Prevention of Abusive Head Trauma Using an Educational Program for Parents/Caregivers

camile williams
cdwilliams2@dons.usfca.edu

Follow this and additional works at: https://repository.usfca.edu/dnp

Part of the Pediatric Nursing Commons, and the Public Health and Community Nursing Commons

Recommended Citation

williams, camile, "Prevention of Abusive Head Trauma Using an Educational Program for Parents/Caregivers" (2021). Doctor of Nursing Practice (DNP) Projects. 256. https://repository.usfca.edu/dnp/256
Prevention of Abusive Head Trauma Using an Educational Program for Parents/Caregivers

Camile Williams DNP (c), MSN, FNP-C

University of San Francisco

School of Nursing and Health Professions

DNP Committee Chair: Dr. Francine Serafin-Dickson, DNP, MBA, BSN, CNL
DNP Committee Member: Dr. Nancy Selix, DNP, FNP-C, CNM, CNL
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>1</td>
</tr>
<tr>
<td>Section II: Introduction</td>
<td>3</td>
</tr>
<tr>
<td>Background</td>
<td>3</td>
</tr>
<tr>
<td>Problem Description</td>
<td>3</td>
</tr>
<tr>
<td>Setting</td>
<td>4</td>
</tr>
<tr>
<td>Specific Aims</td>
<td>5</td>
</tr>
<tr>
<td>Available Knowledge</td>
<td>5</td>
</tr>
<tr>
<td>PICOT Question</td>
<td>5</td>
</tr>
<tr>
<td>Search Methodology</td>
<td>5</td>
</tr>
<tr>
<td>Integrated Review of the Literature</td>
<td>5</td>
</tr>
<tr>
<td>Local and National Data</td>
<td>5</td>
</tr>
<tr>
<td>AHT Parent/Caregiver Educational Programs</td>
<td>6</td>
</tr>
<tr>
<td>AHT Nurse Education</td>
<td>9</td>
</tr>
<tr>
<td>Summary/Synthesis of the Evidence</td>
<td>9</td>
</tr>
<tr>
<td>Rationale</td>
<td>10</td>
</tr>
<tr>
<td>Section III: Methods</td>
<td>11</td>
</tr>
<tr>
<td>Context</td>
<td>11</td>
</tr>
<tr>
<td>Interventions</td>
<td>12</td>
</tr>
<tr>
<td>Gap Analysis</td>
<td>14</td>
</tr>
<tr>
<td>Gantt Chart</td>
<td>14</td>
</tr>
<tr>
<td>Work Breakdown Structure</td>
<td>15</td>
</tr>
<tr>
<td>Responsibility/Communication Matrix</td>
<td>15</td>
</tr>
<tr>
<td>SWOT Analysis</td>
<td>15</td>
</tr>
<tr>
<td>Budget</td>
<td>16</td>
</tr>
</tbody>
</table>
Cost/Benefit Analysis .................................................................16

Study of the Interventions ................................................................17

Outcome Measures ..........................................................................17

Analysis ..........................................................................................18

Ethical Considerations ......................................................................19

Section IV: Results ...........................................................................21

Section V: Discussion .........................................................................25

Summary ..........................................................................................25

Interpretation ....................................................................................27

Limitations ........................................................................................30

Conclusions .......................................................................................32

Section VI: Funding .............................................................................33

Section VII: References ......................................................................34

Section VIII: Appendices ...................................................................39

Appendix A: Evaluation Table ...........................................................39

Appendix B: Statement of Non-Research Determination Form ..............47

Appendix C: Conceptual Model .........................................................54

Appendix D: Letter of Support from Organization .................................56

Appendix E: Parental Handouts .........................................................57

Appendix F: Pre- and Post- Period of PURPLE Crying Survey ...............59

Appendix G: Gap Analysis ................................................................60

Appendix H: Gantt Chart ....................................................................61

Appendix I: WBS ..............................................................................61

Appendix J: Responsibility/Communication Matrix ...............................63

Appendix K: SWOT Analysis ..............................................................64

Appendix L: Budget ..........................................................................65

Appendix M: Return on Investment .....................................................66
Prevention of Abusive Head Trauma Using an Educational Program for Parents/Caregivers

Abstract

**Problem:** The National Center on Shaken Baby Syndrome reports that 1,300 abusive head trauma (AHT) cases occur in the USA each year, a quarter of which are fatal. Injuries are caused by impact, shaking, or both and result in intracranial and spinal damage, retinal hemorrhages, fractures of the ribs and other bones. AHT case rates in the community involved in this project had a 22% increase of AHT from 2018 to 2019.

**Context:** A practice improvement project involved the implementation of an AHT educational program targeted at parents/caregivers receiving care services at a children’s hospital pediatric well-child clinic located in Fresno, California.

**Interventions:** The project was a quality improvement project and was framed by Lazarus and Folkman’s Stress Theory. The intervention utilized the Period of PURPLE Crying (PPC) educational tool as the basis of an AHT prevention education program to increase parental/caregiver knowledge of AHT and decrease the AHT incidence rate among children less than 36 months of age. Parents/caregivers completed a pre-knowledge survey before exposure to the intervention entailing an educational program and completed a post-knowledge survey after viewing the video and completing a Q &A session with the nurse educator.

**Measures:** Pre and post-knowledge survey scores were measured and compared using SPSS v24 for analysis. A matched sample t-test was conducted to determine if the participants experienced a significant improvement in knowledge of AHT and coping skills after exposure to the intervention.
**Results:** A total of N=61 parents attended the educational session and completed a pre-and post-knowlege survey. On a scale of 13 to 65 possible points, the average pre-test knowledge score was 43.1, and the average post-test knowledge score was 47.0 points. Although the degree of change was variable between questions, a matched pair t-test determined that the increase in cumulative scores was highly significant \( t=8.45, p=.001 \). In addition, the trend in the 12-month incidence rates of reported AHT cases demonstrated a three-fold decline from 10.97 per 1,000 children before October 2020 to 2.99 per 1,000 children in the 3 months after the intervention.

**Conclusions:** The educational intervention was found to be effective in significantly increasing knowledge of AHT and understanding coping skills. The AHT incidence rate dramatically declined during the post-intervention period. Evidence-based outcomes justify the integration of preventative education as part of services delivered to new parents/caregivers at this children’s hospital pediatric well-child clinic.

**Dissemination:** The plan for disseminating the final project will consider a variety of venues, including: (1) share findings with executive leadership of the children’s hospital in Fresno, California for their consideration to offer educational training to parents/caregivers of newborn and young children; (2) publish the final project paper in the USF Project Repository archive of curated documents which allows DNP graduates to share academic work products with the scholarly consumer communities; and (3) present a poster at the 37th Annual San Diego International Conference on Child and Family Maltreatment in January 2022.

**Keywords:** abusive head trauma, caregivers, education, shaken baby syndrome, prevention, response and control, stress theory
Section II: Introduction

Background

Abusive head trauma (AHT) is a form of intentional or non-intentional injury and is a leading cause of death in abused children under three years of age (Jenny et al., 1999; Shaikh et al., 2019). The National Center on Shaken Baby Syndrome reports that 1,300 abusive head trauma (AHT) cases occur in the USA each year, a quarter of which are fatal. The AHT case rates in the community involved in this project are more than twice that of statewide averages and have increased in recent years (California Essentials for Childhood Initiative [CECI, 2016).

The triggers for abusive head traumas caused by a response to inconsolable or excessively crying infants or toddlers, such as shaken baby syndrome (SBS), have been examined in several peer-reviewed articles. A child who cries can be frustrating to parents/caregivers who may not know that crying is part of normal development in infants and decrease as the infant matures. However, current literature suggests that there is a lack of education and knowledge of the cause and prevention of abusive head trauma (AHT) among parents/caregivers (Barr et al., 2008; Bechtel et al., 2011; Dias et al., 2005; Duzinski, 2018; Fujiwara, 2015; Goulet et al., 2009; Kelly et al., 2016; Nocera et al., 2015; Rideout, 2016; Yamaoka et al., 2019; Zolotor et al., 2015).

Problem Description

Abusive head trauma (AHT) is an intentional or non-intentional injury caused with or without contact with a hard surface. Head trauma can result in subdural hematomas, diffuse axonal injury, retinal hemorrhages, and/or fractures of long bones or ribs. AHT is the leading cause of death in abused children under three years of age and is experienced by 38 per 100,000 infants in the United States (Jenny et al., 1999; Shaikh et al., 2019). In 2016, the economic
burden of AHT injuries was estimated at $210,012 per victim or $585 billion in national health expenditures (Boop et al., 2016). Victims of AHT often require long-term behavioral, physical, occupational, and speech therapy services. AHT does not discriminate and occurs across all socioeconomic, racial, and ethnic groups.

The Child Advocacy Prevention and Treatment Clinic (CAP-T) of the children’s hospital in Fresno County was started in 1999 to evaluate all children with suspected child abuse, including AHT. The Child Advocacy Prevention and Treatment Clinic has been concerned with notable increases in referrals of AHT cases over the past few years and has voiced a dire need to develop and provide an AHT prevention program for parents/caregivers of young children. In 2018, this hospital site had 94 infants diagnosed with AHT. In 2019, the number increased to 119 and continued to increase, with numbers peaking at 11 cases during the month of April 2020. Increases in AHT may be attributable to the recent social pressures and economic downturn caused by the COVID-19 pandemic. Parents/caregivers are more likely to experience increased stress levels due to COVID-19, which leads to a higher probability of child maltreatment and, subsequently, a higher frequency of AHT cases (Campbell, 2020).

Setting

The setting for this project was a 358-bed children’s hospital located in Fresno, California. It is the largest Level II pediatric trauma center in the region and serves 1.3 million children and adolescents each year. The organization’s mission is to provide high-quality, comprehensive healthcare services to children, regardless of their ability to pay and continuously improve children’s health and well-being.
Specific Aims

The short-term or immediate goal of this project aimed to provide an AHT educational program to significantly increase AHT knowledge and awareness of attending parents/caregivers by at least 70%. The longer-term sustainable aim was to decrease the incidence rate of AHT by at least 40% between October 2020 and by March 2021 (see Appendix B, Statement of Non-Research Determination).

Available Knowledge

PICOT Question

The PICOT question: In children 36 months and younger, how does an AHT educational prevention program affect the incidence of such episodes and increase the knowledge of parents/caregivers after three months of education?

Search Methodology

A review of the evidence was conducted by searching Medline, PubMed, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) using keywords, including “shaken baby syndrome/prevention and control” [Mesh] OR “shaken baby syndrome” AND “abusive head trauma” AND “prevent* OR reduce*.” A total of 44 articles were identified. The papers selected for the literature review were selected based on inclusion criteria and their relevance to the intervention to the PICOT question. After applying all criteria, 13 articles remained for the review of the literature. The Johns Hopkins Research Evidence Appraisal Tools were used to analyze the chosen studies to evaluate the gap in implementing AHT/SBS prevention programs (See Appendix A, Evaluation Table).

Integrated Review of the Literature

Local and National Data
State and national data point toward the need for prevention programs to reduce the incidence of AHT (Boop et al., 2016). In 2014, the California Department of Public Health studied non-fatal AHT by county. The state of California reported a total of 2,182 incidents for a rate of 8.6 AHT per 1,000 children, while AHT rates for Fresno County was nearly double the state rate and ranked third in AHT hospitalizations statewide (CECI, 2016). A national study conducted by the National Center on Shaken Baby Syndrome found that 1,300 cases of AHT are reported each year in the United States (National Center on Shaken Baby Syndrome, n.d.).

**AHT Parent/Caregiver Educational Programs**

Several peer-reviewed articles have published evaluation results of training programs to prevent Abusive Head Trauma (AHT) and shaken baby syndrome (SBS). The results demonstrate high levels of support and feasibility. The literature shows that AHT/SBS prevention training programs that utilize educational videos and handouts are successful with increasing parental/caregiver knowledge on AHT/SBS and decrease the number of incidents reported by healthcare systems. Developing, implementing, and evaluating education-based prevention programs have multiple benefits that include protecting the health and wellness of children while also recovering long-term costs to society. Educational material, which teaches parents/caregivers safe and healthy reactions to crying infants, appears to effectively reduce the incidence of AHT/SBS and have been found to be the most effective method of reinforcing healthy behaviors (Barr et al., 2008; Bechtel et al., 2011; Dias et al., 2005; Duhaime, 2008; Duzinski, 2018; Fujiwara, 2015; Goulet et al., 2009; Kelly et al., 2016; Nocera et al., 2015; Rideout, 2016; Yamaoka et al., 2019; Zolotor et al., 2015).

Abusive head trauma prevention programs should include a range of variables to evaluate the program’s effectiveness and participants’ knowledge. Quality assurance variables can include
the following: (a) whether the participant watched the video; (b) who presented the video; (c) the participant viewed the video in the privacy of their treatment room; and (d) whether the participant completed a Q&A session with a nurse who was well informed about AHT. The knowledge survey consisted of 13 items based on the Period of Purple Crying (PPC) program’s key messages. The PPC program covers the normal crying curve and the dangers of shaking a baby, as described by the National Center on Shaken Baby Syndrome. Nurses were trained to deliver the PPC program and answer any remaining questions provided to parents/caregivers. The survey also asked about the participants’ intention to share information learned with their partner and other key care providers (Barr et al., 2014; Bechtel et al., 2011; Dias et al., 2005; Duzinski, 2018; Fujiwara, 2015; Goulet et al., 2009; Kelly et al., 2016; Nocera et al., 2015; Rideout, 2016; Yamaoka et al., 2019; Zolotor et al., 2015).

Parents/caregivers often struggle to care for inconsolable infants and are not well informed about effective soothing techniques. Some parents/caregivers believe that a crying infant reflects poorly on their parenting abilities (Bechtel et al., 2011). The knowledge of a child’s development is relevant to the parent’s/caregiver’s cognitive actions and directly affects their own stress levels and response behaviors (Barr et al., 2005; Bechtel et al., 2011; Dias et al., 2005; Duzinski, 2018; Fujiwara, 2015; Goulet et al., 2009; Huang et al., 2005; Kelly et al., 2016; Nocera et al., 2015; Rideout, 2016; Yamaoka et al., 2019; Zolotor et al., 2015).

Studies emphasize the importance of parental/caregiver knowledge of child development, which is a substantial factor in parenting (Parks & Smeriglio, 1986). Parents/caregivers who learn about child development are less likely to use aggressive behavior and are more likely to utilize learned positive behaviors (Barr et al., 2014; Bechtel et al., 2011; Dias et al., 2005; Duzinski, 2018; Fujiwara, 2015; Goulet et al., 2009; Kelly et al., 2016; Nocera et al., 2015;
Parents/caregivers with less child development knowledge are more likely to use punitive measures to control their child (Balan, n.d.). Published information on the correlation between parental/caregiver knowledge, parenting behavior, race, and socioeconomics is lacking, and accurate studies looking at these relationships among lower-income parents/caregivers are even less understood (Dias et al., 2005).

Hospitals providing abusive head injury prevention and educational programs that teach the fundamentals of infant crying, shaken baby syndrome, and alternative response behaviors have reported laudable results (Duzinski, 2018; Fujiwara, 2015; Kelly et al., 2016; Nocera et al., 2015; Rideout, 2016; Yamaoka et al., 2019; Zolotor et al., 2015).

Educational materials included pamphlets, books, and videos on crying, the physical dangers of shaking an infant, and coping strategies. AHT prevention programs have demonstrated positive results in knowledge and intended behaviors among participants (Duzinski, 2018; Fujiwara, 2015; Kelly et al., 2016; Nocera et al., 2015; Rideout, 2016; Yamaoka et al., 2019; Zolotor et al., 2015).

Dias et al. (2005) studied a hospital-based parent education program about violent infant shaking and AHT between 1996-2002. The program was provided in 16 maternity hospitals and documented 65,205 commitment statements from fathers (76%) and mothers (96%) of 94,409 live births. Responses to the follow-up telephone surveys found that over 95% of the parents remembered having received the information about the prevention of AHT. The incidence of abusive head injuries decreased by 47%, from 41.5 cases per 100,000 live births to 22 cases per 100,000 during the 5.5-year study period (Dias et al., 2005).

The SBS/AHT educational interventions were found to be vital in preventing AHT. Programs that help caregivers avoid feeling overly frustrated when their children cry can reduce
the risk of AHT (Barr et al., 2014; Bechtel et al., 2011; Dias et al., 2005; Duzinski, 2018; Fujiwara, 2015; Goulet et al., 2009; Kelly et al., 2016; Nocera et al., 2015; Rideout, 2016; Yamaoka et al., 2019; Zolotor et al., 2015). Implementation of in-hospital education interventions that provide information about how to appropriately respond to crying infants is an essential component of the postnatal educational regimen (Duzinski, 2018; Fujiwara, 2015; Goulet et al., 2009; Kelly et al., 2016; Nocera et al., 2015; Rideout, 2016; Yamaoka et al., 2019; Zolotor et al., 2015).

**AHT Nurse Education**

An atmosphere of supportive leadership facilitated the implementation of the SBS/AHT education guidelines by nurses. Nurse leadership must be committed to providing access to educational tools including: (a) SBS/AHT education resources; (b) an understanding of the SBS/AHT education guidelines; and (c) feedback about the impact of their SBS/AHT education interventions is imperative (McKenzie et al., 2009; Rideout, 2016; Zolotor et al., 2015).

**Summary/Synthesis of the Evidence**

The literature supports educational materials to improve parents/caregiver knowledge and behaviors concerning AHT/SBS and effective parental coping strategies. The cost of AHT exceeds the financial cost to include society’s failure to protect those who are defenseless against abuse. The only comprehensive analysis of AHT cases’ cost comes from New Zealand (Friedman et al., 2012). In Friedman’s study, cost per AHT child averaged $725,300. Within all child maltreatment methods in the USA, the average lifetime cost per maltreatment child is an estimated $210,000, excluding quality of life and lost work costs (Friedman et al., 2012). No study has comprehensively estimated lifetime costs of AHT in the USA (Barr et al., 2014;
Rationale

Conceptual models and nursing theories have helped nurses use years of accumulated nursing knowledge to translate evidence into practice. The stress theory of Lazarus and Folkman (2000) aided this project’s theoretical model. Lazarus and Folkman highlighted the associations among individual characteristics, environment, stressful events, and coping (Goulet et al., 2009). The stress theory permits the conceptual reflection of AHT prevention programs by reducing stress and improving coping before AHT occurs. A baby’s uncontrollable crying often triggers stress, extreme frustration, among other feelings. The Lazarus and Folkman theoretical model contains both cognitive knowledge and adaptive coping strategies dimensions. Effective AHT prevention identifies these triggers before they lead to abusive behavior (Lazarus, 2000). The Lazarus and Folkman model of stress and coping explains the parent’s or caregiver’s response to the child crying and ways in which the theory can be translated to evidence-based practice change (see Appendix C, Conceptual Model).

A host of variables have been found to moderate the likelihood of causing an AHT event including, education, financial resources, relationship status, birth order, biological child, race, age, gender, and infant development knowledge. Moderators are the variables that influence stressors that can shape behaviors and affect the ability to manage stress and coping (Baron & Kenny, 1986; Rudolph et al., 2020). The mediation phase allows the individual to use a spontaneous cognitive process and identify variables absent before stress is encountered.

Transaction of the experience employs cognitive mediating processes. A stressor is assessed, allowing for the parent or caregiver to identify the level of psychological stress the
individual-environment relationship causes. With secondary assessment, the parent/caregiver identifies resources to enable adjusting to the stress of the individual/environment relationship. Coping behaviors promoted healthy adjustments to the stressor. The outcome is stress that leads to child abuse. When the interaction of the individual/environment transaction is appraised as stressful, and the coping resources are inadequate, adverse responses/outcomes, such as abuse, occur (Baron & Kenny, 1986; Rudolph et al., 2020).

Lazarus model of stress and coping rationalized the outcome of a parent’s/caregiver’s response to crying (transacted) with other antecedents (Lazarus, 2000). The differences in the individual’s cognitive ability to process information and apply coping strategies are seen in the stress and coping theory (Bechtel et al., 2011). The Lazarus theory of stress and coping identifies factors that may be amendable in AHT prevention education (Lazarus, 2000). The theory can organize possible and known causes of AHT perpetration (Bechtel et al., 2011; Lazarus, 2000). Parents/caregivers are exposed to potentially stressful stimuli that can provoke abusive behaviors. Identifying these behaviors can inform and facilitate focused interventions to AHT prevention (Bechtel et al., 2011; Lazarus, 2000).

Section III: Methods

Context

Crying is a normal behavior in healthy infants. However, it is the primary reason parents/caregivers will contact a medical professional for their child (Barr et al., 2008). The Central Valley (encompassing Fresno, CA) Child Advocacy Prevention and Treatment (CAP-T) clinic staff includes four child abuse pediatricians, a nurse practitioner, a social worker, a clinical coordinator, and a clinical liaison. The staff members identified a steady increase in referrals for AHT and the need for a preventive educational program. The hospital leadership and key
stakeholders including the project manager (DNP student), children’s hospital leadership, and CAP-T medical director/staff, physician, nurses, and parent/caregiver supported the project. The CAP-T Medical director and staff welcomed this educational program to reduce the incidence of AHT in Fresno County (see Appendix D, Letter of Support).

Healthcare professionals within the organization, including physicians, nurse practitioners, physician assistants, registered nurses, and CAP-T staff, supported the Central Valley hospital and the community to provide parents/caregivers with evidence and tools to manage stress and control reactions to their children’s crying and decrease the incidence of AHT. Improving healthcare providers’ and nurses’ knowledge of evidence-based best practices and their capacity ensured that information given to parents/caregivers is accurate. Fresno County’s incidence of AHT cases is nearly twice that of the state average and ranks third in AHT hospitalizations of children under four years old (CECI, 2016). The potential benefit of reducing the incidence of AHT to children and the community’s cost is why the children’s hospital providers, nurses, the community’s parents/caregivers supported this program.

Interventions

The Period of Purple Crying educational program and pre/post tools were identified in the literature review to help disseminate education on AHT prevention. The Period of Purple Crying evidence-based program, including education/parental handouts and pre-/post-implementation survey tools, has been implemented in over 2,000 hospitals and organizations in all 50 states and has been translated into ten languages to ensure inclusivity of parents’ native languages (Barr et al., 2005; Barr, 2014; Duzinski et al., 2018; Fujiwara, 2015; Kelly et al., 2016; Nocera et al., 2015; Shanahan et al., 2014). Since evidence for the effectiveness of AHT prevention programs is varied, considerable numbers of hospitals and clinics have not
implemented AHT prevention programs (National Center on Shaken Baby Syndrome, n.d.). Better evaluation of cost effectiveness is needed for the primary prevention of AHT implementation, messaging, and targeting to parents/caregivers from hospitals and clinics to reduce costs.

This project aimed to help parents/caregivers of young children understand inconsolable crying as a natural developmental stage in infants. Several AHT primary prevention programs exist to increase parental/caregiver awareness of AHT and inform them on appropriate ways to soothe infants. The Central Valley program targeted educational prevention towards parents, caregivers, and the infants’ families during their healthcare visits with their primary care provider for children under 36 months. The nurse educator assigned the parent/caregiver to an online The Period of Purple Crying AHT prevention training module that includes education on normal crying and the dangers of shaking a baby. The Period of Purple Crying AHT prevention training module was based on over 30 years of scientific research on infant crying, parental/caregiver reactive behavior, and AHT (Barr et al., 2005; Duzinski et al., 2018; Fujiwara, 2015; Kelly et al., 2016; Nocera et al., 2015; Shanahan et al., 2014).

An educational video was watched, and nurse educators were available to answer questions the parent/caregiver may have regarding key concepts of AHT prevention. The parents/caregivers completed a pre-knowledge survey before being exposed to any information, followed by a post-knowledge survey immediately after watching the educational video, reviewing the written material, and speaking with the nurse educator. Participant knowledge of these critical concepts before and after exposure to the educational material was measured and compared for significant changes using a matched samples t-test (see Appendix E, Parental handout; Appendix F, Pre/Post-Knowledge surveys).
Gap Analysis

A gap analysis was conducted in Fresno County at a children’s hospital primary care clinic. Each year, well-child exams are provided to thousands of middle and low-income children in the Fresno area. Project efforts specifically targeted children under 36 months of age. Current literature and the gap analysis identified a need for an AHT educational program to increase parent/caregiver knowledge about AHT to reduce the occurrence of AHT cases. The gap analysis analyzed the key concepts parents/caregivers identified at baseline and post-intervention. Implementing the AHT prevention program closed the gap of the escalating incidence rate of AHT and increased participants’ AHT knowledge that were identified at the children’s hospital in Fresno, California (see Appendix G, Gap Analysis).

Gantt Chart

The GANTT analysis broke down project implementation throughout the project. The GANTT chart had four phases: antecedents, moderator, mediating processes, and outcomes based on Lazarus’ Stress and Coping theory. Each phase identified what must be implemented to reach the next phase according to February 2019 to May 2021 timeline. Antecedents included the following: determination of the project, beginning the literature review, and conducting a gap review. Moderators include eliciting faculty input and identifying & connecting with community partners. The mediator phase included incorporating leadership feedback: conducting the literature review, procuring participants evaluation tools, and refining SOD, budget, GANTT, & SWOT. Mediating processes included clarifying logistics and expectations, conducting nurse AHT prevention education orientation, assigning nurse educators, reviewing AHT goals & expectations of nurses, completing pre-knowledge quizzes, implementing the AHT educational prevention project, and communicating with partners on a continuous basis. The final phase
included conducting the post-knowledge quizzes, evaluation, monitoring progress & lessons learned, determining ongoing sustainability, and sharing the content of the prevention project with partners, which has been completed. Communicating with partners and nurses sharing the AHT prevention quality improvement project with partners is ongoing (see Appendix H, Gantt).

**Work Breakdown Structure**

The work breakdown structure (WBS) identified the objectives and goals for the project implementation. The project manager (DNP author) educated the clinic providers on referring families to the registered nurse (RN) for education. The CAP-T clinic staff educated the nursing educators, who subsequently educated the clinic nursing staff after completing the online PPC. Completing the learning module allowed nursing staff to learn about the AHT prevention program, evaluate its effectiveness, and how to implement it with families. The program’s evaluation helped determine the efficacy of the intervention (see Appendix I, WBS).

**Responsibility/Communication Matrix**

The communication plan demonstrates communication through the departments involved in the AHT prevention project. Participants could quickly identify who was doing what and when. Stakeholders and leaders learned the information they needed and when to expect the next update (see Appendix J, Responsibility/Communication Matrix).

**SWOT Analysis**

The strengths, weaknesses, opportunities, and threats (SWOT) framework is a tool that evaluates the current state and anticipates potential impacts. When using SWOT for the prevention project, it was easy to see the possible challenges and impacts. The project was administered and coordinated according to previous AHT/SBS evidence-based practice projects that have been delivered to parents. There was minimal risk to the participants in reading the
material, watching the educational video, and completing the pre and post-knowledge surveys. Given the lack of understanding of AHT and the number of cases suffered by infants in this community, acceptance of a prevention program by the health organization and the community was imminent (see Appendix K, SWOT).

**Budget**

The project budget of $5,530 covered all of the costs of the intervention. The cost for video and educational materials in the English and Spanish Languages was $2.30 each x 100 = $230. Other languages were $3.50 per copy x 20 = $70 ($230 + $70 = $300). Nurses implemented the AHT prevention educational program for 3 weeks (120 hours x $30 = $3,600). The project manager (DNP author) spent 20 hours at $78/hour, equaling $1560. A total of $5,160 was paid to the nurses and program manager (see Appendix L, Budget). The cost of providing the educational program to all eligible parents is estimated at $5,530, suggesting the rate of cost is approximately $90.66 per participant ($5,530 cost of project/61 participants=$90.66).

**Cost/Benefit Analysis**

The implementation of the AHT educational program for parents/caregivers at the children’s hospital outpatient pediatric clinic can help alleviate the unnecessary use of healthcare dollars. The average cost of treating a victim of child abuse is approximately $300,000, while the average lifetime cost of treatment is estimated at $5.7 million. This includes lifetime costs for special education, physical and mental health therapies, and social services (Bechtel et al., 2011; Friedman et al., 2012; Fujiwara, 2015; Miller et al., 2018; Zolotor et al., 2015). In 2020, the children’s hospital in Fresno County, California, reported a total of 89 AHT cases. When the average cost of treating an abuse victim is applied, this translates to an average annual cost of $26.7 million and a lifetime cost of $507.3 million for 89 children.
If educational programs such as the one tested in this quality improvement project are able to reduce the number of children impacted by AHT to approximately 2% per year (.02 times 89 equals 2 children), that would create a net out-of-pocket savings of $11,394,470 at the facility. The cost burden without intervention is excessive, especially for a preventable injury. The return on investment for the parent/caregiver knowledge outweighs the cost burden for the treatment of AHT (see Appendix M, Return on Investment).

Study of the Interventions

The educational program was delivered individually to each participant in a treatment room after the pediatric clinic’s well-child visit. The Period of PURPLE Crying (PPC) educational program 13-item knowledge surveys measured the level of agreement and understanding before and after exposure to the learning material and educational video. The PPC knowledge survey was found during the literature review. Answers to the questions were ordinal and followed a 5-point Likert scale. The scores could range between 13 and 65, with the higher the score, the greater the agreement with statements. At the end of the project, it was noted that the level of agreement and knowledge of AHT improved significantly after exposure to the educational material. The number of reported AHT cases also began to decline after the implementation of the prevention program in October 2020. It is predicted that the continuation of this intervention will result in a reduction of AHT induced morbidity/mortality and a decrease in healthcare expenditures over time.

Outcome Measures

The desired outcome was to increase knowledge of AHT with parents/caregivers and ways to reduce the incidence of AHT. The AHT prevention program evaluated and appraised the instruments used to collect the participants’ data, including the pre/post-surveys of the Period of
Purple Crying knowledge. Participants completed pre/post-surveys consisting of scales that measure crying knowledge and shaking knowledge. The pre/post knowledge surveys were identical and included 13 items. Scores range from 13 to 65 based on a five-point Likert scale (Strongly disagree to Strongly agree). The higher the score, the stronger the understanding was assumed. The incident rate of AHT data for 2020-2021 at the children’s hospital were compared for preintervention and postintervention incidence outcome. Children that were diagnosed with AHT were counted from April 2020 until March 2021. There were a total of 89 AHT cases in April-December 2020 and seven cases from January-March 2021.

Scores achieved on the 13-item pre/post knowledge surveys were compared using a matched samples t-test. The AHT pre-knowledge survey showed an average score of 43.1 and a post-knowledge survey score of 47 out of a possible 65 points. A matched sample t-test estimated that this increase was statistically significant ($t=8.45, p=.001$) and that the educational intervention was successful with increasing the understanding of AHT and strategies for coping. The validity of the instrument used to collect the data was a knowledge survey that contained the same questions preintervention and postintervention. The surveys maintained accurate reliability and validity with the same tool (survey) to measure knowledge by using objective answers for each question that addressed the aim of the project from on the Period of Purple crying educational program that has been used for 30 years.

Analysis

The data was analyzed using SPSS v 24 to conduct a matched paired $t$-test and estimated that the score increase was highly significant $t=8.45, p=.001$, although the degree of change was variable between questions on the surveys. Analyses were used to calculate the odds ratio and 95% confidence interval for the association between pre-test knowledge score and post-test
knowledge score. Sixty-one participants completed the pre and post-knowledge survey. All 61 participants answered all 13 questions on the pre and post-knowledge survey. The pre and post-survey knowledge score responses were compared.

The eight nurses that took the AHT pre/post-knowledge survey scored similarly on both surveys. The pre-knowledge survey showed an average AHT pre-knowledge survey score of 48 and post knowledge score of 50 out of a possible 65 points, which was not a significant difference. Therefore, the focus on this study was not on the nurses’ prior knowledge of AHT but their ability to educate parents/caregivers on AHT.

**Ethical Considerations**

The American Nurses Association *Code of Ethics provisions for Nurses* are the nursing profession’s standard and guide ethical analysis and decision-making. Nursing and Jesuits place emphasis on learning through community service and providing social justice using critical, analytical, and creative approaches to solve problems. Jesuit values seeking to build a just and humane world through promoting human dignity and care by discerning the importance of preventing harm of vulnerable children to their parents/caregivers and the community. Nursing and Jesuits develop services to care for, protect and educate the community. In nursing and Jesuit practice, health is protected and promoted through the prevention of injuries, such as AHT. It is understood that nursing and Jesuits practice with compassion and respect for the families in our care. Implementation of an AHT prevention educational program to increase awareness, modify harmful behaviors, and reduce the incidence of AHT is a reflection of that commitment.

Informed consent was received from all participants, and data information was protected. The consent process ensured that individuals were voluntarily participating in the program with full knowledge of relevant risks and benefits. The surveys were anonymous, and disclosure of
responses would not place participants at risk of liability and are confidentiality protected. The records were stored in a secure area with limited access and were stripped of any identifying information.

The project involved the implementation of care practices and interventions for the prevention of AHT and is evidence-based. Since this project’s focus was a quality improvement, it did not require an Institutional Review Board (IRB) approval for implementation. There were no conflicts of interest with this project. The project was implemented by nurses at a children’s hospital pediatric well-baby clinic in Fresno County and had an agreement with the University of San Francisco School of Nursing and Health Professions. The project was evaluated and met the criteria for a Statement of Determination Evidence-Based Change of Practice Project Checklist through the University of San Francisco School of Nursing and Health Professionals.

The AHT prevention program reflected the uniqueness and worth of the patient and their family with provision one of the nursing *Code of Ethics Provisions for Nurses*. Allowing these families to participate in the discussion about the available resources was essential. Nurses were accountable for their practices and delivered the AHT prevention resources to participants with provisions two and three of the nursing *Code of Ethics Provisions*. In all nursing roles, nurses must comply with their state practice acts, regulations, standards of care, and *Code of Ethics*.

For nurses to be accountable for their ethical conduct, they must stay within their scope of practice and follow the code of ethics and moral principles. They must plan, implement, and evaluate evidence-based practice to promote the current practice. Nurses educated about AHT evidence-based practice can advance the current practice, utilize preventive AHT programs, and evaluate their effectiveness with parents/caregivers. Nurses must promote the profession through knowledge development, dissemination, and application to practice. Evidence shows that the
average AHT prevention educational program yields a 40% reduction in incidence rates of AHT within populations where the intervention is offered (Barr, 2014).

**Section IV: Results**

A total of N=61 parents participated in the project. The knowledge survey included 13 statements and offered a 5-point Likert-type scale response with options of “strongly disagree,” “disagree,” “neutral,” “agree,” and “strongly agree.” Six statements were false, and seven statements were true. The respondent could achieve a score ranging from 13 to 65, with the higher the number, the stronger the agreement assumed (see Appendix N, Table 1). The participants completed the pre-survey, completed the PPC educational program, and completed the post-survey after attending the educational session. The educational program and the pre/post-knowledge surveys were completed during the same day.

The post-survey responses showed a 9.3% increase in AHT prevention knowledge among the participants who answered don’t know/neutral to the below questions in the pre-survey:

- **Question 2:** Infant crying increases in the first few weeks of life and reaches a peak in the first 2 to 3 months before getting less.
  - Pre-survey n=25 answered don’t know/neutral 40.9%.
  - Post-survey n=61 answered strongly agree 100%.

- **Question 7:** A good parent should be able to soothe their crying infant.
  - Pre-survey n=12 answered don’t know/neutral 19.7%.
  - Post-survey n=61 answered agree 100%.

- **Question 11:** Shaking a baby is a good way to help a baby stop crying.
  - Pre-survey n=18 answered don’t know/neutral 29.5%.
  - Post-survey n=61 answered strongly disagree 100%.
• Question 13: Shaking a baby can be very dangerous and can cause serious injuries.
  o Pre-survey n=13 answered don’t know/neutral 21.3%.
  o Post-survey n=61 answered strongly agree 100%.

An examination of knowledge improvement by question on scale from one to five revealed that knowledge improvement ranges between no change to 1.62 points. The largest gains in knowledge recognized that it is okay to walk away from a crying infant when their crying becomes frustrating (+1.62), understanding that shaking a baby can cause serious health problems, death (+1.3), or serious injury (+1.16) (see Appendix N, Figure 1).

The survey questions that are true statements are listed below:

• Question 1: Infants cry more in the late afternoon and evening.
  o Pre-survey score 4.2
  o Post-survey score 4.8
  o Gain knowledge .6

• Question 2: Infant crying increases in the first few weeks of life and reaches a peak in the first 2 to 3 months.
  o Pre-survey score 3.6
  o Post-survey score 5.0
  o Gain knowledge 1.4

• Question 5: Sometimes a crying infant can look like she/he is in pain even when they are not.
  o Pre-survey score 3.97
  o Post-survey score 4.0
Question 6: Sometimes healthy infants can cry for 5 or more hours a day.
- Pre-survey score 4.0
- Post-survey score 3.97
- Gain knowledge .03

Question 8: It is okay to walk away from a crying infant when their crying becomes very frustrating.
- Pre-survey score 3.38
- Post-survey score 5.0
- Gain knowledge 1.62

Question 9: An important role for parents is to make sure people who care for the infant know the dangers of shaking an infant.
- Pre-survey score 4.13
- Post-survey score 5.0
- Gain knowledge .87

Question 10: Shaking an infant can cause serious health problems or even death.
- Pre-survey score 3.7
- Post-survey score 5.0
- Gain knowledge 1.3

Question 13: Shaking a baby can be very dangerous and cause serious injuries.
- Pre-survey score 3.84
- Post-survey score 5.0
- Gain knowledge 1.16
The survey questions that are false statements are listed below:

- Question 3: If an infant is healthy, it should not cry unexpectedly or without a clear reason.
  - Pre-survey score 3.6
  - Post-survey score 4.2
  - Gain knowledge .6

- Question 4: When infants cry, it is always a sign that something is wrong.
  - Pre-survey score 3.0
  - Post-survey score 4.0
  - Gain knowledge 1.0

- Question 7: A good parent should be able to soothe their crying infant.
  - Pre-survey score 3.41
  - Post-survey score 4.0
  - Gain knowledge .59

- Question 11: Shaking a baby is a good way to help a baby stop crying.
  - Pre-survey score 1
  - Post-survey score 2.13
  - Gain knowledge 1.13

- Question 12: Sometimes infant crying can be so frustrating or upsetting that I can see how someone might shake or hurt an infant.
  - Pre-survey score 1.26
  - Post-survey score 1.0
  - Gain knowledge -.26
When SPSS totaled all the statements between the participants, it found there was an increase in knowledge. When true and false statements were separated, it was estimated that agreement with false statements remained unchanged at an average score of 2.6 before and after the educational intervention. By contrast, agreement with true statements increased from 3.3 before the educational intervention to 4.1 after the intervention (see Appendix N, Figure 2).

Scores acquired for agreement with all explanatory statements were examined and compared before and after exposure to the educational intervention using a matched sample t-test. The respondent could achieve a score ranging from 13 to 65, with the higher the number, the stronger the agreement assumed. Changes in AHT knowledge and awareness were measured using a paired-sample t-test. Significance was held at p<.05. The t-test estimated that the mean agreement score was 43.2 before exposure to the educational session and 47.0 after exposure. The change in agreement with the explanatory statements was statistically significant (t=8.45, p=.0001), suggesting that the educational session successfully improved understanding (see Appendix N, Table 2).

From April 2020 to March 2021, there have been 89 cases of abusive head trauma at the children’s hospital in Fresno County. The trend in the 12-month incidence rates of reported AHT cases demonstrated a steady decline after implementing the intervention and showed a three-fold decline from 10.97 per 1,000 children in October 2020 to 2.99 per 1,000 children in March 2021.

Section V: Discussion

Summary

This AHT prevention project increased the knowledge of AHT and coping behaviors among parents/caregivers and decreased the incidence of AHT in Fresno county. The PPC prevention framework was utilized to develop an educational intervention to increase knowledge
of AHT among parents/caregivers participants. The individual training sessions targeted participants as parents/caregivers with children treated at the children’s hospital outpatient pediatric clinic during <36-month well-baby visit. Parent/caregiver handouts reinforced the information to the participants and improved knowledge of AHT prevention and normal growth and behavior of infants.

The short-term goal was to increase AHT awareness among parents/caregivers, while the long-term goal was to reduce the incidence rate of AHT in the Fresno County community. The post-knowledge surveys demonstrated improved knowledge scores on AHT awareness and behavior that reduces the incidence of AHT. Participants learned that it is acceptable to let children cry after attempting to soothe them and ensuring that other needs were met, such as infant is fed, diapered, and not hurt.

The AHT prevention project achieved its goal of increasing parents’/caregivers’ knowledge about infant crying, stress, and AHT. The educational tools aided parents/caregivers in identifying stress and coping strategies for infant crying. This project supports the relevance of PPC in all hospitals, clinics, and community centers. The project intervention took 15 minutes, and only one patient/caregiver could be educated for each child due to Covid-19 restrictions. Comparing the three hours of training spent for nurses compared with the cost of caring for children that had AHT, this program is a cost-effective intervention. The intervention relied on a theoretical framework that incorporated stress as a factor connecting infant crying and AHT and utilizing coping strategies for the prevention of AHT. This AHT prevention project strengthens the ability of nurses to increase the knowledge of AHT and coping behaviors among parents/caregivers and decrease the incidence of AHT.
The three-fold reduction in AHT cases in this children’s hospital has implications for nursing practice because the results show that participants’ knowledge gain from the AHT prevention program is statistically significant. Changes in the incidence rates were illustrated using a trend graph (see Appendix O, Rate of Incidence). More importance should be placed on nurses educating parents/caregivers on AHT. Parental/caregiver AHT education in well baby appointments can lead to potential reduction in AHT cases.

The goal of this educational program was to increase knowledge of AHT among parents/caregivers by a minimum of 40% and decrease the AHT incidence rate by 70% within the children’s hospital in Fresno county in three months. The DNP project implemented a change in practice and a new standard of care. The participants’ knowledge increased 9.3%. While the importance of this gain of knowledge is statistically significant, it did not meet the initial outcome goal. The incidence rate decreased by 300% in three months, which is greater than the initial outcome goal. However, the percentage may be an artificial high due to Covid-19. This project observed that it is sensible to continue primary prevention education.

The Medi-Cal program primarily pays the cost of AHT services; at least 75% of AHT/SBS cases are Medi-Cal recipients when diagnosed (CECI, 2016). Continuing the current intervention on AHT prevention parent/caregiver education will reduce Medi-Cal expenditures significantly if parents/caregivers are educated on AHT and behaviors to prevent it. The cost of providing this educational program to all eligible parents was $5,530 and minimal in comparison to the cost of treatment for preventable injuries such as AHT.

**Interpretation**

The PPC educational intervention disseminated information is designed to help parents/caregivers of young children understand crying and the dangers of shaking a child. The
program is based on 30 years of scientific research on infant crying, the connection of crying, and the incidence of AHT. The PPC program has undergone extensive evaluation with randomized controlled trials with 4400 participants and 32 parent focus groups (Barr, 2014).

The results were similar to previously published findings, showing that participants who received PPC materials were significantly more likely to state that they would walk away during inconsolable infant crying after the education. The recommendations for most prevention programs are to increase awareness of the dangers of AHT (Barr et al., 2008; Duzinski et al., 2018, 2018; Fujiwara, 2015; Kelly et al., 2016; Nocera et al., 2015; Shanahan et al., 2014). Duzinski et al. (2018) showed that a population-based program could cover a broader range of parents/caregivers and substantially increase crying knowledge. Although the intervention was brief and it was easily incorporated into the well-child visit anticipatory guidance, the impact of the project can be seen in the three-fold decrease in the incidence of AHT in the three months following the intervention. The incidence of AHT at the children’s hospital has decreased and can be from the intervention but also from COVID-19. COVID-19 has reduced mandated reporting and child being around other family or friends that may report an injury to the child or bringing them to the hospital (Campbell, 2020).

The participants’ knowledge scores were higher than anticipated, decreasing the ability for the project to achieve a 70% increased knowledge score. The majority of participants answered the pre and post-knowledge items correctly, which created a small difference in the pre and post-knowledge scores. This is likely the result of the participants identifying the answers that was appropriate for the questions using common sense and causing most participants to answer similarly before and after receiving the AHT prevention education.
The interventions similar evidence-based outcomes justify the integration of AHT preventive education as part of the services delivered to parents/caregivers at this children’s hospital pediatric well-child clinic. The cost burden without the intervention is excessive, and the return on investment for providing the AHT prevention intervention for parents/caregivers outweighs the cost to treat victims of AHT.

The AHT prevention project provided specific tools from the PPC that focuses on stress management. Overall, the findings supported the conceptual framework of coping strategies chosen to guide this project: The Stress Theory. This theory of care incorporates Lazarus and Folkman’s activities, highlighted the associations among individual characteristics, environment, a stressful event, and coping (Goulet et al., 2009). The stress theory permits reflection on the AHT prevention program’s concepts in reducing stress and improving coping before AHT. Parents/caregivers of children are exposed to stressful inducements that can lead to abusive behaviors. This theory addressed the behavior associated with AHT and incorporated nursing activities of health promotion and primary prevention. The education program delivered a primary prevention theory on stress and coping and endorsed nursing leadership by working with partners and the hospital to improve the patient’s parent/caregiver knowledge of their children’s normal growth and development. The AHT prevention intervention was effective in helping the participants identify the stressors and how to cope so they avoid abusive behavior.

It is likely that the incidence of AHT can continue to decline with more AHT prevention interventions in hospitals, clinics, and community centers. Increasing parent/caregiver knowledge and supporting PPC intervention tools are sustainable. The PPC-relevant educational tools, video, and surveys support nurses and their organization’s implementation of the intervention. Leadership within the children’s hospital need to commit to the AHT prevention
educational program to strengthen the practice-education connection and integrate within all areas of the organization.

**Limitations**

A number of limitations were identified and suggested that the findings are not generalizable to other clinical populations.

- The sample design was non-probable in that only parents who visited the well-child clinic were included in the intervention thus set limits on the generalization of the study findings.
- The process of obtaining hospital and administration approvals were quite restrictive, particularly during COVID-19.
- This project was limited to the use of one clinic.
- The sample size was 61, and data collection was limited to 15 days of availability of nurses to conduct the PPC after well-child visits.
- Participants may have inaccurately reported their level of frustration due to a desire to provide a socially acceptable answer.
- We were only able to include those willing and had time to participate the same day as their child’s appointment.
- This project was limited to testing intervention knowledge the same day.
- There was no long-term evaluation component survey to assess participants’ retention of PPC key messages, behaviors, and knowledge of AHT.
- The nursing evaluation survey was not returned about the implementation of the intervention.
It is difficult for others to be of the opinion that a straightforward intervention could be successful in changing a person’s behavior in a short period of time. It is impossible to know whether the parents/caregivers that received AHT prevention education were the parent/caregiver of the AHT victims in the three months following the intervention. As a result of COVID-19 restrictions, the number of clinics and nurses able to participate were minimal. Initially, the project was going to be at three pediatric clinics and be implemented for three months. The project had to be decreased to one clinic and implemented for 15 days due to COVID-19 restrictions within the facilities enforcing state restrictions of only providing essential care. This undoubtedly reduced the children’s hospital means of offering AHT prevention education in Fresno County.

There are inconsistencies with ICD-10 coding for AHT, limiting the ability to successfully determine the true incidence and prevalence of AHT among children served by this organization. There were also degrees of uncertainty, including definite or presumptive or probable AHT. If the definition of AHT is narrow, then it is restrictive and generates a more specific estimate of nonfatal or fatal AHT cases. The inconsistency with AHT ICD-10 codes causes difficulty with gathering or analyzing data for a population’s estimated level or rates of AHT and the recommendations that can be applied due to the determined incidence. Working with clinicians/nurses within this health organization and talking with them about the definition of AHT revealed an unexpectedly high degree of an educational need on the importance/confidence of the completeness and quality of ICD-10 codes for data collection.

Evaluation is imperative to understanding how preventive education in practice can improve patient outcomes for health issues. The CQI was not measured in this practice
improvement project due to the length of the DNP program and the extended timeframe needed to track improvements in the incidence of AHT in children (see Appendix P, CQI).

Conclusions

The Doctor of Nursing Project (DNP) targeted the community children’s hospital in Fresno County to conduct this quality improvement project. Consistent with the mission of the hospital site, the DNP project is in response to recognizing the prevalence of child abuse. AHT and other forms of abuse are violations of the trust infants develop in human relationships, and cause harm to young victims, families, and communities. Any act or suspicion of AHT must be investigated. By providing preventive AHT education to parents/caregivers and updating prevention policies and procedures, we are better able to protect children from abuse.

The relevance of introducing an AHT prevention program with parents/caregivers of children 36 months or younger is supported by the American Pediatricians Association (Bechtel et al., 2011) and American Trauma Nursing Association (Rideout, 2016) and evidence-based, peer-reviewed articles.

Educating the parent/caregivers of children that utilize services at the children’s hospital increased their knowledge of AHT and decreased the incidence of AHT within Fresno County and surrounding areas. It is vital to educate parents/caregivers in vulnerable communities with higher incidences of AHT, such as Fresno County who had an AHT rate that was two times the state of California’s other counties. Implementing this intervention showed that prevention and education for parents and caregivers in vulnerable communities is key to preventing and reducing the incidence of AHT, consequently reducing morbidity and early mortality.

Although the decline in AHT incidence in 2020 is encouraging, AHT is still a considerable population health problem. Continuous implementation of the PPC intervention
efforts is needed to prevent AHT. Prevention should not center solely on parents/caregivers’ behavior, but should include community strategies. These strategies should include health promotion, education, and community partners creating a dialogue that shares the role in promoting child and community wellness. Continued follow-up and studies within the children’s hospital in Fresno County and CAP-T clinicians, nursing, and staff will determine if an AHT prevention program reduces the incidence of AHT and increases community knowledge of AHT long-term.

The plan for disseminating the final project will consider a variety of venues, including: (1) share findings with executive leadership for their consideration to offer educational training to parents/caregivers of newborn and young children; (2) publish the final project paper in the USF Project Repository archive of curated documents which allows DNP graduates to share academic work products with the scholarly consumer communities and (3) present a poster at the 37th Annual San Diego International Conference on Child and Family Maltreatment in January 2022.

**Section VI: Funding**

This project received no external funding for the work conducted in its entirety. The PPC tools were previously purchased and were available to use for the implementation of the project from the children’s hospital. Additionally, he nursing salaries were paid by the children’s hospital as they supported this evidence based intervention. There was no financial gain to the organization.
Section VII: References


https://doi.org/10.1016/j.nepr.2015.07.013


https://doi.org/10.1007/s11121-017-0815-z

https://doi.org/10.2307/584369

https://doi.org/10.1097/jtn.0000000000000206

https://doi.org/10.1093/aje/kwaa083


### Section VIII: Appendices

#### Appendix A: Evaluation Table

<table>
<thead>
<tr>
<th>Citation: Barr et al. (2009)</th>
<th>Conceptual Framework: None</th>
<th>Design/Method: Randomized controlled. Participants received basic injury prevention materials, including 2 brochures and a DVD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample/Setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sample</strong>: Convenience; (N = 1,374) new mothers of newborns randomly assigned and (1,364) mothers to the control group. <strong>Setting</strong>: Canada</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>This randomized, control trial was approved by the IRB of all participating institutions. Individuals of newborns were chosen as the unit of randomization. Both study arms received booklets and a DVD. The intervention group received the purple materials; the control group received injury-prevention materials.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement of Major Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 primary outcome variables. Five were scales created after data collection but before analysis: crying knowledge, shaking knowledge, responses to crying generally, responses to unsoothable crying, and caregiver self-talk responses to unsoothable crying.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline intervention and control subject characteristics by using (x^2) tests. Tested whether the probability of intervention allocation was associated with the primary outcomes, adjusting for treatment assignment and enrollment center. For continuous scores and measurements of time outcomes the estimate of mean differences between intervention and control subjects at follow-up by using least square linear regression. Linear mixed models were used to see if clustering by center influenced results. Statistical interaction to examine subgroups based on education levels, recruitment site, whether interventions were read or viewed, whether this was the first infant, and whether the infant cried unsoothably. Analyses were performed by using Stata software.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Findings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participants who received the material scored higher than the control group in measures of knowledge about crying and were more aware about not shaking an infant. Participants were 1.7 times more likely to walk away from ininsolable crying.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appraisal: Worth to Practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Strengths</strong>: The educational material, which encourages caregivers to learn safe and healthy methods of reaction to crying infants, appears to be effective in reducing the occurrence of shaken baby syndrome. This suggests that educational materials are beneficial and may be the most effective method of reinforcing healthy behaviors. <strong>Limitations</strong>: Knowledge and behavior changes were assessed only for mothers, although males are the most common perpetrators of abuse. <strong>Critical Appraisal Tool &amp; Rating</strong>: John Hopkins Nursing Evidence-based Practice Appraisal Tool. Level II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citation: Fujiwara et al. (2015)</td>
<td>Conceptual Framework: None</td>
<td>Design/Method: Randomized controlled study. Mailed materials consisting of educational materials or control materials on infant safety sent 2 weeks after birth.</td>
</tr>
<tr>
<td>Sample: Convenience; (N = 201) ((n = 106) intervention group; (n = 96) control group). <strong>Setting</strong>: Japan</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Major Variables**

A questionnaire assessing exposure to interventions as well as knowledge and behaviors about infant crying was mailed directly to the target population before four-month health check-up. Participants were divided into three groups on the basis of exposure to public health practice. 1 not exposed to either interventions, 2 exposed to either the prenatal parental class or the public health home-visit service, and 3 exposed to both interventions.

**Measurement of Major Variables**

Questions about crying and shaking knowledge used in previous studies were included in the questionnaire administered at the four-month checkup. Eight questions assessed knowledge of infant crying properties. Four Likert-type response options were given and were assigned a value. Recommended behaviors that were outlined in the education material were outlined and frequency of behaviors were assessed in the questionnaire.

**Data Analysis**

Linear regression analysis was performed to analyze associations between exposure level and perceptions of crying, recognition of crying, stress due to crying and knowledge of crying using crude and covariate-adjusted models.

**Study Findings, Level & Quality**

Walking away behavior during crying and sharing walk away behaviors with other caregivers also demonstrated to be higher in the intervention group.

**Appraisal: Worth to Practice**

**Strengths:** Results indicate that public health practice to prevent SBS/AHT using educational materials on infant crying increased both knowledge of crying and shaking, and walk-away behaviors, which are important in reducing SBS/AHT.

**Limitations:** Exposure to interventions was not assigned at random. Those who attended the prenatal classes included primiparous parents and other parents. Some participants refused home-visit. Interventions were self-reported. Population-based prevention studies involving greater expose to educational material is needed to demonstrate the actual impact of such interventions on the incidence of SBS/AHT.

**Critical Appraisal Tool & Rating:** John Hopkins Nursing Evidence-based Practice Appraisal Tool Level II

**Citation:** Nocera et al. (2015) | **Conceptual Framework:** Difference-in-Difference Model | **Design/Method:** Cross-sectional survey.

**Sample:** Convenience; N = 89 hospital, N = 405,060 newborns. **Setting:** North Carolina, United States.

**Major Variables**

Charge nurses or nurse managers were surveyed over the phone to seek information about present abusive head injury/ shaken baby syndrome prevention, education, content, and format.

**Measurement of Major Variables**

Surveyed hospitals reported provision of abusive head injury prevention and/or educational programs. Materials provided to new parents in the educational programs included pamphlets, books, and DVDs. Information about the dangers of shaking, crying, methods of coping, the dangers of shaking an infant, and physical effects of shaking were reported as components of the educational programs.

**Data Analysis**

Changes in proportions of telephone calls for crying concerns to a nurse advice line for crying declined by 20% for children younger than 3 months (rate ratio, 0.80; 95% CI, 0.73-0.87; P<.001) and by 12% for children 3 to 12 months old (rate ratio, 0.88; 95% CI, 0.78-0.99; P=.03). No reduction in state-level AHT rates was observed, with mean rates of 34.01 person-years before the intervention and 36.04 person-years after the intervention.
## Findings

The intervention was associated with a reduction in telephone calls to a nurse advice line. The study was feasible and supported the program effectiveness in part, further programmatic efforts and evaluation are needed to demonstrate an effect on AHT rates.

### Appraisal: Worth to Practice

**Strengths:** Large scale AHT prevention project was successfully delivered with a high degree of fidelity to parents at 88% of newborns in North Carolina. The use of econometric difference-in-difference analysis to better estimate effects.

**Limitations:** The study was preintervention and postintervention design and not a randomized clinical trial. They were not able to examine whether perpetrators of AHT were exposed to the program or caregivers who were not present in the hospital. The primary outcomes, AHT rates, is based on administrative claims data. Comparison states were chosen based on expert opinions and knowledge, as well low cost of data sets.

**Critical Appraisal Tool & Rating:** John Hopkins Nursing Evidence-based Practice Appraisal Tool. Level II

### Design/Method

All hospitals that provide maternity care in an 8-county region of western New York State participated in a comprehensive regional program of parent education about violent infant shaking. The program was administered to parents of all newborn infants before the infant’s discharge from the hospital. The hospitals were asked to provide both parents (mother and, whenever possible, fathers or father figures) with information describing the dangers of violent infant shaking and providing alternative responses to persistent infant crying and have both parents sign voluntarily a commitment statement affirming their receipt and understanding of the materials.

#### Sample

Convenience; N = 65,205, 16 hospitals that provided maternity services in the 8 counties. **Setting:** New York

### Major Variables

During the 5.5 years of the program 65,205 commitment statements were documented, representing 69% of the 94,409 live births in the region during that time; 96% of the commitment statements were signed by mothers and 76% by fathers/father figures. Follow-up telephone surveys 7 months later suggested that >95% of parents of parents remembered having received the information. The incidence of abusive head injuries decreased by 47%, from 41.5 cases per 100,000 live births during the 5.5-year study period.

### Measurement of Major Variables

A hospital-based, parent education program, provided at the time of the infant’s birth, was administered through nurses.

### Data Analysis

69% of the 94,409 live births in the region during that time; 96% of the commitment statements were signed by mothers and 76% by fathers/father figures.

### Findings

During the 5.5 years of the program 65,205 commitment statements were documented, representing 69% of the 94,409 live births in the region during that time; 96% of the commitment statements were signed by mothers and 76% by fathers/father figures. Follow-up telephone surveys 7 months later suggested that >95% of parents of parents remembered having received the information. The incidence of abusive head injuries decreased by 47%, from 41.5 cases per 100,000 live births during the 5.5-year study period.

### Appraisal: Worth to Practice

A coordinated, hospital based, parent education program, targeting parents of all newborn infants can reduce significantly the incidence of abusive head injuries among infants and children <36 months of age.
<table>
<thead>
<tr>
<th>Critical Appraisal Tool &amp; Rating:</th>
<th>John Hopkins Nursing Evidence-based Practice Appraisal Tool. Level II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citation: Bechtel et al. (2011)</td>
<td>Conceptual Framework: None</td>
</tr>
<tr>
<td>Design/Method:</td>
<td>To conclude what the impact of an parent education intervention would have on the caregiver knowledge about crying and shaken baby syndrome.</td>
</tr>
<tr>
<td>Sample: N = 222. Setting:</td>
<td>Connecticut</td>
</tr>
<tr>
<td><strong>Major Variables</strong></td>
<td></td>
</tr>
<tr>
<td>Quasi-experimental post-test. The study includes groups who received &quot;Take 5 safety plan for crying&quot; this education was delivered by resident physicians. After discharge an interview was conducted with the first well-child visit.</td>
<td></td>
</tr>
<tr>
<td><strong>Measurement of Major Variables</strong></td>
<td>Structured interviews were done in one convenience sample of caregivers before (historical control group) and in a second set of different caregivers after (intervention group) an educational intervention was implemented at hospital discharge. Logistic regression was used to calculate adjusted associations between the interventions and caregivers.</td>
</tr>
<tr>
<td><strong>Data Analysis</strong></td>
<td>One hundred ten caregivers were in the historical control group and 112 in the intervention group. The intervention group had more mothers and the infants were younger. Controlling for these differences, intervention group caregivers were more likely to state they would take a break if frustrated</td>
</tr>
<tr>
<td><strong>Findings</strong></td>
<td>The educational interventions were vital in the prevention of abusive head trauma. This concludes that programs that focus on helping caregivers prevent the response of frustration to crying children reduces the risk of abusive head trauma.</td>
</tr>
<tr>
<td><strong>Appraisal: Worth to Practice</strong></td>
<td>Following the education, the study group were able to identify that a crying baby leads to shaking. The participants were more likely to take a break when frustrated with a crying baby.</td>
</tr>
<tr>
<td>**Critical Appraisal Tool &amp; Rating:</td>
<td>John Hopkins Nursing Evidence-based Practice Appraisal Tool. Level II</td>
</tr>
<tr>
<td>Citation: Goulet et al. (2009)</td>
<td>Conceptual Framework: None</td>
</tr>
<tr>
<td>Design/Method</td>
<td>Qualitative and quantitative assessments in the form of interviews and questionnaires administered in French. Parents’ and nurses’ assessments of the adequacy and relevance of the program and nurses assessments of the training they received to administer the program were evaluated</td>
</tr>
<tr>
<td>Sample/Setting</td>
<td>Two hundred and sixty-three parents (73.8% mothers, 26.2% fathers) received the intervention after the birth of their child, and 69 nurses administered it. Two birthing institutions in Montreal, QC, Canada: a university hospital and a regional center.</td>
</tr>
<tr>
<td><strong>Major Variables</strong></td>
<td>Both parents and nurses supported this initiative. Most parents appreciated the usefulness of the information. Nurses believed the program was adequate, and their training to deliver the program was satisfactory. All participants reported that the program was highly relevant, especially for new parents.</td>
</tr>
</tbody>
</table>
### Measurement of Major Variables

To evaluate parents’ and nurses’ opinions regarding the adequacy of an educational program on shaken baby syndrome: the perinatal shaken baby syndrome prevention program (PSBSPP)

### Data Analysis

Nursing professionals at two facilities instructed parental educational about abusive head trauma.

The nurses provided new parents with an information card containing a variety of information regarding crying, anger, and knowledge of shaken baby syndrome. The parents were then asked to form a plan for handling inconsolable crying. The plan was discussed with nursing staff members and signed by the parents.

Follow-up telephone questionnaires were administered to parents after 6 weeks to assess the adequacy of the education.

### Findings

Ninety-eight percent of parents reported the intervention was relevant and appreciated the information.

The nurses unanimously responded to the new educational strategy well; 80% of the parents reported having thought about the information cards used in the educational program but did not again look at the copy provided for them while 98% of the parents thought the action plan was useful, although only 48% remembered any of the steps after 6 to 8 weeks. The signatures were well accepted but showed no convincing relevance.

### Appraisal: Worth to Practice

Implementation of in-hospital education for parents, especially education that provides information about how to respond appropriately to crying infants and how to cope in such situations, is an important component of the postnatal educational regimen.

**Critical Appraisal Tool & Rating:**

John Hopkins Nursing Evidence-based Practice Appraisal Tool: Level VI

**Citation:** Rideout (2016)  
**Conceptual Framework:** Conceptual framework of Nursing and Health Policy and the Neuman System Model

### Design/Method

Quantitative, cross-sectional research design with qualitative component was used for the study.

A legislative Act providing for the prevention of shaken baby syndrome/abusive head trauma prevention. Nurses in 13 Massachusetts birthing hospitals were surveyed using a web-based questionnaire. The objective of this study was to assess nurses’ perceptions of barriers to and facilitators of implementation of the shaken baby syndrome/abusive head trauma public policy.

### Sample/Setting

Assessed nurses’ perceptions of barriers to and facilitators of implementation of the shaken baby syndrome/abusive head trauma public policy.  
**Sample:** N = ~922; 155 nurses. **Setting:** Massachusetts

### Major Variables

1) Nurse-level characteristics. 2) Hospital-level characteristics. 3) Patient-level characteristics

### Measurement of Major Variables

Fifty nurses in the study sample responded that their hospital shows the video on shaken baby syndrome education. One were time investment with a mean of 24.7% range 15.1%-29.1% compatibility with a mean of 8.5% range 4.8%-11.5% and attractiveness with a mean of 6.9% range 3.6%-8.8%. Time investment, compatibility, and attractiveness described the ease of practice guidelines implementation.
**Data Analysis**

The study sample was composed mostly of Caucasian (93%) female nurses with a mean age of 47 years old. Nursing experience ranged from 1 year to 45 years with a mean of 24.

**Findings**

Revealed barriers to and facilitators of shaken baby syndrome/abusive head trauma guideline implementation. The disadvantage of web-based surveys as they relate to the challenges of enlisting cooperation and a lack of direct access to the nurses may have attributed to the low response rate 17% for this study.

**Appraisal: Worth to Practice**

The outcomes of logistic regression analyses and themes from the qualitative analysis revealed a lack of shaken baby syndrome/abusive head trauma education. An atmosphere of supportive leadership facilitated implementation of the shaken baby/abusive head trauma education guidelines by nurses. It is imperative that nurse leadership support be sustained so that nurses have shaken baby syndrome/abusive head trauma education resources, an understanding of the shaken baby syndrome/abusive head trauma education guidelines, feedback about the impact of their shaken baby syndrome/abusive head trauma education interventions.

**Critical Appraisal Tool & Rating:** John Hopkins Nursing Evidence-based Practice Appraisal Tool. Level VI

**Citation:** Duzinski et al. (2018)  
**Conceptual Framework:** None

**Design/Method**

This study was a retrospective review of a postintervention survey administered in the perinatal unit of a community birthing hospital. Surveys were administered to mother of newborns by perinatal nurses as part of routine process evaluation prior to hospital discharge between May 2014 and May 2015.

**Sample:** 59 participants who completed the survey during the study period. **Setting:** Austin, TX

**Major Variables**

The mother age ranged from 17 to 45 mean 27.4 years. More than half had male babies. 78% Spanish, 22% English, 78% White, 3.4% Black, 13.6% other, 67.8% single, 30.5% married. 100% participants watched the purple video during hospital stay. 55.9% reported a nurse reviewed the educational booklet with them. 91.5% reported being given a DVD, and all but one reported having access to a working DVD player at home.

**Measurement of Major Variables**

The demographic variables included mother’s age, ethnicity, and marital status, baby’s gender, insurance type and requested survey language.

The quality assurance variable included for this study were as follows: whether the participant watched the video, who presented the video, whether the nurse reviewed the booklet, and was the participant given a DVD and had a DVD player at home.

Knowledge variables consisted of six true or false questions that were based on the key messages of the purple program and tested the knowledge of the key messages the mother after receiving the education.

Intended behavior variables in the survey included intention to share the PPC DVD/booklet with others who take care of the infant and whether or not the participant intended to share the information with her current partner or future partner.

**Data Analysis**

Knowledge of and intent to share key messages of the Purple program was measured among a population of majority of Spanish speakers after receiving the hospital-based intervention. Study participants scored highly on knowledge questions with a vast majority answering all questions correctly with no statistically difference between English and Spanish speakers. Positive intentions were shared.
### Findings

Data were analyzed to understand knowledge and intended behavior of participants after receiving the interventions.

### Appraisal: Worth to Practice

The prevention program demonstrated positive preliminary results in knowledge and intended behavior among population of majority Spanish speaking participants. Further investigation of the program is needed to examine acceptability and retention of key messages as well as postintervention safety behavior change among participants and nurses.

The study was not without limitations. Quality assurance surveys conducted during routine process evaluation did not include a follow-up component to assess retention of Purple key messages and implementation of postintervention safety behaviors.

**Critical Appraisal Tool & Rating:** John Hopkins Nursing Evidence-based Practice Appraisal Tool. Level II

<table>
<thead>
<tr>
<th>Citation:</th>
<th>Kelley et al. (2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual Framework:</td>
<td>None</td>
</tr>
<tr>
<td>Design/Method:</td>
<td>Developmental and implementation of the program, telephone survey of a sample of caregivers and written survey of a sample of providers.</td>
</tr>
</tbody>
</table>

**Sample:** 2592 caregivers, 31 nurses, **Setting:** Auckland, New Zealand

**Major Variables**

Two cohorts were recruited using convenience sampling. All recipients were told about the survey and invited to take part.

**Measurement of Major Variables**

The basic structure was modeled on the Dia’s program, with two key differences. Early discharge meant that any New Zealand program must often be delivered outside postnatal wards. Secondly, there was no commitment statement. In New York State, this also enrolled the child in prospective research linking program delivery with cases of shaken baby syndrome. In New Zealand this would require a separate process of informed consent. A further commitment was opposed at all stages of a 6-month consultative process and by almost all those consulted.

**Data Analysis**

A pro forma was completed in 1524 85%, with 2316 participants. In these 1524 sessions, only 1 caregiver was present in 901 59%. The mother was present in 1500 98%. The father was present in 522 34%. There were 276 participants in in recorded sessions with no pro forma: a minimum total of 2592.

**Findings**

Quantitative data were analyzed using JMP 10.0 software. Medians and interquartile ranges (IQR) or mean and standards deviation (SD) are provided as appropriate. Comparisons of survey participants to non-participants and to all mothers of live births, were undertaken using the two-sample t-test (for mother’s age) or fisher’s exact test for (NZDep) and ethnicity. The telephone surveys had nearly identical results and were combined. Qualitative data was analyzed with thematic analysis. Briefly, this is a widely used qualitative method that reduces a dataset into key, recurring themes. Across the multiple readings the research gradually condensed them into the themes that best described patterns and trends in the dataset.

**Appraisal: Worth to Practice**

Eighteen hundred program sessions were recorded as delivered. The program shown to reduce the incidence of shaken baby syndrome, yet the program differed in two respects. Firstly, it was mostly delivered outside the hospital. The hypothesized component of the program’s success but provided no reason for this reduced efficacy. It is therefore unknown what (if any) effect the absence of commitment statement has on efficacy. The most serious limitation was that our formal surveys had small samples and were not fully representative. In particular, the low community response rate raises the possibility of a non-response bias, which may affect the validity of our findings.
**Critical Appraisal Tool & Rating:** John Hopkins Nursing Evidence-based Practice Appraisal Tool. Level II

<table>
<thead>
<tr>
<th>Citation: Zolotor et al. (2015)</th>
<th>Conceptual Framework: Difference in Difference Model</th>
<th>Design/Method: A comparison of preintervention and postintervention was performed using nurse advice line telephone calls regarding infant crying.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample:</strong> In total 88.29% of parents of newborns. n = 405060. <strong>Setting:</strong> North Carolina</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Major Variables**

- The program was conceived as a 3-dose delivery of the intervention.
  - Dose 1 was a North Carolina statewide universal intervention that included all parents of newborns receiving 3 minute of education by a nurse, reading the booklet and watching the video before discharge.
  - Dose 2 was reinforcing the message delivered in primary care medical offices during the first month of life.
  - Dose 3 was a media campaign that included paid radio commercials in 3 of 6 large media markets in the state.

**Measurement of Major Variables**

- Changes in proportions of telephone calls for crying concerns to a nurse advice line and in AHT rates per 100000 infants after the intervention in the first year of life using hospital discharge data.

**Data Analysis**

- A difference-in-difference analysis compared AHT rates in the prevention program state with those of other states before and after the implementation of the prevention program state with those of other states before and after the implementation of the program.

**Findings**

- The Purple intervention was associated with a reduction in telephone calls to a nurse advice line. The study found no reduction in AHT rates over time in North Carolina relative to other states.

**Appraisal: Worth to Practice**

- Further program efforts and evaluation are needed to demonstrate an effort on AHT. It may be that the intervention was ineffective, the study was underpowered, the follow-up was too brief, or a decrease in cases may have been obscured by unmeasured confounding. Future research should use the most robust methods available to establish a causal relationship between prevention programs and AHT.

**Critical Appraisal Tool & Rating:** John Hopkins Nursing Evidence-based Practice Appraisal Tool. Level II
Appendix B: Statement of Non-Research Determination Form

Doctor of Nursing Practice
Statement of Non-Research Determination (SOD) Form

The SOD should be completed in NURS 7005 and NURS 791E/P or NURS 749/AE

General Information

Last Name: Williams
First Name: Camile

CWID Number: 20343829
Semester/Year: Spring 2020

Course Name & Number: NURS 792P

Chairperson Name: Francine Serafin-Dickson
Advisor Name: Francine Serafin-Dickson

Project Description

1. Title of Project
PREVENTION OF ABUSIVE HEAD TRAUMA (AHT) USING AN EDUCATIONAL PROGRAM TO PARENTS AND CAREGIVERS

2. Brief Description of Project
Clearly state the purpose of the project and the problem statement in 250 words or less.

Abusive head trauma (AHT) is a serious form of child maltreatment that is the primary cause of fatal head injuries in children younger than 24 months and is the cause for over 50% of severe or fatal traumatic brain injury incidences and needs to be prevented. These injuries can be caused by impact, shaking, or the combination of shaking and impact. These multi-factorial injuries can cause intracranial and spinal damage, retinal hemorrhages, fractures of ribs and other bones. The age and severity of injuries will be used to assess the suspicion of the diagnosis of AHT. When AHT occurs, it is often tied to the behavior from a parent or caregiver as a reaction to a crying infant. The reaction to this behavior is avoidable and an educational prevention program can help reduce the incidence and cost that occurs with AHT.

AHT incidence continues to occur at a children’s hospital in the Central Valley California. Currently there is no AHT prevention program to implement for nurses, providers, and parents/caregivers. The DNP
student who is staffed in the child advocacy clinic will develop an AHT prevention program. Nurses will educate parents/caregivers regarding about the prevention of AHT through educational tools such as handouts and video. The project will determine whether a comprehensive, clinic-based, parent and caregiver education program administered at the first well-child check for infant < 36 months will impact the incidence of AHT in infants after one year of initial implementation.

3. AIM Statement: What are you trying to accomplish?
   - What do you hope to accomplish with this project? Aims should be SMART, specific, clear, well-defined, and at a minimum describe the target population, the desired improvement, and the targeted timeframe.
   - To improve (your process) from (baseline)% to (target)% by (timeframe), among (your specific population)

Complete this statement:

To increase knowledge of abusive head trauma with parents and caregivers through a AHT educational prevention program (process)

from: baseline ___________________________ (baseline %)

to: _70% _________________________________ (goal/target %, rate, #, etc.)

by: _March 2021 ___________________________ (date, 3 - 6-month)

in: children 36 months or younger ___________________________ (population impacted)

By March 2021, we will develop, implement, and evaluate an AHT program at a Children's Hospital in Central Valley California to increase awareness of AHT from baseline to 70%, and reduce its occurrence by 40%.

4 Brief Description of Intervention (150 words).

This AHT PREVENTION PROGRAM project is a comprehensive, clinic-based, parent and caregiver educational program administered at the first well-child check for infant <36 months and will examine the impact on the incidence of AHT.

4a. How will this intervention be implemented?
   - Where will you implement the project?
   - Attach a letter from the agency with approval of your project.
   - Who is the focus of the intervention?
   - How will you inform stakeholders/participants about the project and the intervention?
Interventions and steps to address problem

➢ The DNP student and Child Advocacy Clinic (CAC) and will develop and implement training to clinical educators and staff nurses.
  - Create an Abusive Head Trauma Prevention Program and Implement at a Children’s Hospital in the Central Valley in California
  - We will use educational materials (handouts and videos) that have been studied and evidence-based in the literature

➢ Nurses will be assigned an online AHT prevention training by their clinic educator that was developed by the DNP student and CAC.
  - After completing the online training the nurses will attend a train the trainer in-class series that will further instruct on how to instruct parents/caregivers on the AHT prevention program.

➢ Nurses will be asked to take a pre and post questionnaire on knowledge of AHT and prevention. The DNP student will identify suggestions from staff after pre intervention training and questionnaire to implement prior to roll out of prevention AHT program start.

➢ Set expectation from the beginning
  - After materials are received and reviewed by CAC, before project begins, the DNP student will train staff with train the trainer model with support of a clinical champion for each clinic.
  - Content will be standardized and reinforced with an in person training.
  - The nurses will receive a guide and access to CAC staff for support.
  - The nurse will educate parents/caregivers during first well child check with educational material.

➢ Roll out basic structure of the educational program with video and handouts to parents/caregivers
• Educational handouts and video in all languages will be provided for parents/caregivers to take home following nursing education at first well-child visit.

• The educational material informs parents/caregivers that during the normal development of children that crying is normal and can be frustrating and can lead to shaking and AHT.

• Parents/caregivers will complete an anonymous questionnaire prior to receiving education and after receiving the education on key concepts.

• These key concepts and the participant’s knowledge will be measured.

• The clinic nurses will use the teach-back method (Ask-Tell-Ask) to evaluate the participant’s comprehension of the key concepts.

  - Ask-Tell-Ask (method to promote better communication between nurses and families)
    - The nurse will (ask) the parent/caregiver their self-assessment of AHT prevention
    - The parent/caregiver will (tell) the nurse their self-assessment
    - The nurse will (ask), by repeating what she/he was told to clarify the understanding of AHT prevention and give additional resources if needed.

• This project will assist nurses to increase their knowledge of AHT and teach parents/caregivers about AHT with the goal of reducing the incidence of AHT in a Children’s Hospital in the Central Valley California.

5. Outcome measurements: How will you know that a change is an improvement?
   - Measurement over time is essential to QI. Measures can be outcome, process, or balancing measures. Baseline or benchmark data are needed to show improvement.
   - Align your measure with your problem statement and aim.
   - Try to define your measure as a numerator/denominator.
     - What is the reliability and validity of the measure? Provide any tools that you will use as appendices.
     - Describe how you will protect participant confidentiality.
Evaluation criteria will include:

A) Parents and caregivers knowledge of the AHT prevention, through anonymous pre and post questionnaires (questionnaires will be developed based on evidence found in the literature)

B) Nurses assessment of the adequacy and relevancy of AHT prevention program, through pre and post questionnaires

C) Nurses assessment of the training they received to administer the program, through pre and post questionnaires

D) Number incidence of AHT through comparison of baseline incidence to incidence after one year of conducting AHT prevention program
# DNP Statement of Determination

## Evidence-Based Change of Practice Project Checklist*

The SOD should be completed in NURS 7005 and NURS 791E/P or NURS 749/A/E

### Project Title:
PREVENTION OF ABUSIVE HEAD TRAUMA WITH ANTI-SHAKEN BABY SYNDROME PROGRAM

<table>
<thead>
<tr>
<th>Mark an &quot;X&quot; under &quot;Yes&quot; or &quot;No&quot; for each of the following statements:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>The aim of the project is to improve the process or delivery of care with established/accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The specific aim is to improve performance on a specific service or program and is a part of usual care. All participants will receive standard of care.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project is <strong>not</strong> designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control. The project does <strong>not</strong> follow a protocol that overrides clinical decision-making.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does <strong>not</strong> develop paradigms or untested methods or new untested standards.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does <strong>not</strong> seek to test an intervention that is beyond current science and experience.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project has <strong>no</strong> funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., <strong>not</strong> a personal research project that is dependent upon the voluntary participation of colleagues, students and/or patients.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: &quot;This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board.&quot;</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

### Answer Key:
- If the answer to all of these items is "Yes", the project can be considered an evidence-based activity that does **not** meet the definition of research. IRB review is not required. Keep a copy of this checklist in your files.
- If the answer to any of these questions is "No", you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: [http://answers.hhs.gov/ohrp/categories/1569](http://answers.hhs.gov/ohrp/categories/1569)
DNP Statement of Determination
Evidence-Based Change of Practice Project Checklist Outcome
The SOD should be completed in NURS 7005 and NURS 791E/P or NURS 749A/E

Project Title:
Prevention of abusive head trauma with anti-shaken baby syndrome program

This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). **Student may proceed with implementation.**
This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

<table>
<thead>
<tr>
<th>Student Last Name:</th>
<th>Williams</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWID Number:</td>
<td>20343829</td>
</tr>
<tr>
<td>Student First Name:</td>
<td>Camile</td>
</tr>
<tr>
<td>Semester/ Year:</td>
<td>Spring 2020</td>
</tr>
<tr>
<td>Student Signature:</td>
<td>Camile Williams</td>
</tr>
<tr>
<td>Date:</td>
<td>2/27/20</td>
</tr>
<tr>
<td>Chairperson Name:</td>
<td>Francine Serafin-Dickson, DNP, MBA, BSN, CNL</td>
</tr>
<tr>
<td>Chairperson Signature:</td>
<td>2/27/20</td>
</tr>
<tr>
<td>DNP SOD Review Committee Member Name:</td>
<td>Nancy Selix, DNP, ENP-C, CRN, ICNL</td>
</tr>
<tr>
<td>Date:</td>
<td>3/1/20</td>
</tr>
</tbody>
</table>

Email approved by Dr. Selix
Appendix C: Conceptual Model

Figure 1

Application of the Theory of Stress and Coping (Lazarus, 2000) to AHT
Appendix C (cont)

Figure 2

*Application of the Theory of Stress and Coping (Lazarus, 2000) to AHT.*
Appendix D: Letter of Support from Organization

To whom it may concern:

As the Medical Director for the Valley Children's Guilds Child Abuse Prevention and Treatment Center, I am writing you in regards to a proposed project to be pursued by our Nurse Practitioner, Camile Williams. This is a letter of support for Camile Williams to implement her DNP Comprehensive Project on an Abusive Head Trauma Prevention Program at Valley Children's Hospital.

We are currently exploring, with anticipation of authorization, permission to use the name of our agency in their DNP Comprehensive Project Paper and in future presentations and publications. I thank you for your time.

Sincerely,

[Signature]

Dr. John R. Kinnison
Medical Director, Valley Children's Guilds Child Abuse Prevention and Treatment Center
Medical Director, Regional Hospitalist and Clinical Partnerships
Appendix E: Parental Handouts

Crying: What can I do?

Is my baby’s crying normal?
Most often, yes! Crying generally increases at 2 weeks, is the highest at 6 weeks, and lessens until 3 months of age. Your baby can cry from 20 minutes to over 3 hours a day.

Calm but never shake your baby.
When should I worry about my baby’s crying?
Call your doctor or nurse practitioner if your baby has any of these ill symptoms:

- Fever: >100.4°F & under 3 months or >101°F & 3-6 months
- Diarrhea
- Diarrhea with or without blood or mucus
- If you feel something is wrong with your baby

How can I calm my baby?
Every baby is unique. You have to find what works best to calm your baby. To calm your baby you can:

- Talk
- Sing
- Swaddle
- Massage
- Carry
- Rock
- Play white noise or a heartbeat sound
- Change the temperature
- Decrease or increase stimulation from touch, noise, or lights

You may have to combine a number of methods to calm your baby. Create a calming routine and use it every time you calm your baby.

Never calm your baby by shaking.

What if I’m frustrated because I can’t calm my baby?
Frustration is normal. It is important that you calm yourself first using 4 easy steps:

1) Make sure your baby is fed, diapered, and not ill.
2) Place your baby in a crib or playpen or see if someone else can watch the baby.
3) Walk away.
4) Calm yourself - call a friend, take a shower, watch TV, listen to music, read a book, or exercise.

Only return to your baby when you are calm.

If you are frustrated, calm yourself.

Never shake your baby.
Appendix E (cont)

Crying Happens!

Know what to do before you become frustrated:

Your baby will have times of incontrollable crying. That's how your baby communicates.

Locate a place where you can lay your baby down and walk away – a “safe spot” bed or playpen.

- Crying is not a reflection on your skills as a parent or caregiver. Crying can’t be controlled.
- It’s okay to let your baby cry – after you have tried to soothe and checked to see if your baby is fed, has a clean diaper and is not sick.
- Think about the 2-2-2 theory. Babies begin to cry as early as 2 weeks, crying peaks at 2 months and a baby can cry up to 2 hours per day.
- Premature or “colicky” infants may be more fussy. Taking care of a baby is a big job.

Remember never shake a baby!

For additional resources on Shaken Baby Syndrome Prevention, Parenting, Keeping your child safe or What to look for in good, safe childcare: 1-800-CHILDREN or keepyourchildsafe@chi.osu.edu

Get Ready for the crying to begin...

As a parent or caregiver you have a big responsibility to keep your child safe:

- Talk to the men in your baby’s life. Male caregivers may be less familiar with infant soothing skills (and self-coping practices). Work with dad/dad figures to encourage bonding with your baby.
- Work with your child’s caregiver to develop a plan of how to support her during stressful times. Tell your caregiver you will pick your child up immediately if the caregiver is over stressed.
- Identify a family member or friend who can support mom or dad if they need a break anytime during the day or night. Write their phone number next to the phone and call them.

Remember never shake a baby!

Product of PCAO. To reproduce call 1-800-CHILDREN.
Appendix F: Pre- and Post- Period of PURPLE Crying Survey

Pre-Survey and Post-Survey

Period of PURPLE Crying Survey for Consenting Parents and Guardians of Infants

How much do you agree with each statement about an infant’s behaviors and needs in the first few months of life? Score each statement below with your level of agreement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Don’t Know/Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants cry more often in the late afternoon and evening.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant crying increases in the first few weeks of life and reaches a peak in the first 2 or 3 months before getting less.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If an infant is healthy, it should not cry unexpectedly or without a clear reason.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When an infant cries it is always a sign that something is wrong.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sometimes a crying infant can look like she/he is in pain even when they are not.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sometimes healthy infants can cry for 3 or more hours a day.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A good parent should be able to soothe his or her crying infant.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is ok to walk away from a crying infant when his or her crying becomes very frustrating.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One important role for parents is to protect their infant by making sure people who take care of their infant know about the dangers of shaking an infant.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shaking an infant can cause serious health problems or even death.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shaking a baby is a good way to help a baby stop crying.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sometimes infant crying can be so frustrating or upsetting that I can see how someone might shake or hurt an infant.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shaking a baby can be very dangerous and can cause serious injuries.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix G: Gap Analysis

<table>
<thead>
<tr>
<th>Current State</th>
<th>Identified Gaps</th>
<th>Future State</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Children 36 months or younger children are at high risk for AHT.</td>
<td>• In current practice, primary prevention of abusive head trauma is not done.</td>
<td>• Childhoood initiatives are starting to take community action to decrease incidence of AHT with primary prevention education.</td>
</tr>
<tr>
<td>• No current state mandated practice for primary prevention of AHT.</td>
<td></td>
<td>• Reduction in the incidence of AHT</td>
</tr>
<tr>
<td>• Little to no parental education programs available for new parents.</td>
<td></td>
<td>• Increase AHT knowledge with parents/caregivers and the community</td>
</tr>
</tbody>
</table>
## Appendix H: Gantt Chart

### Abusive Head Trauma Prevention Program GANTT Chart

<table>
<thead>
<tr>
<th>ID #</th>
<th>AHT Prevention Phases and Steps</th>
<th>Responsible Parties</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Antecedents Phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Determine DNP Project</td>
<td>CDW/Advisor</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>1.2</td>
<td>Conduct gap analysis</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td></td>
<td>Completed</td>
</tr>
<tr>
<td>1.3</td>
<td>Begin M review</td>
<td>CDW</td>
<td>C</td>
<td></td>
<td></td>
<td>Completed</td>
</tr>
<tr>
<td>2</td>
<td>Transaction Phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Initial faculty input</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>2.2</td>
<td>Identify &amp; contact w/real community partners</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3</td>
<td>Mediators Phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Incorporate leadership feedback into project</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.2</td>
<td>Conduct lit review</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td></td>
<td>Completed</td>
</tr>
<tr>
<td>3.3</td>
<td>Develop initial course competencies</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.4</td>
<td>Prepare nurse/participants eval tools permission</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.5</td>
<td>Continue lit review and product feedback</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.6</td>
<td>Refine BOD, CAP steps, budget, Gantt, &amp; D/VT</td>
<td>CDW/Instructor</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.7</td>
<td>Consult w/ MS expert AHT &amp; partnership faculty</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.8</td>
<td>Finalize AHT course description &amp; objectives</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.9</td>
<td>Complete inventory of VCH</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.10</td>
<td>Develop MOUs w/ VCH</td>
<td>CDW/Partners</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.11</td>
<td>Develop MOUs w/ VCH</td>
<td>CDW/Partners</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.12</td>
<td>Complete MOUs with VCH</td>
<td>CDW/Partners</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.13</td>
<td>Identify initial core tools</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.14</td>
<td>Create reflection questions for nurse feedback</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.15</td>
<td>Complete data management tools process &amp; analyses</td>
<td>CDWA/C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>3.16</td>
<td>Meet AHT consent w/interim delivery</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>4</td>
<td>Mediating Phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Clarify AHT logistics &amp; expectations</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>4.2</td>
<td>Conduct nurse orientation</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>4.3</td>
<td>Assign nurse educator</td>
<td>CDW/Partners</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>4.4</td>
<td>Review AHT goals and expectations with nurses</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>4.5</td>
<td>Complete nurses and participants pre-quizzes</td>
<td>CDW/Partners</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>4.6</td>
<td>Begin semester AHT prevention project</td>
<td>CDW/Partners</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>4.7</td>
<td>Communicate w/partners on continuous basis</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>5</td>
<td>Outcome Phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>Complete nurses and participants post-quizzes</td>
<td>CDW/Partners</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>5.2</td>
<td>Conduct VCH &amp; SNARE’s evaluation</td>
<td>CDW/Partners</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>5.3</td>
<td>Share semester evaluation data &amp; analyses</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>5.4</td>
<td>Monitor and document progress/progress learned</td>
<td>CDW/Partners</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>5.5</td>
<td>Collectively celebrate achievements</td>
<td>CDW/Partners</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>5.6</td>
<td>Determine ongoing commitment &amp; sustainability</td>
<td>CDW/Partners</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
<tr>
<td>5.7</td>
<td>Assess share AHT prevention QM project w/partners</td>
<td>CDW</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Completed</td>
</tr>
</tbody>
</table>

*Note:* The chart details specific tasks and their status across different phases and years, with each task having a designated responsible party. The status column indicates whether the task is completed, ongoing, or completed with specific dates.
## Appendix I: WBS

<table>
<thead>
<tr>
<th>LEVEL 1</th>
<th>LEVEL 2</th>
<th>LEVEL 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Abusive Head Trauma Prevention Program</td>
<td>1.1 Antecedents (Moderators) Phase</td>
<td>1.1.1 Determine DNP Project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2 Conduct Gap Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3 Begin Literature Review</td>
</tr>
<tr>
<td>2.1 Moderator Transaction Phase</td>
<td></td>
<td>2.1 Illicit Faculty Input</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2 Identify &amp; connect w/initial community partners</td>
</tr>
<tr>
<td>3.1 Mediating Processes Phase</td>
<td>3.1 Incorporate Leadership feedback into project</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.2 Conduct Lit Review for AHT</td>
<td>3.2 Conduct Gap Analysis</td>
</tr>
<tr>
<td></td>
<td>3.3 Develop initial course competencies</td>
<td>3.3 Begin Literature Review</td>
</tr>
<tr>
<td></td>
<td>3.4 Procure nurse/parent/caregiver evaluation tools permission</td>
<td>3.4 Consult with USF expert AHT and faculty</td>
</tr>
<tr>
<td></td>
<td>3.5 Continue lit review and project rationale</td>
<td>3.5 Finalize AHT course description and objectives</td>
</tr>
<tr>
<td></td>
<td>3.6 Refine SOD, AHT project, budget, GANTT, and SWOT</td>
<td>3.6 Complete inventory of community partners</td>
</tr>
<tr>
<td></td>
<td>3.7 Consult with USF expert AHT and faculty</td>
<td>3.7 Develop joint MOUs with community partners</td>
</tr>
<tr>
<td></td>
<td>3.8 Finalize AHT course description and objectives</td>
<td>3.8 Obtain MOUs with community partners</td>
</tr>
<tr>
<td></td>
<td>3.9 Complete inventory of community partners</td>
<td>3.9 Create community partners’ and clinic eval tools</td>
</tr>
<tr>
<td></td>
<td>3.11 Develop joint MOUs with community partners</td>
<td>3.14 Create reflection questions for nurses’</td>
</tr>
<tr>
<td></td>
<td>3.12 Obtain MOUs with community partners</td>
<td>3.15 Create data management tools, process and analysis</td>
</tr>
<tr>
<td></td>
<td>3.13 Create community partners’ and clinic eval tools</td>
<td>3.16 Merge AHT content with intervention delivery</td>
</tr>
<tr>
<td></td>
<td>4.1 Clarify AHT logistics and expectations</td>
<td>4.1 Clarify AHT logistics and expectations</td>
</tr>
<tr>
<td></td>
<td>4.2 Conduct nurse orientation</td>
<td>4.2 Conduct nurse orientation</td>
</tr>
<tr>
<td></td>
<td>4.3 Assign nurse educator</td>
<td>4.3 Assign nurse educator</td>
</tr>
<tr>
<td></td>
<td>4.4 Review goals and expectations</td>
<td>4.4 Review goals and expectations</td>
</tr>
<tr>
<td></td>
<td>4.5 Complete pre-questionnaires</td>
<td>4.5 Complete pre-questionnaires</td>
</tr>
<tr>
<td></td>
<td>4.6 Begin semester AHT prevention project</td>
<td>4.6 Begin semester AHT prevention project</td>
</tr>
<tr>
<td></td>
<td>4.7 Communicate with partners on continuous basis</td>
<td>4.7 Communicate with partners on continuous basis</td>
</tr>
<tr>
<td>5.1 Outcome Phase</td>
<td>5.1 Complete post questionnaires</td>
<td>5.1 Conduct community agency and SONHP’s evaluation</td>
</tr>
<tr>
<td></td>
<td>5.2 Conduct community agency and SONHP’s evaluation</td>
<td>5.2 Share seminars evaluation data and analysis</td>
</tr>
<tr>
<td></td>
<td>5.3 Share seminars evaluation data and analysis</td>
<td>5.3 Monitor and document progress/lessons learned</td>
</tr>
<tr>
<td></td>
<td>5.4 Monitor and document progress/lessons learned</td>
<td>5.4 Collectively celebrate achievements</td>
</tr>
<tr>
<td></td>
<td>5.5 Collectively celebrate achievements</td>
<td>5.5 Collectively celebrate achievements</td>
</tr>
<tr>
<td></td>
<td>5.6 Determine ongoing commitment and sustainability</td>
<td>5.6 Determine ongoing commitment and sustainability</td>
</tr>
<tr>
<td></td>
<td>5.7 Share AHT QI project with partners</td>
<td>5.7 Share AHT QI project with partners</td>
</tr>
</tbody>
</table>
### Appendix J: Responsibility/Communication Matrix

<table>
<thead>
<tr>
<th>Communication</th>
<th>Purpose</th>
<th>Medium</th>
<th>Frequency</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting</td>
<td>Introduction of project. Review objectives and goals.</td>
<td>In person/ face to face</td>
<td>Monthly</td>
<td>Project team&lt;br&gt; Hospital leadership&lt;br&gt; CAP-T Medical Director&lt;br&gt; CAP-T Staff&lt;br&gt; Children&lt;br&gt; Community</td>
</tr>
<tr>
<td>Project team meetings</td>
<td>Review status of project</td>
<td>Face to face</td>
<td>Bi-Weekly</td>
<td>CAP-T Medical&lt;br&gt; Director&lt;br&gt; CAP-T Staff</td>
</tr>
<tr>
<td>Implementation meetings</td>
<td>Discuss, review and design problems</td>
<td>Face to face</td>
<td>Bi-weekly</td>
<td>Project team CAP-T Staff&lt;br&gt; CAP-T Medical Director&lt;br&gt; Hospital leadership</td>
</tr>
<tr>
<td>Monthly Project Status</td>
<td>Update leadership on project status</td>
<td>Conference call</td>
<td>Monthly</td>
<td>Project team CAP-T Staff&lt;br&gt; CAP-T Medical Director&lt;br&gt; Hospital leadership</td>
</tr>
<tr>
<td>Project Status Reports</td>
<td>Detailed reports on project including progress, costs, and problems</td>
<td>Conference call and email</td>
<td>Monthly</td>
<td>Project team CAP-T Medical Director&lt;br&gt; CAP-T Staff&lt;br&gt; Hospital leadership</td>
</tr>
</tbody>
</table>
## Appendix K: SWOT Analysis

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
</table>
| - Evidence-based practice program delivered by Child Advocacy Clinic director and staff.  
  - RN to educate families.  
  - Three-minute video demonstration of program delivery  
  - Online and classroom training available with self-assessment quizzes  
  - Downloaded resources for easy access to PPC educational resources.  
  - Minimal risk to the participants with learning to prevent AHT. | - Education provided after birth; most vulnerable first three months of life.  
  - Absence of direct observation of the program delivery, largely due to confidentiality  
  - Self-reporting bias |

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
</table>
| - Continued education of evidence-based practice  
  - Reduce the incidence of AHT.  
  - Increase in knowledge of parents/caregivers of Abusive Head Trauma  
  - Pre and post testing of AHT prevention program | - Adapting to new technique for nurses to educate parents/caregivers about AHT prevention  
  - Location of training  
  - Limited scale staff training  
  - Handouts and videos need to be available for all languages in the community when needed  
  - Increased incidence of AHT because of decreased AHT by parents/caregivers |
### Appendix L: Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Total cost</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary/wages</td>
<td>Nurses 120 hours X 30 = $3600 Project Manager 20 hours = $1560</td>
<td>$5160</td>
<td>$5160</td>
</tr>
<tr>
<td>Materials/supplies</td>
<td>Handouts for parents &amp; caregivers to take home</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cart = $70</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>English $2.30 X 100 = $230</td>
<td>$370</td>
<td>$370</td>
</tr>
<tr>
<td></td>
<td>Spanish $3.50 X 20 = $70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total project budget</td>
<td></td>
<td>$5530</td>
<td>$5530</td>
</tr>
</tbody>
</table>
Appendix M: Return on Investment

<table>
<thead>
<tr>
<th>Number of AHT cases April 2020 to March 2021</th>
<th>US Direct and indirect cost of AHT per case in 2020</th>
<th>Total cost reduction of 2%</th>
<th>Cost for providing AHT prevention Program</th>
<th>Total ROI 2% decrease in the incidence of AHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>89</td>
<td>$5.7 Million</td>
<td>$11.4 Million</td>
<td>$5,530</td>
<td>$11,394,470</td>
</tr>
</tbody>
</table>
Appendix N: Pre and Post Parent Survey Results Figures

Table 1

*Level of Agreement Before and After Attending the Educational Intervention (N=61) on a scale of 1-5.*

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre</th>
<th>Post</th>
<th>Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Infants cry more often in the late afternoon and evening. T</td>
<td>4.2</td>
<td>4.8</td>
<td>.6</td>
</tr>
<tr>
<td>2. Infant crying increases in the first few weeks of life and reaches a peak in the first 2 to 3 months. T</td>
<td>3.6</td>
<td>5.0</td>
<td>1.4</td>
</tr>
<tr>
<td>3. If an infant is healthy, it should not cry unexpectedly or without a clear reason. F</td>
<td>3.6</td>
<td>4.2</td>
<td>.6</td>
</tr>
<tr>
<td>4. When infants cry, it is always a sign that something is wrong. F</td>
<td>3.0</td>
<td>4.0</td>
<td>1.0</td>
</tr>
<tr>
<td>5. Sometimes a crying infant can look like she/he is in pain even when they are not. T</td>
<td>3.97</td>
<td>4.0</td>
<td>.03</td>
</tr>
<tr>
<td>6. Sometimes healthy infants can cry for 5 or more hours a day. T</td>
<td>4.0</td>
<td>3.97</td>
<td>-.03</td>
</tr>
<tr>
<td>7. A good parent should be able to soothe their crying infant. F</td>
<td>3.41</td>
<td>4.0</td>
<td>.59</td>
</tr>
<tr>
<td>8. It is ok to walk away from a crying infant when their crying becomes very frustrating. T</td>
<td>3.38</td>
<td>5.0</td>
<td>1.62</td>
</tr>
<tr>
<td>9. An important role for parents is to make sure people who care for the infant know the dangers of shaking an infant. T</td>
<td>4.13</td>
<td>5.00</td>
<td>.87</td>
</tr>
<tr>
<td>10. Shaking an infant can cause serious health problems or even death. T</td>
<td>3.7</td>
<td>5.0</td>
<td>1.3</td>
</tr>
<tr>
<td>11. Shaking a baby is a good way to help a baby stop crying. F</td>
<td>1.0</td>
<td>2.13</td>
<td>1.13</td>
</tr>
<tr>
<td>12. Sometimes infant crying can be so frustrating or upsetting that I can see how someone might shake or hurt an infant. F</td>
<td>1.26</td>
<td>1.0</td>
<td>-.26</td>
</tr>
<tr>
<td>13. Shaking a baby can be very dangerous and cause serious injuries. T</td>
<td>3.84</td>
<td>5.0</td>
<td>1.16</td>
</tr>
</tbody>
</table>
Appendix N (cont)

Figure 1

*Mean improvements with agreement levels by question (N=61).*
*Mean is based on the range of 13-65 knowledge score.*

![Figure 1: Mean improvements with agreement levels by question (N=61). Mean is based on the range of 13-65 knowledge score.](image)
Appendix N (cont)

Figure 2

*Average pre and post knowledge scores (N=61).*
Survey

Average Item Agreement With True and False Statements

<table>
<thead>
<tr>
<th></th>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE</td>
<td>3.2</td>
<td>2.6</td>
</tr>
<tr>
<td>POST</td>
<td>4.1</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Score
Table 2

*Difference in agreement with AHT statements: Matched t-test (N=61).*

<table>
<thead>
<tr>
<th>Arm</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>61</td>
<td>43.15</td>
<td>3.570</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td>61</td>
<td>47.02</td>
<td>.128</td>
<td>8.45</td>
<td>.001</td>
</tr>
</tbody>
</table>
Appendix O: Rate of Incidence

12-Month AHT Incidence Rates Per 1,000 Pediatric Patients (April 2020-March 2021)
### Appendix P: CQI Method

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Brief description</th>
<th>Data source</th>
<th>Tools/Analyzing data</th>
<th>Measurement type</th>
<th>Time frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Pre-educational assessment on AHT</td>
<td>Tool/Survey</td>
<td>Pre-educational 13-question survey using Likert five-point scale</td>
<td>Medians and quartiles of counts and percentages, using Qualtrics</td>
<td>Three months</td>
</tr>
<tr>
<td>Education</td>
<td>A 15-minute educational session conducted individually with each participant after well-child visit</td>
<td>Tool/Survey</td>
<td>Video presentation from PPC and AHT handouts will be kept by parent/caregiver for future use</td>
<td>Post-educational 13-question survey using Likert five-point scale, using Qualtrics</td>
<td>Three months</td>
</tr>
<tr>
<td>Nursing self-assessment on their ability to implement AHT prevention program and parent/caregiver</td>
<td>Educational satisfaction survey distributed to participants on their knowledge of AHT and if they would change their practice intervention</td>
<td>Survey</td>
<td>10-item survey using a Likert scale with an ordinal scale response set from 0 (not at all) to 5 (extremely satisfied)</td>
<td>Medians and quartiles of counts and percentages, using Qualtrics</td>
<td>Two weeks</td>
</tr>
</tbody>
</table>