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# Educational Program for Parents of Neonates on Nasal Continuous Positive Airway Pressure

Irina Sher  
*Walden University*

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# Walden University

College of Health Sciences

This is to certify that the doctoral study by

Irina Sher

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Walden University  
2018

Abstract

Educational Program for Parents of Neonates on Nasal Continuous Positive Airway

Pressure

by

Irina Sher

MS, PACE University, 2007

BS, Downstate Medical Center, 2002

Project Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Doctor of Nursing Practice

Walden University

February 2017

## Abstract

Parents in the neonatal intensive care unit (NICU) whose term or preterm infants are receiving nasal continuous positive airway pressure (NCPAP) experience stress. They often worry about being able to hold their child and possible complications of NCPAP, such as nasal deformities and compromised organ function. Lacking standard educational programming to provide parents information that they need to understand the care their infant is receiving, parents experience unnecessary stress that affects their capacity to care for their infants. A review of the literature suggested family-centered educational programs are able to decrease stress and increase parental confidence. The purpose of this project was to develop a family-centered education program focused on the education of parents of infants on NCPAP in the NICU, including materials needed to implement and evaluate the program. Stetler's evidence-based practice model was used to guide this project. Kolcaba's midrange comfort theory served as a theoretical framework with which to conceptualize care. Evidence was collected in a systematic review of published peer-reviewed journal articles. The Johns Hopkins Nursing evidence-based appraisal tool was used to evaluate relevant articles. Extracted data were reviewed by the advisory project team in order to be utilized for project development. The curriculum, supporting handouts for participants, and implementation and evaluation plans were developed and were provided to the institution as a complete solution to the practice problem. The project may promote positive social change for caregivers, patients, and patients' families by enhancing outcomes such as improved infant behavior, increased parental emotional well-being, and increased caregiver satisfaction.

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## Dedication

I dedicate this project to my husband, two sons, and my parents. Their encouragement and guidance have helped me immensely. I am extremely thankful for their love and support.

## Acknowledgments

I would firstly like to thank Dr. Anderson who has assisted me throughout the project and has provided guidance and valuable feedback. I am very grateful for the members of my committee for their contributions to my scholarly project, and I would also like to thank my preceptors Dr. Rastogi and Dr. Gupta for their help, guidance, and support. Finally, I would like to thank Walden University and everyone who has supported and encouraged me on this journey.

## Table of Contents

List of Figures .....	iv
Section 1: Nature of the Project .....	1
Introduction.....	1
Background.....	2
Problem Statement.....	4
Purpose.....	5
Practice-Focused Question and Objectives.....	6
Frameworks for the Project.....	7
Nature of the Project.....	7
Definitions.....	8
Assumptions.....	8
Delimitations.....	9
Limitations .....	9
Significance.....	9
Reduction of Gaps.....	10
Implications for Social Change.....	11
Summary .....	12
Section 2: Review of Literature and Theoretical and Conceptual Framework.....	13
Introduction.....	13
Literature Search Strategy.....	14
Theoretical and Conceptual Framework.....	15



Frameworks.....	15
Theoretical Framework.....	15
Conceptual Model.....	17
Role of the DNP Student.....	18
Literature Review Related to Method.....	19
Specific Literature.....	19
Family-Centered Care.....	19
Effectiveness of Early Intervention Education Program .....	21
Effectiveness of Individualized Interventions .....	22
General Literature .....	23
Parental Stress Reduction .....	23
Effects of Nasal CPAP.....	25
Background and Context.....	26
Summary.....	27
Section 3: Methodology .....	30
Introduction.....	30
Approach and Rational .....	30
Data Collection .....	31
Advisory Project Team .....	32
Review of Literature Findings .....	32
Protection of Human Subjects .....	32
Educational Program Development .....	32

Project Implementation Plan.....	34
Evaluation Plan.....	35
Summary.....	35
Section 4: Findings and Recommendations.....	36
Introduction.....	36
Evaluation/Findings and Discussion.....	37
Literature Search.....	37
Search Outcome.....	38
Data Synthesis.....	39
Results of the Project.....	40
Family-Centered Educational Program Development.....	42
Learning Materials.....	43
Evaluation Plan.....	44
Project Implementation Plan.....	45
Implications.....	46
Strength and Limitations of the Project.....	47
Analysis of Self.....	47
Summary.....	49
Section 5: Scholarly Product.....	51
Appendix A: Synthesis Matrix.....	69
Appendix B: Results of the Nine Articles.....	74

## List of Figures

Figure 1. Flow Chart of Inclusion and Exclusion of Articles .....39

Figure 2. The Levels of Evidence .....40

## Section 1: Nature of the Project

### **Introduction**

Nurses are increasing focus on evidence-based practice (EBP) to create changes that result in better quality of care in their practice environment. The EBP process means not only discovering ways to provide better care for patients, but also making changes occur in a smooth and efficient fashion (Melnyk & Fineout-Overholt, 2014). Nurses need to ensure that the evidence they gather is actually used to improve nursing practice. The effect of EBP has been a growing interest among nurses and administrators in promoting a standard family-centered educational program approach to reducing stress in parents whose children are in the neonatal intensive care unit (NICU). A review of the literature provided evidence that a family-centered educational program significantly decreases parental stress and anxiety while increasing the confidence and capability of parents to care for their infants (Melnyk, Oswalt, & Sidora-Arcoleo, 2014; Turan, Basbakkal, & Ozbek, 2008).

The birth of a child that requires neonatal care in the NICU creates a considerable amount of stress and anxiety for the parents (Grosik, Snyder, Cleary, Breckenridge, & Tidwell, 2013). Parents in the NICU whose term or preterm infants are receiving nasal continuous positive airway pressure (NCPAP) tend to experience particularly high levels of stress due to a lack of education provided by nurses about the NCPAP and proper care for their neonate. The cumbersome fixation devices of the NCPAP interfere with the parents' abilities to hold and breastfeed their infants. Parents worry about the long-term effects and complications of the NCPAP such as nasal deformities and the possibility of

compromised lung and brain function. When parents learn about the reasons for treatments and the functions of medical equipment attached to their infant, they no longer experience the same level of stress (Turan et al., 2008). Hence, education of the parents is essential.

The purpose of this project was to develop an evidenced-based family-centered educational program to provide parents the information they need to understand their newborn's condition and motivate them to be involved in their newborn's recovery process. The program included the development of educational materials such as pamphlets and handouts that will be used by the parents and nursing staff in the NICU. Promoting the consistent delivery of essential information through appropriate education will lead to positive social changes for caregivers, patients, and patients' families by enhancing outcomes that include decreased parental anxiety, increased parental well-being, and improved infant behavior. Section 1 includes an introduction, background, problem and purpose statement, project objectives, the nature of the project, project frameworks, the significance of the project, assumptions, limitations, and delimitations of the problem.

### **Background**

In the highly advanced atmosphere of the NICU, infants and parents are physically and psychologically separated. Separation experience impedes parent-infant interaction and is detrimental to the infant (O'Brien et al., 2015). This issue has led to the development of a family-centered care (FCC) approach that strongly focuses on the needs of the whole family. The family is seen as an important component in the health and

recovery process of the neonate. The NICU team maintains parents' well-being and keeps them involved and motivated to be active participants on their child's road to recovery. Neonates admitted to the NICU frequently require some type of respiratory support that ranges from invasive mechanical ventilation to NCPAP and nasal cannula, depending on the degree of prematurity and the underlying etiology. These procedures frequently cause much anxiety for the parents.

The NCPAP, however, is the most common form of noninvasive respiratory support that is used in the NICU. The NCPAP is a short prong device positioned by the nostrils that provides continuous positive airway pressure by delivering oxygen at a constant preset pressure. When infants are on NCPAP, parents worry about the long-term effects, including internal and external nasal complications such as nasal deformities and ulcerations, as well as complications with regard to lung and brain function as a result of the NCPAP. A study by Jatana et al. (2010) found that infants exposed to NCPAP experienced varying degrees of columellar necrosis, intranasal ulcerations, granulation, and vestibular stenosis. Parents also worry about the short-term effects, including not being able to hold or breastfeed their infant. According to Busse, Stromgren, Thorngate, and Thomas (2013), parental stress in the NICU can lead to negative outcomes in both the short term and long term. Busse et al. (2013) reported that the stress parents experience in the NICU can lead to depression, interrupted sleep patterns that cause fatigue, and anxiety that impairs judgment.

Elements that facilitated the problem in my study included the lack of an educational program for the parents that would provide consistent information from the

nurses; such a program would mitigate increasing stress levels among parents. There is a need to decrease stress levels while increasing comfort levels among parents in the NICU. The facility in my study delivers more than 8,000 infants annually, and more than 1,000 babies are admitted to the NICU. Approximately 300 infants are placed on NCPAP every year. The transmission of consistent and reliable information is essential for the reduction of stress levels among families of neonates. Without an educational program, the transfer of information from health care practitioner to parent is solely on the basis of daily verbal interactions and answering of possible questions parents may have.

### **Problem Statement**

Interactions between nurses and families of neonates in the NICU, and the information that families receive throughout their experience in the NICU, directly affect their stress and comfort levels. No educational programs are implemented that would provide parents the information they need to understand their child's respiratory condition requiring NCPAP and what parents can do to facilitate their child's recovery. Without an educational program, the information that nurses are giving to the parents is primarily question-answer based, but the education they receive is minimal. Although all parents show some level of stress, the stress levels vary between parents, making it difficult to know how many parents need stress management at any given time. Therefore, a clear need exists for a consistent educational program that eliminates the guesswork and communication barriers between nurses and parents, while giving parents the education they need to understand their child's condition and thereby decreasing their stress levels. The family-centered education approach is an important part of the parental

educational process because it approaches learning from a caring perspective. This approach is also an empowering process because it encourages nurses to educate parents to increase their self-efficacy so that they can better care for their child at home.

According to Grosik et al. (2013), “If caregivers have a better understanding of parental stress, they can provide services and resources to help parents cope with having a critically ill newborn in the NICU” (p. 37). The incorporation of an educational program that includes written documents, explanation of treatments and procedures, descriptions of the purpose of medical devices, and encouragement to visit and care for their child, would be helpful for parents of children in the NICU (Turan et al., 2008).

### **Purpose**

The purpose of this quality improvement project was to develop an evidenced-based family-centered education program, educating parents at the beginning of their NICU stay. The program includes written documents, explanations of respiratory care their newborn is receiving, descriptions of and the purpose of NCPAP implementation, and encouragement to visit and care for their child. Many nurses do not know the best interventions, or the best ways are to implement interventions. As a result, parents experience unnecessary levels of stress that nurses could help relieve through educational interventions. Such a program provides consistency in the information parents receive, ensuring the transfer of essential information to parents; decreases stress levels while increasing comfort levels among parents; and creates a truly family-centered delivery of care. The primary desired outcome was to help parents provide better support and care for their infant by alleviating their stress levels.



Consistent delivery of appropriate information from nurses to parents in the NICU is essential for the reduction of stress levels among families of neonates (Grosik et al., 2013). Providing significant amounts of time to teach parents about the care their child is receiving is important, especially in the form of a program designed to educate parents at the beginning of their NICU stay. The implementation of such program will decrease stress among parents, increase comfort levels, encourage parents to participate in their child's recovery process, and ultimately improve outcomes in neonates with the increased involvement of their families.

### **Practice-Focused Question and Objectives**

My project question is as follows: What are the best EBPs available in the peer-reviewed literature that may be used to inform the development of a family-centered educational program for parents of neonates in the NICU requiring NCPAP to reduce parental stress levels?

My objectives for the quality improvement project are as follows:

1. To apply the Stetler model of research utilization to guide the development of an evidence-based family-centered educational program.
2. To develop educational materials, implementation plans, and evaluation plans necessary for the institution to operationalize the family-centered education program for parents whose child is in the NICU receiving NCPAP.

## **Frameworks for the Project**

Successful project implementation requires a theoretical framework model that will function as a strong foundation. Kolcaba's middle range theory of comfort provided the theoretical framework for the project, whereas the Stetler model of research provided direction for the processes in the project. The theory of comfort was developed from extensive research in nursing, medicine, and several other disciplines. The model describes the necessity of comfort in various aspects of the patient's experience, including physical, psychospiritual, environmental, and sociocultural aspects. The theory also describes three forms of comfort, including relief, ease, and transcendence. Since its development in 1976 by Stetler and Marram, the conceptual model known as the Stetler model of research utilization has undergone three revisions and focuses on integrating concepts of EBP and the use of research findings. The Stetler model facilitates the use of research findings in nursing practice and consists of five phases: preparation, validation, comparative evaluation, translation/application, and evaluation. I will discuss Kalcaba's theory of comfort and the Stetler model of research utilization in more detail in Section 2.

## **Nature of the Project**

I used a systematic literature review to identify, appraise, and use information found among various studies to incorporate this information in a way that facilitates the successful planning of an educational program. Gathering evidence on the topic at hand is crucial for project planning and implementation. Past research helps to better understand the appropriate methods to be used, and the results that can be expected. The systematic literature review helps gauge the direction that the project takes and provides insight on

the steps necessary in the process. This collection of secondary data was the only form of data collection used because I did not collect primary data.

### **Definitions**

*Columella*: The tissue between the nasal tip and the nasal base separating the nares (Janfaza, Nadol, Galla, Fabian, & Wontgomery, 2011).

*Family-centered care*: The use of a multidisciplinary system that incorporates a comprehensive and holistic approach to care for neonates and their families, while maintaining their respect and dignity (Ramezani, Shirazi, Sarvestani, & Moattari, 2014).

*Nasal Continuous Positive Airway Pressure*: Short binasal prong device that provides a steady flow of air/oxygen to the lungs through the nose (Goldsmith & Karotkin, 2016).

*Neonatal intensive care unit*: An intensive care unit specializing in the care of sick or premature newborns.

*Stetler model of research utilization*: The Stetler model is designed to aid practitioners in the application of research findings to practice (Romp & Kiehl, 2009).

### **Assumptions**

The first assumption that I made was that nurses have encountered parental stress relating to NCPAP in the scope of their careers. My second assumption was that nurses have at least a basic knowledge of what family-centered education is. My third assumption was that the developed educational program for parents will have a positive effect on reducing stress levels. It is important to document assumptions, because many

of the processes within the development of the project will incorporate these assumptions.

### **Delimitations**

The primary delimitation was my choice to focus specifically on the stress of parents whose infants in the NICU are receiving NCPAP. I made this choice because of the unique concerns that these parents are likely to have, and the level of stress these unique concerns can create.

### **Limitations**

Research is lacking that specifically addresses the topic of a family-centered educational program for parents of neonates in the NICU requiring NCPAP to reduce parental stress levels. Therefore, the systematic review contained articles that addressed similar concerns but are not necessarily pertinent to all of the same variables as the current study. To reduce bias, I included only studies that address family-centered educational programs and parents of NICU patients. There were, however, studies included that do not focus specifically on NCPAP, which is ultimately the gap in the literature that I attempted to fill with my study.

### **Significance**

The study is significant because, with a better understanding of what their child is experiencing, parental stress in the NICU can be relieved. Therefore, nurses need to educate these parents about the realities of their child's situation in a manner that dispels their unfounded worries and fears. This will help not only the parents, but also the children. Research shows that parents will be able to provide better support and care for

their child by being less stressed (Benzies, Magill-Evans, Hayden, & Ballantyne, 2013). Research also shows that parents will be able to sleep better with less stress, making them more alert and prepared to help their child (Busse et al., 2013). In addition, both the nurses and the hospital will benefit from educating the parents and reducing their stress because this will improve the quality of care that the parents are able to provide to their children. That means it is likely that better health outcomes will occur, both physically and psychologically, which will have a positive reflection on the nurses and the hospital.

### **Reduction of Gaps**

The gap in literature that this project fills is the lack of research that specifically focuses on educational intervention as a means of reducing stress in the NICU for parents whose children are receiving NCPAP. Research shows that family-centered educational interventions are effective in reducing parental stress (Benzies et al., 2013; Abdeyazdan, Shahkollahiz, Mehrabi, & Hajiheidary, 2014). However, no literature specifically addresses parents whose children are receiving NCPAP. Parents whose children are receiving NCPAP have their own unique set of concerns about facial deformities and permanent damage that can be alleviated with educational interventions. According to Grosik et al. (2013), “If caregivers have a better understanding of parental stress, they can provide services and resources to help parents cope with having a critically ill newborn in the NICU” (p. 37). Therefore, nurses need to educate these parents about the realities of their child’s situation in a manner that dispels their unfounded worries and fears. The educational materials serve as a tool to deliver consistent and evidence-based information, which will help not only the parents, but also the children. Research showed

that parents will be able to provide better support and care for their child by being less stressed (Benzies et al., 2013). Research also shows that parents will be able to sleep better with less stress, making them more alert and prepared to help their child (Busse et al., 2013).

### **Implications for Social Change**

Nurses are increasing focus on EBP to create changes that result in better quality of care in their practice environment. The EBP process means discovering not only ways to provide better care for patients, but also how to make changes occur in a smooth and efficient fashion (Melnik & Fineout-Overholt, 2014). Ultimately, quality care means providing the best level of care possible. In the NICU, it is critical that quality is stressed in every aspect of nursing, including using EBP to inform the decision-making and quality improvement practices in the unit. Family-centered education is a form of EBP that is underused by many NICU nurses. The benefits of this practice are widely known, yet nurses are not being properly educated and trained in how to use them. The more that nurses know about the importance of these interventions for the parents and the child, the more they will use what they know in practice. If NICU nurses are able to use these interventions effectively, they can help improve society by reducing parental stress and therefore helping parents bond with their child appropriately. Nurses can then also help parents focus on what it is truly important and create more well-adjusted children. This promotes positive social changes for caregivers, patients, and patients' families.

## Summary

Parents with a child in the NICU often experience unnecessary levels of stress that nurses could help relieve with family-centered educational interventions. Parents in the NICU whose term or preterm infants are receiving NCPAP tend to experience particularly high levels of stress. This stress can have negative effects on the bonding process, cause rifts in the relationship between the parent and the child as well as between the parents themselves, and can manifest in parental depression. NICU nurses are in a position to help reduce this stress by explaining the functions of the NCPAP, dispelling their misconceptions and providing comfort and assurance to the parents, while also teaching them how to appropriately take care of their infant. The problem is a lack of protocol on the use family-centered educational interventions, and, therefore, they are underused. The purpose of this quality improvement project was to develop an evidenced-based family-centered education program that includes written documents, explanations of respiratory care their newborn is receiving, descriptions of and the purpose of NCPAP implementation, and encouragement to visit and care for the child.

## Section 2: Review of Literature and Theoretical and Conceptual Framework

### **Introduction**

The purpose of the project was to develop a family-centered educational program that focuses on decreasing stress levels of parents whose infants are on NCPAP in the NICU. Previously, no programs provided consistent education to parents. Methods of developing and implementing such program involved the review of literature that relates to the topic of evidence-based FCC.

EBP derived from scholarly literature is best used when properly organized and summarized. Therefore, the purpose of this literature review was to examine studies that are related to reducing parental stress in the NICU in an organized and systematic manner. The literature review includes specific studies about the variables in the present project, such as FCC, early intervention education, and individualized interventions. FCC includes family-centered education, and is attributed to taking care of the family through needs assessment, equal family participation through the incorporation of family in decision making, collaboration through the interprofessional interaction with family members, and knowledge transformation through the sharing of information between health care workers and family members (Ramezani et al., 2014). The more general studies that I discuss in the literature review examine parental stress in the NICU, the intervention process in the NICU, barriers to change, and the use of EBP to minimize the level of stress.

In addition to the specific and general studies examined, I explore the use of the Kolcaba's middle range theory of comfort, which was the chosen theoretical framework



for this project, and the Stetler model of research utilization, which provided guidance for the step by step processes throughout the project. In Section 2, I discuss literature search strategies, specific and general literature, theoretical and conceptual framework, background, and context.

### **Literature Search Strategy**

The search strategy that I used for the systematic review involved systematic searches using the following databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), National Association of Neonatal Nurses, American Academy of Pediatrics, Medline via PubMed, and Walden University Main Library database. Key search words included *parental stress management*, *family-centered care*, *patient-centered care*, *family-centered education program*, *parental teaching*, *neonatal NCPAP benefits*, and *neonatal NCPAP complications*. The search criteria included the following parameters: First, all studies must have been conducted between the years 2006 and 2016. Second, all studies must have been published in peer-reviewed scholarly journals. Third, the articles must be in the English language only. I identified a total of 130 articles. I reviewed the title and abstracts of the articles to eliminate those that were more than 10 years old, were not related to neonatal or pediatric care, or did not include the terms *family-centered care*, *parental stress management*, or *NCPAP*. I reviewed abstracts of the remaining 36 articles for relevance, and I eliminated those that I found unrelated to the project purpose.

The types of studies that I included were (a) cross-sectional, (b) cohort, (c) case control, and (d) interventional studies. Cross-sectional, cohort, and case-control studies

were all Level IV evidence. Interventional studies were Level II if they were single randomized control trials (RCT) and Level III if they were quasi-experimental.

Therefore, all of the levels of evidence fell between II and IV, with Level II being the least biased, second only to systematic reviews of RCTs. The levels were based on the Johns Hopkins Nursing evidence-based practice (JHNEBP) appraising tool for research and nonresearch evidence (Dearholt & Dang, 2012).

### **Theoretical and Conceptual Framework**

The theoretical framework provided a foundation for the project, guiding the necessary processes needed for successful implementation. Kolcaba's middle range theory of comfort provided the theoretical framework for the DNP project, whereas the Stetler model of research utilization provided guidance for the step-by-step processes throughout the project. According to Llhana (2005), research deficient in the theoretical structure is not useful in developing a scientific knowledge base.

### **Frameworks**

#### **Theoretical Framework**

Kolcaba's middle range theory of comfort emerged from the researcher's extensive research in nursing, medicine, and several other disciplines that helped to Kolcaba to analyze the concept of comfort. Kolcaba was attempting to fulfill a need for a broader understanding of comfort that was holistic in nature (Kolcaba, 2003). The theory is also holistic in the sense that it describes comfort within the context of four realms of the patient experience: physical, psychospiritual, environmental, and sociocultural (Kolcaba, 1994).

Kolcaba's theory of comfort also addresses three conceptual forms of comfort: relief, ease, and transcendence. All three of these forms are applicable to the NICU environment. The first concept, relief, means the taking away of pain. For example, poorly fitted NCPAP prongs can cause necrosis of columella and cause intranasal ulcerations that provide significant pain and discomfort to the infant. Nurses in the NICU can prevent this by properly adjusting NCPAP prongs and frequently assess infant such complications. This concept falls within the physical realm.

The second concept, ease, refers to keeping a patient mentally and spiritually comfortable by easing their anxieties and stress (Kolcaba & Kolcaba, 1991). The primary realm that this concept falls within is the psychospiritual realm. Parental distress often results from the perception of possible pain the infant may be feeling and the general physical appearance of the infant. With NICU parents, this can be achieved through educational interventions by providing parents with information and support that can help them understand procedures, pain, and care for their infant that will put their fears to rest.

The third concept, transcendence, refers to "the state of comfort in which patients are able to rise above their challenges" (Kolcaba, 2003, p. 59). The concept takes into account all four of the realms in Kolcaba's theory, that is physical, psychospiritual, environmental, and sociocultural (Kolcaba, 1994). Helping the preterm infant rise above their discomfort can go a long way in decreasing the anxiety levels of not only the patient but also the parents. The family-centered educational program will help NICU parents to overcome their discomfort and anxiety through appropriate education provided to them by healthcare workers in the NICU.

Kolcaba's theory of comfort has been applied and tested at length, and through this process, it has evolved. Kolcaba's (2001), theory began as a result of an "inductive explication of the components of a specific practice" (p. 91). Kolcaba's concept analyses helped to refine the theory and operationalize the terms. From there Kolcaba has been able to use "retroduction to bring to the model a concept for outcomes research" (p. 91). The theory will likely continue to evolve as it matures, and as it is found to be applicable to more and more situations.

### **Conceptual Model**

The Stetler model of research utilization was the conceptual model for this project to provide guidance on the use of EBP to make appropriate decisions involving the education of parents with the goal of stress reduction. According to Hanson and Ashley (1994),

The Stetler Model facilitates implementation of research findings into clinical nursing practice, practice change recommendations based on research utilization can be both clinical and organizational in nature, and advanced practice nurses have an important departmental role to play in a formal research utilization process. (p. 720)

The model consists of five phases of activity: (1) preparation, (2) validation, (3) comparative evaluation/decision making, (4) translation/application, and (5) evaluation (Stetler, 2001). The first phase, preparation, serves to identify the purpose of gathering evidence and recognizing factors that may influence implementation (Stetler, 2001).

Parents in the NICU whose term or pre-term infants are receiving NCPAP are naturally

going to experience stress. Stress reduction among parents is therefore important. It is essential to first gather evidence related to the issue in order to better understand the problem and recognize factors influencing implementation. The second phase, validation, serves to evaluate sources of evidence for credibility and applicability while summarizing important details of each finding (Stetler, 2001). Various levels of evidence exist within research. When finding evidence related to stress reduction and FCC, it is important to assess the quality of evidence in order to judge its credibility and whether it can be applied to the specific situation at hand. The third phase, comparative evaluation/decision making, serves to organize findings and determine if they are suitable for application to the project (Stetler, 2001). Depending on the credibility of evidence determined in the previous phase, findings should be applied to the project, or further research should be obtained prior to application if needed. The fourth phase, translation/application, includes the discussion of the method of application of findings and using the findings in practice (Stetler, 2001). Findings that are credible and applicable should be utilized within the project, serving to promote the necessary implementation strategies. The final phase, evaluation, helps to better understand the outcomes expected with relation to the reason for finding evidence (Stetler, 2001). It is important to evaluate outcomes that are expected, resulting from the application of evidence that was gathered and appraised.

### **Role of the DNP Student**

My personal motivation for this DNP project was as a result of my observations in the NICU, which included the constant stress parents are experiencing not only as a result of a hectic environment in the NICU and the extended periods of time parents spend at

the unit, but also due to the lack of education among parents related to their infant's condition and situation as a whole.

### **Literature Review Related to Method**

Numerous stress reduction approaches have been discussed in the scholarly literature, including meditation, breathing exercises, yoga, and massage. However, the stress-reduction approach that appears to have the most promise for reducing parental stress in the NICU is family-centered education. The review of the literature provided evidence that a family-centered educational program significantly decreases parental stress and anxiety while increasing the confidence and capability of parents to care for their infants (Melnyk et al., 2014).

### **Specific Literature**

#### **Family-Centered Care**

FCC is a form of family-centered education (FCE). Ramezani et al. (2014) studied FCC in the NICU, for the purpose of examining all the various aspects of FCC, including family-centered education. Their research design was a concept analysis and they used the Rodgers's inductive developmental concept analysis model as their guideline. The "participants" were 59 articles published between 1980 and 2012 which met the researchers' criteria. The main limitation was that no original study was conducted. The primary strengths were that the researchers were rigorous in their data collection and analysis and that they had high qualifications to write this article. In regard to findings, the data revealed that many nurses are unprepared to properly educate parents about their child's condition and to answer their questions intelligently enough to help ease their

stress. Findings showed that FCC is a gold standard that should be incorporated in the NICU, and has strong potential to enhance the work of all healthcare professionals. Therefore, they recommended that hospitals provide additional training so that nurses are able to help ease parental stress in an intelligent and informed manner.

Dunts, Trivette, and Hamby (2007) conducted a study to investigate the relationship between family-centered practices, and parent, family, and child behavior and functioning. Their research design was a meta-analysis of 47 studies that included more than 11,000 participants. Data analysis was led by a practice-based theory of family-centered help-giving that postulated direct effects of interpersonal help-giving practices on parent, family, and child outcomes. The main limitation was that no original study was conducted. The primary strength included the utilization of more than 11,000 participants from various countries and settings. The study found that family-centered practices correlated with higher participant satisfaction, stronger self-efficacy beliefs, and a more positive view of the support and resources provided by their help-givers. The researchers concluded that the use of family-centered help-giving is closely related to more positive parent, family, and child behavior and functioning.

Kuo, Bird, and Tilford (2011) conducted a study to evaluate the association of FCC with specific health care service outcomes for children with special health care needs. Their research design was a secondary analysis of the 2005-2006 National Survey of Children with Special Health Care Needs. Receipt of FCC was evaluated by five questions which served to determine how well health care providers addressed family concerns and issues within the past 12 months. Propensity score-based matching models

were used in all statistical analysis to address selection bias. The main limitation of this study was the lack causality demonstration due to the cross-sectional nature of the data. The primary strength included the use of a large nationally representative sample of children with special health care needs. The study found that FCC is closely associated with stable child health status, more stable child health care needs, and decreased the severity of difficulties caused by child's health, and decreased emergency room utilization. The researchers believe that FCC plays a very important role in efforts of health care reform, and is extremely useful in a chronic care setting.

Gooding et al. (2011) studied FCC in the NICU, for the purpose of exploring various delivery methods and aspects of FCC and family support in the NICU. They did not really have a research design because they did not conduct a literature review per se; they wrote an article based on research but it was not systematic. There were no criteria included and no reference to the number of articles used. These were the main limitations. The primary strengths were that the authors provided a thorough overview of FCC in the NICU from a historical perspective as well as a current perspective. They ultimately concluded that although there is a great need for support of families and infants in the NICU from healthcare providers, there is still room for significant progress to be made with regard to FCC and family support, as well as building the foundation of evidence that backs specific practices and comprehensive FCC programs.

### **Effectiveness of Early Intervention Education Program**

Benzies et al., (2013) conducted a study for the purpose of categorizing the primary components of early intervention programs in the NICU and exploring their



effects on both parents and preterm infants. The study design was a meta-analysis using a random-effects model. The “participants” were 11 research articles that met their criteria and were published between 1990 and 2011. The key variables were maternal outcomes of stress, anxiety, depressive symptoms, self-efficacy, and sensitivity/responsiveness in interactions with the infant. The main limitations were that no original study was conducted, the study only included English-language articles, and positive effects may not have been identified. The main strength was the results of the meta-analysis provided a foundation for developing and testing NICU interventions.

The findings, based on the data collected in the articles, revealed that an educational program geared toward increasing parental knowledge will also increase parental skill in caring for preterm infants while increasing parenting self-sufficiency and decreasing stress. The authors defined education as the provision of information about child growth and development, infant behavior and parental interaction with the child. Their research supported the findings of positive effects of early interventions to help parents better deal with the stress of their situation and also make them better prepared to care for their child after their pre-term infant was released from care.

### **Effectiveness of Individualized Interventions**

Cano-Giménez and Sánchez-Luna (2015) examined the effectiveness of using individualized interventions as a means of reducing parents’ stress, depression, and anxiety in the NICU. They used a systematic five-step intervention program over a period of four weeks with 80 mothers and 54 fathers. The parents were randomly divided into control groups and experimental groups, with 29 of the fathers being in the control group

and 40 of the mothers being in the control group. The researchers had observed similar stress levels among the participants prior to the intervention. After two weeks, the intervention/experimental group (those mothers and fathers who received the five-step intervention) showed significant improvement in their stress, depression, and anxiety levels over the control group. When it was time for the infant to be discharged somewhere between two weeks and four weeks of being in the NICU, Cano-Giménez and Sánchez-Luna (2015) reported that 50 percent of the mothers and 80 of the fathers who received the intervention reported no depression, where as 100 percent of the control group parents reported depression at discharge. This is a clear indication of the importance of intervention for parents in the NICU.

### **General Literature**

#### **Parental Stress Reduction**

There are many different reasons for the importance of reducing parental stress in the NICU. One of those reasons is that it can help worried mothers whose infants are in the NICU to sleep better. Obeidat, Bond, and Callister (2009) conducted a literature review with the purpose of investigating parental experiences with a newborn in the NICU. The research design was a literature review and the “participants” were 14 qualitative research articles that were published between 1998 and 2008. The key variables were feelings of stress, strain, separation, depression, despair, disappointment, ambivalence, and lack of control over the situation and vacillation between hope and hopelessness. The main limitations were that the researchers only found 14 articles that met their criteria and that no original study was performed. The main strengths were that

the researchers were rigorous in their data collection and analysis and that they had high qualifications to write this article. The findings were that there is a need for family-centered nursing interventions to help reduce the negative feelings parental feelings of stress, anxiety, and loss of control that parents with infants in the NICU experience. The conclusion was drawn from the data that was analyzed and categorized from the fourteen articles included in the literature review.

Busse et al., (2013) conducted a study with the purpose of filling the gap in the literature regarding the relationship between parental stress in the NICU, fatigue, and sleep disruption. The research design was an exploratory design. The participants were 30 parents over the age of 18 whose infant was hospitalized in the NICU. The measures were the following instruments: The Parental Stressor Scale, The Patient-Reported Outcomes Measurement Information System (PROMIS) and a demographic survey. The key variables were stress and fatigue and sleep disruption. The limitations were the limited sample size and the lack of distinction between mothers and fathers. The major strengths were that the study was able to include Spanish-speaking participants and that parents in major crisis were not asked to participate out of respect for what they were going through. Data were collected in a 32-bed, Level III NICU. The results were that there is a significant connection between sleep deprivation and stress among parents in the NICU.

Grosik et al. (2013) conducted a study in order to identify parental stressors related to their experiences having a child in the NICU. The study design was a quantitative survey. The measures were the Parental Stressor Scale: NICU and the NICU

External Stressors and Stress Reduction Scale. The participants were 119 parents of neonatal infants, born at 24 weeks to full term, in the 28-bed level 3 NICU of a mid-Atlantic, Magnet-designated acute care hospital. The key variables were internal stressors and external stressors and their effects on the parental experience in the NICU. The limitations were that they used self-report surveys which can have a bias, and all of the participants came from one unit. The strengths were that the sample size was relatively large and the findings were used to help create a new program for reducing parental stressors in the NICU. The data from the surveys revealed that nurses need to support parents during their NICU experience to keep them from feeling overwhelmed.

### **Effects of Nasal CPAP**

Jatana et al. (2010) conducted a study with the purpose of investigating the effects of nasal continuous positive airway pressure (CPAP) and cannula use in the NICU. This was an observational cross-sectional study design conducted in a tertiary care children's hospital. The participants consisted of 100 infant patients (under one year of age) who had received a minimum of seven days of CPAP or cannula supplementation in the NICU. A total of 91 received CPAP and nine received cannula supplementation. The measurement instruments were an external nasal examination and anterior nasal endoscopy with photographic documentation.

The key variables were the number of incidence of nasal cavities with the complication of ulceration, granulation and/or vestibular stenosis and the duration of supplemental oxygen use associated with these complications. The limitations of this study were that this was an observational and cross-sectional study, meaning that it was

not intended to achieve statistical significance. In addition, there were a limited number of participants. The strengths of the study were that it was the first one of its kind (i.e. one to use nasal endoscopy to identify and measure intranasal complications caused by nasal CPAP usage in the NICU) and that the researchers were very qualified to perform this study. The findings, which were a result of the data collected from the external nasal examination and anterior nasal endoscopy, showed that although no complications were observed in the nine patients who received only the nasal cannula, 13 percent of the patients who received CPAP did have complications.

### **Background and Context**

The hospital was formed in New York in 1911 by women who wanted to help the poor who could not afford medical treatment. It has since grown into a thriving major metropolitan nonprofit hospital with state of the art technology and services. The hospital operates on the five core principals of clinical excellence, a culture of motivation, educating doctors, nurses, staff, patients and the community, a code of mutual respect and corporate compliance (MMC, Core principles, n.d.).

The facility delivers more than 8,000 infants annually, and more than 1,000 babies are admitted to the NICU. Approximately 300 infants are placed on NCPAP every year. At the NICU, there is a need to decrease stress levels while increasing comfort levels among parents. The transmission of consistent and reliable information is essential for the reduction of stress levels among families of neonates. Without an educational program, the transfer of information from healthcare practitioner to parent is solely on the basis of daily verbal interactions and answering of possible questions parents may have.

There is no state or federal laws that require NICU nurses to provide family-centered education to parents experiencing stress over their child being in the NICU. However, according to Grosik, et al. (2013), with a better understanding of parental stress, caregivers will be able to provide better services and support to parents who have trouble coping with an ill newborn. Interactions between nurses and the families of neonates in the NICU and the information families receive throughout their experience in the NICU, directly impact their stress and comfort levels. However, there are currently no educational programs implemented at the facility that would provide parents the information they need to understand their child's condition, the types of care their child is receiving, and what they can do to facilitate their child's recovery.

The DNP student's role in promoting an educational program in the NICU is as a researcher and a policy advocate. A DNP prepared nurse should "contribute to the development and implementation of health policy at all levels, including institutional, local, state, regional, federal, and international levels" (AACN, 2006, p. 14). Beginning at the institutional level is the most practical course of action, however, if successful, this initiative could influence policy on a broader scale.

### **Summary**

Numerous studies have shown a connection between family-centered education and stress reduction. For example, Obeidat et al. (2009) conducted a literature review with the purpose of investigating parental experiences with a newborn in the NICU. The findings were that there is a need for family-centered nursing interventions to help reduce parental feelings of stress, anxiety, and loss of control that parents with infants in the

NICU experience. This conclusion was drawn from the data that was analyzed and categorized from the fourteen articles included in the literature review.

In addition, Ramezani et al. (2014) studied FCC in the NICU, for the purpose of examining all the various aspects of FCC, including family-centered education. The data from 59 articles used in their literature review revealed that many nurses are unprepared to properly educate parents about their child's condition and to answer their questions intelligently enough to help ease their stress. Therefore, they recommended that hospitals provide additional training so that nurses are able to help ease parental stress in an intelligent and informed manner.

The gap that this project has filled in the literature was the lack of research that specifically focuses on educational intervention as a means of reducing stress in the NICU for parents whose children are receiving NCPAP. There is adequate research to show that family-centered educational interventions are effective in reducing parental stress (Obeidat, et. al., 2009; Ramezani, et al., 2014). However, there was no literature available that specifically addresses parents whose children are receiving NCPAP. Parents whose children are receiving NCPAP have their own unique set of concerns about facial deformities and permanent damage that can be alleviated with educational interventions. The systematic review that was performed in the present study helped to fill the gap by synthesizing related studies and integrating the findings with the NCPAP variable. Guided by Kolcaba's middle range theory of comfort and conceptual model known as the Stetler model, this project used the research findings in this literature review to create a family-centered educational intervention in the form of a program

utilizing booklets and pamphlets that will reduce stress and create healthier, happier outcomes for infants and parents alike.



## Section 3: Methodology

### **Introduction**

The role of the nurse in EBP in advanced nursing practice is to investigate new and better methods of providing higher quality care and, when appropriate, to use that evidence in practice. As Dearhold and Dang (2012) clarified, the goal of the EBP process is the improvement of patient care outcomes. The purpose of this quality improvement project was to develop an evidenced-based family-centered education program, educating parents at the beginning of their NICU stay to reduce their stress and anxiety. The methodology that I used for this quality improvement project was a systematic review. My goal was to select articles that will help inform EBP related to family-centered educational programs. In Section 3, I discuss the project approach and rationale; data collection; review of literature findings by the advisory project team; institutional review board (IRB) approval; and educational program development, implementation plan, and evaluation plan.

### **Approach and Rationale**

The methodology that I used for this quality improvement project was a systematic review of published articles in peer-reviewed journals. According to Melnyk and Fineout-Overholt (2011), a systematic review is the following:

A summary of evidence, typically conducted by an expert or expert panel on a particular topic, that uses a rigorous process (to minimize bias) for identifying, appraising, and synthesizing studies to answer a specific clinical question and draw conclusions about the data gathered. (p. 582)

The “rigorous process” involves measures that the researchers take to ensure that the results of their study are as valid and reliable as possible. Systematic reviews require means choosing articles for inclusion that are scholarly, relevant, timely, and, ideally, peer reviewed. The researchers then review all of the articles that meet their qualifications and provide a summary of their findings, along with the implications of their findings. I used the JNHEBP appraisal tool to critically evaluate relevant articles for the level of evidence and quality rating if appropriate.

Melnik and Fineout-Overholt (2011) stated that systematic review is top-tier evidence. However, they also warned that sometimes researchers may call their study a systematic review when they did not use the rigorous processes necessary for them to qualify as such (i.e., they are only traditional reviews). Traditional narrative reviews tend to be more descriptive than systematic reviews and do not always consist of a systematic search of the literature (Uman, 2011). In other words, they choose some of their articles for convenience. These studies are not as rigorous as real systematic reviews. A rigorous selection process was a key element of my project.

### **Data Collection**

Because I did not collect primary data, the integrity of the data collection relied on the rigor with which I collected and analyzed the secondary data in the systematic literature review to support the development of an evidence-based family-centered educational program. The extracted data included author(s), publishing data, hypothesis, population, sample size, and findings of the study, and I plotted the data on a table to facilitate convenience of review by the advisory project team.

**Advisory Project Team**

The advisory project team was assembled and consisted of the NICU director, six neonatologists, NICU nurse manager, NICU nurse practitioner, and two senior registered nurses along with an education/training consultant. It was important to receive the input of both supervisors and staff to create a quality improvement program that meets the needs of the patients and the organization at all levels.

**Review of Literature Findings**

The advisory team engaged from the initial phase of the program as their feedback guided this quality improvement project. Early interactions with the advisory team helped to generate new ideas for program development and identify potential problems. The advisory team reviewed literature findings so that they can be used for project development. The team met regularly to discuss the development and progress of the educational materials based on EBP.

**Protection of Human Subjects**

IRB approval was not required for my study because it is a systematic review of published articles, and because I did not incorporate human subjects or use potentially identifying information (U.S. Department of Health & Human Services, 2015). However, I completed and submitted Walden University's IRB preliminary review form, which was accepted.

**Educational Program Development**

The goal of this DNP project was to create an effective family-centered educational program to help relieve anxiety in parents whose children are in the NICU

and undergoing NCPAP respiratory treatment. The Stetler model of research utilization guided the development of the evidence-based family-centered educational program. The project included creating materials, implementation plans, and evaluation plans necessary for the institution to operationalize the family-centered education program for parents whose child is in the NICU receiving NCPAP.

The primary methodology was a systematic literature review. The selected theoretical framework for this project was the Kolcaba's comfort theory because it has the ability to guide the practice and philosophy of all healthcare professionals (McEwen & Wills, 2011). Nicolay et al. (2012) suggested that managers who expect to make major improvements through isolated interventions will most likely be disappointed in the results. While there may be certain instances when a major, isolated intervention is successful, quality improvement has to be an aggregate, continuous process in order to achieve consistent and lasting results.

The development of a family-centered educational program is an essential part of FCC. This educational program does not only involve teaching parents about NCPAP and their child's condition; but also gets them directly involved. According to Zimmerman and Bauersachs (2012), FCC facilitates promote bonding between infant and parents, allowing parents to participate in the care of their infant so that they will not hesitate to handle their child and participate in the care necessary for the improvement of their infant's condition. Nurses are in the ideal position to provide this encouragement because the parents naturally look to them for answers and advice.

Parents whose children are receiving NCPAP are particularly reluctant about interacting with their child, and their anxiety can be eased through a family-centered education program provided by NICU nurses. The purpose of this quality improvement project was to develop an evidenced-based family-centered education program, educating parents at the beginning of their NICU stay. It included written documents, explanations of the respiratory care their newborn is receiving, descriptions of and the purpose of NCPAP implementation, and encouragement to visit and care for their child.

### **Project Implementation Plan**

The initiative will be implemented in the NICU. Implementing a family-centered educational program at the hospital will require institutional support from the hospital staff. However, if the program is successful, it could conceivably extend beyond that scope. The implementation process included putting together the advisory project team that consists of the NICU director, six neonatologists, NICU nurse manager, NICU nurse practitioner, and two senior registered nurses along with an education/training consultant. It is important to get the input of both supervisors and staff in order to create a quality improvement program that meets the needs of the patients and the organization at all levels. The necessary data was collected to narrow down the problem and improvement solution into a workable action plan. The team met regularly to discuss the development and progress of the educational materials based on EBP. The educational materials were revised and approved by the panel of expert. NICU nurses will be notified of the project by face-to-face meeting or via e-mail. The DNP project will be implemented after graduation, and at the discretion of the advisory project team.

### **Evaluation Plan**

The importance of the evaluation strategy cannot be understated. After all, the success of the intervention is extremely dependent on the program evaluation plan. It is imperative that accurate and comprehensive data is collected in order to ensure that the initiative is being properly adapted into the overall vision and strategic plan. Since there was not be any primary data collected, the integrity of the data collection relied on the rigor with which the secondary data was collected and analyzed within the systematic literature review. A critical evaluation of the project included the appraisal of the literature review and the criteria for the selection of studies, which increased the validity of the review. Evaluation also tested the significance of the articles used, and the relevance, validity, and reliability of the literature review. Appropriate project evaluation provided insight with regard to the strength of the project and the applicability of the literature review to the issue at hand.

### **Summary**

The purpose of this DNP project was to create an effective family-centered educational program to help relieve anxiety in parents whose children are in the NICU and undergoing NCPAP respiratory treatment. The primary methodology was a systematic research review. The JNHEBP appraisal tool was used to critically evaluate the studies for the level of evidence in order to identify the studies whose findings help answer the Practice-Focused Question.

## Section 4: Findings and Recommendations

### **Introduction**

The need for a comprehensive educational program through the observance of stress among parents of infants on NCPAP in the NICU, and the lack of a standard educational system that provides parents the information they need to understand the care that their newborn is receiving. Therefore, the purpose of this project was to develop and implement a family-centered educational program focusing on the education of parents of infants on NCPAP in the NICU. I used a systematic literature review to identify, appraise, and use information found among various studies to incorporate this information in a way that facilitates the successful planning of an educational program. I used the JNHEBP appraisal tool to critically evaluate the studies for the level of evidence to identify the studies whose findings would help to answer the practice-focused question. The question I addressed was: What are the best EBPs available in the peer-reviewed literature that may be used to inform the development of a family-centered educational program for parents of neonates in the NICU requiring NCPAP to reduce parental stress levels?

A review of the literature showed that a family-centered educational program significantly decreases parental stress while increasing the confidence and capability of parents to care for their infants. I relied on the collection of secondary data and its analysis for the development of an evidence-based family-centered educational program. I presented and reviewed extracted data by the advisory project team to be used for project development.

## **Evaluation/Findings and Discussion**

The literature review supported the notion that family-centered education programs help to reduce parental stress. For example, Obeidat et al. (2009) conducted a literature review with the purpose of investigating parental experiences with a newborn in the NICU. The research design was a literature review and the “participants” were 14 qualitative research articles that were published between 1998 and 2008. The findings showed a need for family-centered nursing interventions to help reduce the negative parental feelings of stress, anxiety, and loss of control that parents with infants in the NICU experience. The conclusion was drawn from the data that was analyzed and categorized from the 14 articles included in the literature review.

Another significant finding from the literature review included the importance of nurses’ support of parents during their NICU experience to keep them from feeling overwhelmed. Grosik et al. (2013) came to this conclusion after conducting a study designed to identify parental stressors related to their experiences of having a child in the NICU. I used the findings to help create a new program for reducing parental stressors in the NICU similar to the one in the present study.

### **Literature Search**

I conducted a literature search to find studies that will help promote EBP related to family-centered educational programs in the NICU with the goal of parental stress reduction. Sources of systematic review included CINAHL, National Association of Neonatal Nurses, American Academy of Pediatrics, Medline via PubMed, and Walden University Main Library database for peer-reviewed articles published in English, from

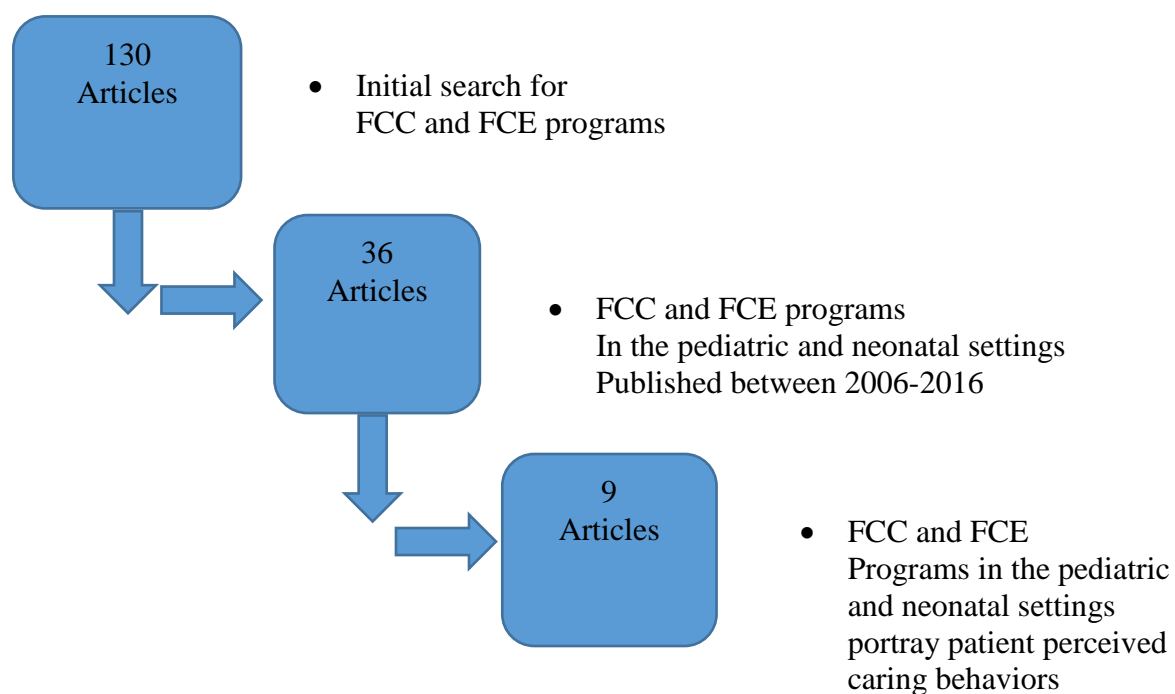


2006 to 2016, using key search words such as *stress management*, *family-centered care*, *patient-centered care*, *family-centered education program*, *parental teaching*, *neonatal NCPAP benefits*, and *neonatal NCPAP complication*.

The initial search yielded 130 articles. I reviewed the title and abstracts of the articles to eliminate those that were more than 10 years old; were not related to neonatal or pediatric care; or did not include the terms *family-centered care*, *parental stress management*, or *NCPAP*. The types of studies were all Level IV to IV and included (a) cross-sectional, (b) cohort, (c) case control, (d) interventional, and (e) meta-analysis studies. Cross-sectional, cohort, and case-control studies were all Level IV to VI evidence. Meta-analysis studies were all Level I evidence. Interventional studies were Level II if they were single RCTs and Level III if they were quasi-experimental. All of the levels of evidence fell between Levels II and IV, with Level II being the least biased, second only to systematic reviews or RCTs. I reviewed abstracts of the remaining 36 articles for relevance, and I excluded those that I found unrelated to the project purpose.

### **Search Outcome**

After the review of 36 articles, nine articles met the inclusion criteria for the systematic review of the literature. The articles that met the inclusion criteria focused on family-centered care and education programs in the pediatric and neonatal settings. Articles that I excluded included those that focused on adult populations and did not portray patient perceived caring behaviors. The progression of identification, inclusion, and exclusion of articles for this systematic review yielded nine articles that met the inclusion criteria (Figure 1).

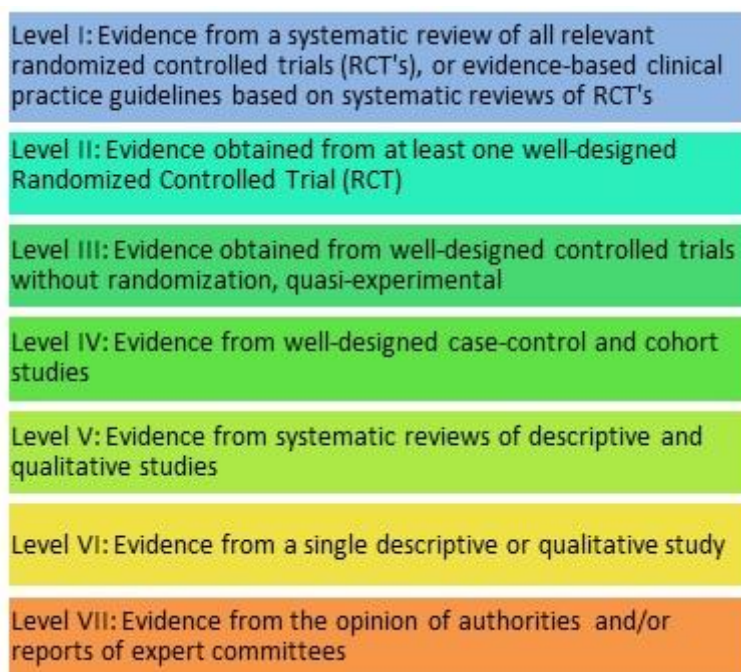


*Figure 1.* Flow chart of inclusion and exclusion of articles.

### **Data Synthesis**

Data synthesis included analyzing, comparing, appraising and plotting into the Synthesis Matrix table collection tool (Appendix A). I used the Johns Hopkins Nursing JNHEBP appraisal tool to critically evaluate the studies for a level of evidence in order to identify the studies whose findings would help to answer the practice-focused question (Figure 2).

### The Levels of Evidence



*Figure 2.* Levels of evidence provide the “grade (or strength) of recommendation” for a particular treatment, test, or practice. Adapted from Melnyk and Fineout-Overholt’s (2011) model.

I collected and analyzed secondary data within the systematic literature review to support the development of an evidence-based family-centered educational program. I plotted the extracted data on a synthesis matrix table to facilitate convenience of review by the advisory project team. Data included author(s), publishing data, hypothesis, population, sample size, and findings of the study (Appendix A).

### **Results of the Project**

The results of the systematic literature revealed that FCC programs, and, particularly, family-centered educational programs, have a positive effect on reducing

parental stress in the NICU. Unfortunately, the literature also revealed that most NICU nurses are unprepared to provide family-centered education to these parents. There is, therefore, a need for educational programs for parents that will enable nurses to understand the importance of a FCC and prepare them to apply it in practice.

Although there was a lack of literature focusing specifically on NCPAP related stress, the findings are applicable to this specific issue. The literature reviewed showed a definite need for NICU nurses to be educated in FCC. For example, Ramezani et al. (2014) studied FCC in the NICU, for the purpose of examining all the various aspects of FCC, including family-centered education. The data from 59 articles revealed that many nurses are unprepared to properly educate parents about their child's condition and to answer their questions intelligently enough to help ease their stress. Therefore, the authors recommended that hospitals provide additional training so that nurses are able to help ease parental stress in an informed manner.

The literature also revealed that educational interventions should begin as early in the NICU process as possible and continue after release. For example, Benzies et al. (2013) conducted a study for the purpose of categorizing the primary components of early intervention programs in the NICU and exploring their effects on both parents and preterm infants. The findings, based on the data collected in the articles, revealed that parental knowledge and skill in caring for preterm infants can be increased through educational intervention, which will subsequently increase parenting self-efficacy while decreasing stress. The authors defined education as the provision of information about child growth and development, infant behavior and parental interaction with the child.

Their research supported the findings of positive effects of early intervention to help parents better deal with the stress of their situation and also make them better prepared to care for their child after their pre-term infant is released from care.

The literature also demonstrated positive associations between FCC and the reduction of stress for parents with infants in the NICU. For example, Dunts et al. (2007) found that the use of family-centered help-giving is closely related to more positive parent, family, and child behavior and functioning. Similarly, Bastani, Abadi, and Heghani (2015) found FCC program to be effective in increasing maternal satisfaction and decreasing neonatal readmission. However, there is also a lack of evidence in certain areas. For example, Harrison (2010) conducted a literature review with the purpose of determining the validity of formally adopting FCC as the philosophy of care for pediatric nursing. The findings display a clear need to assist nurses in implementing this basic philosophy of practice in all settings and situations in which children receive health care. However, evidence of consistent provision of family-centered pediatric care is lacking. Table 2 summarizes the results of each of the nine articles (Appendix B).

### **Family-Centered Educational Program Development**

The project began with a meeting that included the project advisory team, consisting of the NICU director, six neonatologists, NICU nurse manager, NICU nurse practitioner, and two senior registered nurses along with an education/training consultant. The meeting focused on the rationale and structure of the project in detail. There was no educational program implemented that would provide parents information they need to understand their child's condition requiring NCPAP and help them be proactive in their

child's recovery process. I discussed the importance of the program and the benefits it will provide, including improved health outcomes, stress reduction, and parental satisfaction. I presented the Synthesis Matrix table to the team in order to highlight the importance of the program. All members of the team agreed on the significance of the program and the benefits it will provide. The meeting also included a discussion about education handouts that will be used in the program in order to facilitate learning among parents of neonates in the NICU. Handouts focus on educating the parents about the NCPAP and related routines associated with care for their newborn (Appendix C). The meeting was concluded with the team members agreeing on the dates and times of subsequent meetings that would further facilitate the project.

### **Learning Materials**

The educational handouts addressed the functions of the NCPAP, indications, as well as care and monitoring of patients on NCPAP (Appendix C). Information on the handouts is concise but thorough and is provided in a way that parents can easily understand. Therefore, the material was broken down into brief sections that could be quickly and easily read and understood. These section titles were worded as questions for easy readability on the part of the parents. These sections included: What is NCPAP?; What are the indications for NCPAP?; How will my baby be cared for and monitored while on NCPAP?; How long will my baby need NCPAP?; How can I take care of my baby on NCPAP?; Can I breastfeed and/or bottle feed while my baby is on NCPAP? These sections were followed with important information about the educational workshop, including what to expect, location and contact numbers.

Information for the learning materials was collected via a scholarly literature search. The literature review included only scholarly articles from peer-reviewed journals published within the last 10 years. All information was fact-checked by the advisory team to ensure its accuracy. I presented the material to the advisory team in two stages. First, the team was presented with a rough draft of the materials. Their comments and corrections were solicited in order to ensure that the handouts were of the highest possible quality. After this feedback was received, parts of the handout that were in need of improvement were modified based on the suggestions given. The educational handouts were approved by the project advisory team prior to their implementation.

### **Evaluation Plan**

The evaluation plan includes the collection of secondary data and analysis, which includes the appraisal of literature review and criteria for selecting studies. The evaluation process tests the significance of the articles used, as well as the relevance, validity, and reliability of the literature review. The collection of data and analysis was forwarded to the advisory project team for further evaluation in order to ensure proper planning and implementation of the program. The advisory team reviewed the educational program for accuracy, practicality, applicability, and relevance. Feedback from the advisory team was positive, and ensured that the project reflects the needs of the parents. The team reviewed and approved the use of the educational handouts and agreed on the benefits that the family-centered educational program would provide. This ensured that the educational program would meet the purpose, goals, and objectives of the project.

### **Project Implementation Plan**

The program implementation plan was presented to the advisory committee consisting of 12 members that determined the effectiveness and usefulness of the project. Educational handouts will be placed in the patients' charts for the nurses to give to the parents, which will be accompanied by bedside education at the beginning and throughout their child's stay in the NICU. All registered nurses and nurse practitioners received information and instructions on how to implement the program via email, and I have provided my contact information for questions and assistance during implementation. Registered nurses will be involved in the education of parents in the NICU by providing essential knowledge patients will need, including the appropriate utilization of Kangaroo Care while the infant is on NCPAP and encouragement of active participation in care. Through parent participation in care, which will include diaper changes, cleaning of the baby, and measurement of temperature, parents will be able to promote improved vital signs and faster recovery. Registered nurses will actively participate in the facilitation of bonding between infant and parent. Nurses will also schedule educational workshop sessions with nurse practitioners for parents. Nurse practitioners will conduct educational workshops that will be approximately 15-20 minutes in length, for parents during the first week of stay.

Each educational workshop will include the following:

1. Introduction of self and purpose of the workshop.
2. Discussion of the importance of the NCPAP.



3. Discussion of the functions of the NCPAP, its benefits, and possible complications.
4. Parents will be encouraged to ask questions during and after the workshop.

The educational program will be implemented after graduation over the course of 12 weeks. Upon completion of the 12-week period, nurses involved in the project will conduct a meeting to discuss progress, areas of improvement, and further implementation, which will be an ongoing process.

### **Implications**

The results of the literature review can be translated into EBP by encouraging hospitals to provide training programs that encourage NICU nurses to implement family-centered education to reduce parental stress. Nurses have come to develop an increased focus on EBP as a means for creating and implementing changes that result in better quality of care in their practice environment. As the project has demonstrated, the EBP process not only means discovering ways to provide better care for patients but also how to make changes occur in a smooth and efficient fashion. Therefore, strategy and planning significantly impact the success of a primary practice problem like the one discussed here. The project has not only demonstrated that the development of a family-centered educational program is an essential part of family-centered care. It has also demonstrated that the implementation of EBP is a complex and intricate process that requires significant collaboration and dedication.

### **Strength and Limitations of the Project**

The strengths of the study are that it was based on EBP using a systematic literature review that only included timely, scholarly journals and relevant articles published by credentialed professionals. The limitations were that there was no original experimental study performed, i.e. all of the data was from secondary sources. In future projects, it is recommended that researchers develop educational materials that nurses can use to help educate parents whose child is in the NICU receiving NCPAP and use EBP to introduce a family-centered educational intervention to nurses that will help them to reduce stress in a pre-test/post-test study that will garner original data.

### **Analysis of Self**

The role of the modern nurse has changed significantly. As McCurry, Revell, and Roy (2010) pointed out, nurses are no longer just the assistant to the doctor. Among other things, they now have a professional obligation to integrate evidence-based research into their practice. Nurses today have a professional and ethical obligation to ensure that their patients receive the best care possible, and that means looking beyond the same old comfortable methods and seeking improvements.

The value of the doctoral project as a DNP prepared nurse can be seen in different roles. One of these roles is as a policy developer and implementer. A DNP prepared nurse should “contribute to the development and implementation of health policy at all levels, including institutional, local, state, regional, federal, and international levels” (AACN, 2006, p. 14). Implementing a family-centered educational program at my hospital would be a local policy that, if successful, could expand to a wider reach.

The value of the doctoral project as a DNP prepared nurse is also evident when it comes to research. The Institute of Medicine (2010) recommended that DNP nurses engage in "collaborative efforts with physicians and other members of the health care team to conduct research and to redesign and improve practice environments and health systems" (p. 3). The DNP nurse has an ethical duty to engage in honest, above-board research studies that contribute valuable information to the profession. It is important to not only use EBP at this stage but also to contribute to it.

Ultimately, quality care means providing the best level of care possible. In the NICU, it is critical that quality is stressed in every aspect of nursing, including using EBP to inform the decision-making and quality improvement practices on the unit. Family-centered education is a form of EBP that is underused by many NICU nurses. The benefits of this practice are widely known, and yet nurses are not being properly educated and trained in how to use them. The more nurses know about the importance of these interventions for the parents and the child, the more likely they will be to use what they know in practice. Ultimately, if NICU nurses are able to use these interventions effectively, they can help improve society by reducing parental stress and therefore helping parents to bond with their child appropriately, help them focus on what it is truly important, and create more well-adjusted children.

Overall, I found this project to be very enlightening and valuable. I feel that I have gained a much better understanding of the application of EBP. Considering this, I am very enthusiastic about continuing to use the knowledge and skills I have learned to become the best nurse I can be. I have learned a great deal about how to think critically

and how to incorporate what I have learned into practice. I know it can be difficult to apply theory to practice sometimes, especially in an understaffed unit. But that is precisely one of the reasons nurses need to get involved in policy changes – so hospitals can be better staffed and nurses can fulfill their optimal roles. The knowledge I have gained from this experience will apply towards my future scholarship and my career in many ways. I learned more than I ever knew before about EBP, policy and change management, and I plan to apply what I have learned throughout my career.

### **Summary**

The purpose of this DNP project was to create an effective family-centered educational program to help relieve anxiety in parents whose children are in the NICU and undergoing NCPAP respiratory treatment. Parents that are educated on the care their infant is receiving will experience lower levels of stress, which will promote their involvement in their infant's recovery process, leading to faster recovery and better outcomes. Nurses are in a position to help reduce stress by explaining to the parents exactly what the NCPAP is for, dispelling their misconceptions and providing comfort and assurance to the parents.

The primary methodology was a systematic literature review. The Johns Hopkins Nursing JNHEBP appraisal tool was used to critically evaluate the studies for the level of evidence in order to identify the studies whose findings would assist in the development of a family-centered educational program. The results of the systematic literature revealed that FCC, and particularly, family-centered education has a positive effect on reducing parental stress in the NICU. The development of a family-centered educational

program is essential for the reduction of stress among parents of neonates on NCPAP in the NICU.

## Section 5: Scholarly Product

In the highly advanced atmosphere of the NICU, infants and parents are physically and psychologically separated. Separation experience impedes parents-infant interaction and is detrimental to the infant (O'Brien et al., 2015). The larger issue that I explored in the project was that in the highly advanced atmosphere of the NICU, no educational programs are implemented that would provide parents the information they need to understand their child's respiratory condition requiring NCPAP and what parents can do to facilitate their child's recovery. The lack of educational programs causes an inordinate amount of unnecessary stress. Parents often worry about holding their child due to their child being on the NCPAP, and possible complications of the NCPAP, such as nasal deformities and compromised organ function. The issue has led to the development of a FCC approach at the NICU that strongly focuses on the needs of the whole family.

The family is seen as an important component in the health and recovery process of the neonate. The NICU team maintains parents' well-being and keeps them involved and motivated to be active participants on their child's road to recovery. Neonates admitted to the NICU frequently require some type of respiratory support that ranges from invasive mechanical ventilation to NCPAP and nasal cannula, depending on the degree of prematurity and the underlying etiology. These procedures frequently cause much anxiety for the parents. The NCPAP, however, is the most common form of noninvasive respiratory support that is used in the NICU.

The NCPAP is a short prong device positioned by the nostrils that provides continuous positive airway pressure by delivering oxygen at a constant preset pressure. When infants are on NCPAP, the parents worry about the long-term effects, including internal and external nasal complications such as nasal deformities and ulcerations, as well as complications with regard to lung and brain function as the result of the NCPAP. A study by Jatana et al. (2010) found that infants exposed to NCPAP experienced varying degrees of columellar necrosis, intranasal ulcerations, granulation, and vestibular stenosis. Parents also worry about the short-term effects, including not being able to hold or breastfeed their infant. According to Busse et al. (2013), parental stress in the NICU can lead to negative outcomes in both the short term and long term. Busse et al. (2013) reported that the stress that parents experience in the NICU can lead to depression, interrupted sleep patterns that cause fatigue, and anxiety that impairs judgment. Elements that facilitate the problem include the lack of an educational program for the parents that would provide consistent information from the nurses, and would serve to mitigate increasing stress levels among parents.

### **Problem Statement**

The problem addressed in the development of the project was the lack of an evidence-based educational program that would provide parents the information they need in order to understand their child's respiratory condition requiring the NCPAP and to contribute to their child's care. The cumbersome fixation devices of the NCPAP interfere with the parents' abilities to hold and breastfeed their infants. Parents worry

about the long-term effects and complications of the NCPAP such as nasal deformities and the possibility of compromised lung and brain function.

Knowledge of the treatments and functions of medical equipment attached to their infant helps parents manage stress levels during their NICU stay (Turan et al., 2008). Without an educational program, the information that nurses are giving to the parents is primarily question-answer based, but the education they receive is minimal. Although all parents show some level of stress, the stress levels vary between parents, making it difficult to know how many parents are in need of stress management at any given time. Therefore, there is a clear need for a consistent educational program that eliminates the guesswork and communication barriers between nurses and parents, while giving parents the education they need to understand their child's condition and thereby decreasing their stress levels. The family-centered education approach is an important part of the parental educational process because it approaches learning from a caring perspective. It is also an empowering process because it encourages nurses to educate parents to increase their self-efficacy so that they can better care for their child at home. A review of the literature provides evidence that a family-centered educational program significantly decreases parental stress and anxiety while increasing the confidence and capability of parents to care for their infants (Melnyk et al., 2014; Turan et al., 2008).

### **Purpose of the Project**

The purpose of the project was to develop an evidenced-based family-centered educational program in order to provide parents the information they need to understand their newborn's condition and motivate them to be involved in their newborn's recovery



process. The program included the development of educational handouts designed to be utilized by the parents and nursing staff in the NICU and included written documents, explanations of respiratory care the newborn is receiving, descriptions of and the purpose of NCPAP implementation, and encouragement to visit and care for their child. The educational materials served as a tool to deliver consistent information, which not only helped the parents, but also the children. Therefore, the project focused on the need for nurses to educate parents about the realities of their child's situation in a manner that dispels their unfounded worries and fears. The primary desired outcome was to help parents provide better support and care for their infant by alleviating their stress levels. It was anticipated that promoting the consistent delivery of essential information through appropriate education would lead to positive social changes for caregivers, patients, and patients' families by enhancing outcomes that include decreased parental anxiety, increased parental well-being, and improved infant behavior.

### **Nature of the Project**

The project used a systematic literature review in order to identify, appraise, and utilize information found among various studies in order to integrate this information into the successful planning of an educational program. Only articles specific to the research question were included in the review. The inclusion criteria for the articles were as follows: articles should be scholarly, relevant, timely, and peer-reviewed. The articles that meet the inclusion criteria reviewed, and summary of findings provided along with the implications of their findings to the project advisory team. The Johns Hopkins Nursing JNHEBP appraisal tool used to critically evaluate relevant articles for the level

of evidence and quality rating if appropriate. The collection of secondary data was the only form of data collection utilized, i.e., there was no primary data collection. The goal was to select articles that would help inform EBP related to family-centered educational programs. Gathering evidence on the topic at hand was crucial for project planning and implementation. Past research helped to create a better understanding of the appropriate methods to be used, and the results that could be expected. The systematic literature review ultimately helped gauge the direction that the project took and what steps were necessary in the process.

### **Setting**

The setting is the NICU, a 40-bed unit. The transmission of information is essential for the reduction of stress levels among families of neonates. However, nurses in the unit are not currently providing consistent family-centered education to parents whose infants require NCPAP treatment.

### **Data Collection**

Since there was not any primary data collected, the integrity of the data collection relied on the rigor with which the secondary data was collected and analyzed within the systematic literature review to support the development of an evidence-based family-centered educational program. The extracted data included author(s), publishing data, hypothesis, population, sample size, and findings of the study, and was plotted on a table to facilitate convenience of review by the advisory project team.

### **Advisory Project Team**

The advisory project team was assembled and consisted of the NICU director, six neonatologists, NICU nurse manager, NICU nurse practitioner, and two senior registered nurses along with an education/training consultant. It was important to obtain the input of both supervisors and staff in order to create a quality improvement program that meets the needs of the patients and the organization at all levels. The advisory team was engaged from the initial phase of the program as their feedback was guiding this quality improvement project. Early interactions with the advisory team helped to generate new ideas for program development and identify potential problems. The advisory team reviewed literature findings in order for them to be utilized for project development. The primary goal of the meeting was to discuss the structure and rationale of the project, as well as the benefits it could provide. The team met regularly to discuss the development and progress of the educational materials based on the EBP that are designed to be used throughout the program and would facilitate learning among parents. The synthesis matrix table was presented to the team in order to illuminate the importance of the program, and all members of the team agreed on the benefits it would provide.

### **Learning Materials**

Educational handouts focused on concise but thorough descriptions of the NCPAP, its indications, and the care/monitoring involved with using the device in neonates (Appendix C). Handouts were designed to provide parents the information they need, in terms that they can comprehend. Educational materials were approved by the project advisory team prior to their implementation.

### **Evidence-Based Significance of the Project**

The study is significant because, with a better understanding of what their child is experiencing, parental stress in the NICU can be relieved. Therefore, nurses need to educate these parents about the realities of their child's situation in a manner that dispels their unfounded worries and fears. This will not only help the parents, but also the children. Research showed that parents will be able to provide better support and care for their child by being less stressed (Benzies et al., 2013). Research also showed that parents will be able to sleep better with less stress, making them more alert and prepared to help their child (Busse et al., 2013). In addition, both the nurses and the hospital will benefit from educating the parents and reducing their stress in order to improve the quality of care that the parents are able to provide to their children. That means it is likely that better health outcomes will occur, both physically and psychologically, which will have a positive reflection on the nurses and the hospital.

### **Implications for Social Change**

EBP has become much more commonly implemented into patient care, giving nurses a chance to play a vital role in the change process. EBP leads to better quality of care, and better outcomes for patients. In the NICU, the utilization of EBP is critical, and the importance of the quality of care delivered to patients cannot be overstated. Family-centered education is a form of EBP that unfortunately is underused by nurses, yet provide many benefits to patients and their caregivers. It is essential that nurses are encouraged to provide this type of care, and implement it in their daily practice in order to facilitate the reduction of parental stress levels while instilling hope and motivation in

parents, and promoting better outcomes for all NICU patients. If NICU nurses are able to use these interventions effectively, they can help improve society by reducing parental stress and therefore helping parents bond with their child appropriately, help them focus on what it is truly important, and create more well-adjusted children. The project will promote positive social changes for caregivers, patients, and patients' families by enhancing outcomes such as improved infant behavior, increased parental emotional well-being, and increased caregiver satisfaction.

### **Findings**

Out of the various stress reduction techniques, including meditation and yoga, the approach that appears to be the most valuable was family-centered education. A specific research question was posed to underpinning the development of the program. The research question was as follows: What are the best EBPs available in the peer-reviewed literature that may be used to inform the development of a family-centered educational program for parents of neonates in the NICU requiring Nasal Continuous Positive Airway Pressure (NCPAP) to reduce parental stress levels?

The review of the literature provided evidence that a family-centered educational program significantly decreases parental stress, while increasing confidence among parents so that they can properly care for their infants (Melnik et al., 2014). The search strategy used for the systematic review entailed systematic searches using the following databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), National Association of Neonatal Nurses, American Academy of Pediatrics, Medline via PubMed, and Walden University Main Library database. The title and abstracts of the

articles were reviewed to eliminate those that were more than ten years old, were not related to neonatal or pediatric care or did not include FCC, parental stress management, or NCPAP terms. Abstracts of the remaining 36 articles were reviewed for relevance, and those found unrelated to the project purpose were eliminated. The Johns Hopkins Nursing JNHEBP appraisal tool was used to critically evaluate the studies for the level of evidence in order to identify the studies whose findings would help to answer the practice-focused question.

The literature review supported the notion that family-centered education programs help to reduce parental stress. For example, Obeidat et al. (2009) conducted a literature review with the purpose of investigating parental experiences with a newborn in the NICU. The findings showed a need for family-centered nursing interventions to help reduce the negative parental feelings of stress, anxiety, and loss of control that parents with infants in the NICU experience. The conclusion was drawn from the data that was analyzed and categorized from the 14 articles included in the literature review.

The results of the systematic literature revealed that a FCC program specifically focused on education, has a positive effect on reducing parental stress in the NICU. For example, Dunts et al. (2007) found that the use of FCC is closely related to more positive parent, family, and child behavior and functioning. Similarly, Bastani et al. (2015) found FCC program to be effective in increasing maternal satisfaction and decreasing neonatal readmission. The literature also revealed that educational interventions should begin as early as possible, from the beginning of parents' and infants' NICU stay. For example, Benzie et al. (2013) conducted a study for the purpose of categorizing the primary

components of early intervention programs in the NICU and exploring their effects on both parents and preterm infants. The findings revealed that parental knowledge and skill in caring for preterm infants can be improved through educational intervention, which will increase parenting self-efficacy while decreasing stress. However, there is also a lack of evidence in certain areas. For example, Harrison (2010) conducted a literature review with the purpose of determining the validity of formally adopting FCC as the philosophy of care for pediatric nursing. The findings reveal a clear need to assist nurses in implementing this basic philosophy of practice in all settings and situations in which children receive health care. However, evidence of consistent provision of family-centered pediatric care was lacking.

### **Interpretation and Implications**

The literature review supported the notion that family-centered education programs help to reduce parental stress. Although there was a lack of literature focusing specifically on NCPAP related stress, the findings were applicable to this specific issue. The literature review also supported the notion that nurses need better training when it comes to implementing FCC programs. The results can be translated into EBP by encouraging hospitals to provide training programs that encourage NICU nurses to implement family-centered education to reduce parental stress. Nurses have come to develop an increased focus on EBP as a means for creating and implementing changes that result in better quality of care in their practice environment. As this project has demonstrated, the EBP process not only means discovering ways to provide better care for patients but also how to make changes occur in a smooth and efficient fashion.

Therefore, strategy and planning significantly impact the success of a primary practice problem like the one discussed here. The project has not only demonstrated that the development of a family-centered educational program is an essential part of FCC. It has also demonstrated that the implementation of EBP is a complex and intricate process that requires significant collaboration and dedication.

### **Implementation Plan**

A committee was organized and included 12 members: the NICU director, six neonatologists, NICU nurse manager, NICU nurse practitioner, and two senior registered nurses along with an education/training consultant. The team met regularly to discuss development and progress. Information and instructions were given to registered nurses and nurse practitioners with regards to proper implementation. Educational materials will be placed in patients' charts in order for the nurses to provide for the parents, and be presented with bedside education at the start and throughout their child's stay in the NICU. Registered nurses will provide parents the knowledge they need throughout their child's NICU stay, including the proper utilization of Kangaroo Care while the infant in on NCPAP. Nurses should encourage and motivate parents to be actively involved in care for their infant, facilitated bonding between parents and their infants, and schedule educational workshop sessions with nurse practitioners for parents. Nurse practitioners will conduct educational workshops that will be approximately 15-20 minutes in length, for parents during the first week of stay.



### **Evaluation Plan**

The collection of secondary data and analysis, which includes the appraisal of literature review, reflected the nature of the evaluation plan. The evaluation process tested the significance of the articles, their relevance, validity, as well as reliability. The results were then forwarded to the advisory project team in order to ensure appropriate analysis and program implementation. The advisory team reviewed the plan and approved the use of the educational handouts.

### **Conclusion**

An evidence-based educational program was developed based on scholarly literature, with the goal of educating parents about their child's respiratory condition requiring NCPAP, and what parents can do to facilitate their child's recovery. This will serve to decrease levels of stress among parents in the NICU, providing them a better ability to participate in their child's recovery process, thereby improving outcomes. The project will contribute to the advancement of the nursing profession, preparing nurses to effectively communicate with and educate parents, while providing parents a sense of comfort. This will further enhance the delivery of care from nurses to patients and their parents.

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## Appendix A: Synthesis Matrix

Table 1

*Synthesis Matrix*

Author/date	Research Questions/ Hypothesis	Sample size and setting	Analysis and results	Tools	Limitations	Conclusion	Method and level of evidence	Implication for practice
Benzies, K. M., Magill-Evans, J. E., Hayden, K. A., Ballantyne, M. (2013). Key components of early intervention programs for preterm infants and their parents: A systematic review and meta-analysis. <i>BMC Pregnancy and Childbirth</i> , 13(1), S1-S10.	What are the primary components of early intervention programs in the NICU and what are their effects on both parents and preterm infants?	11 research articles published between 1990 and 2011	Research supported the findings of positive effects of early interventions to help parents better deal with the stress of their situation and also make them better prepared to care for their child after their pre-term infant was released from care.	Meta-analysis	No original study was conducted, the study only included English-language articles, and positive effects may not have been identified.	An education program geared toward increasing parental knowledge will also increase parental skill in caring for preterm infants while increasing parenting self-sufficiency and decreasing stress.	Meta-Analysis using a random-effects model, Level I	Improvement in child growth and development, infant behavior and parental interaction with the child.
Kuo, D.Z., Bird, T.M., Tilford, J.M. (2011).	What is the association of family-centered care	N/A	Research supported the positive effects of family-	A secondary analysis of the 2005-2006	Lack of causality demonstration due to the	Family-centered care is closely associated	Cross-sectional survey, Level VI	Family-centered care plays a very important role in efforts of health



Associations of family – centered care with health care outcomes for children with special health care needs. <i>Maternal and Child Health Journal, 15(6), 794-805.</i>	with specific health care service outcomes for children with special health care needs?		centered care on child health, and symptom improvement.	National Survey of Children with Special Health Care Needs	cross-sectional nature of the data.	with stable child health status, more stable child health care needs, and decreased the severity of difficulties caused by child’s health, and decreased emergency room utilization.		care reform, and is extremely useful in a chronic care setting.
Cano Giméne, E., Sánchez-Luna, M. (2015). Providing parents with individualized support in a neonatal intensive care unit reduced stress, anxiety and depression. <i>Acta Paediatrica, 104(7), e300-e305.</i>	How effective is individualized interventions as a means of reducing parents’ stress, depression, and anxiety in the NICU?	80 mothers and 54 fathers over four weeks	After two weeks, the intervention/ experimental group (those mothers and fathers who received the five-step intervention) showed significant improvement in their stress, depression, and anxiety levels over the control group.	Five-step intervention	Limited sample size	50 percent of the mothers and 80 of the fathers who received the intervention reported no depression, where as 100 percent of the control group parents reported depression at discharge.	RCT, Level II	A clear indication of the importance of intervention for parents in the NICU.
Dunts, C. J., Trivette, C. M., Hamby, W. (2007). Meta-	What is the relationship between family-	47 studies that included more than 11,000	Data analysis was led by a practice-based theory of family-	Meta-analysis	No original study was conducted	Family-centered practices correlated	Meta-Analysis, Level I	The use of family-centered help-giving is closely related to

analysis of family-centered helpgiving practices research. <i>Developmental Disabilities Research Reviews</i> , 13, 370-378.	centered practices, and parent, family, and child behavior and functioning?	participants	centered help-giving that postulated direct effects of interpersonal help-giving practices on parent, family, and child outcomes.			with higher participant satisfaction, stronger self-efficacy beliefs, and a more positive view of the support and resources provided by their help-givers.		more positive parent, family, and child behavior and functioning.
Ramezani, T., Shirazi, Z. H., Sarvestani, R. S., Moattari, M. (2014). Family-centered care in neonatal intensive care unit: A concept analysis. <i>International Journal of Community Based Nursing and Midwifery</i> , 2(4), 268-278.	What are the various aspects of family-centered care, including family-centered education?	59 articles In Science Diect, PubMed, Google Scholar, Scopus, and Iran Medex Databases From 1980 to 2012.	The findings revealed that family-centered care was a comprehensive and holistic caring approach in neonatal intensive care.	Literature review	No original study was conducted.	Many nurses are unprepared to properly educate parents about their child's condition and to answer their questions intelligently enough to help ease their stress.	Literature Review, Level V	Hospitals need to provide additional training so that nurses are able to help ease parental stress in an intelligent and informed manner.
Bastani, F., Abadi, T. A., Heghani, H. (2015). Effect of family-centered care on improving	What is the Effect of family-centered care including maternal participation,	110 Primiparous mothers with preterm infants in Iran	In the FCC group, The mean score of satisfaction increased after the implementation	Clinical trial	No control for confounders, significant age differences.	FCC program Seems to be effective in increasing maternal satisfaction and	RCT, level II	It seems necessary that healthcare authorities of the departments of obstetrics and gynecology

parental satisfaction and reducing readmission among premature infants: A randomized controlled trial. <i>Journal of Clinical and Diagnostic research</i> , 9(1), SC04-SC08.	presence, and information about neonatal care, on maternal satisfaction and neonatal readmission?		of the program (22.36 and 59.28 before and after the program, respectively) ( $p < 0.001$ ); however, this increase in the control group was not significant.			decreasing neonatal readmission.		in Iran provide the opportunity for the implementation of FCC programs in clinical environments.
Cooper, L. G., Gooding, J. S., Gallagher, J., Sternesky, L., Ledsky, R., Berns, S. D. (2007). Impact of a family-centered care initiative on NICU care, staff and families. <i>Journal of Perinatology</i> , 27, S32-S37.	What is the impact of a national program designed to promote FCC in NICUs and to provide information and comfort to families during the NICU hospitalization of their newborn?	Eight March of Dimes NICU Family Supports (NFS) sites/ 502 staff members and 216 families	Surveys of NICU staff showed that NFS enhances the overall quality of NICU care resulting in less stressed, more informed and confident parents.	Surveys and interviews	No pre-test (post-test only)	As compared with other sources of support, the March of Dimes NFS Specialist was rated fourth, after (1) family (2) nurses, and (3) physicians.	A quasi experimental, post-test only design, Level III	Enhancement of the receptivity of staff to the presence and benefits of FCC.
Harrison, T. M. (2010). Family-centered care pediatric	N/A (summary only)	30 nursing research studies between	Formally adopting FCC as the philosophy of care for	Literature review	No original study conducted	Evidence of consistent provision of family-	Literature Review, Level V	Assisting nurses in implementing this basic

nursing care: State of the science. <i>Journal of Pediatric Nursing</i> , 25(5), 335-343.	1995 and 2006	pediatric nursing serves to provide a framework for pediatric nurses. FCC will support and promote not only physical health but also healthy emotional and psychological development that occurs in the context of the family.				centered pediatric care is lacking.		philosophy of practice in all settings and situations in which children receive health care.
Kuhlthau, K. A., Blooms, S., Cleave, J. V., Knapp, A. A., Romm, D., Klatka, K., ... Perrin, J. M. (2011). Evidence for family-centered care for children with special health care needs: A systematic review. <i>Academic Pediatrics</i> , 11(2), 136-143.	What is the role of family- provider partnership in FCC?	24 articles from the medical, nursing, psychology, and sociology literature 1986 to 2010	Positive associations were found of FCC with improvements in efficient use of services, health status, satisfaction, access to care, communication, systems of care, family functioning, and family impact/cost.	Systematic review	No original study conducted	FCC is associated with improved outcomes in multiple domains.	Systematic Review, Level I	This evidence supports the endorsement and further study of FCC.

## Appendix B: Results of the Nine Articles

Table 2

*Summary Results*

Article number	Name of article	Results
1	Key components of early intervention programs for preterm infants and their parents: A systematic review and meta-analysis.	Research supported the findings of positive effects of early interventions to help parents better deal with the stress of their situation and also make them better prepared to care for their child after their pre-term infant was released from care.
2	Associations of family-centered care with health care outcomes for children with special health care needs.	Research supported the positive effects of family-centered care on child health, and symptom improvement.
3	Providing parents with individualized support in a neonatal intensive care unit reduced stress, anxiety and depression.	After two weeks, the intervention/experimental group (those mothers and fathers who received the five-step intervention) showed significant improvement in their stress, depression, and anxiety levels over the control group.
4	Meta-analysis of family-centered help-giving practices research.	Data analysis was led by a practice-based theory of family-centered help-giving that postulated direct effects of interpersonal help-giving practices on parent, family, and child outcomes.
5	Family-centered care in neonatal intensive care unit: A concept analysis.	The findings revealed that family-centered care was a comprehensive and holistic caring approach in the NICU.
6	Effect of family-centered care on improving parental satisfaction and reducing readmission among premature infants: A randomized controlled trial.	In the FCC group, the mean score of satisfaction increased after the implementation of the program (22.36 and 59.28 before and after the program, respectively) ( $p < 0.001$ ); however, this increase in the control group was not significant.
7	Impact of a family-centered care initiative on NICU care, staff and families.	Surveys of NICU staff showed that NICU Family Supports (NFS) enhances the overall quality of NICU

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8	Family-centered care pediatric nursing care: State of the science.	care resulting in less stressed, more informed and confident parents. Formally adopting FCC as the philosophy of care for pediatric nursing serves to provide a framework for pediatric nurses will support and promote not only physical health but also healthy emotional and psychological development that occurs in the context of the family.
9	Evidence for family-centered care for children with special health care needs: A systematic review.	Positive associations were found of FCC with improvements in efficient use of services, health status, satisfaction, access to care, communication, systems of care, family functioning, and family impact/cost.

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Appendix C: Handout



*Parent Reference*

**Nasal Continuous Positive Airway Pressure  
(NCPAP)**

*Infant's & Children's Hospital*

## Your Baby on NCPAP

### What is NCPAP?

NCPAP is a device which helps your baby's lungs stay open so that your baby can breathe easier. It maintains lung inflation, while reducing the need for the delivery of oxygen, and decreasing the work of breathing. The device is secured comfortable on the face, and is connected to a machine that provides a continuous flow of oxygen/air.



### What are the indications for NCPAP?

Indications for NCPAP include:

- Prematurity
- Very low birth weight
- Spontaneous breathing with mild-moderate respiratory distress syndrome
- During the weaning process for ventilator support

### How will my baby be cared for and monitored while on NCPAP?

Every 3 hours, the nurse examines the skin that has been covered by the device for redness and irritation. Your baby may require suctioning of the nose and mouth in order to clear secretions that may be blocking the airway, allowing your baby to breathe easier. The nurse also cleans the lips and mouth using sterile water and swabs.



## **How long will my baby need NCPAP?**

Time spent on NCPAP depends on the baby's progress. Some babies need NCPAP for a few days, while others may need it for a few weeks. When the baby's lungs develop enough to remain open on their own, the baby will no longer need NCPAP.

## **How can I take care of my baby on NCPAP?**

At Maimonides Medical center, we strive to incorporate family centered care into our practice. We encourage parents to be involved in their child's road to recovery, and we are eager to provide parents with the knowledge they need to make an important difference in the care their child is receiving. Although the NCPAP prongs may seem intimidating at first, we still encourage parents to participate in care, which includes diaper changes and cleaning the baby's lips and mouth. Nurses at the bedside will help you utilize Kangaroo Care, which is holding your baby skin-to-skin against your chest. Kangaroo Care facilitates bonding between infant and parent, and promotes improved vital signs, and a faster recovery.

## **Can I breastfeed and/or bottle feed while my baby is on NCPAP?**

Unfortunately, while on NCPAP, your baby will not be able to breastfeed or bottle feed. The NCPAP device helps your baby develop breathing, and feeding your baby while the device is in place may cause choking. Your baby will be fed through a feeding tube positioned through the mouth and into the stomach, however, and you may be able to hold your baby during feeding.

## **Educational workshop**

Nurse practitioners will conduct 15-20 minute educational workshops during the first week of admittance to the NICU, which will focus on the functions and importance of the NCPAP. They will also focus on knowledge that you as a parent will need while your infant is recovering in the NICU. During and after the session, you are free to ask any questions that you may have. Please speak with your bedside registered nurse in order to schedule your session.