. If it's not too much to ask, I would love to read your paper once published in the university's digital commons (but no pressure if not!). Thank you for helping spread awareness for ACEs and helping implement screening procedures.

Best Wishes,
Sarah

Sarah Gross, DNP, CPNP-PC
The Pediatric Center of Frederick, LLC
[redacted]

Appendix N

List of Figures

Appendix O

List of Tables