

Doctor Nursing Practice Project

entitled

Development of a Toolkit for Implementation and Evaluation of the “*HUG Your Baby*” Program
in a Non-profit Community Setting

by

Kati E. Hughes, RN, BSN, c-EFM, DNPc

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Dr. Kathrine Sink, PhD, RN

Committee Chair

Dr. Temeaka Gray, PsyD, APRN-CNP

Committee Co-Chair

Dr. Susan Rice, PhD, RN, CRPNP

Committee Co-chair

University of Toledo
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Abstract

The use of an implementation Toolkit to reliably translate evidenced based programs into community health provides stability and reliability to the organizations that utilize them. This is important in the realm of implementation science, as reliability improves the chance of continued program sustainability. The HUG Workshop Toolkit provides outreach organizations with the needed materials to implement the *HUG Your Baby* program in the community. The toolkit developed provides users with a complete guide for implementation of the program in the community. Using the toolkit for systematic implementation resulted in an increase in organization volunteer's confidence to teach the *HUG Your Baby program* in the community and increased parental attendance in an evidenced based parenting program.

Keywords:

HUG Your Baby Toolkit, implementation guide for parenting programs, trained volunteer mentors in the community

Table of Contents

Section 1- Description of Clinical Issue, Prevalence, and Significance	
Description of Clinical Issue	10
Prevalence	14
Significance	15
“ <i>HUG Your Baby</i> ” Program Introduction	16
Section 2- Purpose, PICOT, and Project Aims	
Purpose	17
PICO	17
Project Aims	18
Section 3- Guiding Framework	
Model for Evidenced Based Change	19
Section 4-Review of Literature	
Review of Literature	22
Section 5- Recommended Practice Change	37
Critical Appraisal of Evidence	39

Section 6- Methods	
Setting/population	42
Implementation Plan and Process	48
Section 7- Outcome of Project	
Outcome Measures	61
Evaluation Process	61
Section 8- Discussion	
Findings	68
Strengths	70
Limitations	71
Future Recommendations	73
Conclusion	73
References	75
Appendices	
A. Literature Search Table	86
B. Literature Evaluation Tables	87
C. LEGEND Guide	107
D. LEGEND Algorithm	108

E. LEGEND Evidence Levels	109
F. Toolkit for Implementation of HUG Program	110
G. Time frame for project implementation table	132
H. HUG “Understanding Infants Behavior” Survey	136
I. IRB Consent Form University of Toledo	137
J. Organizational Letter of Commitment	139

List of Tables

Table 1	Level of evidence for capstone per domain.....	21
Table 2	Legend Algorithm for evaluating evidence.....	39
Table 3	Review of Internal and External Data HUG program.....	43
Table 4	Roles and Responsibilities of team members.....	46
Table 5	Barriers to capstone implementation.....	56
Table 6	Facilitators to capstone implementation.....	57
Table 7	Cost Analysis for capstone.....	58
Table 8	Tenets to assist in development of HUG Toolkit.....	63
Table 9	Results of mean responses to Infant Behavior Survey.....	65

List of Figures

Figure 1 Parent attendance of parenting programs within the organization..... 64

Development of a Toolkit for Implementation and Evaluation of the “*HUG Your Baby*” Program
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Section 1: Introduction

Parenthood, is a dynamic and ever evolving entity requiring its members to be malleable to maintain the underlying structure of love, guidance, and respect. The fluctuating patterns seen in parenthood require the ability to cope with numerous stressors, such as infancy. Newborn infants precede through developmental changes as part of their normal growth and development, many of which may induce stress in exhausted new parents.

Description of Clinical Issue

The role of a parent is one of the largest influences of a child’s well-being and overall health. Infants form attachments to receive protection and support necessary for survival during this vulnerable time (Karl & Keefer, 2011). The early interactions between the parent and the infant are complex social interactions that set the stage for later interactions in the child’s education, health, and social relationships (Joosen, Mesman, Bakersman-Kanenburg, & Van IJzendorp, 2012). Brazelton, a leading expert in pediatrics, reported in his observations that infants demonstrate individually unique behaviors. The infant’s unique behaviors, then, influence and shape their parent’s behaviors and responses back to the infant (Sparrow, 2013). Unstable or ineffective parenting skills may unintentionally restrict the child from reaching their full potential (Haltigan, Leerkes, Supple, & Calkins, 2014).

The need for healthy parent-child relationships are especially true for disadvantaged parents, who have a disproportionately high reported incidence of child abuse and infant mortality. Disadvantaged groups are acknowledged for having inequalities in health, with disadvantaged groups having poorer health outcomes compared to those not disadvantaged

(O'Mara-Eves et al., 2015). Engaging members of disadvantaged communities in public health initiatives has been suggested as one way to reduce health inequities. For example, public health initiatives that improve social capital and reduce isolation may help to reduce health inequalities and improve health outcomes (O'Mara-Eves et al., 2015).

Nurturing a child into adulthood and equipping the child with the necessary skills to enter society necessitates parental devotion and knowledge (Ardelt & Eccles, 2001). Parents must acquire a skill set focusing on physical and mental actions that promote their child's growth and development. Collectively, a parent's skill and the ability to apply said actions is termed parental self-efficacy. Inability on the part of the parent to respond and understand infant behavior and cues may result in higher rates of childhood mental illness, premature discontinuation of breast feeding, unnecessary acute care visits, and child abuse in populations with decreased parental self-efficacy (Combs-Orme, Wilson, Cain, Page, & Kirby, 2003). In addition, early problems in child behavior is associated with developmental delays and reduced scholastic achievement as effective parenting influences every aspect of the growing infant's brain development (Combs-Orme et al., 2003).

Understanding how parents perceive their ability to perform tasks of child-rearing can aid professionals who design and deliver programs targeting parents. Providing parents with a stronger sense of parental self-efficacy acts as a protective factor in childhood development, as parents can marshal personal and environmental resources to maximize positive developmental outcomes for their children, even when faced with stressors (Cadwell, Shaver, Li, & Minzenburg, 2011). Therefore, providing a loving, nurturing, and stimulating environment in infancy provides the best foundation for protection against later adversity in childhood (Combs-Orme et al., 2003).

However, due to the shortage of healthcare providers in many inner-cities, accessibility to appropriate evidenced based programs to assist parents may be limited. Increasing social support in community outreach organizations using trained volunteers to bring evidenced based interventions to disadvantaged parents may decrease the shortage of aiding the parents (O'Mara-Eves et al., 2015).

The use of an implementation toolkit standardizes the process of implementing evidenced based educational interventions and increases that everyone will teach same material, thereby, maximizing program success (Wiltsey- Stirman et al., 2012). Program success is important to nonprofit community outreach organizations as they must balance outreach efforts with funding.

Sustainability for nonprofit organizations has long been of interest to organization leaders, funders, and the communities in which organizations reside (Sontag-Padilla et al., 2012). Understanding how the community context affects organizational operations, community engagement, and financial support is key to establishing program sustainability for nonprofits organizations (Wiltsey- Stirman et al., 2012). The use of implementation science strategies can guide the program to preserve fidelity while maximizing program sustainability. Therefore, implantation strategies should be considered in the development of program implementation toolkits (Wiltsey- Stirman et al., 2012).

Background, Prevalence, and Significance of Community Parental Education

Understanding parental influence on their child's life is the cornerstone of developing interventions aimed at increasing parental self-efficacy. For infant and parent to mutually influence and change each other, they must be connected to each other through relationships that allow for the multidirectional flow of information and response to infant behaviors (Sparrow, 2013).

The social interactions a child has with their parent is a catalyst for later interactions in education, health, social relationships, and society (Cerezo, Dasi, & Ruiz, 2013). Identifying specific aspects of the caregiving process that contribute healthy parent–child relationships and positive developmental outcomes for children is crucial to developing programs that target common difficulties faced by all parents in infancy. Providing parents supportive interventions on infant behaviors and communication delivers opportunities for positively influencing parental self-efficacy, therefore, enhancing the social interactions between parent and child in the very early formative years of infancy (Nugent, 2013).

Understanding how parents perceive their ability to perform tasks of child-rearing can greatly aid professionals who design and deliver programs for parents (Cerezo et al., 2013). Providing parents with skills which enhance parental self-efficacy acts as a protective factor in childhood development, as the parents are able to marshal personal and environmental resources to maximize positive developmental outcomes for their children (Cadwell, Shaver, Li, & Minzenburg, 2011). As community outreach programs become more prevalent, a systematic implementation process must be maintained to deliver valid and reliable programs. To maintain validity of a program across numerous access points the use of a program implementation “tool kit” is imperative.

According to the Agency for Healthcare Research and Quality (2016) a tool kit is an action oriented compilation of related information that guides users to organize efforts to meet evidenced based specific practice recommendations. Many federally funded healthcare organizations, including the National Institutes of Health (NIH), are placing increased emphasis on highly sophisticated methodological approaches that integrate efforts designed to improve collaboration involving diverse partnerships within health disciplines, between universities, or

with academic institutions, community stakeholders, and leaders (Perez, Weathers, Willis, & Mendez, 2013). To effectively translate evidence into practice reliably in such a complex environment requires the development of plan for implementation that is consistent and inclusive of the most up to date guidelines and practice procedures.

Prevalence

Early childhood is an intense developmental period for both children and their parents, therefore, placing all parents at risk for ineffective parental self-efficacy (Pierce et al., 2010). How a parent perceives their competency to care for their infant is the strongest potentially modifiable risk factor contributing to the future development of physical, behavioral and emotional problems in children (Svensson et al., 2009).

Society has become increasingly aware of the importance of parental support during the transition into parenthood. Additionally, promoting parenting as a complex and challenging task requiring support and understanding on the part of healthcare providers is needed (Cerezo et al., 2013). The emphasis in parental empowerment has resulted in developing a partnership between professionals and parents to foster support, guidance or practical assistance to all prospective parents (Cerezo et al., 2013).

Civitas Initiative et al. (2000) national survey reports that 2/3 of prospective parents felt unprepared for parenthood and 70% of mothers of children under three years old reported they relied on their mothers to obtain support in parenting knowledge even when contact between the two is minimal or they perceived their own mother's care as lacking in their childhood. The Civitas Initiative et al. (2000) survey identified that 54% of mothers reported they relied frequently on their child's clinician, 25% on nurses, and 20% on childcare providers for information and advice on parenting. Parents report many anticipatory guidance topics are not

covered in well-child visits, and that, even after such visits, they still felt unprepared in infant care and development, as many professionals failed to address techniques for infant crying, sleep, and breastfeeding (Bornstein, Cote, Haynes, Hahn, & Park, 2010). Of the education provided by clinicians, parents reported inadequacy of information regarding techniques to use for helping with infant crying, breastfeeding, and sleep issues. Lack of information and support creates feelings of lack of confidence in childrearing with decreased feelings of self-efficacy leading to adverse outcomes.

Significance

The relationship between parental self-efficacy and parenting competence is moderated by parenting knowledge (Bornstein, Suwalsky, & Breakstone, 2012). Parenting knowledge influences parenting practices. Mothers who know more about child development report more positive interactions with and give more positive descriptions of their children (Bornstein et al., 2010).

A focus on parent behavior does not negate the role of other significant persons in children's lives, such as extended family, child care providers, and community outreach programs (Combs-Orme et al., 2003). Community outreach programs can play a crucial role toward the success of the family system. The outreach programs offer the necessary support and modeling for parents to understand their infants' development by providing formal education on normal infant behavior and development to promote and foster the parental-infant relationship. Further, communities clearly have responsibilities to children as they assist families to remediate parenting difficulties with support to parents in caring for their children (Combs-Orme et al., 2003).

"HUG Your Baby" Evidenced Based Program

The HUG Your Baby program is an evidenced based educational course that assists parents of infants manage and solve problems related to infant behavior, feeding, and sleep (Tedder, 2008). HUG stands for help, understanding and guidance for young families (Tedder, 2008). Developed by Jan Tedder, a Family Nurse Practitioner and child health specialist, the program is based on work of Dr. T. Berry Brazelton and other leaders in child development (Tedder, 2008). The program uses major medical literature and nomenclature and translates it for parents to both understand and apply to their infant. The focus of the program is teaching caregivers infant newborn behavioral states and simple interventions to assist infants in distress while also promoting breastfeeding (Tedder, 2008). The educational format may be delivered both in person and online, the class itself is two hours in duration. The program developers provide a certified HUG Teacher course that consists of four educational modules and clinical experience applying the program in the community.

The HUG Program has been used extensively in both direct patient care and medical education to train future health care professionals in understanding normal infant behaviors to support parents during infancy (Tedder, 2008). Currently, the program is offered in six languages, across Europe, Asia, United States, Australia, Middle East, and Finland. The HUG program offers an innovative, timely, and cost effective approach to learn infant behavior and cues surrounding feeding, sleeping, and crying (Tedder, 2008).

Section 2: Purpose

Purpose Statement

The purpose of the capstone project is to develop a toolkit for implementation of an educational program “Hug Your Baby” (HUG) in a non-profit volunteer community outreach organization. Implementation of a structured curriculum on infant behaviors and cues surrounding crying, feeding, and calming techniques increase perceived parental self-efficacy (Combs-Orme et al., 2003).

Understanding infant behavior assists parents and caregivers to avert and resolve common difficulties surrounding an infant’s eating, sleeping and crying. Educating participants in infant behavior and cues increases perceived parental self-efficacy, which has numerous positive impacts on infant neurological, social, and cognitive development (Combs-Orme et al., 2003). Further, understanding and positively responding to infant cues promotes the parent-child relationship, reduces the incidence of stress induced negative behaviors such as Shaken Baby Syndrome, promotes longevity in breast feeding, and reduces results of poor parenting (Combs-Orme et al., 2003).

PICOT

The success of any research process relies, in part, on how well investigators are able to translate a clinical problem into a research question (Thabane, Thomas, Ye, & Paul, 2009). The PICOT approach requires that the framing of the research question specify the target Population, the Intervention of interest, the Comparator intervention, key Outcomes, and the Time frame over which the outcomes are assessed (Thabane et al., 2009). For this project, the PICOT question is:

(P) In a non-profit volunteer outreach organization (I) does the development of a toolkit for the implementation of the HUG Your Baby Program (C) compared to current parenting education
(O) Increase-completion of a structured parent education program on infants and increase volunteers' knowledge and confidence to teach the HUG program in the community.

Aim of the Pilot Project

The overall aim of the project is as follows:

1. Develop a toolkit for the implementation of the HUG Program that will serve as a prototype for other nonprofit community organizations.
2. Increase parental and caregiver completion of a structured evidenced based parenting education program on infants to caregivers.
3. Increase program community volunteer participant knowledge and confidence to teach parent's infant behavior, communication, and cues.

Section 3: Project Framework

Guiding Framework: The Model for Evidenced-Based Practice Change

The Model for Evidenced-Based Practice Change was originally developed by Rosswurm and Larrabee (1999) and has since been revised to include a process of six steps that guides the practitioner in the translation of research into practice. Its foundation is derived from both a theoretical framework and research literature and is used in evidenced based practice, resource utilization, and change theory (Rosswurm & Larrabee, 1999). The model recognized that translation of research into practice requires a solid grounding in change theory, principles of research utilization, and use of standardized nomenclature (Melnyk & Fineout-Overholt, 2015).

Step 1. Assess need for practice change.

The first step involves the identification of a practice problem that may require change. Both internal and external data is collected and compared to the recommended practice benchmarks and guidelines (Rosswurm & Larrabee, 1999). A team of evidenced based stakeholders are gathered to address the practice problem. The stakeholders collect internal and external data relevant to the proposed change to formulate a PICOT question that serves to guide the project (Melnyk & Fineout-Overholt, 2015).

Step 2. Locating the best evidence.

Step two of The Model for Evidenced-Based Practice Change involves linking the problem determined in step one with a formal problem statement either a PICOT question and/or aim statement (Rosswurm & Larrabee, 1999). Once the PICOT question has been formulated, sources of evidence are identified. A search strategy is framed to systematically review the body of evidence, including identification of key terms, databases, and inclusion/exclusion criteria (Rosswurm & Larrabee, 1999; Melnyk & Fineout-Overholt, 2015).

Step 3. Critically analyze the evidence.

In step three of the model interventions and outcomes are refined (Rosswurm & Larrabee, 2009). The literature evidence is synthesized and combined with clinical judgement (Rosswurm & Larrabee, 1999). Once the literature has been investigated and evidence has been collected pertaining to the PICOT question, appraisal and strength of the evidence is determined (Rosswurm & Larrabee, 1999). Critically analyzing the evidence is done to assess the feasibility, benefits, and risks of implementing the proposed change into practice (Melnik & Fineout-Overholt, 2015).

Step 4. Design practice change.

After synthesizing the available evidence, the next step is to define the practice change (Rosswurm & Larrabee, 1999). Identification of needed resources is determined to start designing the implementation and evaluation of the pilot. If the practice change involves a large organization, a pilot project is advised (Rosswurm & Larrabee, 1999). A pilot project allows for practitioners to influence adaptation to fit its personal needs (Rosswurm & Larrabee, 1999). After designing the evaluation strategy, stakeholders collect baseline data on the process and outcome indicators for practice (Melnik & Fineout-Overholt, 2015).

Step 5. Implement and evaluate change in practice.

Implementation of the designed practice change is completed. After implementation, the change process is evaluated for outcomes (Rosswurm & Larrabee, 1999). The data is evaluated to determine fit and feasibility (Rosswurm & Larrabee, 1999). Additionally, the stakeholders are consulted to develop conclusions and propose recommendations based on the findings. If the change process is determined not to have been successful within the practice, options for the future is discussed (Melnik & Fineout-Overholt, 2015).

Step 6. Integrate and maintain change in practice.

The results of the practice change are quantified and results are integrated into practice. (Rosswurm & Larrabee, 1999). If the change process is successful, the recommendations and change are then incorporated into the standard of care with dissemination of the results of the project (Melnik & Fineout-Overholt, 2015). Stakeholders share the recommendations on new practice into the greater body of research evidence (Rosswurm & Larrabee, 1999).

Model for Evidenced-based Practice Change fit with Capstone project

The Model for Evidenced-based Practice Change by Rosswurm and Larrabee (1999) allows for a systematic approach in implementing an evidenced based program within the community. The model provides a step by step guide that offers flexibility and structure to maintain practice change.

Section 4: Literature

Review of the Literature

The literature search was conducted through the PubMed and CINHAL databases. To manage the search results, the keywords used included parenting programs for infants, infant behaviors and cues, HUG program, tool kits for community implementation, volunteer teaching, and community program sustainability. Both quantitative and qualitative studies were included. Due to the rich history of the issue, the publication date was expanded to include all literature published from 1980 - present. The literature search yielded a total of 49 articles out 386 which were analyzed (see appendix A. for the literature search table).

Evidence

Forty-nine articles were reviewed for applicability to the PICOT question and intervention (see Appendix B. for literature evaluation tables). Six domains were researched as pertaining to the study aims. The six domains included: parental interventions for children >1 years of age (n=11), HUG program and interventions utilized in programs (N=10), infant behavioral states and cues (n=7), implementation toolkits utilized in the community (n=5) use of volunteers for community teaching (n=6), and community program sustainability (N=10). Overview of each domain researched and the level of evidence within each domain (Table 1).

Table 1. Level of evidence for capstone per domain

	Parental Interventions for children <1 years age	HUG Program and Interventions	Infant Behavior States and Cues	Implementation Toolkits	Use of Volunteers community teaching	Community Program Sustainability
Meta-analysis/ Systematic Review		N=3	N=2			N=2
RCTs	N=4	N=1				

CCTs		N=1				
Longitudinal Studies	N=3	N=1	N=1		N=1	
Cohort study	N=1				N=1	
Cross-sectional study	N=1	N=1				N=1
Descriptive studies			N=2	N=4	N=1	N=1
Expert Reviews		N=3	N=2	N=1	N=1	N=3
Qualitative Study	N=2				N=2	N=3
Total Articles	11	10	7	5	6	10

Synthesis of literature

Parenting Programs for children >1 years of age.

Overall, formal supportive interventions targeted for parents with infants under one years of age demonstrate both positive and clinically meaningful effects on parenting skills. Three themes, increasing parental self-efficacy, confidence, and/or knowledge, were prominent regarding parenting classes and parents. The relationship between parental self-efficacy and parenting competence is influenced largely by knowledge with higher perceptions of parental self-efficacy and parenting competence when parenting knowledge is high (Bornstein et al, 2012). Mothers with more knowledge about infantile communication and care practices report increased parental self-efficacy and confidence (Shorey, Chan, Chong, & He, 2014a).

In-person education delivered by trained professionals was the most frequently utilized mode of education delivery. Shorey et al. (2014b) examined the correlation between reported maternal self-efficacy and formal social support experiences within the hospital in the early

postpartum period. Mothers reported that formal sources of social support, such as nurses and doctors, provided adequate support on newborn care and behaviors.

Parental self-efficacy is correlated with the frequency of parental attendance in an educational intervention. In a longitudinal study pertaining to a community based intervention for parents of infants less than 15 months of age, the more the parents attended the educational sessions, the higher the reported parental self-efficacy (Cerezo, et al., 2013). Similarly, parental confidence was enhanced when breastfeeding mothers had trained peer counselors to give counsel and support (Srinivas et al., 2015). Those who had frequent peer counseling had higher rates of breastfeeding at 1 month compared to those with less frequent support and counseling. In conclusion, in-person supportive contact and positive reinforcement of desired behaviors to reinforce education produced the most significant effects.

Alternative methods to provide support to new parents have had mixed results. Danborg, Wagner, Kristensen, and Clemensen (2015) used media based educational intervention via text messaging. Parents received only automated text messages appropriate to the infants' developmental stage. The parents indicated the timely information gives a feeling of control and support (Danborg et al., 2015). Paradis et al. (2012) provided written literature and a DVD as a home-based study to increase parental self-efficacy without significant results.

The outcome comparison across the literature demonstrates that formal educational support to parents increases parental self-efficacy and/or parental confidence. All the organizations used in the parenting educational programs ultimately adopted the program into practice.

Infant Behaviors and Cues.

Newborns are active participants with their environment from birth. Thus, parental understanding of infant communication cues and behaviors enhance new families to form attachments (Nugent, 2013). Systematic patterns in behaviors emerge in infants as they begin to use gestures combined with eye-gaze, vocalizations, body movements and facial expressions to engage in social interaction with a communicative partner (Boundy, Cameron-Faulkner, & Theakston, 2016). Theoretically, being able to distinguish these gestures would provide greater insight into the emergence of intentional communication in pre-linguistic infants (Boundy et al., 2016). Boundy et al. (2016) studied infants to identify the micro-behaviors associated with showing and giving gestures in infants under 12 months, to ascertain whether these form two discrete communicative behaviors. Specific infant behaviors such as arm positioning, hand, orientation, and direction of eye gaze are reliable predictors of infant communication, while caregiver response was only associated with infant arm position ($p < .0001$) (Boundy et al., 2016) The observations for this study demonstrate infants' communication abilities, but caregivers may be unaware of some behavioral cues (Boundy et al., 2016). Observations of the emotional regulation of infants between 6 and 18 months old found that 6-month-olds were more likely than 12- or 18-month-olds to use gaze aversion and fussing as their primary emotion regulation strategies (Mangelsdorf, Shapiro, and Marzolf, 1995). The younger infants were less likely than the older infants to use self-soothing and self-distraction (Bounty et al., 2016).

The Neonatal Behavioral Assessment Scale (NBAS) was developed by Dr. T. Berry Brazelton and colleagues in 1973 (Brazelton Institute, 2016). The assessment scale represents a guide that helps parents, health care providers and researchers understand the newborn's language to assess newborn behavior and cues (Brazelton Institute, 2016). Meta-analysis of

parenting intervention programs (n=13 studies with combined total 668 participants) indicated that Brazelton-based interventions during the neonatal period had a beneficial effect on later parenting (Das Eiden and Reifman, 1996). Brazelton's NBAS is being used increasingly by healthcare professional and other early intervention professionals to help parents become more aware of their baby's capacities and promote the bond between parents and their infants (Nugent, 2013). Karl and Keefer (2011) support the use of NBAS as demonstrating measurable success to enhance infant development. Integrating NBAS into provider training demonstrated that newborns able to achieve overall behavioral organization are prepared to take on challenging and necessary developmental tasks such as feeding, interacting, and acclimating to the world.

In conclusion, infants display many nonverbal cues that act as a communication mechanism. Teaching parents to understand and respond to the nonverbal cues of their infant provides a unique opportunity to support parents during one of the most critical transition points in the development of the parent-child relationship (Nugent, 2013).

Help Understanding Guidance (HUG) Program and interventions.

Infant cues and behaviors are formed by several influences, such as infants' physical attributes, individual psychological factors and environmental circumstances (McNally et al., 2016). Further, infant characteristics, external cues and the parents' own characteristics affect how cues are perceived (McNally et al., 2016). The HUG program was used in a clinical control trial of fathers (N=46) of NICU infants (Kavidar & Mozafarina, 2013). The intervention was the HUG program delivered over two sessions with reinforcement by the Registered Nurse until discharge compared to routine care. The results of the study demonstrated a statistically significant increase in knowledge of tasks related to infant care, including response to crying and infant cues. This finding is congruent with Das Eiden & Reifman (1996) meta-analysis of

parenting interventions based on Brazelton's NBAS. The NBAS intervention is based on the idea that helping parents become aware of the infant's developmental and interactive capabilities may enhance parental responsiveness which in turn may improve future parent infant interactions. The meta-analysis of 13 studies found Brazelton based interventions during the neonatal period to have a moderate ($d=.4$) beneficial effect on the quality of later parenting.

Understanding of infant behavior is efficacious not only in parent education, but health provider's education as well. Tedder (2013) taught 110 child birth educators about the HUG program, then surveyed their knowledge and feelings about the program. The author reported 72% respondents of the program found the HUG program to be helpful with tools and strategies for teaching parents about newborn behavior and cues (Tedder, 2013).

Parents want guidance and providing information about child development enhances parenting skills (Tedder, 2007). The Hug program offers a comprehensive approach that teaches new parents to understand and respond to infant behaviors and cues of crying and sleeping (Tedder, 2007).

Useful techniques to infant crying can be beneficial to both the parent and the infant. A systematic review to evaluate different treatment regimes in infants who cry excessively revealed that effective treatment regimens of parents should include education about crying recognition, support interventions, and parental reassurance (Akhnikh et al.2014). The education should include normal infant crying patterns and supporting infant self-regulation techniques for application by parents to improve infant-parent interaction and communication. A meta-analysis by Thrane et al. (2016) agreed and recommends swaddling, sucking, and skin to skin care for distressed infants under one years of age. Saeidi et al. (2011) employed skin to skin care after

immunization of infants and found the mean duration of crying was significantly lower in the intervention group.

One of the largest concerns new parents report is problems with infant sleep (Hiscock & Wake, 2002). A randomized control trial of 156 mothers compares the effect of a researcher developed behavioral sleep intervention with written information about normal sleep on infant sleep problems and maternal depression (Hiscock & Wake, 2002). At two months, the intervention group demonstrate that more infant sleep problems had resolved with any remaining sleep problems less in the intervention group than in the control group. Similarly, in a behavioral modification program for families measuring for sleep found that after intervention, six-week old infants slept a mean of 1.3 hours more than in the control group (Symon et al., 2005).

In conclusion, crying and sleep issues are concerns of new parents. The HUG Program is an evidenced based intervention to circumvent problems associated with infantile crying and sleep which have demonstrated a positive effect in assisting parents soothe infants (Tedder, 2007).

Toolkit for implementation of programs in the community.

The growing proportion of at risk families and link of adverse outcomes with child abuse have caused policy makers to recommend that primary healthcare providers and nurses be educated to enhance child mental health, especially to those at risk for adverse parenting outcomes. However, many primary care practitioners are already overburdened with time constraints, therefore, community outreach programs may fill in the gap to reach those most at risk (Tedder, 2008).

Reliable and consistent replication of evidence translation includes the use of an implementation toolkit (Perez et al., 2013). The California Social Work Education Center

(CalSWEC) in collaboration with UC Berkley created an instructional website to assist practitioners in developing toolkits for their organizations. Implementation Toolkits provide information to execute a new practice program. Currently, there is no general consensus on what constitutes an implementation tool kit, thus, information may include practice bulletins, detailed implementation guides, budget forecasts, and program education (CalSWEC, 2016). Using the CalSWEC website, numerous toolkits were developed to translate research into practice. Using the CalSWEC toolkit development guide, the Birth to Six toolkit was designed to support the dissemination of early childhood resources to county child welfare social work staff and caregivers (CalSWEC,2016). Included in the Birth to Six toolkit was training curricula and materials, curriculum, talking points, and PowerPoint presentations. The contents were aimed to help trainees transfer the knowledge and skills they acquired in a classroom setting to their everyday practice (CalSWEC,2016).

Perez et al. (2013) developed a tool kit for research project managers for improving health disparities in the community by assembling resources and tools needed to manage transdisciplinary research projects. While the initial collaboration was aimed at reducing healthcare disparities, the authors subsequently developed a tool kit that assisted in translating evidence into community practice. The tool kit was based on the project manager's research expertise and was supported by representatives from the National Institute of Health. Feedback from project managers recommended a tool kit should be considered a necessary training tool for community based program implementation (Perez, et. Al, 2013).

Community program tool kits have been utilized for project implementation with positive impacts on health. For example, a toolkit for HIV education and dissemination in predominately African American churches was developed (Berkley-Patton et al., 2012). After surveying church

capacity, knowledge, and infrastructure to deliver HIV education in a religious setting, a church-based HIV Tool Kit was developed. A toolkit was developed to provide an intervention for a pediatric weight management program. The tool kit included provider guidelines, family educational materials, and the intervention protocol for the pediatric weight management program. The application of the organized program resulted in participants losing weight (Sweeney, 2010). Another toolkit was developed for increasing public health nurses' knowledge and assessment skills of overweight and obese children in the community (Kopp & Hornberger, 2008). The Exercise and Nutrition tool kit was mailed to 500 public health nurses. After receiving the tool kit, nurses reported an increased use of screening tools and standardized referral parameters. Tool kits employed in community settings for project implementation provide the framework for consistent and standardized application of research. Reilly et al. (2011) performed a pilot study to determine the practicality and effectiveness of the toolkit in changing attitudes and behaviors about infection control and emergency preparedness for faith based community settings (Reilly et al., 2011). Participants felt the toolkit was easy to use, organized and convenient.

In conclusion, the use of an implementation toolkit in community programs positively impacts conformity, replicability, and reliability of translation of evidence. A toolkit provides a roadmap to program implementation ensuring each dynamic essential for program success has been addressed.

Use of Volunteers for Community Teaching.

Peer health educators and volunteer lay people are viewed as a promising strategy to achieve successful program interventions with positive impacts on community health (Santos et al., 2014). Srinivas et al. (2015) paired breast feeding mothers with community trained peer

counselors to provide support and education in early breastfeeding compared to the usual breastfeeding support provided by nurses. The peer counselor worked with the mother over a period of four months starting at the birthing. Results demonstrated significant increases in self-efficacy related to breast feeding in the intervention group. Further, peer counseling was associated with higher rates of breastfeeding at 1 month. A study by Fox, McMullen, and Newburn (2015) report comparable results utilizing peer educators to support breastfeeding. The study focused on the qualitative experiences of breast feeding mothers and their experiences with peer support. Mothers emphasized the importance of peer supporters which enabled them to continue to successfully breastfeed (Fox et al., 2015). Congden (2014) describes a successful community volunteer program providing support and education for new parents. Trained volunteers become the educators who teach infant behaviors and cues around sleep, feeding, and crying to new parents with the aim to increase maternal confidence and reduce stress.

Educating volunteer mentors and educators to feel competent to teach the educational curriculum is needed for a successful program. Santos et al. (2014) performed a descriptive study of 26 volunteers that were educated to provide cancer awareness in their church communities. Using a web based portal, volunteers were trained to be facilitators of the program. After training, volunteers expressed that they found the training effective to increase their confidence to teach material (75%), present program workshops (87.5%), and to answer program related health questions (91.7%). The authors stressed the need for staff support in the initial program implementation phase of a volunteer program to provide guidance and support for the volunteers until the program is established.

In conclusion, the use of volunteer educators in the community has both promising results and worthy outcomes on impacting health within their community. After a training program, the volunteers felt confident to provide education and support to their community.

Factors that affect community program sustainability.

To maintain sustainability a program needs a strong, clear identity, a base of engaged constituents, and capacity that is aligned to deliver the results promised by its identity and meet the needs of its constituents (Buck, 2015). There are five themes that are identified with long term program sustainability: Fit of program in the community, leadership, partnership, adaptation, and funding stability. While each of these themes is important in program sustainability, it is the synergistic effect of all that promotes the highest evidence of long term sustainability (Cram, Phaff, & Nieboer, 2013). Long term sustainability evolves out of successful implementation and focuses on institutionalization of an intervention/program and subsequent adaptation over time (Julian & Kombarakaran, 2006).

Community support is a critical cornerstone necessary to sustain major program initiatives (Buck, 2015; Peterson, 2016; Julian & Kombarakaran, 2006). Julian and Kombarakaran (2006) operationalized community support in terms of creating a strong identity and fostering awareness among key members of the community who might function as program “champions”. For any nonprofit program to be sustained, it must integrate its core interventions into the needs of the community it serves. Cram, Phaff, and Nieboer (2013) additionally found that non-financial resources such as community engagement was more influential on sustainability than financial resources ($P = 0.008$).

Many promising programs have failed due to lack of assessing community needs and relying on programs that are not sensitive to the specific culture of the community. Stirman et al.

(2012) in a literature review of 125 articles reviewed on program sustainability that the largest influence was community and stake holder support (78%). In agreement, Scheirer and Dearing (2011) employed a community needs-based segmentation approach to best serve their clients and achieve the program mandates. A needs-based segmentation allowed the service providers to understand the clients the program currently served, the clients they should serve, and how to best serve based upon clients' and potential clients' current and evolving needs, backgrounds, motivations, and expectations, as well as the organization's desired future state (Julian & Kombarakaran, 2006). Shediak-Rizkallah and Bone (2000) report that programs who demonstrated a high community need was four times more likely to sustain the program after two years.

A community needs assessment and good fit is not the only variable noted as influential to program sustainability in terms of community involvement. Nordqvist, Timpka, and Lindqvist (2009) report that efficient interaction between the organization and community residents is important for sustainability of programs. Thus, after a program fit is established with the community, the organization must continue to engage the community throughout the process, not just in the beginning stages of implementation. The reluctance to engage and understand community capacity will hinder the objectives of a program, as well as have an impact on future initiatives (Hanson & Salmoni, 2011). Many interventions attempt to maximize impact without considering feasibility and sustainability within the community, making the program impossible to sustain in the real world (Peterson, 2016). Implementation science considers the needs of the population, the setting and resource constraints as paramount to the ultimate success or failure of a community based program (Peterson, 2016).

Leadership also has a strong influence on program sustainability. Cram et al. (2013) demonstrated that sustainability was positively influenced by leadership. Long term program sustainability is associated with leadership that effectively facilitates productive interactions among stakeholders by bridging diverse cultures, sharing power, facilitating open dialogue and revealing and challenging assumptions that limit thought and action. Buck (2015) strongly advocates for leadership as a basis for program identification, implementation, and sustainability. Program leaders have a deep knowledge of the principles of implementation science and possess the decision-making authority pertaining to the program, therefore, the leaders guide the initiatives (Buck, 2015). Shediac-Rizkallah and Bone (2000) positively related program sustainability to institutional leadership, strength and goal structures that were consistent with program outcomes. Stirman et al. (2012) found that effective leadership that is strategically placed within an institution will advocate effectively for the program.

Program leaders act as ambassadors to the community opening doors to potential partnerships thereby increasing sustainability. Nonprofit organizations often reside within the communities that they serve, allowing organizational leaders access to the population they serve and fostering community ownership of program (Schell et al., 2013). This in turn, promotes sustainability by engaging others to have a personal stake in the success or failure of the intended program. Scheirer & Dearling (2011) state the absence of strong leadership reduces guidance for conducting program implementation and fidelity, ultimately negatively influencing sustainability. Nordqvist et al. (2009) supports collaboration and leadership as the basis for program sustainability as the means to address the growing needs of a program and anticipating adjustments to the program. Najafizada et al. (2016) credit strong leadership with the continuation of services beyond the organization itself. Leaders are responsible for integrating

organization initiatives with local health systems, acting as stewards of the program in potential partnering in the community (Najafizada et al., 2016). Shediak-Rizkallah and Bone (2000) advocate to choose programs and interventions that relate strongly to the organization's mission and culture, so that support from upper management will be likely, and tasks needed to implement the program will fit within the workloads of available staff members.

Engaging members outside the organization is imperative to program sustainability. Cram et al. (2013) found that community partnerships acted as a mediator for partnership functioning and significantly affected sustainability. The findings suggest that the sustainability of programs in community care is achieved more readily when synergy is created between partners. Julian and Kombarakaran (2006) reported a correlation between partnership and program sustainability by introducing entrepreneurship as the basis for generating considerable community support. Partnerships can encourage sustainability through collaborations between individuals and organizations with similar missions, along with the sharing of resources, expertise and responsibility (Hanson & Salmoni, 2011).

The formation of partnerships or collaborations are strategically planned actions to promote program sustainability and are forged to share resources, personnel and responsibilities (Stirman et al., 2012). Hanson and Salmoni (2011) found that partnerships increased program advocates and allowed the program messages to diffuse more rapidly. Partnering with similar organizations promotes development and improvement of strategies that encourages the continuation of effective programs and interventions by the sharing of resources imperative to the programs sustainability (Schell et al., 2013). Many outcome measurements required for program continuation may take years to mature enough to demonstrate positive correlation

between the program and its outcome. Therefore, partnering with outside organizations provides the necessary resources needed to allow for maturation (Shediac-Rizkallah & Bone, 2000).

Adaptation of a program should be viewed as the ability to adapt and improve means to ensure effectiveness (Schell et al., 2013). Adaptability relates to improving the intervention when opportunities arise and continual consideration about how best to meet a community need.

Program adaptation is a common finding in sustainability literature. Hanson and Salmoni (2011) describe adaptability of an original program as a possible barrier to sustainability. Changing the program from its original form deviates from the evidence, thus may reduce stakeholders buy-in due to fear of fragmentation of program components (Hanson & Salmoni, 2011). Many implementation scientists struggle with how much adaptation or change of the program components can occur while still defining the intervention as being sustained (Najafizada et al., 2016). Shediac-Rizkallah and Bone (2000) offer guidance in determining if program adaptation has infringed upon fidelity, proposing that the more mature and stable a program is the less likely fidelity has been compromised. To protect fidelity, leaders should engage in thoughtful modifications of components to fit the new organizational context, without destroying the core components contributing to the effectiveness of the original design (Shediac-Rizkallah & Bone, 2000). Scheirer and Dearling (2011) indicated that modification to a research-based intervention is often desirable to foster implementation and sustainability, especially if changes reflect additions to the intervention rather than subtractions from it. Stirman et al. (2012) found that partial sustainability was more common than continuation of an entire program or intervention, even when full implementation was initially achieved. Often partial sustainability of a program was an adaptation of the original program to meet the unique community needs

(Stirman et al., 2012). Program Adaptation is often driven by data obtained as part of evaluation activities, therefore should be anticipated in a sustainability plan (Schell et al., 2013).

Financial stability is probably the most prominent factor in program sustainability. There has been increased reliance on community financing as a funding source for community programs resulting from declining government resources and the global recession (Shediac-Rizkallah & Bone, 2000). Schell et al. (2013) found that funding stability was related to the economic environment, therefore, difficult to secure external long term funding sources. In this perspective, the maintenance of program activities without special external funding is most likely to occur if the program components become embedded into organizational processes (Scheirer & Dearling, 2011). Cram et al. (2013) supports incorporating a program into the core operations of an existing agency rather than continuing it as a stand-alone program. Nordqvist et al. (2009) reported that funding at the beginning of a process is often focused in key areas of the project, and were considered essential for the establishment of a program. Once initial outcomes are met, potential funding may be secured by government agencies for long term sustainability.

Securing funding stability requires organizational leadership to consider all possibilities. One strategy reported by Hanson and Salmoni (2011) was strategically finding alternate methods to accomplish securing funding. One strategy suggested is to reuse most of resources purchased. For example, the stakeholders actively created posters and advertisement materials that would be re-used in multiple contexts or locations throughout the life of the demonstration funding period, thus allowing the funds used to be stretched for maximum return (Hanson & Salmoni, 2011). Najafizada et al. (2016) reported a lack of sufficient program funding as a barrier to program sustainability. The researchers found that partnering with external agencies was fundamental in providing funding stability for program sustainability (Najafizada et al., 2016). When designing,

and publicizing a program, emphasize its benefits for various groups of stakeholders, including both internal and external stakeholders, as well as its fit with the major objectives of potential external funders (Julian & Kombarakaran, 2006). Buck (2015) advises for nonprofit organizations to identify potential institutional grants related to the program during initial strategic planning as a critically important step for sustainability.

According to Stirman et al. (2012) many issues concerning the scope of future evaluations of project sustainability depend on the adequacy of financial support. Understanding and calculating the program cost is fundamental in the very early planning stages of program implementation and is critical to the successful sustainability of nonprofit organizations.

In conclusion, understanding how the community context affects organizational operations, community engagement, and financial support is key to establishing program sustainability for nonprofits organizations (Wiltsey- Stirman et al., 2012). The five themes identified individually influence program sustainability, but are not variables whose strength of effects can be easily tested in isolation from one another, rather they work together to promote sustainability (Cram et al., 2013).

Section 5: Practice Change

Critical Appraisal of Evidence

The use of sound evidence and best practice measures are of the utmost importance in implementing healthcare. The use of evidenced based practices (EBP) improve patient outcomes (Cincinnati Childrens.org, 2015). To ensure a nonbiased assessment of the evaluation process the use of a systematic tool enables providers to rate the quality and level of evidence from all sources. While there are numerous tools to utilize, this project used the LEGEND (Let Evidence Guide Every New Decision) model to evaluate the evidence.

The LEGEND Model and tools was developed by the Cincinnati Children's Hospital to help clinicians synthesize evidence to implement into practice (Cincinnati Childrens.org, 2015). The model is a comprehensive guide developed to enable clinicians to systematically evaluate, grade and qualify published evidence. The model includes tools and algorithms to guide decisions on both quality and leveling of published evidence by study design (Appendices C, D, E).

Per Cincinnati Childrens.org (2015) their level of evidence hierarchy was based on the Oxford Centre for Evidenced based Medicine. The LEGEND framework provides an evaluation tool titled "Grading the body of evidence" to assist in literature evaluation. This tool quantifies the individual articles into a larger body with preset thresholds for each grading level indicating if the article impact is high, moderate, and low (see Appendix A) (Cincinnati Childrens.org, 2015). The LEGEND tool offers templates for rapid critical appraisal (RCA) of selected literature according to level of evidence. For this project, each article was evaluated using the rapid critical appraisal template for validity, rigor, applicability, and emphasis related to the PICOT statement. A synthesis of the literature with recommendation, rationale, level of

evidence, and quality rating for each article used to support the capstone project can be seen in Table 2.

Table 2. Legend Algorithm for evaluating evidence (N=49)

Legend level of evidence	Education infants	HUG program and interventions	Infant behaviors and cues	Toolkit development	Use of community volunteers	Factors affect program sustainability
High	X	X	X			X
Moderate				X	X	

Recommendation of practice change and LEGEND Summary Statement.

After application of the tool to the individual articles an overall recommendation was developed. There is moderate evidence grade with minimal adverse effects and potential for significant benefits. The cost benefit is high for the development of a toolkit for implementing parental educational interventions considering the cost to treat adverse effects of ineffective parenting practices in untreated high risk populations. Evidence directly relates to recommendation for the new parent and infant population with high impact on morbidity, mortality, or quality of life. Therefore, it is *strongly recommended* to develop a toolkit for the implementation of evidenced based interventions for infant feeding, crying, sleeping, and behavioral cues to parents of infants.

In summary, research findings suggest that parent's ineffective responses to their infant's cues result in diminished infant responses, lower intelligence, depression, social incompetence, and high-risk behavior in the child later in life (Tedder, 2008). Effective prevention-focused parenting programs focus on content that increases knowledge of child development, skill in parent-child relationships, and age-appropriate parental care to promote child health,

development, and socio-emotional skills (Hooge et al., 2014). The HUG program offers interventions that address each of these domains. The development of a toolkit will assist future organizations in implementing evidenced based programs achieve its individual organization mission while addressing inequalities in healthcare knowledge. Health education must be offered at the community level in order to equalize socially controllable factors that potentially create disparities in healthcare (Hooge et al., 2014).

Section 6: Methods

Project Setting

This capstone project focused on the development of a toolkit to reliably implement the HUG Your Baby program and increase volunteer confidence and skill in mentoring young families through a nonprofit community organization in northwest Ohio (Organization Commitment Letter see Appendix J). A two-hour workshop taught by a Certified HUG Teacher and trained volunteers was initially held at an outside hosting organization. The program was implemented in various outreach organizations which provide education to new parents.

Population

This capstone focused on two distinct groups; volunteer mentors of the HUG Program and parents of infants taking the HUG Workshop in the community. The volunteer mentors were all women over 55 years of age with at least a high school diploma. Due to the volunteer requirements and guidelines set by the organization specific demographics such as race and secondary education was not collected.

The program was delivered to the new parents and caregivers of infants under one year of age by trained HUG volunteers. The population served within the organization are predominantly low socioeconomic parents. The two-hour HUG workshop was provided five times in community organizations between January through March 2017.

Institutional Review Board

Institutional review board (IRB) permission was obtained through the University of Toledo Behavioral, Social, and Educational IRB commission (see Appendix I). All volunteers were provided the written informed consent for participation in the project. The organization was approached in Spring 2016 with introduction of the HUG program as part of their parent

teaching in the community. The organization reviewed the program and decided to use it as an individual workshop in the community, with the implementation supervised by the University of Toledo doctoral student for fulfillment of her capstone project. Leadership within the organization wanted to enhance on the teaching offered in the HUG program to include medical recommendations on infant safe sleep practice, formula feeding, safe swaddling technique, and information on Shaken Baby Syndrome. In Summer 2016, the organization president confirmed and committed to the program in an agency commitment letter pledging organizational resources for the HUG Your Baby Workshop in Lucas County (see Appendix J).

Implementation Guide

The Model for Evidenced-Based Practice Change created by Rosswurm & Larrabee, (1999) is the framework utilized to guide this capstone project. It includes a process of six steps to guide the practitioner in the translation of research into practice.

Step 1. Assess need for practice change

The Civitas initiative survey (2000) found that parents feel unprepared to care for infants. This was especially true regarding parental understanding of infant behaviors on crying and feeding (Civitas, 2000). Knowing that there is a lack of confidence on the part of parents in understanding and responding to infant behaviors, Healthy People 2020 Initiative EMC-2.5 calls for an increase in the proportion of parents with children under the age of 3 years whose doctors or other health care professionals talk with them about positive parenting practices (Healthy People.gov, 2016).

Included in this call for action is a need for more comprehensive education on infant behavior and communication (Healthy People.gov, 2016). The CDC (2015) recent findings from a meta-analysis recommends that parenting education should include increasing positive parent-

child interactions and emotional communication. Bright Futures (2015) by American Academy of Pediatrics, recommend that parents learn infant cues of feeding, holding, and caring for their baby. Both internal and external data support the need for parenting education include supporting the parent-infant relationship by teaching infant behaviors, communication and cues.

The local chapter of the organization offers several programs to assist children from birth through their growing years, however, there is no program specifically related to teaching infant behaviors and cues, safe sleep practices, infant feeding, or Shaken Baby Syndrome in the organization. Therefore, educating volunteers to successfully implement the HUG program in the community is important to reliably translate research into practice and meet the needs of the community to receive comprehensive evidenced based education on understanding infant behavior and care and reduce the impact of child abuse and mortality in the community.

External and internal data related to the HUG program is summarized in Table 3.

Table 3. Review of Internal and External Data HUG program

Internal Data	External Data
Civitas Initiative et al. (2000) national survey reports that 2/3 of prospective parents felt unprepared for parenthood	Healthy People 2020 Initiative EMC-2.5 (Developmental) Increase the proportion of parents with children under the age of 3 years whose doctors or other health care professionals talk with them about positive parenting practices (Healthy People.gov, 2016).
Currently, there are no programs at non-profit organization with a specific target teaching infant behavior and cues.	CDC meta-analysis recommends education include: increasing positive parent-child interactions and emotional communication; teaching the importance of parenting consistency; and requiring parents to practice new skills with their children during training (CDC, 2015).
Non-profit organization mission is to provide Lucas Counties families with quality safe, supportive educational based programs to existing parenting programs	Bright Futures by American Academy of Pediatrics (2015) recommend that parents learn infant cues of feeding, holding, or caring for the baby.
Challenging Poverty: One Child at a Time (2015) organization manual for program development. Using “Strengthening Families” outreach should	The Vanderbilt School of Medicine (2010) advocates intervention practices provide a helpful framework for support of parents to very young

<p>engage families, programs and communities in building five protective factors: Parental resilience, social connections, knowledge of parenting and child development, concrete support in times of need, and social and emotional competence of children (NationalChristChild.org, 2015).</p>	<p>children. At the universal level of prevention, all young children and their families need regular screening and the monitoring of their child's development, nurturing relationships with caregivers, parenting advice and support, anticipatory guidance from health care providers, high quality early education and care, and child guidance as the baby begins to interact with others and develop relationships (Vanderbilt, 2010).</p>
	<p>American Academy of Pediatrics Policy Statement (2016) Practice SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment. A safe sleep environment that can reduce the risk of all sleep-related infant deaths. Recommendations for a safe sleep environment include supine positioning, firm sleep surface, room-sharing without bed-sharing, and the avoidance of soft bedding and overheating (AAP, 2016). Additional recommendations for SIDS reduction include the avoidance of exposure to smoke, alcohol, and illicit drugs; breastfeeding; routine immunization; and use of a pacifier (AAP, 2016).</p>

Both internal and external data was collected to identify a need for parent education on infant behavior and care. The organizations mission statement emphasizes the importance of serving at-risk children in need. To sustain this mission, evidenced based programs should be introduced into existing parenting education. Formally training and educating volunteers within the organization to teach an evidenced based infant behavioral program is a new concept for the organization to adopt, but none the less, has lasting implications on the community. This direction in education fits the organizations mission, while focusing on evidenced based programs to further serve the community. With the organizations mission (internal data) and the community need in mind (external data), a more comprehensive parenting education course that included infant behavior and cues of feeding, crying, and safe sleep education was implemented.

Step 2. Locating the best evidence.

The literature search was conducted through the PubMed and CINAHL databases. The literature search yielded 49 articles out of a total of 386 that were analyzed for applicability to the PICOT statement and the intervention. Six domains were researched in the literature as pertaining to the study aims: parental interventions for children >1 years of age (n=11), HUG program and interventions utilized in programs (N=10), infant behavioral states and cues (N=7), implementation toolkits utilized in the community (N=5) use of volunteers for community teaching (N=6), and community program sustainability (N=10).

Step 3. Critical Appraisal of Evidence.

The LEGEND framework provides an algorithm titled “Grading the body of evidence” to assist in literature evaluation. Each article was graded per the algorithm and analyzed for applicability to the project (Table 2). Evidence directly relates to recommendation for this target population with high impact on morbidity, mortality, or quality of life. The cost benefit of the development of a toolkit for implementing parental educational interventions by volunteers is very high considering the cost to treat adverse effects of ineffective parenting practices in untreated high risk populations. Therefore, it is *strongly recommended* to develop a toolkit for the implementation of evidenced based interventions for infant feeding, crying, sleeping, and behavioral cues via volunteers in the community.

Step 4. Design practice change.

The initial action in this step included developing the role and responsibilities of project team members. The doctoral student was the project leader and was given direction from the doctoral project committee members. There were several individuals within the organization who had links to the community agencies where new parents were having classes. The project is

overseen by the organization's chapter president. Additionally, there were trained volunteer mentors that worked with the parents in small groups during the workshops. A description of the roles and responsibilities of the project team members (Table 4).

Table 4. Roles and Responsibilities of team members

Role	Responsibility
Doctoral Student Project Leader	Development of capstone project, literature review, Certified HUG instructor, assist in adding HUG content to existing parenting class, deliver content of HUG program, administer and collect data for outcome measurement, calculate descriptive statistics on outcome results.
Faculty Committee chair	Provided guidance and feedback on initiation and progress of capstone project. Acted as consulting agent in the implementation of the project.
2 Faculty Committees members	Provided guidance and feedback on initiation and progress of capstone project. Acted as consulting agents in the implementation of the project.
2 Community facilitators	Assisted the project leader in integrating content into existing outreach organization. Assisted committee chair in the onsite supervision of capstone project.
Organization Project Committee Chair	Oversaw volunteer participation and education in HUG program.
Organization Community Outreach Coordinator	Oversaw scheduling of workshops, notification of workshop to volunteer mentors, resource for community to call to obtain HUG information.
Community facilitator and director of organization	Reviewed and approved changes to parenting class content. Responsible for supervising volunteers.
Trained Volunteer participants of the organization	Assist the Certified HUG Teacher during workshop, review information on safe sleep and SBS to parents. Act as mentors to parents during workshop.

Practice Change: HUG Intervention.

The Help Understanding Guidance “HUG” program is an educational program for new parents in responding to their infant’s needs (Tedder, 2008). The HUG program includes an in-service program for professionals, an educational web site featuring a parent educational blog, and a 20-minute educational DVD with an accompanying handout for parents, available in English and Spanish (Tedder, 2008). The didactic portion of the program is offered as a two-hour

class lead by a certified HUG trainer. This content is delivered in a single session or can be divided into sections and delivered over numerous sessions.

The education includes teaching parents to read their infants cues by understanding the transitional zones that infants' exhibit. The HUG identifies three newborn zones: Resting Zone (the sleeping states); Ready Zone (the alert state in which a baby is ready to eat and ready to interact); and Rebooting Zone (the fussing or crying state in which a parent's help is needed) (Tedder, 2008). The program teaches parents how to apply the three zones to prevent or diminish the severity and frequency of the event (Tedder, 2008).

Research findings suggest that parent's ineffective responses to their infant's cues result in diminished infant responses, lower intelligence, depression, social incompetence, and high-risk behavior in the child later in life (Tedder, 2008). Effective prevention-focused parenting programs focus on content that increases knowledge of child development, skill in parent-child relationships, and age-appropriate parental care to promote child health, development, and socio-emotional skills (Hooge et al., 2014). The HUG program offers interventions that address each of these domains.

Step 5. Implementation Plan/Process

Using the California Social Work Education Centers' (CalSWEC) guide to developing a toolkit for community outreach programs, a toolkit for implementation of the HUG Program was developed. CalSWEC is the nation's largest state coalition of social work educators and practitioners and is hosted by the University of California Berkley (CalSWEC, 2016). The CalSWEC website provides a "how too" guide for development of an implementation toolkit. CalSWEC used the foundation of the National Institute of Health's recommendations on implementation science to guide development of the steps and templates in the toolkit

development process. The CalWEC website (2016) gives permission to use their guide for free without copyright infringement for use in developing a toolkit for use in the community.

Toolkit Development.

Step1. “Investigate by asking yourself and your colleagues if any materials are already available that can be used to integrate into an Implementation Toolkit” (CalSWEC, 2016).

A formal statement was developed and acts as an introduction of the HUG Program and connects the program with the protective factors with the vision of the organization. The organization created a vision to develop and operate more hands-on programs that provide education regarding program innovations, best practices and solutions (NationalChristChild.org, 2015). To implement their vision, organization adapted protective factors from *Strengthening Families*, a research-informed approach to increase family strengths, enhance child development and reduce the likelihood of child abuse and neglect (NationalChristChild.org, 2015). Based on the vision of the organization, five protective factors were identified: Parental resilience, increasing social connections, increase parenting knowledge and child development, issue concrete support in times of need, and increase the social and emotional competence of children (NationalChristChild.org, 2015).

The HUG Program was incorporated into the Toolkit. The HUG Program Toolkit (See Appendix F) implementation guide contains:

- I. Background section: The mission statement and protective factors that need to be addressed when implementing programs into the organization. Importance of understanding infant behavior, introduction of HUG program.

- II. Preparedness: Road Map to implement HUG program, certification process, time commitment for certification, website for certification, and basic overview of the process. Template steering committee agenda and timeline for implementation. Power Point Presentation for stakeholders. Invitation letter and flyer for community stakeholders.
- III. Educational curriculum on infant development, HUG Workshop interventions, safe infant swaddling, infant development, and volunteer training session.
- IV. Cost Analysis of implementation and maintaining program.
- V. Resources. National Institute of Health safe sleep guidelines/handout, Shaken Baby Syndrome guidelines/handout, and the AAP guideline for safe sleep practices.

Step 2. “If information is not readily available, assemble and construct background and contextual information about the concern you are addressing” (CalSWEC, 2016).

Evidence based support was obtained during the literature review performed for the capstone project. Based on the literature search of parental educational programs for infants, HUG Program and interventions, use of volunteers in community outreach, toolkits in community programs, and factors that increase program sustainability in nonprofit community outreach it was determined that an educational program that teaches parents infant communication, cues, and care should be implemented with the use of trained volunteers using a developed implementation toolkit to optimize program sustainability.

Step 3. “Assemble and construct Engagement and Communication Tools that can be used in your organization to introduce a new initiative, program, or intervention to staff and other stakeholders” (CalSWEC, 2016).

A PowerPoint presentation was developed that the organization used for stakeholder meetings and fostering community interest. The presentation included a basic overview of the HUG program, workshop goals, and the organizations teaching commitment in partnering outreach programs. The presentation occurred over a general membership meeting in Fall 2016. Interested volunteer mentors enrolled in the HUG Workshop training. An introductory letter and flyer was crafted and sent to outside community outreach organizations to foster interest.

Step 4 “Create or adapt assessment tools that are helpful in determining human and capital resources and organizational readiness for implementation” (CalSWEC, 2016).

The organization allowed the project leader to attend their current parenting class and assess the extent of education on infant communication, cues, and care. It was determined that very limited educational resources were being applied to these domains within the existing program. In addition to infant communication the organization requested additional topics of Shaken Baby Syndrome and Sudden Infant Death. The organization has over 200 volunteers to perform outreach programs that support their mission, of this, 20 volunteered for the HUG Workshop outreach program. The organization possessed the required resources required (cost of training volunteer mentors, certification of one volunteer mentor to become Certified HUG Teacher, access to internet for educational handouts, and means for transportation of volunteer mentors to hosting organization to teach the HUG Workshop) to implement an evidenced based program.

Step 5 “Generate planning tools that may be beneficial to you and others as you begin the implementation process. Planning Tools could include timelines, action items, to-do lists, and sample meeting agendas” (CalSWEC,2016).

Several samples were included in the Toolkit project including; timeline, steering committee meeting agenda, advertisement flyer, and community outreach letter. The steering committee meeting agenda provided a generalized agenda that includes the topics to review at each meeting. The timeline provided a generalized outline of the time table for program implementation to include a step by step guide to implementing the HUG Workshop in the community.

STEP 6 “Develop or adapt Training, Coaching, and Transfer of Learning (TOL) Tools to meet your needs” (CalSWEC, 2016).

An instructional PowerPoint presentation of infant development, current recommendations on infant care, interventions utilized in the HUG workshop, training on volunteer mentor activities, and how the HUG Workshop is organized were used by the organization for volunteer training.

Step 7 “Create an Evaluation Plan that includes who will do what, when, and how. The Evaluation Plan should include the expected outcomes and methods for measuring the outcomes” (CalSWEC, 2016).

The evaluation plan assessed the outcomes of the HUG Workshop Toolkit implementation process, volunteer mentor confidence to teach the HUG Workshop in the community, and the number of parents with infants to attend a parenting program within the

organization. Further, the fit and feasibility of the HUG Workshop within the organization was assessed and reported.

Step 8 “Policy and Procedures may be organized as a separate component in your Implementation Toolkit or they may be integrated into other toolkit components” (CalSWEC,2016).

Included in the toolkit was the NIH “Sleep Safety” and the Ohio Campaign “Don’t Shake” parental handouts utilized by the volunteer mentors in the HUG Workshop. Both parental information sheets are free for widespread use and free for use in community outreach programs.

Step 9 “Fiscal/Funding Tools provide information about potential and actual funding streams, recommendations for obtaining funds and suggestions for sustaining and maintaining the initiative program or intervention” (CalSWEC, 2016).

A budget and cost analysis was developed to provide an overview of the cost of program implementation for both program initiation the first year and yearly maintenance cost for the Hug workshop.

Recruitment of Volunteer Mentors and Parents.

The organization volunteers were openly recruited for volunteer mentorship training in Fall 2016. A short presentation and introduction to the HUG Program was presented during the organization’s Fall 2016 membership meeting. Included in the presentation was the mandatory training class and time requirements required of volunteers once the workshop was implemented into the community. An email list was compiled of 20 interested participants and each were notified via email of the mandatory training session in January 2017. The organizational

leadership stipulated that volunteer mentors must attend the program training session before assisting in the HUG Workshop in the community.

Parents for the HUG Workshop were recruited via the hosting organization. The policy was set forth by the chapter president that parents and/or caregivers were invited on a voluntary basis. There was no incentive given to parents that completed the course. The HUG Workshop was free of charge to both the hosting organization and parents.

Training Volunteer Mentors.

The HUG volunteer mentor training class curriculum included information on child development, infant cues and behaviors, instructions and demonstrations on interventions utilized in the HUG program, safe sleep, and Shaken Baby Syndrome. In addition to the educational information on infant behavior and cues, hands on instruction was provided on infant swaddling and Shaken Baby Syndrome. The volunteer mentors were not explicitly trained in cultural competence but rather focused on skills such as active listening, reflecting and supporting behaviors, and providing positive feedback to parents.

The training class curriculum and the HUG Workshop curriculum was developed by the project leader and first presented to the project chairs and the organization board members for input and approval of content in November 2016. This was done to allow for additional input from board members and project chairs before training the volunteer mentors. Once the training content and the HUG Workshop curriculum was approved, a training class for the volunteers.

Training of the organization volunteers occurred January 2017 after IRB approval was obtained. The training included a four-hour class. The course content was delivered by the project leader and project coordinator. A pre-training questionnaire was distributed to volunteer mentors during the training session that included information on confidence and knowledge

related to the HUG Program. Once organization volunteer training was complete, the volunteers provided community outreach workshops in and around the Toledo area. Following the volunteer mentor training, a post-training questionnaire was administered using the same questions as the pre-training questionnaire. The second questionnaire was collected after the volunteer mentor attended their first community HUG Workshop.

HUG Workshop Structure.

The HUG Workshop through the outreach organization is two hours in duration. Trained volunteers are overseen by a Certified HUG Teacher during the workshop. Materials provided to class participants printed and include: a HUG handout, safe sleep information from NIH, and shaken baby information from the “Don’t Shake” Ohio Campaign. A PowerPoint presentation was created by the HUG developer and updated to include recommendations by American Academy of Pediatrics. There is no cost to community outreach facilities or class participants for the HUG program.

The Certified HUG Teacher facilitates the workshop and exclusively teaches the HUG program content. The volunteer mentors reinforce the content taught by the Certified HUG Teacher and exclusively teaches the NIH Safe Sleep and Don’t Shake materials. The volunteer mentors also provide individualized hands-on teaching to the parents at numerous times throughout the class. The hands-on materials used by the volunteer mentors include dolls and blankets to practice safe swaddling, infant carriers, and numerous visualization props to reinforce content from the PowerPoint presentation. Parents and volunteer mentors sit together throughout the class with parents encouraged to ask questions to both the volunteer mentor and HUG teacher.

Barriers and Facilitators to HUG Workshop Implementation

Changes in practice and education are not simple to initiate and maintain. With any change in the current standard of care, there are potential barriers and facilitators that should be anticipated during implementation of a project. The evidenced based education program “HUG” your baby was implemented as an outreach program into the community by trained volunteer mentors and led by a Certified HUG Teacher.

Barriers to implementation.

The implementation of the “HUG” program involved coordination of numerous components to successfully implement, and a limited number of barriers were encountered.

The barriers including finding a venue large enough to train volunteer mentors that had media resources onsite, time constraints for volunteer mentors to finish training, outside agency buy-in, coordination of HUG Workshop in the community, child care during workshop, and activities for small children during the workshop. A summary of the barriers faced during the program implementation is in Table 4.

All barriers were addressed so that the program could be implemented into the community. The training class for volunteer mentors included the use of Power Point, thus the venue needed to have media capability to support this and be large enough to accommodate 20 volunteer mentors. The training took place in a large classroom on a university campus with a projector and media outlet for Power Point.

The HUG Workshops are offered two times a month through the organizing agency to the community. There is an average of seven parents participating per session with the volunteer mentors assigned to work with no more than three-five parents each. This created a time constraint in providing access to community training for all volunteers within the time frame of

the study. This was overcome by offering the program in larger venues to create more opportunities for volunteer mentors to participate in the program during the study timeframe to allow for complete follow-up on the self-report survey.

Outside agency agreement to host parent classes is often difficult to obtain. The use of an outreach letter sent to various organizations that focus on social services for parents with infants was instrumental to obtaining permission to host the classes. A total of six organizations hosted the HUG Workshop in the community.

Once the program implementation was started other community organizations began to request information on the HUG Workshop. Therefore, there arose the need for a single contact to supervise scheduling and to coordinate volunteer mentors with workshops. A position was created using one of the trained volunteer mentors to coordinate community outreach and act as the contact for the program.

The HUG Workshop encourages parents to bring their children to the workshop if the parents cannot find childcare. It became apparent during the first workshop that young children running around was obstructive to the parents learning. To overcome this, the workshops now include at least one volunteer mentor to watch over children. Further, age-appropriate activities are provided to the children during the workshop (Table 5).

Table 5. Barriers to capstone implementation

Barriers	How it was addressed during implementation
Venue large enough to accommodate training 20 volunteers with media	Use of classroom on the UT CON campus for training.
Time constraints in use of volunteers to complete training	Workshop dates were given at least 3 weeks ahead of time. Rotating schedule implemented so that all trained volunteers could attend community workshop.
Outside agency buy-in	Sent out outreach letters and flyers to advertise the workshop in venues that directed social services toward parents with infants.

Coordination of HUG Workshop in community	A volunteer mentor assumed an outreach coordination position to handle outreach, workshop scheduling, and volunteer mentor notification of upcoming workshop.
Child care during HUG Workshop	Volunteer mentors were expanded to include at least one extra volunteer to help with children so that parents could attend workshop.
Child activities for young children while parents in workshop	Volunteer mentors brought crayons and coloring books

Facilitators to implementation.

Community parenting outreach programs allow for access to vulnerable populations. Using an established program within a community organization serves three purposes: access to parents, a preset HUG curriculum, and motivation of those in the classes to learn the “HUG” program. Participants of the class had the enthusiasm and motivation for learning about childcare as they enrolled in the class. Presenting the “HUG” program within an established organization with specific curriculum, trained professionals, reserved the meeting location and time, and facilitated the supplies needed to teach the content (Table 6).

Table 6. Facilitators to capstone implementation

Anticipated facilitators	How to address during implementation
Community access to parenting class	Parenting classes provides excellent access to those in care provider roles
Organization curriculum/meeting place/ time	Meetings are preset to include time, content, and resources (i.e. meeting place/books/instructors)
Motivation of volunteer community member to participate in class for outreach	Participants in class to learn about infant care

Cost Analysis

The pilot site is a non-profit community based organization, as such cost analysis is important in the implementation and sustainability of any program. The cost for the first year of

program implementation is \$315.00 and includes the certification of one HUG instructor.

Thereafter, the cost to maintain program yearly is approximately \$60.00- 150.00 dependent upon resources purchased by HUG program developers.

The projected cost the “HUG” program is estimated to be approximately \$15.00 dollars per participant if the organization includes an individual DVD to each class member. However, the cost can be reduced if the format is taught by the streaming option, which allows a certified instructor to stream the videos for class at the cost of \$36.00 dollars per year. The initial cost of the certification process for a HUG trainer is \$260.00 (Table 7 Cost Analysis). Program curriculum which includes a PowerPoint presentation for the course is included in the certification cost. Additional resources are available for purchase through the HUG Your Baby website but are not required for implementation or sustainability of program.

Table 7. Cost Analysis for capstone

Product	Cost
HUG Certification	\$245.00
Educational Handouts	\$40.00/200 handouts
Video Streaming	\$36.00/year for unlimited streaming access
Total cost first year	\$315.00
Total Cost yearly to sustain program	Approximately \$60.00-\$150.00

Timeline for Implementation

The initiation of an evidenced based capstone began with step one of the Model for Evidenced-based Practice Change by Rosswurm and Larrabee (1999) in Fall 2016. This step provided an overview of the HUG program to organization leadership to elicit their support.

Once support was ensured, the remaining steps were formulated, including successfully defending the capstone proposal, obtaining certification as an instructor for the HUG program for both the project leader and organizational program chair, outlining outcome measures for study, meeting with stakeholders to assimilate the HUG program into the organization program structure, and initiating a timeframe for an implementation start date. The timeframe for steps five and six included the implementation of the HUG Workshop that occurred over four months beginning in December 2016 and ended in April 2017. An overview of the timeframe of the capstone project is in Appendix G.

Step 5. Evaluate change in practice.

The evaluation and monitoring of the implementation process is an ongoing endeavor. The process of evaluation is a collaborative effort by the project leader, the committee members, and leadership within the organization. Planned meetings were scheduled on a regular basis with the academic committee chair during the implementation phase of the project. This allowed for ongoing evaluation of project progress. A steering committee within the organization itself was formed and met monthly. At the conclusion of the project a meeting was scheduled for early April with the organizations board of directors to update the stakeholders on effectiveness, feasibility, and recommendations for sustainability of HUG program.

Section 7: Project Outcome

The objectives of the project

- Objective 1: Develop a toolkit for the implementation of the HUG Program that will serve as a prototype for implementation of HUG Program at organization's national level.
- Objective 2: Increase accessibility and completion of a structured evidenced based parenting education program about infants for parents and caregivers using the organizations program attendance record.
- Objective 3: Increase volunteer mentor knowledge and confidence to teach infant behavior, communication, and cues in the community using "The Understanding Infant Behaviors Survey Tool" (Tedder, 2012).

Evaluation Objective 1. Toolkit.

The toolkit developed includes a complete guide for implementing the HUG program within the organization. Instructions on becoming a certified HUG trainer, sample agendas and steering committee forms, volunteer commitment outline, basic guide to HUG class structure, and cost analysis are included. A post-intervention meeting using an open discussion forum with organization board members was conducted to discuss efficiency, feasibility, program impact, and continued sustainability of developed HUG toolkit in the organization. Overall, the program was well received. The organization has contracted with seven local organizations to teach the HUG Workshop throughout the year.

Adhering to the tenets for successful program implementation identified in the literature and using the CalSWEC (2016) to guide inclusion of components, a HUG Workshop Toolkit was developed and utilized during the HUG Workshop implementation process. The five tenets are: fit of program in the community, leadership, partnership, adaptation, and funding stability.

While each of these themes is important in program sustainability, it is the synergistic effect of all that promotes the highest evidence of long term sustainability (Cram, Phaff, & Nieboer, 2013). Long term sustainability evolves out of successful implementation and focuses on institutionalization of an intervention/program and subsequent adaptation over time (Julian & Kombarakaran, 2006).

HUG Workshop Fit.

The concept of fit assumes that each organizational dimension, such as structure, reward systems, and resources allocation process, must constitute an internally consistent organizational form (Barnat, 2016). With the concept of fit in mind, the organization's mission must be in coherence with any program it plans to implement. The organization currently provides a mission to assist families in need, including providing education to enhance parenting techniques. The structure of the overall mission and the volunteer enthusiasm to provide services to parents create a natural fit for the HUG Workshop within the organization. The organization has committed to providing continued volunteer mentor support and to ensure continued HUG Workshop's in the community.

HUG Workshop Leadership.

The organization has embraced the HUG Workshop. The development of a toolkit includes the various leadership roles necessary for continued sustainability in the community. These roles include HUG Program Resource Coordinator, HUG Program Outreach Coordinator, and HUG Program Education Coordinator. These roles were assigned specific duties required for implementation and continued sustainability.

HUG Workshop Partnership.

The organization expressed the need to partner with outside agencies that serve infant caregivers to teach the HUG Workshop in the community. A community outreach letter and flyer was created to introduce the HUG Workshop to these specific outside agencies in hopes of fostering partnerships. Of the twenty organizations contacted serving this specific population, seven partnered with the organization to offer the HUG Workshop within their organization.

HUG Workshop Adaptation.

The HUG Program teaches infant behavior and cues to assist caregivers in solving problems related to infant sleeping, feeding, and crying. While this is an essential component of the HUG Workshop, the organization leadership wanted to incorporate the American Academy of Pediatric Recommendations to enhance the HUG content. Therefore, the workshop was expanded to include safe sleep practices, SIDS, Shaken Baby Syndrome, and safe formula preparation for parents desiring to formula feed. The Certified HUG Teacher was responsible for teaching the education on infant behavior and cues, while the volunteer mentors were responsible for teaching the enhanced curriculum and AAP recommendations. This preserved the fidelity of the HUG Program while adding the additional content.

HUG Workshop Funding Stability.

The initial costs of program start-up and maintenance was analyzed and reported to the organizational leadership. The leadership committed to continued funding of the workshops in the future. The cost of the program is relatively inexpensive to maintain, especially because all involved in teaching are volunteering their time. The actual cost did not change from the estimated cost of implementation. Table 8 outlines how each tenet of the toolkit was addressed.

Table 8. How organization addressed tenets to assist in development of HUG Toolkit

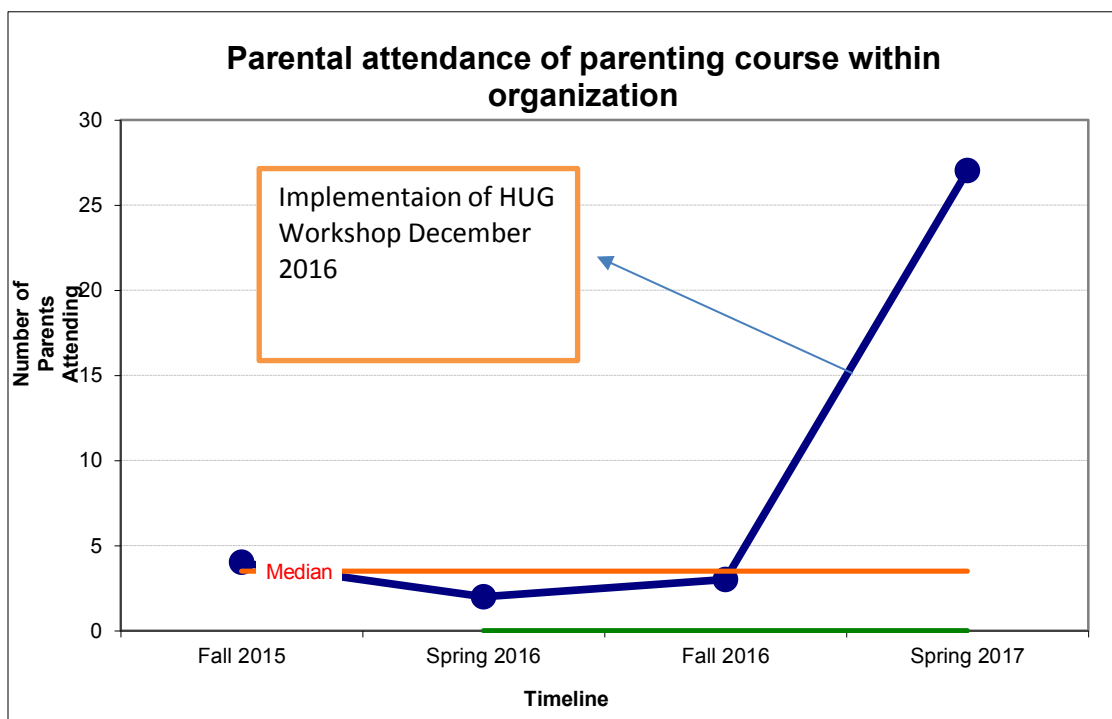
Tenet of HUG Toolkit	How it was addressed
Fit	Using research and community need to find a program that fit the mission and future direction of the organization
Leadership	Development of leadership roles within the organization: Program Resource Coordinator Program Education Coordinator Program Outreach Coordinator
Partnership	Outreach Letter Information Flyer
Adaptation	The addition of AAP recommendations that support the HUG content
Funding Stability	Analyzation of expected cost of HUG Workshop

Evaluation of Objective 2. Number of Parents.

The number of enrollees with children under one years of age who completed previous parenting courses within the organization's existing parenting program was compared to those completing the HUG program to determine if the HUG program increased parent enrollment and completion of parenting courses taught through the organization. The organization teaches a parenting class in the community that occurs two times a year over a 12-week period. The organization compiled a list of the number of participants and the ages of the children for each class. This information was analyzed for fiscal year 2015 and 2016. There was a total of nine parents with children under one years of age that enrolled in the parenting course during this 18-month time frame. At present time, during the three-month HUG project implementation, 37 parents have completed the HUG workshop in the community. Parent attendance with children under one years of age quadrupled in the HUG Workshop as compared to the existing parenting

course offered in the organization. Figure 1 illustrates the upward trend of parents' attendance after initiation of the HUG Workshop in Community.

Figure 1. Parent attendance of parenting programs within the organization



Evaluation Objective 3. Volunteer Mentor confidence in teaching HUG Workshop.

Understanding Infant Behaviors Outcome Measurement Tool.

The Understanding Infant Behaviors Survey Tool (Tedder, 2012) developed by the HUG Your Baby creator, was used to measure volunteer mentor confidence (See Appendix H). The tool measures confidence in HUG interventions and teaching the HUG program in the community. The tool contains 10 self-report questions including identification of infant sleep wake cycles, infant behaviors, signs of infant overstimulation, identification of infant cry patterns, infant stress responses, ability to soothe a crying infant, teaching new parents about infant behavior, and teaching parents to respond to infant states. The responses use a Likert

Scale with the value five representing complete confidence and one representing no confidence. The survey is administered in a pretest/posttest design to quantify if the learner has increased confidence in the various aspects of the HUG Program teaching. The survey tool within this project demonstrated high reliability of $\alpha=0.95$ for the post-survey and $\alpha=0.883$ for the pre-survey.

Results of Understanding Infant Behaviors Survey.

After obtaining informed consent, the survey was given to volunteer mentors during the training session in January 2017. A follow-up survey was given after volunteer mentors participated in a HUG workshop in community. A total of 19 baseline surveys were collected during the training session, with 100% follow up surveys being returned after the HUG Workshop in the community.

Results were analyzed using SPSS, v. 23. Descriptive data was used to analyze frequencies and means. The pre/post survey overall mean was compared to determine if there was an overall confidence increase in teaching the HUG Workshop after the training session. Using Related Samples Wilcoxon Signed Rank Test to compare pre and post educational survey results, results indicate a significant increase in overall confidence in all areas assessed in the Infant Behavior Survey (See Table 9).

Table 9. Results of mean responses to Infant Behavior Survey and Significance using Related-Samples Wilcoxon Signed Rank Test

Question	Mean Result Pre	Mean Result Post	P value
Identify an infant's sleep/wake state	3.21	4.68	.001
Identify an infant's body changes in response to over-stimulation	3.00	4.42	.000
Intervene to help an infant who is exhibiting a significant stress response	3.31	4.47	.002

Explain normal changes in a baby's crying pattern during the first month of life	3.00	4.36	.001
Comfort a crying baby	3.78	4.63	.004
Identify whether a sleeping infant is in active/light or still/deep sleep	2.89	4.57	.000
Identify when an infant is "shutting down" from over-stimulation during feeding	2.94	4.47	.001
Describe an infant's ability to see and hear	3.05	4.57	.000
Teach new parents about normal infant behavior	3.05	4.52	.001
Teach new parents how to respond effectively to their newborn	3.00	4.52	.000

Step 6: integrate change into standards of care and disseminate findings

The entire capstone project was completed and turned over to the organization in April 2017. The project served as a pilot site with projected implementation on the national level in 2018. The project will be presented in a national conference for organization September 2017 in Washington DC for use of the toolkit for HUG Workshop program implementation on a nationwide level.

Section 8: Discussion

Findings

The HUG Workshop implementation “toolkit” development process goal was to assemble all the required items, thus tools, to implement the HUG Workshop in a single kit to increase program success and sustainability at the organizations national level. The documents of an implementation toolkit contain the detail of the processes and sample materials to facilitate replication or local adaptation by those wishing to establish a similar program (Harris et al., 2015). Using a structured framework provided by CalSWEC (2016) to develop the toolkit assisted in assuring the various components of the HUG Workshop were applied systematically during the implementation process. Harris et al. (2015) agree that using an established toolkit development guide reliably assembles the essential program components needed for successful implementation. While program implementation toolkits are not necessary in guaranteeing long-term sustainability, they do, increase successful program implementation (Harris et al., 2015).

Program fit with the community was addressed in the HUG Workshop toolkit by identifying both the organization mission and community need for an educational program on infant behavior and cues. For any nonprofit organization program to be successful, it must integrate its core interventions into the needs of the community it serves. In agreement, Cram, Phaff, and Nieboer (2013) found that non-financial resources such as community engagement was more influential on sustainability than financial resources.

The theme of leadership was applied in the developed toolkit by creating roles within the organization that can lead the HUG Workshop in the community. The leadership roles developed in the HUG Workshop through the organization included project coordinator, project leader, and outreach coordinator. The leadership positions supported the program both externally and internally as these individuals gathered support of the HUG Workshop both within the

community and within the organization. Julian and Kombarakaran (2006) operationalized community support in terms of creating a strong identity and fostering awareness among key members of the community who might function as advocates of the identified program. It was these leaders that were essential to bringing the HUG Workshop to fruition. Buck (2015) strongly advocates for leadership as a basis for program identification, implementation, and sustainability. Further the identified leaders possess the decision-making authority over the program, therefore, guiding the program initiatives (Buck, 2015).

There was a demonstrated increase in volunteer mentor's knowledge in both the HUG program interventions and in the ability to teach the program to parents in the community after the training session and community workshop. Specifically, the mean confidence scores reported by volunteer mentor's perception of teaching parent's normal infant behavior and the interventions utilized in the HUG Program increased after the intervention. A study by Tse, Wing See, Wong, Kan, & Kwok (2014) by supports that peer mentor trainees showed an elevated level of confidence in the areas of teaching the content in the community and knowledge of the content taught. The volunteer mentors in the HUG Workshop demonstrated an increase in knowledge specifically in the areas of sleep, crying, and recognizing infant states. Opting for a select group of trained volunteer mentors is closely linked with effectively delivering the educational message of a program to parents (Tse et al., 2014).

Providing the volunteer mentors with a structured educational training session allowed for an interweaving of the mentors lived experiences with factual knowledge on infant development to effectively teach parents in the community. The importance of parent mentor's involvement in providing health care education for vulnerable groups has been shown to produce positive benefits to local communities as evidenced by mothers in a program who were assisted

by parent mentors reporting positive experiences of the mentoring (Murphy, Cupples, Percy, Halliday, & Stewart, 2008). Within the HUG Workshop, many of the mothers expressed their gratitude to the mentor volunteers after the educational session.

The use of volunteer mentors had an impact on providing HUG education. Specifically, volunteer mentors can share their lived experiences in raising children, thus are viewed as equals to the parents in an educational program (Smith-Battle, 2007). The individual needs of the different mothers can be identified with the mentors providing support on a one-to-one basis (Murphy et al., 2008).

Another outcome identified was that the use of the HUG formatted workshops increased the number of parents with children under one year old attending the organization's community parenting programs. The number of parents who completed the program tripled within the three-month study period as compared to the existing program attendance based over a two-year period. The original program is a 12-week course that does not deliver individualized content. HUG Workshop parents were not offered an incentive to attend the workshop and were there solely to gain more information on infant behavior and care. Coatsworth, Duncan, Pantin, and Szapocznik (2006) studied factors of engagement and attendance in parental programs and found that parental educational motivation emerged as an important predictor of attending and completing a parenting course.

Strengths

The study adds to the evidence that tool kits are an effective modality in implementation science. Volunteer mentors were engaged in the project and provided consistent positive messages about their role. Further, the use of trained volunteers added stability to the content taught without increasing the cost. Providing a single session workshop targeted at specific

learner needs which increased the number of participants in a class. Additionally, the use of trained volunteers increased the amount availability for providing information within a community.

Limitations

While this study was successful in improving volunteer mentor confidence and increasing parental participation in the workshop, it had limitations. This study was limited to volunteer mentors in Northwest Ohio, thus limiting applicability across various populations. Second, sample size of volunteers was small. The small sample size constrained the ability to be confident that these results would remain consistent in a larger sample size. Finally, this was a small pilot study to test the efficacy of using a developed tool kit to implement an evidenced based program.

Contribution of DNP Essentials to Capstone Project

This evidenced-based project supports Essentials III and VII of the Doctorate of Nursing Practice (DNP) as outline by the American Association of the Colleges of Nursing (American Association of the Colleges of Nursing, 2006). Doctorate of Nursing Practice education and expertise focuses on practice that is innovative and evidence-based, reflecting the application of credible research findings. The HUG program represents an evidenced based program that teaches parents how to identify and respond to infant cues (Tedder, 2008).

DNP Essential III. Clinical Scholarship and Analytical Methods.

Per the American Association of the Colleges of Nursing (2006) a DNP scholar applies knowledge to solve a problem by the application of the scholarship of practice in nursing. This application involves the translation of research into practice and the dissemination and

integration of new knowledge, which are key activities of DNP graduates (American Association of the Colleges of Nursing, 2006).

The ability to translate research into practice requires competence in knowledge application activities: the translation of research in practice, the evaluation of practice, along with the improvement of the reliability of health care practice and outcomes. Therefore, the DNP focuses on the translation of new science, its application and evaluation (American Association of the Colleges of Nursing, 2006). This capstone project focused on the development of a toolkit to reliably implement *HUG Your Baby* program into a community based nonprofit organization. The toolkit provided a benchmark in translation by standardizing the implementation process of the program and training of volunteer mentors.

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

The implementation of clinical prevention and population health activities is central to achieving the national goal of improving the health status of the population of the United States (American Association of the Colleges of Nursing, 2006). The HUG program is an innovative approach that provides a stabilizing force to young families by focusing on and promoting parent infant communication. The CDC (2015) guideline "Parent Training Programs: Insight for practitioners" asserts the importance of promoting effective parenting, developing a collaboration with the local community, and advocating for public policy measures to ensure that parenting education is implemented in the community. DNP essential VII directs graduates to consider psychosocial dimensions and cultural diversity related to prevention and population health (American Association of the Colleges of Nursing, 2006). The HUG Workshop toolkit provides parental education in several Healthy people 2020 initiatives to include breastfeeding,

reduction of infant death, and increase in parenting programs that focus on infant behavior. These measures directly impact the nation's health by providing focused evidenced based parental education on infant behaviors and care.

Future Recommendations

Additional studies which focus on the use of volunteer mentors to teach anticipatory guidance on infant care are needed to provide foundational knowledge to help prevention of adverse outcomes related to ineffective parent-child bonding. Further studies focusing on health professional's willingness to allow volunteer mentors autonomy in teaching parental education is needed.

Conclusion

The HUG Workshop Toolkit provides a benchmark for the standardization of the implementation process of the *HUG Your Baby* program. The HUG Toolkit that was developed increased both parental attendance of a parenting class in the community and the confidence of trained volunteer mentors to teach parenting education and anticipatory guidance on infant behaviors. The use of the toolkit in implementing the HUG Program increases sustainability by providing an easy to use format that community nonprofit organizations can use to reliably educate parents on infant behaviors and care. Further, the training provided in the toolkit for volunteer mentors increases both their knowledge and confidence to provide the HUG program in the community.

The HUG Workshop aims to increase parental knowledge on the community level, using trained volunteer mentors to support and guide new parents. Teaching parents to positively respond to their infant is essential in a child's life, as young children experience the world through their relationships with parents (CDC, 2015). Safe, stable, nurturing relationships and

environments between children and their caregivers provide a buffer against the effects of potential stressors and provide the foundation for their lifetime.

References

- AHRQ. (2016). *AHRQ Publishing and Communications Guidelines: Tool Kit*. Retrieved August 25, 2016, from <http://www.ahrq.gov/research/publications/pubcomguide/pcguide6.html#what>
- Akhnikh, S., Engelberts, A., Van Sleuwen, B., L'Hoir, M., & Benninga, M. (2014). The excessively crying infant: etiology and treatment. *Pediatric Annals*, 43(4), 69-75.
- American Association of the Colleges of Nursing. (2006, October). *The Essentials of Doctoral Education for Advanced Nursing Practice*. Retrieved from: <http://www.aacn.nche.edu/dnp/Essentials.pdf>
- American Academy of Pediatrics. (2016). AAP TASK FORCE ON SUDDEN INFANT DEATH SYNDROME. SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment. *Pediatrics*, 38(5)
- Ardelt, M., & Eccles, J. (2001). Effects of mother's parental efficacy beliefs. *Journal of Family Issues*, 22(8), 944-972.
- Berkley-Patton, J., Bowe Thompson, C., Martinez, D., Montez Hawe, S., Moore, E., Wright, E., & Wainright, C. (2012). Examining Church Capacity to Develop and Disseminate a Religiously Appropriate HIV Tool Kit with African American Churches. *Journal of Urban Health*, 90(3), 489-499.
- Barnat, R. (2016). *Strategic Management: Formulation and Implementation*. Retrieved September 21, 2016, from <http://www.strategy-implementation.24xls.com/en107>
- Boundy, L., Cameron-Faulkner, T., & Theakston, A. (2016). Exploring early communicative behaviors: A fine-grained analysis of infant shows and gives. *Infant Behavior & Development*, 44, 86-97.

- Bornstein, M., Cote, L., Haynes, M., Hahn, C., & Park, P. (2010). Parenting Knowledge: Experiential and Sociodemographic Factors in European American Mothers of Young Children. *Developmental Psychology, 46*(6), 1677-1693.
- Bornstein, M., Suwalsky, J., & Breakstone, D. (2012). Emotional Relationships between Mothers and Infants: Knowns, Unknowns, and Unknown Unknowns. *Developmental Psychopathology, 24*(1), 113-123.
- Brazelton Institute. (2016). *Brazelton Institute*. Retrieved April 17, 2017, from <http://www.childrenshospital.org/research-and-innovation/research/centers/brazelton-institute>
- Bright Futures. (2015). *Guidelines for Health Supervision of Infants, Children, and Adolescents*. Retrieved April 6, 2016, from https://brightfutures.aap.org/bright%20Futures%20Documents/BF3%20pocket%20guide_final.pdf
- Buck, K. (2015). *The path to program sustainability*. Retrieved November 1, 2016, from <http://conservationimpact-nonprofitimpact.org/>
- Cadwell, J., Shaver, P., Li, C., & Minzenburg, M. (2011). Childhood Maltreatment, Adult Attachment, and Depression as Predictors of Parental Self-Efficacy in At-Risk Mothers. *Journal of Aggression, Maltreatment & Trauma, 20*, 595-516.
- CalSWEC. (2016). *How to build an Implementation Toolkit start to Finish*. Retrieved September 14, 2016, from <http://calswec.berkeley.edu/toolkits/implementation-toolkits/how-build-implementation-toolkit-start-finish>

- CDC. (2015). *Parent Training Programs; insights for practitioners*. Retrieved November 16, 2015, from http://www.cdc.gov/ViolencePrevention/pdf/Parent_Training_Brief-a.pdf
- Cerezo, M., Dasi, C., & Ruiz, J. (2013). Supporting parenting of infants: Evaluating outcomes for parents and children in a community-based program. *Evaluation and Program Planning, 37*, 12-20.
- Cincinnati Children's Hospital. (2015). *Evidence Evaluation Tools & Resources (LEGEND)*. Retrieved April 4, 2016, from <https://www.cincinnatichildrens.org/service/j/anderson-center/evidence-based-care/legend>
- Civitas. (2000) *What Grownups Understand About Childhood Development; A National Benchmark Study*. Retrieved November 9, 2015, from <http://main.zerotothree.org/site/DocServer/surveyexecutivesummary.pdf?docID=821>
- Coatsworth, J., Duncan, L., Pantin, H., & Szapocznik, J. (2008). Patterns of Retention in a Preventive Intervention with Ethnic Minority Families. *Journal of Primary Prevention, 27*(2), 171-193.
- Combs-Orme, T., Wilson, E., Cain, D., Page, T., & Kirby, L. (2003). Context based parenting in infancy: Background and Conceptual Issues. *Child and Adolescent Social Work Journal, 20*(6), 438-470.
- Congden, K. A. (2014). Perinatal Education and Support Program: Bay State's New Beginnings. *The Journal of Perinatal Education, 25*(2), 97-104.
- Costa, R., & Figueiredo, B. (2011). Infant's psychophysiological profile and temperament at 3 and 12 months. *Infant Behavior & Development, 34*(2), 270-279.

- Cram, J., Phaff, S., & Nieboer, P. (2013). The role of partnership functioning and synergy in achieving sustainability of innovative programs in community care. *Health and Social Care in the Community, 21*(2), 209-215.
- Danborg, D., Wagner, L., Kristensen, B., & Clemensen, J. (2015). Nurses' Experience of Using an Application to Support New Parents after Early Discharge: An Intervention Study. *International Journal of Telemedicine and Applications, 2015*(1), 4-4.
- Das Eiden, R., & Reifman, A. (1996). Effects of Brazelton Demonstrations on Later Parenting: A Meta-Analysis. *Journal of Pediatric Psychology, 21*(6), 857-868.
- Dobkin Hall, P. (2010). *The Jossey-Bass Handbook of Nonprofit Leadership & Management* (2 ed.). San Francisco, CA: Wiley.
- Fox, R., McMullen, S., & Newburn, M. (2015). UK women's experiences of breastfeeding and additional breast feeding support: a qualitative study of Baby Cafe services. *BMC Pregnancy & Childbirth, 15*(147), 1-12.
- Haltigan, J., Leerkes, E., Supple, A., & Calkins, S. (2014). Infant negative affect and maternal interactive behavior during still face procedure: the moderating role of adult attachment states of mind. *Attachment & Human development, 16*(2), 149-173.
- Hanson, H., & Salmoni, A. W. (2011). Stakeholders' perceptions of program sustainability: Findings from a community-based fall prevention program. *Public Health, 125*(8), 525-532.
- Harris, C., Garrubba, M., Allen, K., King, K., Kelly, C., Thiagarajan, F.,...Farjou, D. (2015). Development, implementation and evaluation of an evidence-based program for introduction of new health technologies and clinical practices in a local healthcare setting. *BMC Health Services Research, 28*(1), 575-90.

- Healthy People.gov. (2016). *Healthy People 2020 Initiative EMC-2.5*. Retrieved September 13, 2016, from https://www.healthypeople.gov/node/4365/data_details
- Hiscock, H., & Wake, H. (2002). Randomized controlled trial of behavioral infant sleep intervention to improve infant sleep and maternal mood. *British Medical Journal*, *324*.
- Hooge, S., Benzies, K., & Mannion, C. (2014). Effects of a Brief, Prevention-Focused Parenting Education Program for New Mothers. *Western Journal of Nursing Research*, *36*(8), 957-974.
- Joosen, K. J., Mesman, J., Bakersman-Kanenburg, M., & Van IJzendorrn, M. (2012). Maternal sensitivity to infants in various settings predicts harsh discipline in toddlerhood. *Attachment & Human development*, *14*(2), 101-117.
- Julian, D., & Kombarakaran, F. (2006). Assessment of Quality of Outcomes within a Local United Way Organization: Implications for Sustaining System Level Change. *American Journal of American Psychology*, *38*(1), 175-181.
- Karl, D., & Keefer, C. (2011). Use of the Behavioral Observation of the Newborn Educational Trainer for Teaching Newborn Behavior. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *40*(1), 75-83.
- Kavidar, M., & Mozafarina, S. M. (2013). Supporting fathers in the NICU: Effects of the HUG your baby program on fathers' understanding of preterm infant behavior. *Journal of Perinatal Education*, *22*(2), 113-119.
- Kelly, B., Irigoyen, M., Pomerantz, S., Mondesir, M., & Isaza-Brando, N. (2016). Swaddling and Infant Sleeping Practices. *Journal of Community Health*, *1*, 1-5.

- Kopp, M., & Hornberger, C. (2008). Proper exercise and nutrition kit: use of obesity screening and assessment tools with underserved populations. *Journal of Pediatric Nursing Journal of Pediatric Nursing*, 23(1), 58-64.
- Mangelsdorf, S., Shapiro, J., & Marzolf, D. (1995). Developmental and Temperamental Differences in Emotion Regulation in Infancy. *Child Development*, 66, 1817-1828.
- McNally, J., Hugh-Jones, S., Caton, S., Vereijken, C., Weenen, H., & Hetherington, M. (2016). Communicating hunger and satiation in the first 2 years of life: a systematic review. *Maternal & Child Nutrition*, 12(2), 205-228.
- Melnyk, B. M., & Fineout-Overholt, E. (2015). *Evidenced-Based Practice in Nursing & Healthcare; A guide to best practice* (3 ed.). Philadelphia, US: Wolters Kluwer.
- Murphey, C., Cupples, M., Percy, A., Halliday, H., & Stewart, M. (2008). Peer-mentoring for first-time mothers from areas of socio-economic disadvantage: a qualitative study within a randomized controlled trial. *BMC Health Services Research*, 8(46)
- Najafizada, S., Labonté, R., & Bourgeault, I. (2016). Stakeholder's perspective: Sustainability of a community health worker program in Afghanistan. *Evaluation and Program Planning*, 7(1), 123-129.
- National Christ Child. (2015). *Challenging Poverty One Child at a Time*. Retrieved from <http://www.nationalchristchildsoc.org/site/?q=node/85>
- Nikolopoulou, M., & St James-Roberts, I. (2003). Preventing sleeping problems in infants who are at risk of developing them. *Archives of Disease in Childhood*, 88, 108-111.
- Nordqvist, C., Timpka, T., & Lindqvist, K. (2009). What promotes sustainability in Safe Community programs? *BMC Health Services Research*, 9(4)

- Nugent, J. (2013). The Competent Newborn and the Neonatal Behavioral Assessment Scale: T. Berry Brazelton's Legacy. *Journal of Child and Adolescent Psychiatric Nursing*, 26(3), 173-179.
- O'Mara-Eves, A., Brunton, G., Oliver, S., Kavanagh, J., Jamal, F., & Thomas, J. (2015). The effectiveness of community engagement in public health interventions for disadvantaged groups: a meta-analysis. *BMC Public Health*, 15(1), 129-140.
- Paradis, H., Conn, K., Gerwitz, J., & Halterman, J. (2011). Innovative Delivery of Newborn Anticipatory Guidance: A Randomized, Controlled Trial Incorporating Media-Based Learning into Primary Care. *Academic Pediatrics*, 11(1), 27-33.
- Percy, M., & McIntyre. (2001). Using Touchpoints to Promote Parental Self-Competence in Low-Income, Minority Pregnant, and Parenting Teen Mothers. *Journal of Pediatric Nursing*, 16(3), 180-186.
- Peterson, H. (2016). *Implementation Science, translating research into everyday practice*. Retrieved November 4, 2016, from http://sph.unc.edu/files/2013/07/implementation_science.pdf
- Perez, N., Weathers, B., Willis, M., & Mendez, J. (2013). Collaboration Across Eight Research Centers: Unanticipated Benefits and Outcomes for Project Managers. *Population Health Management*, 16(1), 46-52.
- Pierce, T., Biovin, M., Frenette, E., Forget-Dubois, N., Dionne, G., & Tremblay, R. (2010). Maternal self-efficacy and hostile-reactive parenting from infancy to toddlerhood. *Infant Behavior & Development*, 33, 149-158.

- Priddis, L., & Wells, G. (2010). Improving Parent-infant Relationships: An Innovative Group Approach to Working with Families to Improve Parent-infant Relationships within a Community Setting. *Neonatal, Pediatric & Child Health Nursing, 13*(3)
- Reilly, J., Hovarter, R., Mrochek, T., Mittelstadt-Lock, K., Schmitz, S., Nett, S., Behm, L. (2011). Spread the Word, Not the Germs: A Toolkit for Faith Communities. *Journal of Christian Nursing, 28*(4), 205-211.
- Rosswurm, M. A., & Larrabee, J. H. (1999). A Model for Change to Evidenced Based Practice. *Journal of Nursing Scholarship, 31*(4), 317-322.
- Saeidi, R., Asnaashari, Z., Amirnejad, M., Esmaeili, H., & Robatsangi, M. G. (2011). Use of “Kangaroo Care” to Alleviate the Intensity of Vaccination Pain in Newborns. *Iran Journal of Pediatrics, 21*(1), 99-102.
- Santos, S., Tagai, E., Wang, M. Q., Scheirer, M., Slade, J., & Holt, C. (2014). Feasibility of a Web-Based Training System for Peer Community Health Advisors in Cancer Early Detection Among African Americans. *American Journal of Public Health, 104*(12), 2282-2289.
- Scheirer, M., & Dearling, J. (2011). An Agenda for Research on the sustainability of Public health programs. *Framing Health matters, 101*(11), 2059-2065.
- Schell, S. F., Luke, D., Schooley, W., Elliot, M., Herbers, S., Mueller, N., & Bungler, A. (2013). Public health program capacity for sustainability: a new framework. *Implementation Science, 8*(15), 1-9.
- Shediac-Rizkallah, M., & Bone, L. R. (2000). Planning for the sustainability of community-based health programs: conceptual frameworks and future directions for research, practice and policy. *Health Education Research, 13*(1), 87-101.

- Shorey, S., Wai Chi Chan, S., Chong, Y., & He, H. (2014a). Maternal self-efficacy in newborn care and social support needs: a correlational study. *Journal of Advanced Nursing*, 23(15-16), 2272-2283.
- Shorey, S., Wai Chi Chan, S., Chong, Y., & He, W. H. (2014b). A randomized control trial of the effectiveness of a postnatal psychoeducation programme on self-efficacy, social support, and postnatal depression among primiparas. *Journal of Advanced Nursing*, 71(6), 1260-1273.
- Smith Battle, N. (2007). Learning the Baby: An Interpretive Study of Teen Mothers. *Journal of Pediatric Nursing*, 22(4), 261-271.
- Sontag-Padilla, L., Staplefoote, L., & Gonzalez Morganti, L. (2012). *Financial Sustainability for Nonprofit Organizations: A Literature Review*. Retrieved November 1, 2016, from http://www.rand.org/content/dam/rand/pubs/research_reports/RR100/RR121/RAND_RR121.pdf
- Sparrow, J. (2013). Newborn Behavior, Parent–Infant Interaction, and Developmental Change Processes: Research Roots of Developmental, Relational, and Systems-Theory-based practice. *Journal of Child and Adolescent Psychiatric Nursing*, 26(3), 180-185.
- Stirman, S., Kimberly, J., Cook, N., Calloway, A., Castro, F., & Charns, M. (2012). The sustainability of new programs and innovations: a review of the empirical literature and recommendations for future research. *Implementation Science*, 7(17).
- St. James Roberts, I., & Gillham, P. (2001). Use of a behavioral program in the first 3 months to prevent infant crying and sleeping problems. *Journal of Pediatrics and Childhood Health*, 37(3), 289-297.

- Srinivas, G., Benson, M., Worley, S., & Schulte, E. (2015). A Clinic-Based Breastfeeding Peer Counselor Intervention in an Urban Low-Income Population: Interaction with Breastfeeding Attitude. *Journal of Human Lactation, 31*(1), 120-128.
- Svensson, J., Barclay, L., & Cooke, M. (2009). Randomized-controlled trial of two antenatal education programs. *Midwifery, 25*, 114-125.
- Sweeney, K. (2010). A Tool Kit for Battling Childhood Obesity: Implementing the ABCD Program for Childhood Obesity in Pediatric Primary Care. *Journal of Pediatric Healthcare, 24*(5), e7-e8.
- Symon, B., Marley, J., Martin, J., & Norman, E. (2005). Effect on a consultation teaching behavior modification on sleep performance of infants: a randomized control trial. *Medical Journal of Australia, 182*(5), 215-218.
- Tedder, J., & Register, N. (2007). The “HUG”: An Innovative Approach to Pediatric Nursing Care. *The American Journal of Maternal Child Nursing, 32*(4), 210-214.
- Tedder, J. (2008). Give Them the HUG: An Innovative Approach to Helping Parents Understand the Language of Their Newborn. *Journal of Perinatal Education, 17*(2), 14-20.
- Tedder, J. (2013). Teaching for Birth and Beyond: Online Program Incorporated into a Birthing and Parenting Certification. *International Journal of Childbirth Education, 27*(3), 65-68.
- Tedder, J. (2012). Teaching for Birth and Beyond: Incorporating Online Learning about Newborn Behavior into the Training of Childbirth, Lactation, and Doula Professionals. *International Journal of Childbirth Education, 27*(3), 65-68.
- Tedder, J. (2015). Roadmap to Breastfeeding Success: Teaching Child Development to Extend Breastfeeding Duration. *Journal of Perinatal Education, 24*(4)

Thabane, L., Thomas, T., Ye, C., & Paul, J. (2009). Posing the research question: not so simple.

Canadian Journal of Aesthetics, 56(1), 71-79.

Thomson, S., Michelson, D., & Day, C. (2014). From parent to peer facilitator': a qualitative

study of a peer-led parenting program. *Child: Care, Health & Development*, 41(1), 76-3.

Thrane, S., Wanless, S., Cohen, S., & Danford, C. (2016). The Assessment and Non-

Pharmacologic Treatment of Procedural Pain from Infancy to School Age Through a

Developmental Lens: A Synthesis of Evidence with Recommendations. *Journal of*

Pediatric Nursing, 31(1), e23-32.

Tse, S., Wing See, E., Wong, S., Kan, A., & Kwok, C. (2014). Training of mental health peer

support workers in a non-western high-income city: Preliminary evaluation and

experience. *International Journal of Social Psychiatry*, 60(3), 211-218.

Vanderbilt University (2010). *Recommended Practices Supporting Infants and Toddlers with*

Challenging Behavior. Retrieved December 1, 2015, from

<http://http://csefel.vanderbilt.edu/resources/inftodd/mod4/4.6.pdf>

Wiltsey- Stirman, S., Kimberly, J., Cook, N., Calloway, A., Castro, F., & Charns, M. (2012). The

sustainability of new programs and innovations: a review of the empirical literature and

recommendations for future research. *Implementation Science*, 7(17), 2-19.

Appendix A. Literature Search Table

Keyword Used	Database/Source Used	# of Initial Results		
		Articles listed with keyword search criteria	Abstract initially reviewed	Used for integrative literature review
"parenting program" "infant"	PubMed	32	15	8
"parenting program" "infant"	CINHAL	71	25	3
"infant behaviors and cues"	PubMed	102	12	6
"infant behaviors and cues"	CINHAL	111	50	1
"Hug Your Baby program"	PubMed	1	1	1
"Hug Your Baby program"	CINHAL	4	4	4
"Interventions for Infant sleep"	PubMed	56	19	0
"Interventions for Infant sleep"	CINHAL	3	3	1
"Interventions for Infant soothing"	PubMed	21	21	2
"Interventions for Infant soothing"	CINHAL	16	16	1
"tool kit community implementation"	PubMed	17	5	5
"tool kit community implementation"	CINHAL	0	0	0
"Volunteer educator" "community"	PubMed	48	10	6
"Volunteer educator" "community"	CINHAL	0	0	0

Appendix B. Literature Evaluation Table

Parental education child >1 year's old

Author	Design/sample Setting	Major Variables	Measurement Scales	Data analysis	Findings	LEGEND Evidence rating
Shorey et al. (2014a)	RCT 122 Singapore mothers with mean age of 28.6 years	In person intervention 90-minute home visit, booklet and 3 follow up phone calls to provide further guidance and support vs routine care	The Maternal Parental Self-Efficacy scale (Cronbach's α .88)	TTest Chi square	Maternal self-efficacy increased significantly post intervention mean 63.9 (s.d.4.1) as compared to control 50.9(s.d.6.1) Cohens <i>d</i> : 2.35 Large ES Postpartum depression p.001	2a Good Quality RCT
Svensson et al. (2009)	RCT 140 English mothers mean age 30.8 years	proactive problem solving for new parents to include: crying and breastfeeding vs routine care	perceived maternal parenting self-efficacy via Postnatal Parent Expectations Survey (Cronbach's α .93)	ANOVA	perceived maternal parenting self-efficacy f 98.914 df 1.168 p < .001 Worry about infant p.67	2b Lesser Quality RCT
Meyers (1982)	RCT 28 American Mothers and fathers	In person intervention Postpartum inpatient over 1 sixty-minute session with RN	Parental Knowledge infant behavior: Researcher created questionnaire related to infants' physical capabilities s, including reflexes and senses (Cronbach's α . not reported) Parental Confidence: Researcher created	TTest Chi square	Maternal Confidence at hospital discharge Chi square 2x2= 12 p>.003	2b Lesser Quality RCT

			questionnaire (Cronbach's α . not reported)			
Paradis et al. (2012)	RCT 137 American Mothers and Fathers. 74% >21 years' age	Home study Media Based intervention with DVD in community mean age child 6 months' vs routine care	Infant Care Self-Efficacy via Infant Care Survey (Cronbach's α . not reported) Parent knowledge of infant development via Knowledge of Infant Development Survey (Cronbach's α not reported) Problem solving confidence via How I Deal with Problems Regarding Care of My Baby Questionnaire (Cronbach's α not reported)	TTest	No effects Infant Self-Efficacy p .06	2b Lesser Quality RCT
Abarashi et al. (2014)	Longitudinal study with control 40 Irian mothers mean age 22.2 years	In person intervention in community mean age child 12 months delivered over six 1 hour weekly meetings	Parental Self-Agency Measure (Cronbach's α .71)	Chi square TTest	Parental self-efficacy increased experiment pre 43.7 (s.d.8.9) post 55 (s.d.7.8) control pre 53.1 (s.d.9.5) post 52(s.d.5.3)	4a Good quality longitudinal study
Srinivas et al. (2015)	Longitudinal study with control 103 American mothers mean age 24.8 years	In person intervention in community via trained peer counselor within 3 to 5 days after delivery, weekly to 1 month, every 2 weeks up to 3 months, and	Breastfeeding Self-Efficacy Scale–Short Form (Cronbach's α not reported)	Odds Ratio ANOVA	Intervention group reported increased self-efficacy in breast feeding (PC = 18%, control = 61%; $P < .004$).	4b Lesser quality longitudinal study

		once at 4 months			Peer counseling was associated with higher rates of breastfeeding at 1 month (odds ratio = 3.2; 95% confidence interval, 1.02-9.8)	
Cerezo et al. (2013)	Longitudinal cohort-sequential study 779 American mothers mean age 29.2 years	In person intervention attends up to six 15 minute visits during well child checks depending on age of enrollment.	<i>Parental Self-Efficacy: Parental Sense of Competence Scale</i> (Cronbach's α .82) <i>Quality of attachment of infant to parent: Strange Situation Test</i> (Cronbach α .81)	ANOVA	Significant program dose effect of on the three scales: Parental Efficacy (H = 20.07, p = .001), and Parental Satisfaction (H = 12.15, p = .016). Parental confidence (H = 19.43, p = .001)	4a Good quality longitudinal study
Hooge et al. (2014)	Cohort pretest/post-test 159 Canadian mothers mean age 30.3 years	In person intervention in community attends four 2-hr sessions.	Parenting Morale Index (Cronbach's α .86) Family Support Scale (Cronbach's α .68) Parenting Knowledge Scale (Cronbach's α .83)	ANOVA	Maternal self-efficacy increased significantly between pre-test and post-test. mean pre 22.52 (s.d.4.95) mean post 27.99 (s.d.3.51), p < .001	4b Lesser quality retrospective cohort study
Shorey et al. (2014b)	Cross sectional correlational study 204 Singapore mothers mean age 30.0 years	Examines reported maternal self-efficacy and formal social support and correlation between	The Maternal Parental Self-Efficacy scale (Cronbach's α .88) Family Support Scale	Multivariate analysis	Small relationship between Received Maternal Self-efficacy (RMSE) and received	4a Good quality cross-sectional study

		maternal self-efficacy and social support in early postpartum period	(Cronbach's α .70)		formal social support (RFSS) RMSE mean 46.4 (s.d.9.3) $z=-18$ $p<0.05$ RFSS mean 1.1 (s.d.1.7) $z= 54$ $P<0.05$ Correlation between RMSE and RFSS. r 13	
Priddis and Wells (2010)	Pre-test, post-test qualitative design with a control group 31 Australian Mothers mean age 26.6 years	Face to Face intervention. Delivered over 9 weekly two hour sessions. Infant mean age 10 months.	Filmed interaction Participant responses	TTest	Theme related to self-efficacy was a focus on child cues: Subthemes 1. Awareness of infant's physical needs only. 2. Awareness of both infant's physical and emotional needs. 3. Emphasis is on action Pre-test: Groups similar. Post-test TIP group 72% move to awareness of infant cues.	2b Lesser quality qualitative study
Danborg et al. (2015)	Qualitative Study interpretative phenomenological analysis of 44 Icelandic mothers mean age 28.1 years	Media based intervention. Use of app for 7 days post discharge after hospital birth. asynchronous communication.	Participant responses	Qualitative analysis	Themes extracted: Timely information gives a feeling of control, Continual information support and reassurance but can be overwhelming in the very	2a Good quality qualitative study

					early postpartum period. Messages would have been helpful if they had been made clearer	
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HUG Program/Interventions

Author	Design/sample Setting	Major Variables	Measurement Scales	Data analysis	Findings	LEGEND Evidence rating
Kavidar et al (2013)	CCT 46 Iranian fathers mean age 29.5 years	In person intervention use of HUG program in NICU delivered over 2 two sessions with reinforcement by RN until discharge vs routine care	knowledge of tasks related to infant care to include crying and response to infant cues via The Knowledge of Preterm Infant Behavior Scale (Cronbach's α .96)	Chi /TTest	knowledge of tasks related to infant care to include crying and response to infant cues (C) mean 9.80 (s.d. 1.10) (I) mean 22.10 (s.d. 4.06) $p < .05$	3a Good quality Clinical control trial
Tedder (2015)	Published Expert Opinion	The Use of HUGs "Road Map to Breast Feeding Success	n/a	n/a	HUG program is an EB clinical approach to increase BF duration through the 1 st year of infancy	5a Good quality published expert opinion
Tedder (2008)	Published Expert opinion	Overview of HUG program	n/a	n/a	The HUG program is designed to be an interactional and individualized intervention and can be implemented in new parents	5a Good quality published expert opinion
Tedder (2013)	Cross sectional study 110	In person 2-day course HUG for childbirth	Author created survey not		72 % respondents of program found	4b Lesser Quality

	childbirth educators	educators and medical professionals	rated for validity or reliability		HUG program helpful with tools and strategies for teaching parents about newborn behavior.	crosssectional study
Register and Tedder (2007)	Published Expert opinion	Use of HUG program to assist nurses in caring for infants	n/a	n/a	Use of HUG strategies to help optimize the health of children and enhance parental confidence and skills.	5b Lesser quality published expert opinion
Hiscock and Wake (2002)	RCT of 156 mothers in Australia mean age 34.1 years	Compares the effect of a researcher developed behavioral sleep intervention with written information about normal sleep on infant sleep problems and maternal depression	Maternal reports of infant sleep problems Edinburgh postnatal depression scale (Cronbach's α not reported)	Chi TTest	At two months more infant sleep problems had resolved in the intervention group than in the control group (53/76 v 36/76) P=0.005 and remaining sleep problems were less severe in the intervention group (Mann-Whitney test, $z = -2.46$, P=0.01) At two months more control mothers than intervention mothers had sought extra help (23/76 (30%) v 9/75 (12%), $\chi^2 = 7.54$, P=0.006). Within the control group more mothers who sought extra help reported that their infant's sleep problem had resolved (13/23 (56%) v 23/53 (43%), $\chi^2 = 1.11$, P=0.30)	2a Good Quality RCT

Symon et al. (2005)	RCT of 268 families of infants in Australia mean age not reported	Evaluated the effect of behavior modification programs taught to parents in a single nurse visit improve sleep performance in newborns	Parent recorded diary of daytime and nighttime sleep duration	TTest with intention to treat ratio	Total sleep time 15 hour/day < for intervention group was 62% vs. 36% in control (p <.001) At 6weeks old intervention infants slept a mean of 1.3 hours more than control At 12 weeks age intervention infants slept mean 1.2 hours day than control	2a Good Quality RCT
Akhnik h et al. (2014)	Systemic Review	The aims of the review are to discuss definition, etiology, and evaluate different treatment regimes in infants who cry excessively	N/A	N/A	TREATMENT AND SUPPORT OF CHILDREN AND PARENTS: - Recognition, support, and reassurance of parents. -Information about the normal crying pattern, co- and self-regulation, and about the prevention of the shaken baby syndrome INFORMING AND COUNSELING PARENTS - parents should be informed extensively about the normal pattern of infant crying - Parents can choose one of the approaches classified as “evidence-based,” albeit at quite different levels of evidence TREATMENTS FOR WHICH	1a Good Quality Systematic Review

					<p>THERE IS SOME EVIDENCE:</p> <ul style="list-style-type: none"> - Applying Regularity and Uniformity in Daily Care - educational program is intended for parents with parenting stress. Its purpose is to solve problems in the socio-emotional development of the child (0-4 years). It has been shown to be effective in improving the interaction and communication between parents and child and in improving the interaction between depressed mothers and their babies 	
Saeidi et al. (2011)	RCT of 60 full term infants in Iran	To determine the effect of kangaroo care on the pain intensity of vaccination in healthy newborns.	Neonatal Infant Pain Scale	Data were analyzed using Chi, Fisher exact test, paired t-test and independent t-test and Mann-Whitney test	<p>non-pharmacological interventions such as “Kangaroo Care” may be useful for decreasing pain in newborns</p> <p>Mean pain intensity during the intervention was significantly lower in control ($P < 0.006$)</p> <p>3 minutes after intervention was also significantly lower in the control ($P < 0.021$)</p> <p>Mean duration of crying was significantly lower in case</p>	1a Good Quality RCT

					group as well (P<0.001).	
Thrane et al. (2016)	Meta-Analysis of 118 articles	Synthesis of the literature on recommendations of use of swaddling and sucking for treatment of infant pain and distress	CRIES FLACC	N/A	Evidenced based recommendations infants age 0-1 years: Swaddling Sucking on a pacifier Breastfeeding Skin-to-skin care	1a Good Quality Meta-analysis

Infant States, Behavior, Cues, & Communication

Author	Design/sample Setting	Major Variables	Measurement Scales	Data analysis	Findings	LEGEND Evidence rating
McNally et al. (2016)	Systematic Review of 27 published articles from 1966-2013	Aim of the systematic review was to identify what is known about infant communication of hunger and satiation and what issues impact on the expression and perception of these states	n/a	n/a	The review revealed that feeding cues and behaviors are shaped by numerous issues, such as infants' physical attributes, individual psychological factors and environmental factors. Infant characteristics, external cues and mothers' own characteristics affect how feeding cues are perceived	1a Good Quality Systematic Review
Das Eiden and Reifman (1996)	Meta-Analysis of 668 (average 51 subjects per study)	Meta-analysis of parenting interventions based on the Neonatal Behavioral Assessment Scale (NBAS) was conducted and	Neonatal Behavioral Assessment Scale (NBAS)	Effect sizes are reported in terms of the correlation coefficient (r)	Similar average effect sizes were obtained for both weighting procedures (r's of about .2) indicating that	1a Good Quality Meta-analysis

		quantified for effect size			Brazelton-based interventions during the neonatal period have a small to moderate beneficial effect on the quality of later parenting	
Karl and Keefer (2011)	Published Expert Opinion	The article describes a newborn behavior training that incorporates the Behavioral Observation of the Newborn Educational Trainer (BONET)	N/A	N/A	Newborns able to achieve overall behavioral organization are prepared to take on challenging and necessary developmental tasks such as feeding, interacting, and acclimating to the world. Educating professionals on newborn behavioral organization, self-regulation skills, and interactive capabilities assists caregivers of infants	5a Good quality published expert opinion
Nugent (2013)	Published Expert Opinion	The article outlines T. Berry Brazelton's contribution to the understanding of child development and Touchpoints	N/A	N/A	Newborns are competent and organized from the very beginning. The neonate is in a dynamic rather than passive relationship with the environment.	5a Good quality published expert opinion

					Recognition that the newborn period is an extremely sensitive stage in the transition to parenthood. The intervention “touchpoint” for professionals in parent/child attachment.	
Costa and Figueiredo (2011)	Longitudinal study of 94 infants in Portugal	The study analyzed the differences in infant temperament at 3 and 12 months according to infants’ psychophysiological profiles: “withdrawn”, “extroverted”, and “under aroused” and changes in infant temperament from 3 to 12 months by psychophysiological profile and the quality of mother–infant interaction	Neonatal Behavioral Assessment Scale (Cronbach's α .90) Alarm Distress Baby Scale (Cronbach's α .60) The Infant Behavior Questionnaire (Cronbach's α .92) Saliva samples infants at 3 & 12 months	MANOVA	Compared to extroverted infants, withdrawn infants have a higher score on distress to limitation $p = .038$ behaviorally withdrawn infants have lower scores on cuddliness $p = .040$ and vocal reactivity $p = .041$.	4a Good Quality Longitudinal Study
Mangelsdorf et al. (1995)	Descriptive study of 75 infants age 6 months, 12 months & 18 months	The study examinee emotion regulation strategy use between 6 and 18 months. 75 infants (25 each of 6-, 12-, and 18-month-olds) were videotaped interacting with 3 female strangers	Videotapes of stranger-infant interaction were coded by researchers for coping behaviors: gaze aversion, avoidance, self-soothing, distraction. Reliability not reported Toddler Temperament Scale	ANCOVA	Results indicated that 6-month-olds were more likely than 12- or 18-month-olds to use gaze aversion and fussing as their primary emotion regulation strategies, and were less likely than the older infants to use self-	4a Good Quality descriptive study

			(Cronbach's α .82)		soothing and self-distraction, 18-month-olds were more likely than the younger infants to attempt to direct their interactions	
Boundy et al. (2016)	Descriptive Psychometric study of 24 infants in the UK	Identification of micro-behaviors associated with showing and giving gestures in infants under 12 months, in order to ascertain whether these form two discrete communicative behaviors and examine if behaviors predicted caregiver responses to these gestures.	Video recording and coding of gestures. Vocalization, gaze, morphological positions, caregiver responses	mixed-effects logistic regression	<p>Infants arm positioning, hand orientation and direction of eye-gaze were predictors of infant communication p .001</p> <p>Caregivers responses to infant's gestures were only associated with infants arm positioning p.008</p> <p>There are ways to distinguish between infant showing and giving gestures but caregivers may be unaware of some behavioral cues</p>	4a Good Quality Descriptive Study

Tool Kit for Implementation of programs

Author	Design/sample Setting	Major Variables	Measurement Scales	Data analysis	Findings	LEGEND Evidence rating
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Sweeney (2010)	Descriptive study of 35 children in the USA	Tool kit with Provider guidelines, family educational materials, and intervention protocol were developed for a Weight Management Program	ABCD Weight Management Program (alpha not reported)	TTest	BMI at visit No. 2 (32.10) with the mean of the BMI at visit No. 5 (31.44), and a significant decrease was found ($t(27) = 4.332, P < .001$). Mean office visit time 29.6 mins and 80% retention of participants	4a Good Quality descriptive study
Berkley-Patton et al. (2012)	Descriptive study examines 58 AA churches in USA	Examines the capacity of developing a toolkit for HIV education and dissemination in AA churches	Survey of churches' capacity, knowledge, and infrastructure to deliver HIV education within a religious setting	Not reported	Nearly all participants (96%) wanted to learn more about HIV and how to discuss it with their parishioners. Guided by capacity findings, a church-based HIV Tool Kit was developed	4a Good Quality descriptive study
Perez et al. (2013)	Published Expert Opinion of 8 research centers across the USA	Development of a tool kit for research project managers for improving health disparities in the community	N/A	N/A	Project managers collaborated monthly over 4 years to achieve high participation rates and maintain community involvement with a goal of decreasing health inequities. In the process, managers recognized and seized the opportunity to produce a tool kit that was designed for future project managers and directors.	5a Good quality published expert opinion
Kopp and Hornberger (2008)	Descriptive Study of 500 public health nurses in USA	Exercise and Nutrition (PEN) tool kit was mailed to 500 public health nurses to increase knowledge of screening and assessment skills that	Researcher developed survey about RN current assessment practices and general knowledge of obese clients (alpha not reported)	Not reported	After the PEN tool kit distribution, nurses reported an increased use of screening tools and standardized referral parameters	4b Lesser Quality descriptive study

		identifies overweight or obese children in the community.				
Reilly et. al (2011)	Descriptive study of 28 parish nurses in USA	A pilot study was undertaken to determine the practicality and effectiveness of the toolkit in changing attitudes and behaviors about infection control and emergency preparedness	Researcher developed self-survey	Descriptive Statistics	<p>A statistically significant difference ($t(26) = -6.63, p < .001$) was found between the mean number of resources on infection control and public health emergency planning the faith communities used before ($M = 1.62; SD = 1.18$) and planned to use after the toolkit was introduced ($M = 3.62; SD = 1.78$). A second statistically significant difference ($t(27) = -6.465, p < .001$) was found between the mean number of ways faith communities were prepared to prevent the spread of infection before ($M = 4.1; SD = 1.9$) and their plans after the toolkit was introduced ($M = 6.1; SD = 2.2$).</p> <p>Participants felt the toolkit was easy to use ($M = 4.7, SD = 0.54$), organized with its color tabs ($M = 4.7, SD = 0.44$), and convenient ($M = 4.67, SD = 0.55$).</p>	4a Good Quality descriptive study

Use of Volunteers for Community Teaching

Author	Design/sample Setting	Major Variables	Measure Scales	Data analysis	Findings	LEGEND Evidence rating
Santos et. al (2014)	Descriptive study of 26 volunteer church educators in USA	a Web-based portal for training peer community health advisors (CHAs) to teach cancer prevention program Project Heal to peers	Community Health Advisor Post Training Satisfaction Survey Post workshop Evaluation of Community Health Advisor Training	Descriptive statistics	CHA post workshop evaluation “Strongly agree” or “agree” CHA training materials were well organized 83.3% Useful in preparing for the workshops 100% Easy to understand 93.8% CHA is “very confident” or “confident” to Recruit participants 75% Promote HEAL workshops 81.3% Present cancer workshops 87.5% Respond to cancer-related questions and answers 91.7%	4a Good Quality descriptive study
Srinivas et al. (2015)	Longitudinal study with control 103 American mothers mean age 24.8 years	In person intervention in community via trained peer counselor within 3 to 5 days after delivery, weekly to 1 month, every 2 weeks up to 3 months, and once at 4 months	Breastfeeding Self-Efficacy Scale–Short Form (Cronbach's α not reported)	Odds Ratio ANOVA	Intervention group reported increased self-efficacy in breast feeding (PC = 18%, control = 61%; $P < .004$). Peer counseling was associated with higher rates of breastfeeding	

					at 1 month (odds ratio = 3.2; 95% confidence interval, 1.02-9.8)	
Hooge et al. (2014)	Cohort pretest/post-test 159 Canadian mothers mean age 30.3 years	In person intervention in community attends four 2-hr sessions.	Parenting Morale Index (Cronbach's α .86) Family Support Scale (Cronbach's α .68) Parenting Knowledge Scale (Cronbach's α .83)	ANOVA	Maternal self-efficacy increased significantly between pre-test and post-test. mean pre 22.52 (s.d.4.95) mean post 27.99 (s.d.3.51), $p < .001$	4b Lesser quality retrospective cohort study
Thomson et al. (2014)	Qualitative Study of parent's peer facilitators (N=14) in UK	The study investigated experiences of parent peer facilitators in a peer led program to improve access to EB parenting support in disadvantaged communities	Thematic analysis of responses for analysis	N/A	3 themes identified: Knowledge and skills development. Practice of running groups essential. Support of a co-facilitator increased confidence Personal transformation of peer facilitator. Facilitators report increase in personal parenting after teaching class. Increase in facilitator qualities. Peer facilitators report increased passion and enthusiasm in helping	

					disadvantage parents.	
Congden (2014)	Published Expert opinion of perinatal/postpartum program in USA	The article describes the perinatal program Bay State's New Beginnings importance in supporting new parents	N/A	N/A	Use of Parenting Educators in postpartum unit through the first 3 months after birth to teach infant behaviors and cues around sleep, feeding, and crying. Author reports that support will increase maternal confidence and reduce stress.	
Fox et al. (2015)	Qualitative study of breast feeding mothers (N=51) in UK	The article focuses on the qualitative experiences of breast feeding mothers and their experiences with peer support	Interview using author created transcripts	Digitally recorded and transcribed via NVivo software	Mothers emphasized the importance of peer supporters by enabling them to continue to successfully breast feed. Mothers felt there was a great deal of pressure in new parenting but that this was not always backed up by adequate support	

Program Sustainability Factors

Author	Design/sample Setting	Purpose	Measurement Scales	Data analysis	Findings
Cram et al. (2013)	Cross-sectional study of nonprofit community organization (N=106) Netherlands	Organization functioning was assessed by examining leadership, resources, & efficacy on program sustainability	Author designed self-report survey	MANOVA	On a 5-point scale of increasing sustainability, mean sustainability scores ranged from 1.9 to 4.9. The results demonstrated that sustainability was positively influenced by leadership (b = 0.32; P < 0.001) and non-

					<p>financial resources ($b = 0.25$; $P = 0.008$).</p> <p>No significant relationship was found between administration or efficiency and program sustainability. Partnership synergy acted as a mediator for partnership functioning and significantly affected sustainability ($b = 0.39$; $P < 0.001$). These findings suggest that the sustainability of innovative program in community care is achieved more readily when synergy is created between partners</p>
Stirman et al. (2012)	Literature review of methods (N=125) used for potential influence on program sustainability	Reviewed innovation characteristics, context, capacity, & processes and interactions influence on sustainability	An initial coding scheme was developed based on constructs identified in previous conceptualizations of implementation and sustainability	n/a	<p>Studies that provided information about levels or extent of implementation generally indicated that partial sustainability was more common than continuation of the entire program or intervention, even when full implementation was initially achieved.</p> <p>Influences on sustainability</p> <p>influences on sustainability relate to the context (policies, legislation, culture, structure), the innovation itself (fit, adaptability, and effectiveness to community needs), processes (fidelity monitoring, evaluation, efforts to align the intervention and the setting), and the capacity to sustain (funding, resources, workforce characteristics and stability, interpersonal processes).</p>
Julian & Kombarakaran (2006)	Case Study (N=1) of how community practitioners in United Way employed specific strategies to promote sustainability	Efforts to implement and sustain program: (1) community mobilization (2) planning and decision making (3) implementation and sustainability of interventions and (4) evaluation and program improvement activities.	Performance Accountability Quality Scale (PAQS)	Descriptive statistics	Vetting programs with use of PAQS increased program sustainability by 69% over a period of 3 years

Buck (2015)	Published expert opinion United States	The article reviews Nonprofit Impact uses a three-step process (content, constituents, & capacity) to build a path between thinking about and achieving program sustainability	n/a	n/a	The dominant funding and delivery model followed by most evidence-based programs includes: securing funding; working with local organizations and agencies to implement the program. The important variables with highest impact on sustainability is operating environment, leadership, political support, human capacity, and technological and organizational infrastructure.
Scheirer & Dearling (2011)	Published Expert Opinion United States	Authors provide guidance for research and evaluation of health program sustainability, including definitions and types of sustainability, specifications	n/a	n/a	The author states these variables are necessary to sustain program: -community-level partnerships -adaptation of program to fit organization -cost -organizational setting and fit -leadership of the organization -Ability to obtain funding
Shediach-Rizkallah & Bone (2000)	Published Expert Opinion United States	Authors discuss the determinants and influences of program sustainability in community health using examples of programs in community	n/a	n/a	Program sustainability derives from three major groups of factors: (1) project design and implementation factors (2) factors within the organizational setting (3) factors in the broader community environment.
Nordqvist et al. (2009)	Qualitative Study of four focus groups of public health officials (N=20) in Sweden	The aim of this study was to try to empirically identify factors that promote sustainability in the structures of programs that are managed and coordinated by the local government	Semi-structured interviews analyzed for themes	qualitative content analysis	Collaboration and leadership was found to be the basis for sustainability Lesser influence: Focused investments in key areas, especially at the beginning of the process, were considered essential for the establishment of programs
Hanson & Salmoni (2011)	A qualitative case study research design of (N=45) program stakeholders in Canada	This paper aims to share the perceptions of program sustainability held by key stakeholders involved in a community-based fall prevention program	Self-response survey after introduction of case study scenario	qualitative content analysis	Influences on sustainability: partnership formation, networking and increasing community capacity. Barriers to achieving sustainability: insufficient human and financial resources, lack of co-ordination and buy-in, heavy reliance on volunteers and an inability to mobilize physicians.

Najafizada et al. (2016)	Qualitative study of community program stakeholders (N=35) in Afghanistan	Study aims to examine how different stakeholders define sustainability and to identify barriers to and facilitators of the sustainability of the program	Semi-structured interview	qualitative content analysis	facilitators identified: Integration into the health system, community support, and capable leadership. Barriers: lack of financial resources, poor program design and implementation, and poor quality of services
Schell et al. (2013)	Literature review of studies (N=85) focusing on program sustainability in public health	This literature review aims to identify the core domains of program capacity for sustainability.	n/a	n/a	The process identified nine core domains that affect a program's capacity for sustainability: Political Support, Funding Stability, Partnerships, Organizational leadership, Program Evaluation, Program Adaptation, Communications, Public Health Impacts, and Strategic Planning.

Appendix C. LEGEND Guide

LEGEND
Let Evidence Guide Every New Decision
Judging the Strength of a Recommendation

Project Title: _____ Date: _____

In determining the strength of a recommendation, the development group makes a considered judgment.

The judgment is made explicit in a consensus process which considers critically appraised evidence, clinical experience, and other dimensions. The development group will consider what the relative weight each dimension listed below contributes when determining the strength of a recommendation.

Reflecting on your answers to the dimensions below and given that more answers to the left of the scales indicates support for a stronger recommendation, complete one of the sentences below to judge the strength of this recommendation.*

**(Note that for negative recommendations, the left/right logic may be reversed for one or more dimensions.)*

- It is strongly recommended that...
- It is recommended that...
- There is insufficient evidence and a lack of consensus to make a recommendation on...

Dimensions			
1. Grade of the Body of Evidence	<input type="checkbox"/> High grade evidence	<input type="checkbox"/> Moderate grade evidence	<input type="checkbox"/> Low grade evidence
2. Safety / Harm	<input type="checkbox"/> Has minimal adverse effects	<input type="checkbox"/> Has moderate adverse effects	<input type="checkbox"/> Has serious adverse effects
3. Benefit to target population <i>(e.g., health benefit to patient)</i>	<input type="checkbox"/> Has significant benefit	<input type="checkbox"/> Has moderate benefit	<input type="checkbox"/> Has minimal benefit
4. Burden on population to adhere to recommendation <i>(e.g., cost, hassle, discomfort, pain, motivation, ability to adhere, time)</i>	<input type="checkbox"/> Low burden of adherence	<input type="checkbox"/> Unable to determine burden of adherence	<input type="checkbox"/> High burden of adherence
5. Cost-effectiveness to healthcare system <i>(e.g., balance of cost/savings of resources, staff time, supplies based on published studies/onsite analysis)</i>	<input type="checkbox"/> Cost-effective to healthcare system	<input type="checkbox"/> Inconclusive economic effects	<input type="checkbox"/> Not cost-effective to healthcare system
6. Directness <i>(the extent to which the body of evidence directly answers the clinical question [population/problem, intervention, comparison, outcome])</i>	<input type="checkbox"/> Evidence directly relates to recommendation for this target population.	<input type="checkbox"/> There is some concern about the directness of evidence as it relates to the recommendation for this target population.	<input type="checkbox"/> Evidence only indirectly relates to recommendation for this target population.
7. Impact on morbidity, mortality, or quality of life	<input type="checkbox"/> High impact on morbidity, mortality, or quality of life	<input type="checkbox"/> Medium impact on morbidity, mortality, or quality of life	<input type="checkbox"/> Low impact on morbidity, mortality, or quality of life

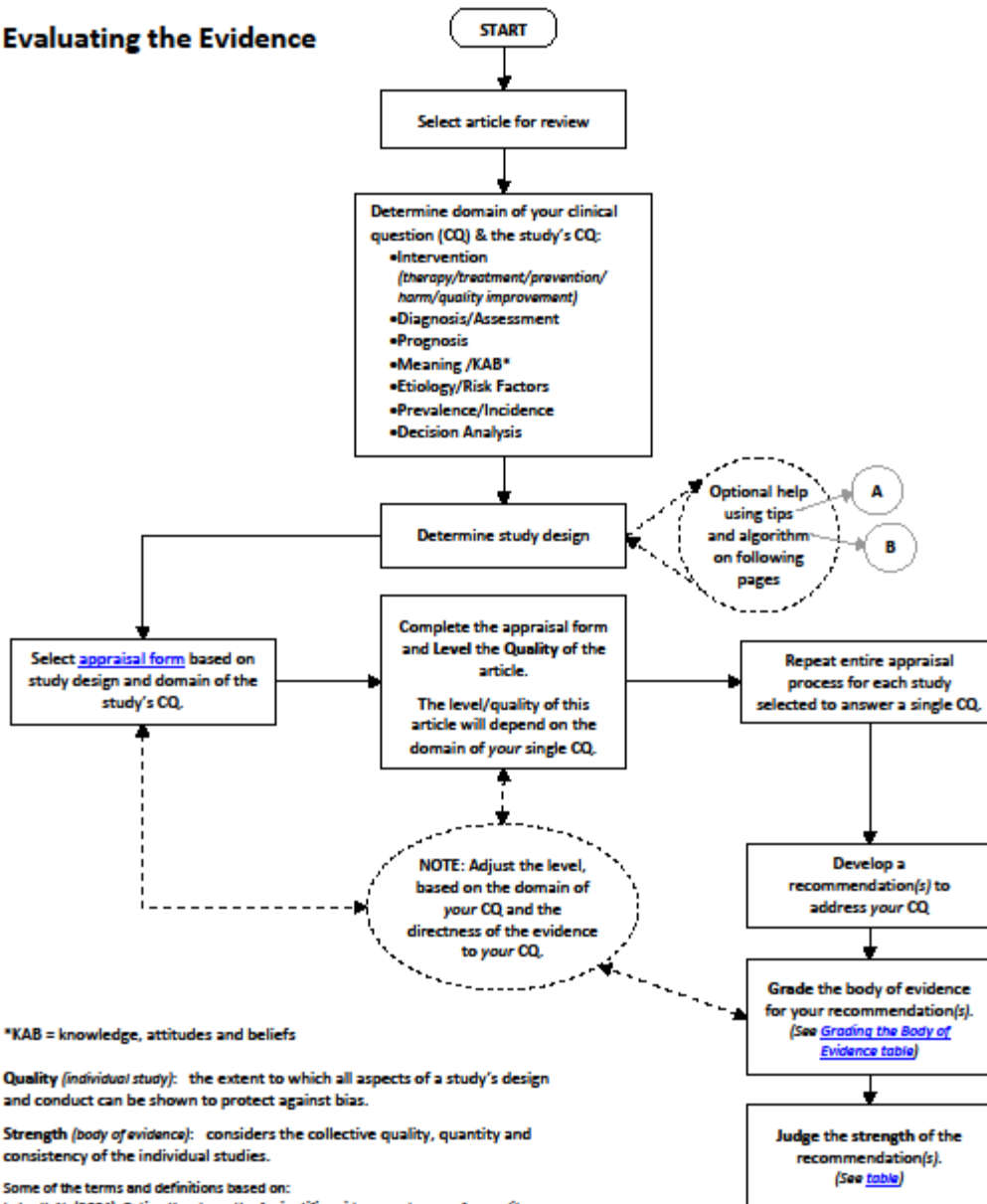
Some of the concepts for this development based on:
 Guyatt: Grading strength of recommendations and quality of evidence in clinical guidelines: report from an American College of Chest Physicians task force. *Chest*, 129(1): 174-81, 2006; Harbour: A new system for grading recommendations in evidence based guidelines. *BMJ*, 323(7308): 334-6, 2001; and Steinberg: Evidence based? Caveat emptor! *Health Aff (Millwood)*, 24(1): 80-92, 2005.

Appendix D. LEGEND Algorithm.



LEGEND
Let Evidence Guide Every New Decision
Evaluating the Evidence Algorithm

Evaluating the Evidence



Appendix E. LEGEND Evidence Levels



TABLE OF EVIDENCE LEVELS: Levels of Individual Studies by Domain, Study Design, & Quality

DOMAIN OF CLINICAL QUESTION	TYPE OF STUDY / STUDY DESIGN																			
	Systematic Review Meta-Analysis	Meta-Synthesis	RCT*	CCT*	Psychometric Study	Qualitative Study	Cohort - Prospective	Cohort - Retrospective	Case - Control	Longitudinal (Before/After, Time Series)	Cross - Sectional	Descriptive Study Epidemiology Case Series	Quality Improvement (PDSA)	Mixed Methods Study	Decision Analysis Economic Analysis Computer Simulation	Guidelines	Case Reports N-of-1 Study	Bench Study	Published Expert Opinion	Local Consensus Published Abstracts
Intervention <i>Treatment, Therapy, Prevention, Harm, Quality Improvement</i>	1a* 1b*		2a 2b	3a 3b		4a 4b	3a 3b	4a 4b	4a 4b	4a 4b	4a 4b	4a 4b	4a 4b	2a/2b 3a/3b 4a/4b	5a 5b	5a 5b	5a 5b	5a 5b	5a 5b	5
Diagnosis / Assessment	1a 1b		2a 2b	2a 2b		3a 3b	4a 4b			4a 4b	4a 4b			2a/2b 3a/3b 4a/4b	5a 5b	5a 5b	5a 5b	5a 5b	5a 5b	5
Prognosis	1a 1b					2a 2b	3a 3b	4a 4b		4a 4b	4a 4b			2/3/4 a/b	5a 5b	5a 5b	5a 5b	5a 5b	5a 5b	5
Etiology / Risk Factors	1a 1b	2a 2b	3a 3b			3a 3b	4a 4b	4a 4b		4a 4b	4a 4b			2/3/4 a/b	5a 5b	5a 5b	5a 5b	5a 5b	5a 5b	5
Incidence	1a 1b					2a 2b	3a 3b				4a 4b					5a 5b	5a 5b	5a 5b	5a 5b	5
Prevalence	1a 1b							2a 2b		3a 3b	4a 4b					5a 5b	5a 5b	5a 5b	5a 5b	5
Meaning / KAB*		1a 1b			2a 2b									2/3/4 a/b		5a 5b	5a 5b	5a 5b	5a 5b	5

* a = good quality study b = lesser quality study
 * CCT = Controlled Clinical Trial KAB = Knowledge, Attitudes, and Beliefs RCT = Randomized Controlled Trial

Shaded boxes indicate study design may not be appropriate or commonly used for the domain of the clinical question.

Development for this table is based on:
 1. Phillips, et al: Oxford Centre for Evidence-based Medicine Levels of Evidence, 2001. Last accessed Nov 14, 2007 from <http://www.cebm.net/index.aspx?o=1023>.
 2. Fineout-Overholt and Johnston: Teaching EBP: asking searchable, answerable clinical questions. *Worldviews Evid Based Nurs*, 2[3]: 157-60, 2005.

Appendix F. Toolkit for Implementation of HUG Program

Hug Workshop

Toolkit Implementation Guide

Welcome! Thank you for your interest in implementing HUG Workshop in your organization. Enclosed in this toolkit is the program implementation process from beginning through the first year. This toolkit was developed by Kati Hughes, as fulfillment for her doctoral capstone project “The Development of a Toolkit for the Implementation of the HUG Program in a Nonprofit Community Setting” at the University of Toledo, Toledo, Ohio. You may contact Kati Hughes directly via email: kati.hughes@rockets.utoledo.edu

HUG Workshop
Toolkit Implementation Guide

VI. Background section

The mission statement and protective factors NCCS	5
HUG Workshop correlation with Protective Factors	5
Introduction of HUG program	6

VII. Preparedness

Road Map to implement HUG Workshop	7
Certification process	8
Committee Chair roles	
Volunteer Recruitment Agenda Outline	10
Templates steering committee agenda	11
Invitation letter and flyer for community stakeholders	13

VIII. Educational curriculum

Volunteer Mentor training materials and PowerPoint	15
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IX. HUG Workshop

Overview	
Materials needed for workshop	
PowerPoint presentation HUG Workshop for NCCS	

Script for PowerPoint HUG Workshop

X. Cost Analysis

Projected start-up costs and yearly maintenance

XI. Resources

National Institute of Health safe sleep guidelines/handout

Shaken Baby Syndrome guidelines/handout

AAP guideline for safe sleep practices.

Section I. Background

Mission Statement:

This information is copyrighted

Protective Factors:

This information is copyrighted

HUG Workshop correlation with Protective Factors:

The HUG Workshop uses Jan Tedder's award winning "HUG Your Baby" Program to increase parental resilience in dealing with common infant behaviors such as crying, feeding, and sleep. The program provides social connections between parents and volunteer parent mentors by offering advise, support, and guidance in child development through the first year of life.

Introduction of the HUG Program

The Help Understanding Guidance "HUG" program is an evidenced based educational program for new parents in responding to their infant's needs. Developed by Jan Tedder, FNP, the program assists parents in understanding and responding to infant behaviors and cues. Based on child development and medical literature, HUG Your Baby's trainings and resources help parents (and the professionals who care for them) understand a baby's body language in order to prevent and solve problems around eating, sleeping, crying, and parent-child interaction and bonding.

Research findings suggest that parent's ineffective responses to their infant's cues result in diminished infant responses, lower intelligence, depression, social incompetence, and high-risk behavior in the child later in life. Effective prevention-focused parenting programs focus on increasing knowledge of child development, skill in parent-child relationships, and age-

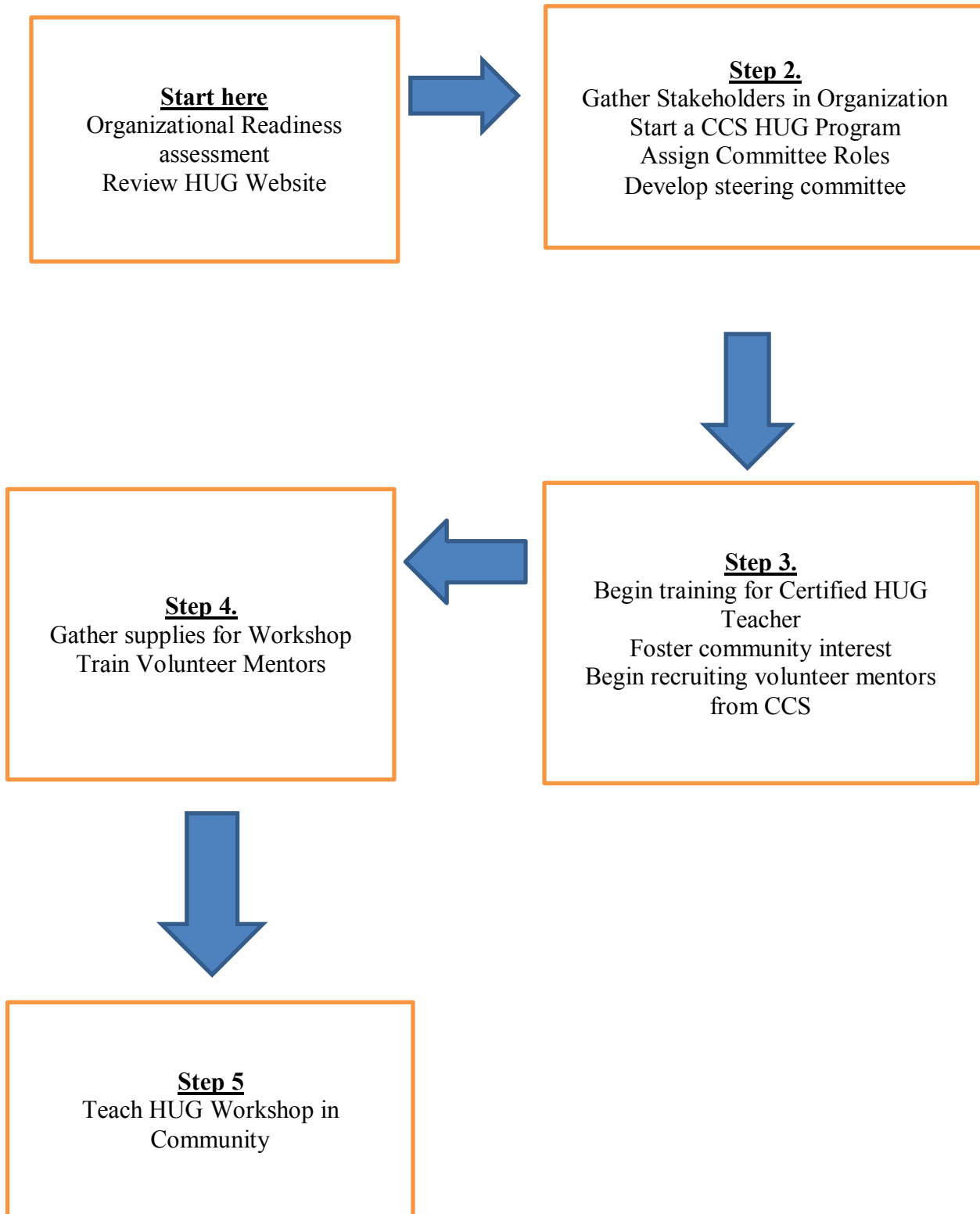
appropriate parental care to promote child health, development, and socio-emotional skills. The HUG Workshop provides this education in a 2-hour workshop in the community.

For more information on The HUG Program visit their website:

<http://hugyourbaby.org/>

Section II. Preparedness

Road Map to implement HUG Workshop



Certification process Certified HUG Teacher

Once you have determined the HUG Workshop will be a good fit for your organization, start the certification process. This process helps you to understand the HUG Program to foster community support and recruit volunteer mentors.

The website HUG Your Baby <http://hugyourbaby.org/> offers the certification to become a Certified HUG Teacher. One member must become HUG certified to offer the program. The process includes completing four modules and teaching the HUG Program. The cost is \$240.00. The process to become certified must be completed within six months of purchasing the modules. You do not have to be in the medical field to become certified, however, it is very helpful to have a medical background.

HUG Committee Member Roles

The HUG Workshop will need committee chairs and a steering committee. This will assist you in implementing the program. We recommend having a short 1 hour steering committee meeting monthly to plan and update committee chairs on the progress of the implementation process.

Program Education Coordinator: Certified HUG Teacher.

Duties: Teaches HUG class to both parents and volunteers, updates HUG curriculum yearly, develops and edits curriculum Power Point. Education of volunteers.

Project Resource Coordinator: Manages program resources and updates HUG info within CCS

Duties: updates newsletter on HUG information, communicates with CCS board on HUG program, orders HUG supplies for class, assembles class bundles. Creates, compiles, and maintains volunteer contact information.

Project Outreach Coordinator: Community Contact point for HUG program.

Duties: Performs outreach, schedules workshops in community, emails volunteers and fellow chairs for notification of upcoming workshop. Compiles and keeps stats (number enrollment, number locations, number inquiries).

Volunteer Recruitment Agenda HUG Workshop Outline

1. Overview Program
 - Help Understanding Guidance “HUG”
 - Helps parents understand infant communication and solve problems around feeding, sleeping, and crying
 - Prenatal-Infants under 6months age
 - Care takers: Mom, Dad, grandparents, childcare workers
 - Content and curriculum is already developed to include Power Point, script, and streaming video
2. Training
 - 4-hour class to train volunteers
 - Organizational Committee Chair to be certified before date and will teach volunteers.
3. Vision
 - Workshop like class
 - Trained Volunteers go out into the community and teaches the HUG Program on behalf of organization
 - The certified teacher will be present to teach from the developed content. Trained volunteers will be sitting with parents and will reinforce the teaching in small groups periodically at scheduled points in the class.
 - Participants of the class receive a HUG handout
 - Class lasts 2 hours
 - Pilot program, thus we may only teach 5-6 times over next 9 months. Will reassess the need to train more volunteers as needed
4. Closing
 - Questions or Comments

HUG Workshop STEERING COMMITTEE MEETING AGENDA			
Purpose, Objectives and Elements of the Meeting:			
Expected Attendees:		Date and Time:	
		Place:	
Agenda Item	A - Action D - Discussion I - Information	Person Responsible	
1. Overall Project Status			
2. Schedule/Milestones			
3. Deliverables			
4. Completion Status (Percentage Complete)			

5. Financial Status		
6. Staffing		
7. Customer Responsibilities		
8. Scope Control		
Project Change Requests		
Decision Requests		
Fault Reports		
Concerns and Recommendations		
9. Management Action Items		
10. Other Business Tabled		
11. Next Meeting		
List of Attachments:		

Template for outreach letter

The **Hug Your Baby Community Workshop** is a free nondenominational evidence based program that teaches infant communication with emphasis on feeding, crying, and sleeping. The workshop is built around Jan Tedder's award winning program "Help, Understanding, and Guidance" (<http://hugyourbaby.org/>) with the latest recommendations from the American Academy of Pediatrics on Sudden Infant Death, infant feeding, Shaken Baby Syndrome, and safe sleep. It is a 2 1/2-hour class that is led by certified HUG teacher with trained mentors who reinforce the content taught via small groups throughout the course of the workshop. This workshop is free and open to all. We encourage parents and all caregivers of infants to attend this important class.

If you have any questions, please contact _____ or email _____. Thank you for giving this workshop your consideration. We will be in touch with you to talk about how we can deliver this important information to parents and caregivers in our community.

Sincerely,

Hug Your Baby Outreach

Recommendations from *American Academy of Pediatrics* © on
Shaken Baby Syndrome, infant feeding guidelines, & Safe Sleep.

HUG

Community Workshop

Free Community workshop offered by:

This 2 1/2 Hour workshop teaches caregivers information to solve problems related to infant:

- Crying
- Eating
- Sleeping

Certified HUG Teacher

Safe Sleep Practices

SIDS

Infant Behavior

Shaken Baby Syndrome

For more information on
how to bring this **FREE**
workshop to you Contact:

Section III. Volunteer Educational curriculum

Training Volunteer Mentors.

The HUG volunteer mentor training class curriculum included information on child development, infant cues and behaviors, instructions and demonstrations on interventions utilized in the HUG program, safe sleep, and Shaken Baby Syndrome. In addition to the educational information on infant behavior and cues, hands on instruction was provided on infant swaddling and Shaken Baby Syndrome. The volunteer mentors are explicitly trained in cultural competence but rather focused on skills such as active listening, reflecting and supporting behaviors, and providing positive feedback to parents. The training of volunteer mentors includes a four-hour class. The course content is delivered by the HUG committee chairs.

Training volunteers can be also done via the HUG Your Baby Website. The cost is \$40.00/ person and is completed online. A certificate of completion is issued.

Power Point Training Volunteer Mentors

Information within this material is copyrighted.

Section IV. HUG Workshop Overview

HUG Workshop Structure.

The HUG Workshop is 2 hours in duration. Trained volunteers are overseen by a Certified HUG Teacher during the workshop. Materials provided to class participants are printed and include a HUG handout, safe sleep information from NIH, and shaken baby information from the “Don’t Shake” Ohio Campaign. A PowerPoint presentation was created by the HUG developer and updated to include recommendations by American Academy of Pediatrics. There is no cost to community outreach facilities or class participants for the HUG program.

The Certified HUG Teacher facilitates the workshop and exclusively teaches the HUG Program content. The volunteer mentors reinforce the content taught by the Certified HUG Teacher and exclusively teaches the NIH Safe Sleep and Don’t Shake materials. The volunteer mentors also provide individualized hands-on teaching to the parents at numerous times throughout the class. The hands-on materials used by the volunteer mentors include dolls and blankets to practice safe swaddling, infant carriers, and numerous visualization props to reinforce content from the PowerPoint presentation. Parents and volunteer mentors sit together throughout the class with parents encouraged to ask questions to both the volunteer mentor and HUG teacher.

PowerPoint HUG Workshop

Information within this material is copyrighted.

Script for PowerPoint

Information within this material is copyrighted.

Materials Needed for HUG Workshop

Each Volunteer mentor is given a bag with materials for the HUG Workshop. Included in the bag is:

- 1 receiving blanket
- 1 doll
- 1 marble
- 1 ping pong ball
- 1 baby bottle
- 1 10ml syringe without needle
- Handout for Shaken Baby Syndrome
- Handout for Crib Safety

The Certified HUG Teacher Materials:

- Baby bottle with assorted nipples sizes 1,2,3
- Empty can of formula (one of each) ready to feed, concentrate, powdered
- Pacifier
- Pacifier holder with clip
- Doll that eyes close
- Bottle brush
- Infant carrier

Section V. Cost Analysis

The cost for the first year of program implementation is \$315.00 and includes the certification of one HUG instructor. Thereafter, the cost to maintain program yearly is approximately \$60.00- 150.00 dependent upon resources purchased by HUG program developers.

The projected cost the “HUG” program is estimated to be approximately 15 dollars per participant if the organization includes an individual DVD to each class member. However, the cost can be reduced if the format is taught by the streaming option, which allows a certified instructor to stream the videos for class at the cost of 36 dollars per year. The initial cost of the certification process for a HUG trainer is \$260.00. Program curriculum which includes a PowerPoint presentation for the course is included in the certification cost. Additional resources are available for purchase through the HUG Your Baby website but are not required for implementation or sustainability of program. The cost of implementing the HUG program in the organization is summarized in Table 1.

Table 1. Cost Analysis

Product	Cost
HUG Certification	\$245.00
Educational Handouts	\$40.00/200 handouts
Video Streaming	\$36.00/year for unlimited streaming access
Total cost first year	\$315.00
Total Cost yearly to sustain program	Approximately \$60.00-\$150.00

Section VI. Resources

“Safe Sleep” from National Institute of Health has numerous resources for teaching parents. There is no cost to obtaining materials and are free for download. You may visit NIH website and download materials for the HUG Workshop.

https://www.nichd.nih.gov/publications/pubs/Documents/Safe_Sleep_Environment_English.pdf

Shaken Baby Syndrome campaign materials can be found per the State you live in. Most materials are free, however, there are for profit campaigns that charge for distribution of their materials. Call your local hospital and ask about the campaign they use.

Safe Sleep Guidelines and Policy Statement from the American Academy of Pediatrics

(2016) can be found at:

<http://pediatrics.aappublications.org/content/pediatrics/early/2016/10/20/peds.2016-2938.full.pdf>

<ol style="list-style-type: none"> 1. Critically appraise and weight the evidence 2. Synthesize the best evidence 3. Assess feasibility, benefits and risks 	<p>article and Determine overall strength of evidence to support practice change</p> <ol style="list-style-type: none"> 3. Assess fit/ feasibility with stakeholders 	<ol style="list-style-type: none"> 3. Hughes/ Committee/ stakeholder 			<p>written summary of each keeper article</p>
<p>Step 4: Design a practice change</p> <ol style="list-style-type: none"> 1. Define proposed change 2. Identify needed resources 3. Design evaluation of pilot 4. Design the implementation plan 	<ol style="list-style-type: none"> 1. Guideline for implementing change 2. <ol style="list-style-type: none"> a). location b) EB program order units c) Staff to teach c) Products for program 3. Outcome measure scales 4. # sessions, time of each session, IRB approval, pre/posttest follow up 5. Proposal approval 	<ol style="list-style-type: none"> 1. Hughes/Com mittee 2. A.Hughes/ Committee/ Stakeholder 2b. Hughes/stake holder 2c. Hughes 2d. Hughes/ committee/sta keholder 3. Hughes/ committee 4. Hughes/ Committee/st akeholder 5. Hughes/ committee 	<p>Capstone proposal development Fall 2016</p> <p>Attend mandatory class for IRB application UT Fall 2015</p> <p>HUG certification Fall 2016</p> <p>Meeting with NCCS to develop course inclusion fall 2016</p>	<ol style="list-style-type: none"> 1. Guideline for practice change 2. IRB approval 3. Materials for EBP 4. Budget/cost sheet 5. Certification of staff 6. Pre/posttest materials 	<ol style="list-style-type: none"> 1. Guideline for organization with practice change 2. IRB application/appr oval 3. All materials needed to perform class 4. Document w/ projected costs to stakeholder 5. Development of pre/posttest and materials to print it on 6. Written proposal

			Submit application IRB fall 2016 Capstone proposal defense Fall 2016		
Step 5: Implement & evaluate change in practice 1. Implement pilot study 2. Evaluate processes outcomes and cost 3. Develop conclusions and recommendations	1. Implement pilot study 2. Gather data for evaluation 3. Synthesize data using SPSS	1. Hughes/committee/stakeholder 2. Hughes/Committee 3. Hughes/Committee	Data analysis Spring 2016 Defense project Spring 2016	1. Document analyzed data and findings 2. Finish final study with results for final defense	1. SPSS findings 2. Addition of findings to working final capstone for defense
Step 6: Integrate and maintain change in practice 1. Communicate recommended change 2. Integrate into practice 3. Monitor process and outcomes periodically 4. Disseminate results	1. Sharing results and recommendations with stakeholders 2. Disseminate results of project	3. Hughes/Committee	Manuscript for publication Spring 2017 Poster presentation University of Toledo Spring 2017	1. Presentation for stakeholders 2. Presentation for final defense 3. DNP capstone repository	1. Presentation of findings in power point presentation 2. Presentation of findings for final defense at UT and paper submitted for defense 3. Upload entire project to repository for dissemination of results

			National NCCS meeting Fall 2017		
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Appendix H. HUG Understanding Infant Behaviors Survey (2012). Permission for use of survey for this project was obtained from *HUG Your Baby* developer Jan Tedder, FNP.

Understanding Infant Behaviors

This information is copyrighted, please contact Jan Tedder, FNP for permission to use this survey tool.

Appendix I. IRB Consent Form University of Toledo

IRB # 201764

KCF Version Date: 12/20/2016

University of Toledo College of Nursing
3800 Arlington Ave
Toledo, Ohio 43614
419-383-5810



ADULT RESEARCH INFORMATION AND CONSENT LETTER

RESEARCH PROJECT TITLE

Development of a Tool Kit for the Implementation and Evaluation of "HUG Your Baby" Program in a Non-profit Community Setting

Principal Investigator: Kathrine Sink, PhD, RN

Graduate Student Investigator: Kati Hughes, RN, BSN

Contact Phone number(s): [REDACTED]

What you should know about this research study:

- We give you this information form so that you may read about the purpose, risks, and benefits of this research study. All information in this form will be communicated to you verbally by the Graduate Student Investigator.
- Your participation in this research is voluntary. You have the right to refuse to take part in this research, or agree to take part now and change your mind later.
- If you decide to take part in this research or not, or if you decide to take part now but change your mind later, your decision will not affect the relationship between the researcher, the University of Toledo and the Christ Society.
- Please review this form carefully. Ask any questions before you make a decision about whether or not you want to take part in this research. If you decide to take part in this research, you may ask any additional questions at any time.

PURPOSE (WHY THIS RESEARCH IS BEING DONE)

You are being asked to take part in a research implementation project which is a University of Toledo nursing doctoral student's capstone project. The purpose of the study is to increase participant knowledge and confidence in teaching the "HUG Your Baby" program in a community setting. The aim of the study is to develop a toolkit for implementation of the educational program "Hug Your Baby" in a non-profit volunteer community outreach organization.

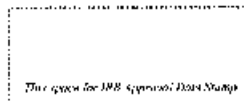
You were selected as someone who may want to take part in this implementation project because you volunteered to teach the "HUG Your Baby" program in a nonprofit community outreach organization.

DESCRIPTION OF THE RESEARCH PROCEDURES AND DURATION OF YOUR INVOLVEMENT

If you decide to take part in this implementation study, you will be asked to attend a 4-hour training session on the "Hug Your Baby" program and complete a questionnaire related to your basic knowledge and confidence to teach the program in the community. You will again complete the same questionnaire after you teach your first class of the "Hug Your Baby" program in the community.



RR550



This space for IRB approval does not apply

IRB # 201754

ICF Version Date: 12/20/2018

RISKS AND DISCOMFORTS, YOU MAY EXPERIENCE IF YOU TAKE PART IN THIS RESEARCH

There are very low risks to participation in this study, including loss confidentiality of your responses to the questionnaire.

POSSIBLE BENEFIT TO YOU IF YOU DECIDE TO TAKE PART IN THIS RESEARCH

Although we cannot and do not promise that you will receive any benefits from this study, participating in the educational component of the class should provide you with the information needed to teach the "HUG" program in the community. You may also learn about participating in a nurse run study. Additionally, there is potential for new mothers to benefit from your "HUG" educational programs

COST TO YOU FOR TAKING PART IN THIS STUDY

There is no cost to you for participating in this study

PAYMENT OR OTHER COMPENSATION:

You will not receive payment or compensation for your participation in this study. Neither is the graduate student nor the University of Toledo receiving money or other benefits as reimbursement for conducting the research.

CONFIDENTIALITY

The researchers will make every effort to prevent anyone who is not involved in the research from knowing your specific responses from the questionnaires. Information gathered from you will be kept nameless. Although we make every effort to protect your confidentiality, there is a very low risk it may be breached.

Under some circumstances, the Institutional Review Board or the Research and Sponsored Programs of the University of Toledo or their designees may review your information for compliance audits.

VOLUNTARY PARTICIPATION

Taking part in this study is voluntary. You may refuse to participate or discontinue participation at any time without penalty or a loss of benefits to which you are otherwise entitled. If you decide not to participate or to discontinue participation, your decision will not affect your future relations with the University of Toledo or The University of Toledo Medical Center.

OFFER TO ANSWER QUESTIONS

Before you agree to participate, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over. If you have questions regarding the research at any time before, during or after the study, you may contact Dr. Katherine Sink, at 419-383-5868. If you have questions beyond those answered by the research team or your rights as a research subject or research-related injuries, please feel free to contact the Chairperson of the University of Toledo Biomedical Institutional Review Board at 419-383-6786.

By participating in the educational "HUG" classes and agreeing to teach classes, you are giving your consent to be a part of this research study

YOU WILL BE GIVEN A COPY OF THIS FORM TO KEEP.



RR658

Page: 2 of 2

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Appendix J. Organization Commitment Letter



NATIONAL CHRIST CHILD SOCIETY
WHERE LOVE LEADS TO ACTION

Dear University of Toledo,

May 1, 2016

Christ Child Society of Toledo, Ohio is pleased to initiate a relationship with University of Toledo College of Nursing to host doctorate of nursing practice student Kali Hughes under the supervision of Dr. Katherine Sims, PhD. The organization will commit to the student by the involvement of our chapter leadership, volunteers, resources, and current outreach programs for her doctoral capstone project "The Development of a Toolkit for the Implementation and Evaluation of the HUG Program in a Non-profit Community Setting". This project will take place beginning in August, 2016 through May 2017.

Sincerely,


Inge Larsen

Chapter President

Christ Child Society Toledo, Ohio