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# An Evidence-Based Asthma Management Plan for the Pediatric Practice Setting

Foroogh Narmani-Mohammadi  
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# Walden University

College of Health Sciences

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Walden University  
2016

Abstract

An Evidence-Based Asthma Management Plan for Pediatric Practice Setting

by

Forough Narmani

MS, South University, 2014

BS, South University, 2011

Project Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
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## Abstract

Asthma is the most common chronic disease in childhood. Education directed toward asthma self-management is vital and emphasizes patient participation in symptom monitoring and control. The practice problem addressed in this quality improvement project was the lack of an asthma management plan in the pediatric setting for which the project was developed. The purpose of the project was to develop an evidence-based asthma initiative consisting of a staff education curriculum with a pretest/posttest and a patient self-management component. Using a team approach, Rosswurm and Larrabee's conceptual model served as the practice framework to guide the development of the project. Two content experts evaluated the curriculum plan using a 9-item dichotomous rating. Results of their evaluation showed that the content met the objectives of the curriculum. The content experts also conducted content validation for each of the 17 pretest/posttest items using a 4-point Likert scale ranging from 1 ("*not relevant*") to 4 ("*highly relevant*"), that resulted in a content validation index of 1.00 revealing that the test items reflected the content of the curriculum and the intent of the objectives. This project promotes positive social change by providing patients and families with the ability to recognize and handle asthma symptoms. This change can prevent exacerbation of symptoms resulting in avoidable emergency department visits ultimately impacting healthcare costs and the well-being of patients and families.

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## Section 1: Overview of Evidenced-Based Project

### **Introduction**

This Doctorate of Nursing Practice (DNP) project related to Essential II of The Essentials of Doctoral Education for Advance Nursing Practice (American Association of Colleges of Nursing [AACN], 2006). Essential II describes the role of the advanced practice nurse in facilitating organization-wide changes in practice delivery, and ensuring patient safety. DNP graduates must be able to evaluate the impact of practice policies and procedures to meet the health needs of the patients with whom they practice, and must be able to create and sustain changes at the organizational and policy levels (AACN, 2006).

Asthma is a public health problem and leading chronic childhood disease that affected approximately 7.0 million children in 2010 (Centers for Disease Control [CDC], 2012). The prevalence of asthma in the United States increased from 4.4% to 9.8% from 2001-2005 (CDC, 2012), and surveillance by the CDC revealed that the prevalence of asthma among children aged 17 and younger increased by 1.4% from 2001-2010 (Akinbami et al., 2012). Children aged 0–17 years with asthma had a higher asthma hospitalization rate per 100 persons with asthma and a higher emergency department (ED) visit rate (78.7%) than adults aged 18 and over (42.5%) (Akinbami et al., 2012). The public health concerns related to this childhood health issue include the potential for adverse outcomes, such as the need for acute medical interventions, hospitalization, and mortality in addition to experiencing limitations, school absences, or missed workdays (CDC, 2012). Asthma is the most frequent reason for preventable pediatric hospitalization. Asthma affects 7.1 million American children, accounts for one

third of pediatric ED visits, and incurs an annual total direct healthcare cost around 9.3 billion dollars. In 2009, 157,000 hospitalizations, 640,000 ED visits, and 185 deaths were due to pediatric asthma (Luo et al., 2015).

There are two pediatric clinics servicing a community in a southeastern state including the practice for which this project designed. A chart audit from electronic medical records (EMRs) of both project practices were reviewed which identified all patients with asthma and the number of ED admissions for asthma exacerbation within the last six months. In the practice setting for which this project was designed (Practice Setting A) 123 asthma patients were identified, while 110 asthma patients were identified in the other practice (Practice Setting B). As reported by the nurse practitioner (NP) who works in both clinics, patients in the Practice Setting B were less likely to present to the ED with exacerbation of their asthma than patients in the Practice Setting A.

In the last six months, in the Practice Setting A 22 asthma patients were admitted to the ED, while in the Practice Setting B six patients were admitted to the ED. The Practice Setting B has an asthma protocol and self-management plan that assists patients with management of their chronic disease, however the Practice Setting A where this project took place has no such protocol or plan. Parent concerns have been raised about the poor quality of care as expressed to providers, and for the last two months, seven patients chose to change their pediatric care provider from the Practice Setting A to the other clinic because of the lack of education provided related to asthma self-management.

Asthma self-management education is essential to the control of asthma. Education directed toward asthma self-management emphasizes patient participation in

symptom monitoring and control (Jones, 2008). Researchers have supported the benefit of having an asthma management plan for parents and their children. Buford (2004) has shown that it is important that nurses provide education and counseling to both children and their families to ensure that children take responsibility for disease management. In Buford emphasized that at school age, disagreement develops between mothers and children regarding the sharing of asthma management responsibilities. In the study, 38.4% of children thought that they could start treatment by themselves while only 19% of the mothers gave them that responsibility (Buford, 2004).

Parents should be informed through self-management programs about what children can do regarding asthma management during the school-age years. Each of the asthma management responsibilities shared between children and their parents should be identified with individualized plans (Ekim & Ocakci, 2013).

Bundy and Murphy (2014) demonstrated the use of a symptom-based written asthma action plan (AAP) can improve patient asthma outcomes and reduce acute care visits. Results of the study showed that sociodemographic variables and pretest data on asthma severity and medical care utilization were largely comparable for patients in treatment group and control group. Furthermore, the treatment group showed a significantly greater decrease than the control group from pre-to post-test measurement in the number of contacts with the general practitioners and the number of emergency visits to the physician's office. There is a knowledge gap between best practices for the use of an asthma action plan and its implementation in the study site clinic (Caulfield, 2005; Pruitt, 2011; Tan et al., 2013).

Positive social change can take place for the practice environment and families by providing optimal patient care as the patient experiences new levels of wellness, and for the community which will benefit from decreased healthcare dollars being spent on emergency department care. If the DNP project was successful in the target pediatrics care setting, there is potential to recreate the same process in other pediatric setting throughout the state.

### **Background**

Asthma is a common chronic disease responsible for significant health care costs, including emergency department visits and hospital admissions. An annual total direct healthcare cost of asthma estimated around 9.3 billion dollars. In 2009, 157,000 hospitalizations, 640,000 ED visits, and 185 deaths were due to pediatric asthma (Luo et al., 2015). These costs are potentially preventable with better ongoing disease control. Medications and health care visits are expensive. In teaching patients how to manage better their medications by using them correctly, patients will use less medication and their costs will decrease (Raju, Soni, Aziz, Tiemstra, & Hasnain, 2012).

Morbidity and death from asthma have increased over the last several years. From 2001-2010 surveillance by the CDC revealed that the children aged 0–14 years with asthma had asthma deaths rate of 0.03 per 1,000 persons and children aged 15-21 years had asthma death rate of 0.05 per 1,000 persons with asthma. Annually there are 2 million visits to EDs for patients with acute and chronic management of their symptoms of asthma (Schatz et al., 2009). The goals of asthma treatment are to prevent chronic troublesome symptoms, maintain optimal lung function, maintain normal activity,

prevent recurrent exacerbations of asthma, minimize the need for emergency care, provide optimal pharmacotherapy with no adverse effects, and satisfy expectations of asthma care (Jansen, McGrath, Covington, Cheng, & Boushey, 2009).

### **Practice Problem**

The practice problem addressed in this quality initiative (QI) DNP project was the lack of an asthma self-management plan in the pediatric setting. This lack potentially impacted the family's ability to manage symptoms to prevent exacerbation episodes leading to emergency room visits. These visits might have been avoided if there were asthma management guidelines and an evidenced-based protocol in the clinic for patient education. Asthma is a common chronic disease responsible for substantial health care costs, including ED visits and hospital admissions. An annual total direct healthcare cost of asthma estimated around 9.3 billion dollars. In 2009, 157,000 hospitalizations, 640,000 ED visits, and 185 deaths were due to pediatric asthma (Luo et al., 2015).

These costs are potentially preventable with better ongoing disease control (Raju et al., 2012). Lack of access to asthma care, education, and medications are an important issue in the United States. Medications and health care visits are expensive. In teaching patients how to manage better their medications by using them correctly, patients will use less medication and their costs will decrease (Sumino & Cabana, 2013). The proper use of asthma medications will have an effect on the frequency of visits as patients will be better managed (McLaughlin, Leibman, Patel, & Camargo, 2007). Patient's fears and misconceptions about medications need to be addressed for them to adhere to the medical regimen (Partridge, 2004).

All patients must have access to, and be instructed in the use of devices needed to administer medication or monitor their asthma (inhalers, spacers, nebulizers, and peak flow meters) (Chen et al., 2010). The plan must be coaching, a carefully written plan that is developed by the patient and provider. Writing the management plan helps clarify expectations for treatment. The plan provides patients with an easy reference for remembering how to manage their asthma. A patient's ability to take asthma medications is a required skill of self-management (Chen et al., 2010).

Needs of patients are addressed when they are offered self-management education that focuses on their individual needs, and this is enhanced by a written action plan. The use of the written action plan improves the patient's participation in his or her own care (Pinnock et al., 2003). Participation in goal setting of treatment is crucial and should include the basics on diagnosis and individualized treatment (Pinnock et al., 2003). For example, patients can look at the self-management tools they developed with their healthcare provider, identify the problem, and create a solution. Patients can have full control of their symptoms. Al-Sheyab, Gallagher, Crisp, and Shah (2011) conducted a cluster randomized controlled trial using the AAP. This plan reinforced the guidelines related to self-management by the patient and incorporated active participation. In their study, using educational programs that incorporated the national guidelines with the self-efficacy concept, individuals showed an improvement in their asthma-related quality of life.

### **Purpose Statement**

The purpose of this quality initiative project was to develop an evidence-based asthma self-management plan including a staff education, curriculum, pretest/posttest and a patient self-management component. Researchers have found that there are two important elements of asthma education: the partnership between the patient and healthcare provider, and the written action plan with patient flexibility to change the medication regimen, based on symptoms or peak flow measurements (Jones, 2008). Through the development of the asthma education plan and protocol, I address the gap between clinic practice and what is effective related to asthma self-management research.

### **Project Goal and Outcomes**

The goal of this DNP project was to provide staff and patients with asthma management education to promote patient well-being and prevention of exacerbation of symptoms requiring emergency department visits. The following are included:

1. Literature Review Matrix (see Appendix A)
2. Educational Curriculum Plan for Asthma Self-Management (see Appendix B)
3. Asthma Self-Management Protocol (see Appendix C)
4. A Pretest/Posttest for curriculum plan (see Appendix D)

### **Conceptual Model**

I used Rosswurm and Larrabee's conceptual model (RLCM) (Appendix F) to frame this DNP project. The model can facilitate a shift from traditional and intuition-driven practice to implement EBP change (White & Dudley-Brown, 2012). I chose the model for two reasons. First, the model is one method that offers healthcare providers a conceptual framework for practice change that can easily be integrated into clinical



practice. Second, the model guides healthcare providers through a systematic process for evidence-based practice change utilizing change theory and a combination of quantitative and qualitative data along with clinical expertise (Facchiano, Snyder, & Nunez, 2011).

The model has the following six phases: (a) assess the need for change using a team approach to identifying practice problem; (b) link problem interventions and outcomes; (c) synthesize the best evidence which involves searching, summarizing, determining strength of evidence, and making recommendations; (d) design practice change which includes defining proposed change and identifying resources needed; (e) Implement and evaluate the change in practice; (f) Integrate and maintain the change in practice that involves communicating recommended change to stakeholders and present staff in-service education on the change in practice and integrate into standards of practice (Facchiano, Snyder, & Nunez, 2011).

### **Nature of the Project**

Within the framework of the RLCM, I led the interdisciplinary team through this DNP project to develop an evidence-based asthma management plan for pediatric patients. In Step 1, I assessed the need for change and the problem in the practice. During this phase, key stakeholders were included, and baseline data was be gathered. In Step 2, I stated and linked the problem and outcomes interventions, and activities that would help match a theory with the desired attributes. Next, I synthesized the evidence (Step 3) in Section 2 and designed the practice change. I outline Step 4 in Section 3 of this proposal. In Step 4 I led a multidisciplinary team. I discuss Steps 5 and 6 in Section 4.

Within the framework of the RLCM, the QI committee and I identified the problem. At the pediatric clinic, the medical director allowed me to convene an interdisciplinary team to review the analysis and synthesis of the literature related to EBP guidelines for asthma self-management, and the team helped guide the project. The team was composed of the DNP candidate, medical director, office staff, and the nurse educator. I led the team in developing the implementation plan using RLCM. We attended regular meetings, and the team provided ongoing process evaluation as reflected in the meeting minutes. The medical director and nurse educator (two expert evaluators) provided content validation on asthma management. Committee members completed a summative evaluation on the process, the outcomes, and my leadership. In Section 4 I discuss Steps 5 and 6.

### **Definition of Terms**

The following terms have been used for the QI DNP project.

*Asthma:* Asthma defined as a chronic condition characterized by airway obstruction and inflammation. Asthma is completely controllable, however, if we improve patient self-care behavior and capabilities (Chen et al., 2010).

*Asthma exacerbation:* An asthma exacerbation is an acute episode of progressive worsening of symptoms of asthma, including shortness of breath, cough, wheezing, and chest tightness. Exacerbations are usually defined by using a combination of the subjective day- and night- time symptoms and objective parameters such as peak flow, use of treatment, or spirometry (Partridge, 2004).

*Evidence-Based Practice (EBP):* Evidence-based practice defined as a process of connecting nursing practice with research-based knowledge. EBP is the best practices used for patient care, interventions, and techniques that are grounded in research and known to promote a higher quality of care (Mcilvoy & Hinkle, 2008).

*Protocols:* Protocols are stepwise application tools designed to be used at the bedside; they are quick references focusing on one aspect of care. Protocols can ensure the standard of care does not fall below a defined minimum standard, develop the role of the nurse resulting in improving the speed with which treatment are delivered (Flynn & Sinclair, 2005).

*Self-management:* Self-management describes a person who is active in his or her self-care. With self-management, the individual can manage the symptoms, treatment, consequences, and a lifestyle change is encouraged. In self-management, learners accept responsibility for maintaining their health and illness, and they are encouraged to make their behavioral changes (Tousman, Zeitz, & Taylor, 2010).

### **Assumptions**

Assumptions are statements that are considered right, even though they have not been scientifically tested (Burns & Grove, 2009). The following were the assumptions for this QI DNP project that were important to the development of the project:

1. Health care providers and staff desire to give the best possible care using the best evidence available.
2. Patients and their families expect to receive the best care using the best evidence available.

3. Patients and their families expect to have a voice in the direction of the goals.
4. Patients and their advocates will have a desire to learn and implement the education provided.

### **Scope and Delimitations**

The project was chosen based on the need for change in the practice environment. The population for this project included pediatrics patients and their families that required asthma self-management to increase their knowledge and skills for appropriate self-management.

### **Limitations**

Limitations or restrictions in a study may decrease generalization of the findings and are theoretical or methodological in nature (Groves & Burns, 2009). The project may also reduce the ability to generalize the successes and failures to other populations.

During this QI DNP project I identified the following limitations:

1. Developing the plan may not be generalized to another setting.
2. Each pediatrics cares setting, regardless of location, will differ in culture, need and available resources.

### **Significance of the Project**

The proposed practice approach for the QI DNP project was to introduce an evidence-based asthma self-management plan and protocol and an educational curriculum that would allow clinical staff members to be more engaged in awareness and prevention of asthma exacerbations in patients. This QI DNP project has the potential for several significant contributions to practice. The evidence-based asthma self-management

plan improves a feeling of self-control, may promote the relationship between the provider and patient, decrease ED visits, and lower the cost of asthma care. Among the programs that looked at self-management options, written action plans that instructed patients how to self-adjust their medications had better outcomes (Corbridge & Corbridge, 2010). Such outcomes are important for reducing asthma morbidity and mortality and every organization should integrated education into the clinical setting.

### **Summary**

As described above, Section 1 discussed the problem of lack of knowledge of patients about asthma self-management. The practice problem addressed in this quality initiative (QI) DNP project was the lack of an asthma self-management plan in the pediatric setting. This lack potentially impacted the family's ability to manage symptoms to prevent exacerbation episodes leading to emergency room visits. Section 1 described the importance of and the need for asthma management plan and an evidenced-based protocol in the clinic for patient education. I introduced an evidence-based asthma self-management plan, protocol, and an educational curriculum to the team. The team reviewed the material and an educational curriculum plan was developed.

In Section 2 I present a review of scholarly literature and discuss the theoretical framework and the literature related to asthma education and management used in the project. The basis for the development of practice change was the EBP found in the literature and facilitated through the use of RLCM. Successful implementation can contribute to a change in practice by the medical director, nurse practitioners, and staff and result in lower ED visits in the pediatrics population.

## Section 2: Review of Scholarly Literature

### **Introduction**

The practice problem addressed in this quality initiative QI DNP project was the lack of an asthma self-management plan in the pediatric setting. This lack potentially impacted the family's ability to manage symptoms to prevent exacerbation episodes leading to emergency room visits. These visits might have been avoided if there were asthma self-management guidelines and an evidenced-based protocol in the clinic for patient education. The purpose of this quality initiative project was to develop an evidence-based asthma self-management plan including a staff education, curriculum, pretest/posttest and a patient self-management component.

According to Terry, (2012), the DNP must critically appraise the literature using credible sources, which are primary in nature. The DNP must have the ability to apply knowledge in the solution of a problem and improve the reliability of healthcare practice and outcome (Terry, 2012). Poor perception of symptoms, poor compliance with medication and lack of knowledge about how to take action in case of asthma deterioration are probably the most important factors for the high asthma morbidity (Scholle et al., 2010). The goals of asthma treatment are to maintain the maximum lung function, maintain normal daily activity, provide proper medication administration with no adverse effects, prevent recurrent exacerbations of asthma, and reduce the need for emergency care visits (Jansen, McGrath, Covington, Cheng, & Boushey, 2009).

The development of an evidence-based asthma education plan for appropriate self-management may standardize care resulting in improved patient outcomes. Pruitt

(2011) indicated that a written asthma action plan is essential and should be developed in partnership with the patient. The systematic review (Brower & Brand, 2008) also supported the previous research on the need for routine patient education and use of asthma action plans. The authors recommend that education should include discussion of the disease process, inhaler technique, and importance of medication adherence (Brower & Brand, 2008). In summary, the results of the studies support the need for asthma education to improve clinical outcomes as well as reduce emergency department and inpatient utilization and therefore overall costs.

This section will provide a review of the literature that examines asthma educational plan. First, the literature search strategy will be discussed, then the next section will describe the Rosswurm and Larrabee's model (RLCM) which is the EBP model for this project. The last section is the review of asthma action plan and asthma patient education.

### **Literature Search Strategy**

The search for literature was conducted using several databases that included; CINAHL, Medline and Cochrane Library. Total of 75 studies were found by using Boolean “and” or “or” between keywords such as: asthma, asthma self-management, Rosswurm and Larrabee's model (RLCM), adolescents, asthma exacerbation, clinical practice guidelines, asthma self-management plan and protocols. The sources included 40 foundational and current peer-reviewed literature, and the search was limited to articles from 2008-2015.

### **Rosswurm and Larrabee's Conceptual Model**

One essential element for transferring the best evidence into clinical practice is the selection of EBP model. The one chosen for this QI DNP project is the Rosswurm and Larrabee's conceptual model (RLCM). The six stages of the model are: assess the need for change, link problem interventions, and outcomes, synthesize the best evidence, design practice change, implement and evaluate the change in practice, and integrate and maintain the change in practice (Facchiano, Snyder, & Nunez, 2011). The model was chosen for two reasons:

1. The model is one method that offers healthcare providers a conceptual framework for practice change that can easily be integrated into clinical practice.
2. The model guides healthcare providers through a systematic process of evidence-based practice change utilizing change theory and a combination of quantitative and qualitative data along with clinical expertise (Facchiano, Snyder, & Nunez, 2011).

### **Application of Rosswurm and Larrabee's Conceptual Model**

Rosswurm and Larrabee's (1999) model (Appendix F) utilizes a change theory and can facilitate practice change within an organization. This model helps the QI project and facilitates a shift from traditional and intuition-driven practice to implement EBP change (White & Dudley-Brown, 2012). I chose the RLCM, to address the need to reduce the incidence of ED admission rates in asthma patients, develops asthma self-management plan to prevent exacerbation of symptoms and provide self-care management during exacerbation episodes, and develops the implementation and



evaluation plan to sustain the EBP change in clinical practice. As the QI DNP project achieved the goals and objectives, RLCM supported the assessment and evaluation of the need for change; the association of the problem with an intervention; the gathering of all best evidence; the design of the change; the implementation and evaluation of the project; and the sustaining of the change in practice (White & Dudley-Brown, 2012).

The model guided the work of evidence-based practice mentors in developing a template, system, and educational plan for dissemination of evidence-based policies and procedures into patient care.

Rosswurm and Larrabee's model offered the best framework for this DNP project design because the model was congruent with a continuous quality improvement approach as there was ongoing assessment of each process related to patient outcomes (Long, Burkett, & McGee, 2009). Rosswurm and Larrabee's model is a practical framework, which can be used for many patient-focused quality improvement projects utilizing the EBP including the patient with asthma. This QI project aligned with the pediatrics care facility's mission to provide a high quality of services while being mindful of the needs of pediatrics populations. The RLMC model was chosen because this theory guided healthcare professionals through a systematic process (Rosswurm & Larrabee, 1999).

### **Asthma Action Plan**

Previous research have supported the need for the use of asthma action plans and routine patient education. Pruitt (2011) indicated that a written asthma action plan is essential and should be developed in partnership with the patient. The author stated that

asthma self-management must be an integral part of all asthma patients' care plans (Pruitt, 2011). Tan et al. (2013) claimed that parents of children with asthma provided with a written asthma action plan (WAAP) are reported to be more confident in their ability to provide care for their child during an asthma exacerbation. A questionnaire survey to parents of children with a WAAP (CW) and without a WAAP (CNW) who were followed up at nine public primary care clinics in Singapore. The results indicated that parents in the CW group were more likely to understand bronchoconstriction (adjusted odds ratio (AOR) 4.51,  $p = 0.025$ ), to feel capable (AOR 2.77,  $p = 0.004$ ), safe (AOR 2.63,  $p = 0.004$ ), and had increased confidence (AOR 2.8,  $p = 0.003$ ) to change doses of inhaled medications during an asthma exacerbation (Tan et al., 2013).

A written asthma action plan is essential to a successful recovery. Caulfield (2005) claimed the use of asthma action plans in asthma education helped achieve improvements in asthma control and lung function of children with asthma. The author stated peak flow readings may be used to help the monitoring of changes in pulmonary function and help define the steps of treatment to be implemented in the action plan. Patient's knowledge, understanding, and skill set must be reviewed with every encounter with a health care provider. Brower and Brand (2008) supported the previous research on the need for routine patient education and use of asthma action plans. The analysis comprised four trials involving 355 children. Children following a symptom-based written action plan had a 27% lower risk of exacerbation requiring acute medical care than children on a peak flow-based action plan (relative risk 0.73, 95% *CI* 0.55–0.99); the number needed to treat was 9 (95% *CI* 5–138). The authors suggested that education

should include discussion of important of medication adherence, disease process, and inhaler technique (Brower & Brand, 2008). The result of the studies supports the need for asthma education to improve clinical outcomes as well as reduce emergency department and inpatient utilization and, therefore, overall costs. Simplifying a written asthma action plan is the key to successful recovery from an exacerbation of asthma, whether managed at home or in the hospital (Caulfield, 2005).

### **Patient Education**

Asthma self-management education is important to the control of asthma. Education directed toward asthma self-management emphasizes patient participation in symptom monitoring and control. Regarding patient education, the 2007 NHLBI guidelines recommended asthma education should be provided at every patient encounter by all providers and all points of care (Jones, 2008). Based on a review of all relevant evidence, GINA (2011) now recommends that learning to recognize signs of change in asthma symptoms is an important personal skill.

Asthma education can be provided at the different settings including the home, pediatric or adult care practices, and schools. Britto et al. (2014) were able to improve asthma care in adolescents using the chronic care model. The practice changes included the development of care coordination, structured education, and community outreach. A total of 377 adolescents participated in the project, which resulted in 86% of patients having action plans, as well as a two-point improvement in the Asthma Control Test (ACT) in patients with poorly controlled asthma. Lastly, individuals reported that their confidence to manage asthma increased from 70 to 85 % (Britto et al., 2014).

In the study of Wood and Bolyard (2011) a four-page, 39-item questionnaire was initially developed based on a comprehensive review of the literature. Questionnaire items included questions that related to the parents'/guardians' knowledge of asthma and their self-efficacy to manage their child's chronic illness. Results from the study revealed that fifty-six percent of the study population had asthma action plans completed by their physician. These figures are higher compared with the CDC report among children with asthma, indicating 39% received an asthma management plan from their health care provider. This result may account for the reduced number of ED admission rates and improved adherence to physician follow-up. Wood and Bolyard (2011) claimed that patients who received asthma education from nurses in pediatric practices had shorter lengths of stay (1.25 days versus 2.32 days) when hospitalized. The costs associated with the hospital stay were also significantly less: \$4,756 compared to \$ 8,715 for other local children (Wood & Bolyard, 2011).

Yong and Shafie (2014) claimed that the delivered enhanced asthma managements, whether as single or mixed modes, were effective and cost-reducing overall. A total of 49 studies were included. There were three types of intervention for enhanced asthma management: education, environmental control, and self-management. The studies had a fair quality of economic evaluation with a mean QHES score of 73.7 ( $SD=9.7$ ) and had the good quality of evidence sources. The review showed that among education, self-management, and environmental control, the most cost-effective enhanced management was a mixture of education and self-management by an integrated team of healthcare and allied healthcare professionals (Yong & Shafie, 2014).

## **Summary**

This section presented an extended review of the literature that examined the evidence-based asthma educational initiative plan, self-evaluated tool, and asthma action plan. The development and implementation of an asthma self-management plan can improve clinical outcomes of pediatric patients as well as reduce emergency department admission rates as supported by the literature. The Rosswurm and Larrabee's conceptual model (RLCM) served as the framework for the project design. The review of the literature supported this QI DNP project's goal, to improve patient outcomes by educating patients and families on asthma self-management preventing exacerbation. Section 3 of this paper explains the approach and methods in the QI initiative to address the development of the asthma management plan in the pediatric patients. Included in this section are the multidisciplinary team, review of the evidence, ethical considerations, and development of the asthma education plan.

### Section 3: Approach

#### **Introduction**

The purpose of this QI DNP project was to develop an evidence-based asthma self-management plan including a staff education, curriculum, pretest/posttest and a patient self-management component. Studies within the literature review supported the use of an evidence based asthma self-management plan for the practice setting. Section 3 presented the approach and rationale for developing the evidence-based asthma management plan. This section will also include ethical and budget considerations, and the evaluation of the outcome products. A team of six interdisciplinary staff members

was identified to guide and evaluate the project at the pediatric clinic during the DNP project.

### **Approach and Methods**

The DNP project utilized the RLCM framework for developing the process of asthma management development, management of the project, creation and establishment of the multi-disciplinary team, and the design of the implementation and the evaluation plan of the project which led by myself as the team leader. The project approach was through a multidisciplinary team and was framed within the Rosswurm and Larabee model beginning with the assessment of the needs and ending with integration of evidence to the guideline that was developed: (a) assess the need for change; (b) integrate the problem, intervention, and outcomes; (c) gather the best evidence; (d) design a practice of change; (e) implement and evaluate the change in practice; (f) integrate and maintain the change in practice (White & Dudley-Brown, 2012).

The project utilized the RLCM framework for developing the asthma self-management plan. Step 1 of the project entailed identification of the project and was presented in Section 1 of this paper. Step 2 was selecting the evidence-based literature which was presented in Section 2. Steps 3 and 4 were presented in this section when the interdisciplinary team was formed. Steps 5 and 6, implementation and evaluation, will be carried out after my graduation from Walden University.

### **Leadership**

I was the leader and coordinated all activities that included:

- A multidisciplinary QI team was developed. The team formed of key stakeholders from the pediatric practice which included the medical director, asthma nurse educator, and office staff. The medical director and asthma nurse educator were the two content experts that conducted an ongoing evaluation of the curriculum plan, validated the contents of the curriculum and validated the pretest/posttest items. The following outcomes were produced.
- DNP student completed a review of literature for asthma self-management in pediatric patients and presented an analysis and synthesis to the team. The literature review matrix created (see Appendix A)
- An educational curriculum plan for asthma self-management developed for staff (see Appendix B).
- Protocol on asthma self-management created for pediatric clinic for patients adapted (see Appendix C)
- A pretest/posttest was designed for the curriculum plan (see Appendix D)
- A qualitative summative evaluation by stakeholders was completed for evaluation of the project, process, and my leadership (see Appendix E).

### **Project Team**

Collaboration among all stakeholders is important in the design of a program to meet the educational needs of staff and patients. Bender, Connelly and Brown (2013) defined the interdisciplinary collaboration as an inter- personal process characterized by healthcare professionals from multiple disciplines, with shared objectives,

responsibilities, decision-making, and working together to solve patient care problems.

Factors that lead to successful engagement of stakeholders is to identify and engage stakeholders early in the process, define clear expectations, maintain ongoing relationships to build trust and credibility (Guise et al., 2013).

The team members for this QI project were as following:

- Team leader: I led the team and served as a facilitator of the project. Team leaders may be useful in facilitating interdisciplinary collaboration (Bender, Connelly & Brown, 2013).
- Asthma nurse educator (expert evaluator 1): The nurse educator was the resource to provide educational needs for staff and DNP student. The nurse educator also conducted an ongoing evaluation of the curriculum plan and the pretest/posttest item and validated the contents of the curriculum.
- Medical director (expert evaluator 2): Assisted with the review of literature for asthma management and developing the educational plan and protocol, and asthma education components. The medical director conducted an ongoing evaluation of the curriculum plan and the pretest/posttest item and validated the contents of the curriculum.
- Nurse manager: The nurse manager was a coordinator throughout the project and facilitated team efforts.



- Office staff: Gathered data related to asthma management skills and attend 45 minutes meeting with team leader on every Wednesday to identify and share what specific data and information was needed.

### **Meetings**

Six weekly team meetings were held which lasted, 45 minutes. Communication of positive feedback among the team members working together was one way to empower the working environment that created a positive working environment in a team. During the meetings the literature was reviewed, and the asthma management plan components were reviewed and accepted after the content experts completed their work.

### **Ethical Considerations**

Approval for this DNP QI project was obtained using Form A from Walden University. A minimal risk involved the QI project. After graduation, implementation of the educational plan will take place. Therefore, no identification or informed consent of participants is part of the DNP project.

### **Budget**

The total cost for this DNP project was \$432.96 which covered the cost of food, (lunch and learning meeting), pen, paper and ink for printer, and a colored poster of the respiratory system. There was no additional charge for equipment such as inhalers, peak flow meter, and spacer. From the practice site and with permission of the medical director the free samples such as inhalers, AeroChambers and a colorful poster for asthma action plan was used.

### **Evaluation/Data Collection/Data Analysis**

## **Evaluation**

Evaluation of the project was two-fold: the process evaluation and content validation. The process evaluation was conducted through an ongoing process review in the development of evidence-based asthma self-management plan by the team reflected in meeting minutes. The synthesis of literature was presented to the team members, who then commented on the information and requested follow-up information on the clinical guidelines for asthma self-management and design of the educational curriculum plan. Formal evaluation/validation of the outcome products were conducted by two content experts. One expert was a master's of science prepared nurse who was the asthma nurse educator and the medical director/pediatric physician in the clinic. Construction of the test items was reviewed by a PhD with expertise in assessment and measurement. The two experts conducted the evaluation and validation of the outcome products which included:

1. Literature Review Matrix (see Appendix A)
2. Educational curriculum Plan for Asthma Self-Management (see Appendix B)
3. Asthma Self-Management Protocol (see Appendix C)
4. Pretest/Posttest (see Appendix D)
5. Qualitative Summative Evaluation by stakeholders was completed for evaluation of the project, process, and my leadership (see Appendix E).

## **Data Collection**

Data collected for this project were from the evaluation of the curriculum plan (see Appendix A), the pretest/posttest content validation (see Appendix D), and the

qualitative summative evaluation (see Appendix E). The synthesis of literature was presented to the team members, who then commented on the information and requested follow-up information on the clinical guidelines for asthma self-management and design of the educational curriculum plan. The team examined the articles on asthma protocols and asthma self-management education components based on NHLBI and GINA practice guidelines and scholarly projects.

The two experts both conducted the evaluation and validation of the outcome products. The experts were given a copy of the literature review matrix (Appendix A), the educational curriculum plan for asthma self-management (Appendix B), and the pretest/posttest (Appendix D) in order to complete their validation. The form for content expert evaluation of DNP project (see Appendix F) given to experts and they evaluated the educational curriculum. The form consisted of nine itemized objectives in a “*not met = 1/met = 2*” evaluation format. The form for content expert validation of the pretest/posttest (Appendix I) were also given to experts. The content experts validated the pretest/posttest items, which consisted of a 17-item, 4-point Likert-type rating scale that ranged from “*not relevant*” - 1 to “*very relevant*” - 4. A PhD in educational psychology with expertise in assessment reviewed the pretest/posttest item construction.

### **Data Analysis**

Descriptive analysis was conducted for all the results. In the summary of the content experts evaluation of curriculum plan (see Appendix H), the average score equaled two meaning the expert content determined all objectives were met. In the summary of expert content validation of the pretest/posttest items (see Appendix J) the

average score equaled to four meaning the expert content determined all the test items were very relevant to outcome product. The content validation index = 1.00.

Summative evaluation was conducted for the goal of verifying the program accomplished the objectives (Hodges & Videto, 2012). This was qualitative in nature and was reflected in the meeting minutes. The stakeholders (n=6) completed the open-ended questionnaire form on the process, project, and my leadership. The emerging theme responds included: (a) the project was effective, and team meetings allowed for open conversation drew upon each member's knowledge, skills, and perspectives to solve problems support one another in achieving the team's collective goals and desired outcomes; (b) effective communications between each team member and the team leader was established to provide information that were critical to the discussion; (c) active engagement during the meetings that allowed team members reviewed different articles gathered related to asthma and asthma self-management and contributed ideas to the design and strategies for development of the products.

### **Summary**

This section of the DNP project described the approach and rationale for the asthma self-management plan framed within RLCM involving a team approach in the development. The members of the QI multidisciplinary team and their responsibilities were described, including my role. Moreover, evaluation of the project was discussed including both the process evaluation and summative leadership evaluation. Finally, an overview of the implementation and project evaluation post implementation will be

conducted after graduation. Section 4 and 5 of this paper discuss the implementation and evaluation plans and integrating and maintaining the practice change that will be conducted after the DNP student graduates from Walden University.

#### Section 4: Discussion and Implications

##### **Introduction**

The purpose of this QI DNP project was to develop an evidence-based asthma self-management plan including a staff education, curriculum, pretest/posttest and a patient self-management component. The goal of this DNP project was to provide staff and patients with asthma management education to promote patient well-being and prevention of exacerbation of symptoms requiring emergency department visits. The following outcome were achieved:

1. Literature Review Matrix (see Appendix A)
2. Educational Curriculum Plan for Asthma Self-Management (see Appendix B)
3. Asthma Self-Management Protocol (see Appendix C)
4. Pretest/Posttest (see Appendix D)
5. Qualitative Summative Evaluation by stakeholders was completed for evaluation of the project, process, and my leadership (see Appendix E).

Section 4 presents the findings and discussion of the outcomes related to the expert reviews and content validation, the implications, strengths and limitations of the project, and, lastly, an analysis of myself as a scholar, practitioner, and developer of the project.

## **Findings and Discussion**

The use of Rosswurm and Larrabee's conceptual model (RLCM) facilitated effective collaboration to meet the project outcomes, which led to the acceptance of the project. The six steps of (RLCM) were used beginning with identification of the problem as described in Section 1, presenting the evidence-based literature in Section 2 and using a team approach to design the project, create the plan in Section 3 with findings and evaluation presented in Section 4 of this paper. The completion of steps 5 and 6 of the model will take place after my graduation from Walden University. The process of developing the project involved analyzing and synthesizing the literature and presenting the evidence to the team that supported identifying the clinical guidelines for asthma self-management, identifying the most appropriate protocol, developing the evidence-based curriculum, and designing the pretest/posttest.

### **Evaluation**

Evaluation is an ongoing process and is a foundation for a project plan, focus, design, interpretation, and use of results. Evaluation is a continuous activity that has four sequential stages: formative, process, impact, and outcome (Friis & Sellers, 2014). Evaluation occurred during the completion of the project and used formative and summative evaluation, along with content validation.

The DNP project was completed with support from stakeholders, leadership, and evidence gathered from the literature review. Ongoing discussion of the project occurred with input from the team members. These discussions occurred during regular weekly

meetings. The new comprehensive curriculum plan and protocol were developed with guidance from the team members.

The team reviewed the literature focused on asthma self-management education and protocols. Two content experts conducted the evaluation and validation of the outcome products. One was an MSN prepared asthma educator and the other a pediatrician. They evaluated the educational curriculum and provided content validation of the pretest/posttest items. Additionally, A PhD in educational psychology with expertise in the assessment reviewed the pretest/posttest item construction. Upon completion of the project, the team members completed a qualitative summative evaluation on the project. Findings and evaluation/validation are as the following:

#### **Expert Review and Content Validation of the Project Outcomes**

The team reviewed the literature focused on asthma self-management educations and protocols. Three experts conducted the evaluation and validation of the outcome products. The two content experts were MSN-asthma educator and Pediatrician who evaluated the educational curriculum and provided content validation of the pretest/posttest items. A PhD in educational psychology with expertise in assessment was able to review the pretest/posttest item construction. Upon completion of the project, the team members completed a qualitative summative evaluation on the project. Findings and evaluation/validation are as the following:

**Outcome I: Literature Review Matrix (see Appendix A)**

**Discussion.** The synthesis of literature was presented to the team members, who then commented on the information and requested follow-up information on the clinical guidelines for asthma self-management and design of the educational curriculum plan.

**Evaluation.** After the results of the literature review were presented to the team, the team agreed to use several articles for the development of the project.

**Data.** None

**Recommendation.** The team suggested that at least 25 to 30 articles must be related to asthma self-management in pediatrics.

**Outcome II: Educational Curriculum Plan for Asthma Self-Management (see Appendix B)**

**Discussion.** The educational curriculum plan was developed based on the review of the literature and consisted of objectives, content outline, evidence, method of presentation, method of evaluation of pretest/posttest items, and evidence grade. The educational content provided was information about asthma, signs and symptoms of asthma, asthma exacerbations, early warning signs of deterioration, the role of an asthma action plan, and asthma self-managements education and protocol.

**Evaluation.** The two content experts evaluated the curriculum plan using the Content Expert Evaluation form (Appendix G), which consisted of nine itemized objectives in a “*met/not met*” evaluation format. The experts were provided with a copy of the curriculum plan and the literature review matrix and compared the content of the



curriculum with the literature review to ensure that the material provided met the objectives.

**Data.** The content experts agreed that all the objectives were met. The average score equaled two meaning the content experts determined all objectives were met (Appendix H).

**Recommendations.** None

### **Outcome III: Asthma Self-Management Protocol (see Appendix C)**

**Discussion.** The team examined the articles on asthma protocols and asthma self-management education components based on NHLBI, GINA, and CDC practice guidelines and scholarly projects on guide for asthma management and prevention in pediatrics.

**Evaluation.** The team evaluated the information and selected the protocol for asthma management based on NHLBI and GINA clinical practice guidelines.

**Data.** None

**Recommendation.** The team recommended implementation of the protocol.

### **Outcome IV: Pretest/Posttest (see Appendix D)**

**Discussion.** A Ph.D. in educational psychology with expertise in assessment reviewed the construction of the 17 multiple-choice and true/false items on the pretest/posttest. To determine how well each item reflected the curriculum objectives (i.e., content validation), the two content experts were given a copy of the pretest/posttest, the curriculum plan, and the literature review matrix.

**Content Validation.** The content experts validated the pretest/posttest items, which consisted of a 17-item, 4-point Likert-type rating scale that ranged from “not relevant” to “very relevant.”

**Data.** Content Validation Index = 1.00

**Recommendation.** The assessment expert made recommendations to have an equal number of “true/false” items.

### **Qualitative Summative Evaluation (see Appendix E)**

In the last meeting, a 7-item questionnaire, open-ended, qualitative, and summative evaluation was sent to each team member (n=6) through the interoffice mail with instructions to complete and return the evaluation anonymously. All questionnaires filled out without identification and returned through interoffice mail. The questionnaires were analyzed, and the emerging themes were as follows:

#### **Effectiveness of the Project as a Team Approach**

An emerging theme was the project was a problem-solving approach. The leader coaching and development provided the framework for the team member to contribute to the achievement of goals. Throughout the meeting, the leader communicated the rules of engagement and team member responsibilities to ensure open dialogue and exchange of ideas. One member wrote that the leader helped team members remove barriers of creativity by implementing mind mapping to develop ideas to solve problems.

#### **Outcome Products**

An emerging theme was the literature review was productive to successfully develop the project. The team noted that all team members and the leader discussed and

agreed on the nature of the project and negotiated the timeline of activities to be completed. During the meetings team members reviewed, different articles gathered related to asthma and asthma self-management and contributed ideas to the design and strategies for development of the products.

### **The Role of the Student as the Team Leader**

An emerging theme was effective leadership style. The team noted that the student's leadership style was a high-performing leader who kept the purpose, goals and approaches relevant and meaningful and built commitment and confidence. One member wrote that the leader constantly giving guidance to the format of the plan and executing the development of the curriculum plan. Another member wrote that the leader was ensured that team members constantly enhance their skills, and managed relationships from the outside with a focus on the removal of obstacles that might hinder group performance.

### **Suggestions for Improvement**

An emerging theme was an equal workload and timely manner. One team member expressed everyone should have a manageable and relatively equal workload. One member wrote that meetings could occur in a comfortable location and at times that was convenient for both the team members and the DNP student.

### **Implications**

The Global Initiative for asthma management strategy recommends achieving symptom control and minimizing the future risk of poor outcomes as priorities for asthma management (GINA, 2011). The implications of this project are that the

evidence-based asthma protocol and the educational curriculum represent a safe and efficient plan to enhance knowledge of patients for appropriate self-management. The usage of the tools for asthma management will contribute to the quality of life in patients and continuing satisfaction of their family.

### **Policy**

The goal of the DNP project was to provide staff and patients with asthma management education to promote patient well-being and prevention of exacerbation of symptoms requiring emergency department visits. In 2009, 157,000 hospitalizations, 640,000 ED visits, and 185 deaths were due to pediatric (CDC, 2012). Annually there are 2 million visits to emergency departments for patients with acute and chronic management of their symptoms of asthma (Schatz et al., 2009).

There is now sufficient evidence that asthma self-management education improves long-term asthma outcomes. The clinical practice guidelines based on NHLBI and GINA has recommended education and skills training as essential to self-management. For example, to prevent asthma exacerbations and reduce emergency departments visits, behavioral modification through specific training in various self-management skills are required. These self-management skills include: (a) teach signs and symptoms of worsening asthma; (b) explain that short-acting beta<sub>2</sub>-agonist are quick-relief and inhaled corticosteroids are preventers; (c) educate that recognizing and avoiding personal triggers is an important part of asthma control; (d) patients with asthma should have an up to date written action plan; (e) regular medical review and collaborative care improve processes and outcomes of care (NHLBI, 2007; GINA, 2011).

The interdisciplinary staff will provide collaborative services to meet the needs of the asthma patients and their families, which will improve health outcome.

### **Practice**

The practice in the organization allows quality care and safety because nurse practitioners based their care from the current and best research available (Grove, Burns, & Gray, 2013). The development of the EBP guideline and educational curriculum for asthma patients enhanced my role as a leader. This QI project provides a pathway for the advanced practice in nursing, gives the opportunity to lead the organization in solving problems, and promotes the use of EBP in practice. The developed EBP QI project will also help staff to master the skills of asthma self-management as well as work collectively with others to provide excellent clinical practices for pediatric patients. Knowing how to prepare, communicate, conduct, and lead productive problem-solving meetings was the key to the success of the team to master the skills of asthma self-management.

### **Research in Practice**

DNP use research to provide evidence-based care that promotes quality health outcomes for individuals, families, communities and health care systems (AACN, 2006). The essential goal of DNP research in practice is to help the evolving healthcare system to successfully conduct research and improve clinical practice to enhance the quality care provided to patients (IOM, 2011). DNP will continue to work collaboratively to both create and apply knowledge in the practice area, and this synergy will benefit patients, families, and systems of care. To prevent asthma exacerbations, additional

efforts in education needed to help patients understand signs and symptoms of asthma, the need for asthma action plan, and options for treatment plans. Continuing to do the literature review on asthma self-management protocols and collaborative treatments will increase the quality of healthcare and decrease the healthcare costs.

Researchers may be interested or concern to know what factors contribute to the development of evidence-based asthma self-management. If there is no best possible management, the researchers may review and modify the EBP guideline. Also, if the EBP guideline for asthma self-management is successful, researchers will be able to disseminate to other facilities and share new and improved ways to prevent asthma exacerbations and emergency visits among pediatric patients. They will design a new initiative, implementation, and collect the data about the measures and outcomes (Kelly, 2011).

### **Social Change**

DNP prepares nurses to have abilities to facilitate positive social change and knowledge in their practice setting, communities, and societies. The pediatric practice has consistently explored gaps between best practices and currently existing practices in the healthcare system to identify ways of improving quality care. The development of the evidence-based asthma self-management plan for the pediatric practice will prevent asthma exacerbations and emergency department visits and increase the quality outcomes of the care.

EBP's integration in the nursing practice helps healthcare systems to achieve cost-effective care with better patient outcomes. Doctoral level knowledge and skills are

essential for creating social change, and implementing system-wide changes to make healthcare systems safe, and efficient. The knowledge gained from the scientific foundation of the DNP curriculum can immediately be used by the team members to address current and future practical issues.

### **Strengths and Limitations**

The strengths of this DNP project included the robust literature review that helped identify an evidenced-based protocol, and the clinical guidelines related to asthma and asthma management. Support from the quality improvement committee was a significant strength, which provided feedback and suggestions for developing the project. Finally, the medical director allowed me to use my leadership skills to develop the DNP project. The limitations were included difficulty in persuading the staff of the need for change even the change may be time consuming, and the time-consuming process of the IRB.

### **Analysis of Self**

The following sections present a self-analysis in several domains related to the process of developing this DNP project.

#### **As Scholar**

This educational experience has added to my knowledge about how to identify new ways to incorporate my skills in designing and promoting ongoing changes in the healthcare system that will help me contribute to successful practices in providing high-quality healthcare. My knowledge of evidence-based practice and research has grown and has contributed to the advancement of the evolving clinical practices and academia in my discipline. This educational experience also provided me the ability to translate

scientific knowledge into complex clinical interventions tailored to meet individual, family and community health needs. I perceived the scholarly writing project to be designed was designed to assist me in learning how develop my scholarly writing. Preparing and receiving critiques from the mentor and peers was perceived to be the most influential element in helping me to understand the process of scholarly writing and in producing better- written product.

### **As Practitioner**

The DNP program provided me an opportunity to continue as a DNP practitioner and provided me with the ability to transfer research findings into practice and to progress as an expert practitioner. The combination of knowledge, expert skills, and the integration of best research advanced the nursing practices and other related profession (Zaccagnini & White, 2012). As an advanced practice nurse in the pediatric setting, I shared evidence-based literature related to the QI project with the multi-disciplinary team. The DNP program also has enhanced my leadership skills and enabled me to use evidence-based practices in providing high-quality care.

### **As Project Developer**

In the project development and practicum courses, learning activities contributed to my professional portfolio. The project and practicum courses offered me an opportunity to apply newly developed skills and relate theoretical content to nursing practice. This professional experiential learning helped me to prepare for the highest level of practice. The knowledge I have gained throughout the doctoral program has allowed me to advance educationally and become a successful project developer and effective



leader. During this time of transition, I developed negotiation skills and personal attributes including resilience, determination, and leadership. Experience in leadership is the most valuable factor in enabling leaders to develop their skills especially when they have appropriate guidance and support.

### **Project Contribution to My Professional Development**

This DNP project provided me an opportunity to understand principles of practice management and practical strategies for balancing productivity with a quality of care. I learned how to emphasize safety, quality, efficiency, and effectiveness of practice. The project process helped me develop my leadership skills, decision-making, and collaborative skills so that I may continue integrating evidence-based changes in the evolving healthcare system. Strong leadership on the part of nurse practitioners will be required to implement the changes necessary to increase quality, access, and deliver patient-centered care.

### **Summary**

The goal of this DNP project was to provide staff and patients with asthma management education to promote patient well-being and prevention of exacerbation of symptoms requiring emergency department visits. The goal was to introduce an educational curriculum for staff and patients and to establish an asthma self-management protocol for the practice setting. Achieving the goal of preventing asthma exacerbations and emergency department visits will enable staff, patients, and family to improve patients' quality of life and healthcare outcomes. The team worked collaboratively towards the development of the evidence-based asthma management plan which includes

educational curriculum and EBP protocol that would provide quality care and safety to the pediatric patients. The purpose of Section 5 is to present the abstract for a poster presentation to disseminate this project to a larger audience.

#### Section 5: Scholarly Project Dissemination

##### **Poster Presentation Abstract**

For dissemination, the scholarly product abstract will be submitted to The Cone Health Nursing Research Council Annual Nursing Research and Evidence-Based Practice Symposium in Greensboro, North Carolina. The poster presents (Appendix I) presents the background, significance, purpose, methodology, outcome, and conclusion of an evidence-based asthma self-management plan in pediatric patients to prevent asthma exacerbations and emergency visits. The poster also presents an educational curriculum that will increase the knowledge of the staff on asthma self-management to improve the quality of patient's care and healthcare outcomes.

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**Presenter:** Foroogh Narmani, MSN, FNP-C

**Title:** An Evidence-Based Asthma Self-Management Plan for Pediatric Practice Setting

**Background:** Asthma is a common chronic disease responsible for significant health care costs, including emergency department visits and hospital admissions. In 2009, 157,000 hospitalizations, 640,000 ED visits, and 185 deaths were due to pediatric asthma (Luo et al., 2015). From 2001-2010 surveillance by the CDC revealed that the children aged 0–14 years with asthma had asthma deaths rate of 0.03 per 1,000 persons and

children aged 15-21 years had asthma death rate of 0.05 per 1,000 persons with asthma. Annually there are 2 million visits to emergency departments for patients with acute and chronic management of their symptoms of asthma (Schatz et al., 2009).

**Significance:** The evidence-based asthma self-management plan improves a feeling of self-control, may promote the relationship between the provider and patient, decrease emergency department visits, and lower the cost of asthma care. Contributions to practice will be increasing the awareness and prevention of asthma exacerbations in patients. Such outcomes are important for reducing asthma morbidity and asthma mortality and every organization must have a system where education is integrated into everything that goes on in the clinical setting.

**Purpose:** The purpose of this quality initiative project was to develop an evidence-based asthma self-management plan including a staff education, curriculum, pretest/posttest and a patient self-management component.

**Methodology:** Framed within Rosswurm and Larrabee's model of evidence-based change, the DNP candidate led the team members in practice setting. The DNP candidate conducted a comprehensive literature review and presented findings of best practices to the team. The team identified the effective practice to prevent asthma exacerbations and determined the practice to be included in the EBP guideline. The RLCM framework was incorporated into the project design and guided the multi-disciplinary team through the entire process of practice change to EBP.

**Outcome:** A literature review matrix, a pretest/posttest for educational curriculum, an educational curriculum for staff on asthma management, and an evidence-based asthma

self-management protocol for the practice setting was developed. The EBP protocol and educational curriculum would help to address the gap between what is practiced in the clinic setting and what is shown to be effective in the evidence-based literature related to asthma self-management.

**Conclusion:** The evidence is persuasive that the development of the asthma education plan and protocol will address the gap between what is practiced in the clinic setting and what is shown to be effective in the evidence-based literature related to asthma self-management. Writing the management plan helps clarify expectations for treatment and provides patients with an easy reference for remembering how to manage their asthma. Needs of patients are addressed when they are offered self-management education that focuses on their individual needs. The development of an evidence-based asthma education plan for appropriate self-management may standardize care resulting in improved patient outcomes and lower the cost of asthma care.

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## Appendix A

## Literature Review Matrix

Reference	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Research Methodology	Analysis & Results	Conclusions	Grading the Evidence
<p>Akinbami, L.J., Moorman, J. E., Bailey, C., Zahran, H.S., King, M., Johnson, C.A., &amp; Liu, X. (2012). <i>Trends in asthma prevalence, health care use, and mortality in the United States, 2001-2010</i>. National Center for Health Statistics: Data Brief. 94.</p>	<p>Descriptive Theory</p>	<p>To examines rates for asthma outcomes for persons with asthma rather than for the general population.</p>	<p>Statistical data and statistical impact</p>	<p>Asthma prevalence increased from 7.3% in 2001 to 8.4% in 2010, when 25.7 million persons had asthma. For the period, 2008–2010 asthma prevalence was higher among children than adults, and among multiple-race, black, and American Indian or Alaska Native persons than white persons. From 2001 to 2009, health care visits for asthma per 100</p>	<p>Compared with adults, children had higher rates for asthma primary care and ED visits, similar hospitalization rates, and lower death rates.</p>	<p>Level III</p>

				persons with asthma declined in primary care settings, while asthma emergency department (ED) visit and hospitalization rates were stable.		
Al-sheyab, N., Gallagher, R., Crisp, J., & Shah, S. (2012). Peer-led education for adolescents with asthma in Jordan: a cluster-randomized controlled trial. <i>Pediatrics</i> , 129(1), 106-112	Descriptive Theory	To examine the impact of a <b>peer-led education</b> program on health-related outcomes in high school students with <b>asthma</b> .	Randomized controlled trial Observational and quasi-experimental design.	Students from the intervention group reported clinically significant improvements in health-related quality of life (mean difference : 1.35 [95% confidence interval: 1.04-1.76]), self-efficacy to resist smoking (mean difference : 4.63 [95% confidence interval: 2.93-6.35]) (1.15-2.19))	Adolescent <b>Asthma</b> Action program can be readily adapted to suit different cultures and contexts. <b>Adolescents in Jordan</b> were successful in teaching their peers about <b>asthma</b> self-management and motivating them to avoid smoking	Level II

<p>Bowen, J. L., Stevens, D. P., Sixta, C. S., Provost, L., Johnson, J. K., Woods, D. M., &amp; Wagner, E. H. (2010). Developing measures of educational change for academic health care teams implementing the chronic care model in teaching practices. <i>Journal Of General Internal Medicine, 25</i> Suppl 4S586-S592.</p>	<p>Descriptive Theory</p>	<p>The CCM model strives for productive interactions between informed, activated patients and proactive practice teams.</p>	<p>Quantitative data Participants questionnaire using successive discussion groups and surveys</p>	<p>Field notes from each discussion and lists from work groups were synthesized using the CCM framework. Seventeen (65%) teams provided feasibility and desirability ratings for the 17 measures. Teams reported variable success using the measures. Several teams reported use of additional measures, suggesting more extensive curricular change.</p>	<p>Participants successfully defined a set of feasible and desirable education measures for academic health care teams using the CCM. These were used variably to measure the results of curricular changes, while simultaneously addressing requirements for residency accreditation.</p>	<p>Level III</p>
<p>Buford, T. A. (2004). Transfer of asthma management responsibility from parents to their school-age children. <i>Journal of Pediatric Nursing, 19</i>(1), 3–12.</p>	<p>Descriptive Theory</p>	<p>To explore the process and transfer of responsibility for asthma management from parents to</p>	<p>Quantitative data Participant Questionnaires</p>	<p>Parent and child responses revealed that transfer of responsibility for asthma management</p>	<p>Controlling the Situation is more than gaining control of the asthma, as health care professionals conceive</p>	<p>Level III</p>

		their <b>school-age children</b>		ent is an uneven, complex process that occurs over several years and involves identifiable stages and transitions .	it. Rather, Controlling the Situation represents controlling the illness in a way defined by the family, as well as managing the impact of the disease.	
Brouwer, A. J., & Brand, P. P. (2008). Asthma and education monitoring: what has been shown to work. <i>Pediatric Respiratory Review</i> , 9(3), 193-199.	Practice Theory Descriptive Theory	Education of children with asthma and their parents is effective in improving clinically relevant outcomes.	Evidence from systematic reviews of descriptive and qualitative studies.	The crucial part of asthma education programs is a high level of agreement between patient and doctor regarding the goals of the treatment (patient-doctor partnership). Therefore, further exploration of the patient's needs should be worthwhile	Education of children with asthma and their parents was effective in improving clinically relevant outcomes. Common sense dictates that these improvements are most likely to be achieved if the health care team, the child with asthma and his or her parents work together in a partnership.	Level IV
Bundy, E. Y., & Murphy, L. S. (2014). Improving provider compliance in the use of an asthma action plan for patients with asthma in an outpatient setting. <i>Clinical Scholars</i>	Predictive Theory Descriptive Theory	To demonstrate the effectiveness of an educational in-service in improving	Qualitative approach Content analysis Statistical analysis	The project demonstrated that education with system changes	Although EBP guidelines for asthma management have been developed and	Level III

<p>Review, 7(2), 128-134.</p>		<p>provider compliance in the use of and the completion of a symptom-based AAP.</p>		<p>increases provider compliance in the use of symptom-based AAPs. There was a statistically significant (<math>p = .001</math>) improvement in provider compliance in the use and completion of an AAP, pre- and post-educational intervention and system procedural change.</p>	<p>routinely updated, there remains a substantial variance between evidence-based recommendations and actual practice among providers and the care given to asthma patients.</p>	
<p>Chen, S. Y., Sheu, S., Chang, C. S., Wang, T. H., &amp; Huang, M. S. (2010). The effects of the self-method on adult asthmatic patient self-care behavior. <i>Journal of Nursing Research, 18</i>(4), 266–273.</p>	<p>Middle Range Theory</p>	<p>To investigate the <b>effects</b> of a <b>self-efficacy</b> intervention on the <b>self-care</b> behaviors of <b>adult</b> asthma patients</p>	<p>Pretest-posttest Experimental design</p>	<p>There was a significant improvement in the <b>self-care</b> behaviors of patients who received <b>self-efficacy</b> intervention in terms of medication adherence (<math>p = .008</math>), <b>self-</b></p>	<p><b>Self-efficacy</b> intervention has been demonstrated a beneficial addition to <b>adult asthmatic patient self-care</b> regimens</p>	<p>Level III</p>



				<p>monitoring (p = .000), avoidance of antigens (p = .001), regular follow-up visits (p = .000), and regular exercise (p = .016)</p> <p>The program improved participant <b>self-efficacy</b> in terms of both asthma attack prevention (p = .030) and management during asthma attacks (p = .017).</p>		
<p>Coleman, K., Austin, B. T., Brach, C., &amp; Wagner, E. H. (2009). Evidence on the Chronic Care Model in the new millennium. <i>Health Affairs (Project Hope)</i>, 28(1), 75-85</p>	<p>Nursing Theory Conceptual Modeling</p>	<p>The Chronic Care Model as an integrated framework to guide practice redesign</p>	<p>Content analysis This is a secondary source.</p>	<p>Redesigning <b>care</b> using the CCM leads to improved patient <b>care</b> and better health outcomes.</p>	<p>CCM should continue to inform systematic efforts to improve care and that those efforts should be rigorously evaluated.</p>	<p>Level II</p>
<p>Ducharme, F. M., Zemek, R. L., Chalut, D., McGillivray, D., Noya, F. D., Resendes, S., &amp; ... Zhang, X. (2011). Written action plan in pediatric emergency</p>	<p>Descriptive Theory</p>	<p>Does a written action plan coupled with a prescription (WAP-P) improve adherence to medications</p>	<p>Randomized controlled trial Observational and quasi-experimental design.</p>	<p>Adherence to fluticasone was significantly higher over Days 15-28 in children</p>	<p>Provision of a written action plan significantly increased patient adherence to inhaled and oral</p>	<p>Level II</p>

<p>room improves asthma prescribing, adherence, and control. <i>American Journal Of Respiratory and Critical Care Medicine</i>, 183(2), 195-203.</p>		<p>and other recommendations?</p>		<p>receiving WAP-P (mean group difference, 16.13% [2.09, 29.91]). More WAP-P than UP patients filled their oral corticosteroid prescription (relative risk, 1.31 [1.07, 1.60]) and were well controlled at 28 days (1.39 [1.04, 1.86]). Compared with UP, use of WAP-P increased physicians' prescription of maintenance fluticasone (2.47 [1.53, 3.99]) and recommendation for medical follow-up (1.87 [1.48, 2.35]), without group differences in other</p>	<p>corticosteroids and asthma control and physicians' recommendation for maintenance fluticasone and medical follow-up, supporting its independent value in the acute-care setting.</p>
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				outcomes.		
Ekim, A., & Ocakci, A. F. (2013). Perceptions of parents and children regarding asthma management responsibilities. <i>Journal For Specialists In Pediatric Nursing, 18</i> (4), 289-296.	Predictive Theory Descriptive Theory	Perceptions of children and parents regarding shared responsibilities for asthma management	Descriptive study Participant study Statistics analysis  This is a secondary source.	Disagreements occurred between parents and children on assuming responsibility. Children reported higher asthma management responsibility scores than reported by parents for them.	Nurses should educate parents on approaches and methods to use in promoting age appropriate self-care for their children. Nurses can tailor asthma management education for school age children and their parents.	Level III
Facchiano, L., Snyder, C. H., & Nunez, D. E. (2011). A literature review on breathing retraining as a self-management strategy operationalized through Rosswurm and Larrabee's evidence-based practice model. <i>Journal of The American Academy Of Nurse Practitioners, 23</i> (8), 421-426.	Conceptual Nursing Theory Practice Theory	The utilization of Rosswurm and Larrabee's EBP model is one method that offers healthcare providers a conceptual framework for practice change.	Evidence from systematic reviews of descriptive and qualitative studies.	An exhaustive <b>review</b> of the <b>literature</b> revealed <b>evidence</b> that regularly practiced pursed lip <b>breathing</b> is an effective <b>self-management strategy</b> for individuals with COPD to improve their dyspnea.	Using evidence-based self-management strategies, delivered through solid practice models, will result in empowered clients who have the opportunity to lead productive, satisfying lives.	Level III

<p>Jansen, S. L., McGrath, K. W., Covington, J. K., Cheng, S. C., &amp; Boushey, H. A. (2009). Individualized asthma self-management improves medication adherence and markers of asthma control. <i>Journal of clinical immunology</i>, 123(4), 840-846.</p>	<p>Descriptive Theory</p>	<p>To study the effect of self-management education on long-term adherence to inhaled corticosteroid (ICS) therapy and markers of asthma control.</p>	<p>Randomized controlled trial with run-in, intervention, and observation phases.</p>	<p>Participants randomized to the self-management intervention maintained consistently higher ICS adherence levels and showed a 9-fold greater odds of more than 60% adherence to the prescribed dose compared with control subjects at the end of the intervention (<math>P = .02</math>) and maintained a 3-fold greater odds of higher than 60% adherence at the end of the study.</p>	<p>Individualized asthma self-management education attenuates the usual decrease in medication adherence and improves clinical markers of asthma control.</p>	<p>Level III</p>
<p>Jones, M. A. (2008). Asthma Self-Management Patient Education. <i>Respiratory Care</i>, 53(6), 778-786.</p>	<p>Descriptive Theory Practice Theory</p>	<p>Asthma self-management education is an essential component of</p>	<p>Qualitative approach Content analysis This is a</p>	<p>The evidence is strong that there should be</p>		<p>Level IV</p>

		asthma disease management.	secondary source	a collaborative relationship between the patient and provider, and that the patient should be an active participant in establishing the self-management goals and the asthma action plan.		
Long, L., Burkett, K., & McGee, S. (2009). Promotion of safe outcomes: incorporating evidence into policies and procedures. <i>Nursing Clinics of North America</i> , 44(1), 57-70.	Conceptual Nursing Theory Practice Theory	Rosswurm and Larrabee model for change to <b>evidence-based</b> practice.	Qualitative Advanced research studies Content analysis This is a secondary source.	The process of <b>incorporating evidence into policy</b> and procedures, resulting in the establishment of <b>evidence</b> as a basis for <b>safe practice</b> .	The model guided the work of <b>evidence-based practice mentors</b> in developing a template, system, and educational plan for dissemination of <b>evidence-based policies and procedures into patient care</b> .	Level III
Luo, G., Stone, B. L., Fassl, B., Maloney, C. G., Gesteland, P. H., Yerram, S. R., & Nkoy, F. L. (2015). Predicting asthma control deterioration in children. <i>BMC Medical Informatics and Decision Making</i> , 1584.	Descriptive Theory	To develop and test the first set of models for <b>predicting a child's asthma control deterioration</b>	Qualitative approach Data analysis Statistical analysis	<b>Asthma Symptom Tracker</b> , a weekly <b>asthma self-monitoring tool</b> developed and tested the first set of	With adequate accuracy, the model could be integrated into electronic <b>asthma self-monitoring systems</b> to	Level III

				models for <b>predicting</b> a child's <b>asthma control deterioration</b> . The best model achieved an accuracy of 71.8 %, a sensitivity of 73.8 %, a specificity of 71.4 %, and an area under the receiver operating characteristic curve of 0.757.	provide real-time decision support and personalized early warnings of potential <b>asthma control</b> deteriorations.	
McLaughlin, T., Leibman, C., Patel, P., & Camargo, C. J. (2007). Risk of recurrent emergency department visits or hospitalizations in children with asthma receiving nebulized budesonide inhalation suspension compared with other asthma medications. <i>Current Medical Research and Opinion</i> , 23(6), 1319-1328.	Predictive Theory Descriptive Theory	<b>Nebulized Budesonide inhalation suspension</b> treatment reduces <b>asthma-related ED visit/hospitalization</b>	Observational study Longitudinal, retrospective data analysis	For patients receiving <b>asthma</b> prescriptions < or = 30 days after the index event, those <b>receiving budesonide Inhalation suspension</b> showed a significant reduction in ED visit/hospitalization recurrence <b>risk compared</b>	For <b>children</b> aged < or = 8 years, budesonide <b>inhalation suspension</b> treatment after an <b>asthma-related ED</b> visit/hospitalization was associated with a significantly reduced <b>risk</b> of recurrence <b>compared</b> with other asthma <b>medications</b> and with non- <b>nebulized</b> inhaled	Level III

				pared with those not prescribed this treatment For patients receiving <b>asthma controller medication in the post-index period, those receiving budonide inhalation suspension had a significantly lower recurrence risk than patients receiving prescriptions for other controller medications.</b>	corticosteroid.	
Pruitt, B. (2011). Asthma self-management education programs: The key to good control. <i>RT: The Journal For Respiratory Care Practitioners</i> , 24(5), 14-17.	Descriptive Theory	To explore the idea of self-management	Qualitative Advanced research studies Content analysis This is a secondary source.	Advanced research studies encourage using health professionals and others trained in asthma self-management education to implement and teach asthma self-	Asthma self-management should be an integral part of all asthma patients' care plans.	Level III

				managem ent programs.		
Raju, J. D., Soni, A., Aziz, N., Tiemstra, J. D., & Hasnain, M. (2012). A patient-centered telephone intervention using the asthma action plan. <i>Family medicine</i> , 44(5), 348-350.	Conceptual Theory Practice Theory	The <b>Asthma Control Score (ACS)</b> and the <b>Asthma Action Plan (AAP)</b> are validated tools for assessment and management of <b>asthma</b>	Statistics Case studies Observation Participant study Data collection	Of 48 patients, 42 (87.5%) were reached by phone. On initial assessment, 33 (69%) were controlled. After implementation of the new AAP by phone, seven of nine (78%) initially uncontrolled patients were controlled, for a total of 40 (83%) patients controlled by the end of the study.	Asthma Management Using the ACS and AAP by phone is a feasible strategy that is acceptable to patients and can improve <b>asthma</b> control without the need for an office visit.	Level III
Razi, C. H., Bakırtaş, A., & Demirsoy, S. (2011). Knowledge and attitudes of adolescents towards asthma: questionnaire results before and after a school-based education program. <i>International Archives Of Allergy And Immunology</i> , 156(1), 81-89.	Descriptive Theory Predictive Theory	Does the use of theoretical material in the form of a booklet in a <b>school-based</b> asthma education program improves the knowledge of <b>adolescents</b> about <b>asthma</b> ?	Cross-sectional prospective <b>questionnaire</b> survey Pretest-posttest	<b>Knowledge</b> about <b>asthma</b> was evaluated by a scoring system <b>before</b> and <b>after</b> the <b>education</b> offered by means of a booklet. The	Theoretical material in the form of a booklet can be used in a <b>school-based</b> asthma education program in order to improve the knowledge of <b>adolescents</b> about <b>asthma</b>	Level IV



				<p>final analysis was conducted on 642 students in total. The number of right answers in 5 categories, percentage of right answers and total <b>questionnaire</b> score improved significantly <b>after the education</b> received (<math>p &lt; 0.001</math>). The total <b>questionnaire</b> scores of the girls (<math>p = 0.002</math>), those students with <b>a</b> university graduate mother (<math>p = 0.006</math>) and those with <b>a</b> physician parent (<math>p = 0.041</math>) were higher than those of the other pupils.</p>	<b>ma.</b>	
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<p>Rosswurm, M. A., &amp; Larrabee, J. H. (1999). A model for change to evidence-based practice. <i>Journal of Nursing Scholarship</i>, 31(4), 317-322.</p>	<p>Nursing theory The model is based on theoretical and research literature related to EBP, research utilization, standardized language, and change theory</p>	<p>What model can guide nurses and other healthcare providers through a systematic process for the change to evidence-based practice?</p>	<p>Systematic reviews Review topics have focused on evidence based medicine and nursing, research utilization, and change process.</p>	<p>The EBP improves the quality of patient care and enhanced clinical judgment of the practitioners. Practitioners needed time and support to access database and synthesize evidence for practice change, the administrations provided infrastructure for EBP to develop and diffuse throughout the entire organization.</p>	<p>Practitioners need skills and resources to appraise, synthesize, and diffuse the best evidence into practice. The collaboration among the researchers and multi-disciplinary practitioners enhanced the diffusion of practice innovation.</p>	<p>Level V</p>
<p>Schatz, M., Kazzi, A. N., Brenner, B., Camargo, C. J., Corbridge, T., Krishnan, J. A., &amp; ... Rachelefsky, G. (2009). Recommendations for the management and follow-up of asthma exacerbations. <i>Introduction. The Journal Of Emergency Medicine</i>, 37(2 Suppl), S1-S5.</p>	<p>Descriptive Theory Practice Theory</p>	<p>To identify knowledge gaps in relationship to newer information regarding the appropriate emergency management of patients with severe asthma exacerbations</p>	<p>Systemic Reviews Content analysis This is a secondary source.</p>	<p>An in-depth review of the National Asthma Education and Prevention Program Expert Panel Report 2 guidelines was conducted</p>	<p>The task force recommendations are meant to provide guidance to clinicians who manage acute asthma and are based on the task force's interpretation of the best available</p>	<p>Level III</p>

				<p>to identify knowledge gaps in relationship to newer information regarding the appropriate emergency management of patients with severe asthma exacerbations. Knowledge gaps were identified in the following areas: (1) use of noninvasive ventilation, (2) use of intubation and mechanical ventilation, (3) appropriate discharge medications, (4) techniques for ensuring proper follow-up after an ED visit, (5) asthma</p>	<p>data and expert opinion</p>	
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				education in the ED, (6) prehospital emergency treatment, (7) use of heliox, (8) use of magnesium sulfate, (9) use of intravenous $\beta$ -agonists, (10) use of leukotriene modifiers for acute asthma, and (11) acute use of inhaled corticosteroids.		
Scholle, S. H., Torda, P., Peikes, D., Han, E., & Genevro, J. (2010). <i>Engaging patients and families in the medical home</i> (AHRQ Publication No. 10-0083-EF).	Nursing Theory Conceptual Framework	A framework for conceptualizing opportunities for engage patients and families in the medical home.	Evidence from systematic reviews of descriptive and qualitative studies Data collection  This is secondary source.	Efforts to engage patients and families in their own care could develop a pool of informed and activated patients who can serve as effective participants in practice design. With their knowledge of practice	The medical home is a promising model of care, but current formulations and implementation do not encompass the breadth of opportunities for engaging patients and families. Efforts to engage patients and families can occur in three	Level V

				functioning and exposure to the concerns of multiple patients, some of these practice advisors can play an effective role in representing patients in policy development or inform others who represent them.	reinforcing contexts: care for the individual, practice improvement, and policy development.	
Tan, N. C., Chen, Z., Soo, W. F., Ngoh, A. H., & Tai, B. C. (2013). Effects of a written asthma action plan on caregivers' management of children with asthma: a cross-sectional questionnaire survey. <i>Primary Care Respiratory Journal</i> , 22(2), 188-194.	Descriptive Theory	Does the written asthma action plan improve caregivers' understanding of the disease and use of inhaled asthma medications during <b>asthma</b> exacerbations?	Cross-Sectional study Case - control A questionnaire survey	<b>Total of 169</b> caregivers were surveyed (75 CNW, 94 CW). Caregivers in the CW group were more likely to understand bronchoconstriction (adjusted odds ratio (AOR) 4.51, p=0.025), to feel capable (AOR 2.77, p=0.004),	The written asthma action plan (WAAP) improved caregivers' understanding of the disease and use of inhaled asthma medications during asthma exacerbations but did not affect their decision regarding acute visits to their physician.	Level IV

				safe (AOR 2.63, p=0.004), and had increased confidence (AOR 2.8, p=0.003) to change doses of inhaled medications during an <b>asthma</b> exacerbation. The CW group perceived inhaled <b>asthma</b> medication to be safe (AOR 3.42, p=0.015) and understood the use of controller medication (AOR 3.28, p=0.006).		
White, K. M., & Dudley-Brown, S. (2012). <i>Translation of evidence into nursing and health care practice</i> . New York, NY: Springer.	Evidence-Based Nursing Theories and Conceptual Frameworks	Why evidence-based practice and why now?	Systemic reviews	Translation of evidence into nursing and health care practice	Cochrane reviews showed that systematic process provides a thorough evidence-based clinical practice.	Level III
Wood, M. R. & Bolyard, D. (2011). Making Education Count: The Nurse's Role in Asthma Education Using a	Nursing Theory Conceptual Modeling	Impact of asthma control, self-efficacy in managing	Systemic reviews	One-on-one education with an asthma	It is necessary for patient educators to capitalize on	Level III

<p>Medical Home Model of Care. <i>Journal of Pediatric Nursing</i>, 26(6), 552-558.</p>		<p>asthma, and improvement in overall costs of care for patients</p>		<p>educator that specifically addresses health literacy levels and <b>care</b> designed around the National Asthma Guidelines can produce significant reductions in the cost for asthma care through decreased emergency department visits and hospitalizations, and improved self-management of asthma exacerbations.</p>	<p>these physician visits and use the time for asthma education, particularly for parents/guardians with limited health literacy skills.</p>	
<p>Yong, Y. V., &amp; Shafie, A. A. (2014). Economic evaluation of enhanced asthma management: a systematic review. <i>Pharmacy Practice</i>, 12(4), 493.</p>	<p>Descriptive Theory</p>	<p>To evaluate and compare full economic evaluation studies on the cost-effectiveness of enhanced asthma management vs. usual care alone.</p>	<p>Statistics Case studies Participant study Data Collection This is secondary source.</p>	<p>There were 3 types of intervention for enhanced asthma management: education, environmental control, and self-management</p>	<p>Despite the overall fair quality of <b>economic</b> evaluations but good quality of evidence sources for all data components, this <b>review</b> showed that the delivered enhanced</p>	<p>Level III</p>

				ent. The most cost-effective enhanced management was a mixture of education and self-management by an integrated team of healthcare and allied healthcare professionals. In general, the studies had a fair quality of economic evaluation with a mean QHES score of 73.7 (SD=9.7), and had good quality of evidence sources.	asthma managements, whether as single or mixed modes, were overall effective and cost-reducing.	
Zaccagnini, M., E., & White K. W. (2011). <i>The doctoral of nursing practice essentials: A new model for advanced practice nursing</i> . Sudbury, MA: Jones & Bartlett Publishers.	Nursing Theory	Imagining the DNP role	Systemic reviews	New Model for Advanced Practice Nursing	Scientific Underpinning for Practice	Level III



## Appendix B: Educational Curriculum Plan for Asthma Self-Management

<b>Objectives</b> At the conclusion of this educational experience the learner will be able to -	<b>Content Outline</b>  <b>Pretest</b>	<b>Evidence</b>	<b>Method of Presenting</b>	<b>Method of Evaluation P/P Item</b>	<b>Evidence Grade</b>
1. The individual participant will understand the objectives of the educational curriculum plan in regards to the overview of the qualitative initiative (QI) project.	<p><b>A. QI Project Overview</b></p> <p>The QI project focused on new knowledge of practice management that includes conceptual, practical, and evidence-based strategies for quality outcomes of patient care within the practice setting.</p>	Zaccagnini and White (2011)	Oral presentation and power point; group discussion	1	Level III
2. The individual participant will identify the steps of the RLCM model for integrating evidence-based knowledge into practice.	<p><b>B. Conceptual Framework</b></p> <p>With six steps of Rosswurm and Larrabee:</p> <ol style="list-style-type: none"> <li>1. Assess the need for change. The need for change was assessed. The need for an evidence-based asthma management plan in the pediatric practice was established through the electronic record verified by the nurse manager. A chart audit from electronic medical records identified 22 asthma patients were admitted to the emergency department (ED) for asthma exacerbation within the last six months. The pediatric practice has no evidence-based asthma management plan.</li> <li>2. Connect problems, interventions, and outcomes. The problem was the basis of evidence-based asthma management plan, the intervention addressed the problem, and the assessment</li> </ol>	<p>Rosswurm and Larrabee (1999)</p> <p>Facchiano, Snyder and Nunez (2011)</p>	<p>Visual model, oral presentation and power point; group discussion</p> <p>Oral presentation and power point; group discussion</p>	<p>2</p> <p>3</p>	<p>Level III</p> <p>Level III</p>

	<p>facilitated a positive outcome for the pediatric patients.</p> <p>3. Gather the evidence. The best evidences were gathered and synthesized from various pieces of evidence from the literature review. The developed multidisciplinary team reviewed and identified multiple resources of evidences for strengths, weaknesses, gaps, and conflicts in the studies and findings.</p> <p>4. Design a practice change. A practice change was designed. The process and activities to address the proposed change was planned and designed. The team developed an evidence-based asthma management plan for the pediatrics clinic to promote patient well being and prevention of exacerbation of symptoms requiring emergency department visits.</p> <p>5. Implement and evaluate the change in practice. After graduation, this QI team will implement the evidence-based asthma management plan once the in-service education plan with curriculum guide is provided to current staff. The multi-disciplinary team will follow-up and will evaluate the usage, adaptation, or rejection of the proposed change in practice.</p> <p>6. Integrate and maintain the change in practice that involves communicating recommended change to stakeholders and present staff</p>				
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	in-service education on the change in practice and integrate into standards of practice. Staff in the clinic will integrate the evidence-based asthma management plan into standard of care and maintain the practice change				
3. The individual participant will be able to define the asthma, significance of asthma, asthma in children, and outcomes of poorly controlled asthma.	<b>C. Asthma</b>	Jones (2008)	YouTube video of asthma	4	Level III
	<b>1. Definition</b>	Bundy and Murphy (2014)	Oral presentation and power point; group discussion	5	Level III
	a. Asthma is a chronic inflammatory disorder of the airways within the lungs	Al-Sheyab, Gallagher, Crisp, and Shah (2011)	Oral presentation and power point; group discussion	6	Level II
	b. People with asthma have inflamed airways that become narrowed then blocked and can result in what is commonly known as an asthma attack	CDC (2012)		7	
	c. Asthma attacks occur when inflammation within the airways causes symptoms such as difficulty breathing, wheezing, or chest tightness	Brouwer, and Brand (2008).	Oral presentation and power point; group discussion	8	Level III
	<b>2. Significance</b>	CDC (2012)	Oral presentation and power point; group discussion	9	Level III
	a. Asthma is a public health problem and leading chronic childhood disease	Akinbami et al. (2012)	Oral presentation and power point; group discussion	10	Level III
	b. In 2009, 157,000 hospitalizations, 640,000 ED visits, and 185 deaths were due to pediatric				
	c. Asthma is a public health problem and leading chronic childhood disease				
	d. Accounts for one third of pediatric ED visits				
e. about how to take action in case of asthma deterioration	Ekim and Ocakci (2013)			Level III	
<b>3. Asthma in Children</b>					

4. The individual participant will be able to understand exacerbation of asthma, signs and symptoms of exacerbation and contributing factors related to asthma exacerbations.	<ul style="list-style-type: none"> <li>a. Asthma is a leading chronic childhood disease that affected approximately 7.0 million children in 2010</li> <li>b. Annual total direct healthcare cost of asthma in children is around 9.3 billion dollars</li> <li>c. Increased hospitalizations and ED visits are risks for death due to asthma. In 2009, 157,000 hospitalizations, 640,000 ED visits, and 185 deaths were due to pediatric asthma</li> <li>d. Pediatric asthma accounts for one third of ED visits</li> <li>e. In teaching patients how to manage better their medications by using them correctly, patients use less medication and their costs will decrease</li> </ul>	Pruitt (2011)	Oral presentation and power point; group discussion	11	Level III	
	<p><b>4. Outcomes</b></p> <ul style="list-style-type: none"> <li>➤ Important factors for poorly control of asthma are: <ul style="list-style-type: none"> <li>a. Poor perception of symptoms</li> <li>b. Poor compliance with medication</li> <li>c. Inadequate knowledge of disease</li> </ul> </li> </ul>		CDC (2012)			Power point presentation with group sessions
			NHLBI (2007)	Power point presentation with group sessions	13	Level III
				Power point presentation with group		

	<p><b>5. Exacerbations</b></p> <p><b>a. Definition</b></p> <ol style="list-style-type: none"> <li>1. Asthma exacerbation is an acute episode of progressive worsening of symptoms of asthma, including shortness of breath, cough, wheezing, and chest tightness</li> <li>2. Exacerbations are usually defined by using a combination of the subjective day- and night- time symptoms and objective parameters such as peak flow, use of treatment, or spirometry</li> </ol> <p><b>b. Contributing factors</b></p> <ol style="list-style-type: none"> <li>1. Inadequate knowledge of disease and medications</li> <li>2. Poor control of symptoms</li> <li>3. Improper use of asthma medications</li> <li>4. Lack of asthma action plan</li> <li>5. Lack of appropriate collaborative care</li> </ol> <p><b>c. Signs and Symptoms</b></p> <ol style="list-style-type: none"> <li>1. Difficulty breathing</li> <li>2. Wheezing</li> <li>3. Coughing</li> <li>4. Shortness of breath</li> <li>5. Difficulty performing daily activities</li> </ol>		sessions		
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5. The individual participant will be able to state the purpose of asthma self-management plan for patients and providers and the components of an asthma self-management plan (SMP)	<b>D. Asthma SMP</b>	GINA (2011)	Power point and oral presentation with group discussion	14	Level III
	➤ Guidelines recommend education and skills training, providing a written asthma action plan and regular medical review as essential to self-management	NHLBI (2007)		15	Level III
	<b>1. Purpose of SMP for Patients</b>	Pruitt (2011)	Power point and oral presentation with group discussion		Level III
	a. Asthma self-management improves asthma control			16	
	b. Promote feelings of self-control				
	c. To prevent exacerbation episodes		Power point and oral presentation with group discussion		Level III
	d. Lower cost of care				
	e. Lack of asthma SMP impacts the patients and family's ability to manage symptoms	Bundy and Murphy (2014)			
	f. Patients taught how to manage their medications effectively			17	Level III
	g. May result in decreased ED visits		Power point and oral presentation with group discussion		
<b>2. Purpose of SMP for Providers</b>	Ducharme et al. (2016)		18		
a. To facilitate a change in nursing practice facilitating, quality outcomes of patient care received and safety for the patients		Power point and oral presentation with group discussion		Level III	
b. To improve clinical outcomes and lower healthcare costs	Razi, Bakirtas and Demirsoy (2011)		19		
<b>E. Asthma SMP Education Components based on NHLBI and GINA guidelines (Table 1)</b>					
<b>1. Basic facts</b>	NHLBI (2007)	Power point and oral presentation with group discussion		Level III	
a. Asthma is a lung disease characterized by inflammation and narrowing of the airways			20	Level III	
b. Four main symptoms of asthma are cough, wheeze,		Power point			

	<p>shortness of breath and chest tightness</p> <p>c. Asthma cannot be cured but can be effectively controlled</p> <p>d. Cause of asthma is not known</p>	GINA (2011)	and oral presentation with group discussion	21	Level III
	<p><b>2. Nature of treatment</b></p> <p>a. There are two classes of medication relievers and preventers:</p> <ul style="list-style-type: none"> <li>➤ Short-acting beta2-agonist are quick-relief (Albuterol)</li> <li>➤ Inhaled corticosteroids are preventers (Flovent)</li> </ul> <p>b. Tachycardia, tremor, and thrush are possible side effects of Albuterol</p> <p>c. Early treatment can prevent symptoms from worsening</p>	Tan et al. (2013)	Power point and oral presentation with group discussion	22	Level III
	<p>b. Tachycardia, tremor, and thrush are possible side effects of Albuterol</p> <p>c. Early treatment can prevent symptoms from worsening</p>	Britto et al. (2014).			
	<p><b>3. Allergen and trigger avoidance</b></p> <p>a. Recognizing and avoiding personal triggers is an important part of asthma control</p> <p>b. Triggers of asthma include: pollen, pets, smoke, allergies, exercise, and cold air</p>	Pruitt (2011)	Power point and oral presentation with group discussion		
	<p>a. Recognizing and avoiding personal triggers is an important part of asthma control</p>	Tan et al. (2013)		23	Level III
	<p>b. Triggers of asthma include: pollen, pets, smoke, allergies, exercise, and cold air</p>	Al-Sheyab, Gallagher, Crisp, and Shah (2011)		24	Level III
	<p><b>4. How to use treatment</b></p> <p>a. Preventer medication must be used regularly to be effective</p>				
	<p>b. Proper inhaler technique and appropriate use of a spacer device are important</p>	Pruitt (2011)	Power point and oral presentation with group discussion	25	Level III
	<p>c. The spacer adds space in the</p>			26	Level III

	<p>form chamber between the canister of medication and the patient's mouth</p> <p>d. The spacer allows the patient to inhale the medication by breathing in slowly and deeply for five to 10 breaths</p> <p>e. Ensuring inhalers are in date and are not empty are crucial</p> <p><b>5. Self-monitoring and assessment skills</b></p> <p>a. Learning to recognize signs of change in asthma symptoms is an important personal skill</p> <p>b. All patients with asthma should have a peak flow meter (PFM)</p> <p>c. Purpose of PFM is to measure how well air moves out of the lungs</p> <p>d. This measure is called a peak expiratory flow (PEF)</p> <p>e. Normal PEF numbers vary based on gender, age and height, and should be</p>	<p>Jones (2008)</p> <p>GINA (2011)</p> <p>Jansen et.al (2009)</p>	<p>Power point and oral presentation with group discussion</p> <p>Power point and oral presentation with group discussion</p> <p>Power point and oral presentation with group discussion</p> <p>Power point and oral presentation with group discussion</p>		<p>Level III</p> <p>Level III</p>
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	<p>measured from an average of readings taken over 2 – 3 weeks</p> <p>f. Importance of regular physician review</p> <p><b>6. Role of a written, personalized Asthma Action Plan (AAP)</b></p> <p>a. Patients with asthma should have an up to date written action plan</p> <p>b. AAP helps to reduce/prevent flare-ups and ED visits through day-to-day management</p> <p>c. Parents of children with asthma provided with a written AAP are more confident to provide care for their child during an asthma exacerbation</p> <p><b>7. Recognizing and responding appropriately to acute</b></p>				
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	<p><b>exacerbations</b></p> <ul style="list-style-type: none"> <li>a. Signs/symptoms of worsening asthma include increasing wheeze, cough, night time disturbance breathlessness limiting activity, reliever inhalers not working</li> <li>b. The importance of changing treatment and/or seeking help promptly</li> <li>c. Lay management of acute asthma</li> </ul> <p><b>8. Definition of good asthma control</b></p> <ul style="list-style-type: none"> <li>a. It is reasonable for most people to achieve minimal symptoms and limitation of activities</li> <li>b. Asks patients to reflect on what they would consider as good asthma control</li> <li>c. Advocates discussion with personal health provider to set</li> </ul>				
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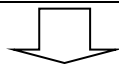
	treatment goals in partnership				
	<b>9. Posttest</b>  a. Evaluation of the implantation of the project which will occur after graduation b. Questions & Answers c. Posttest				

## Appendix C

## Asthma Self-Management Protocol

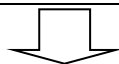
<b>Protocol On Asthma Self-Management</b>
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<b>Patients Education</b>
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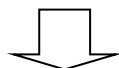


- Teach and reinforce at each visit
- Self-monitoring to assess level of asthma control and recognize signs of worsening asthma
- Taking medication correctly (inhaler technique, use of devices, understanding difference between long-term control and quick-relief medications)
- Long-term control medications (inhaled corticosteroids) reduce inflammation.
- Quick-relief medications (short-acting beta2-agonists) relax airway muscles to provide fast relief of symptoms
- Avoiding environmental factors that worsen asthma

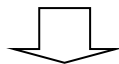
<b>Asthma Action Plan</b>
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- Agree on treatment goals
- Teach patients how to use the asthma action plan to take daily actions to control asthma
- Adjust medications in response to worsening asthma
- Seek medical care as appropriate
- Encourage adherence to the asthma action plan
- Choose treatment that achieves outcomes and addresses preferences important to patients/family
- Review at each visit any success in achieving control, any concerns about treatment, any difficulties following the plan



<b>Long-Term Asthma Management</b>
------------------------------------

**Reduce Impairment:**

Prevent chronic symptoms

Require infrequent use of short-acting beta2-agonist (SABA)

Maintain (near) normal lung function and normal activity levels

**Reduce Risk:**

Prevent exacerbations

Minimize need for emergency care and hospitalization

Prevent loss of lung function

Minimize adverse effects of therapy

## Appendix D

## Pretest/Posttest

## Evidence-Based Asthma Self-Management Plan and Educational Curriculum

Date:

Student Name: Foroogh Narmani

**Test Item #****Part 1: True-false**

1. Asthma is the least common chronic disease in childhood followed with airway constriction and inflammation.  
  - a) False
  - b) True
  
2. Asthma is a leading chronic childhood disease that affected approximately 7.0 million children in 2010.  
  - a) False
  - b) True
  
3. Asthma is treated with two medications short-acting beta2-agonists which are preventers and inhaled corticosteroids which are quick-relief.  
  - a) False
  - b) True
  
4. Guidelines (NHLBI & GINA) recommend skill training, providing a written asthma action plan and regular medical review as essential to self-management.  
  - a) True
  - b) False
  
5. Warnings signs of an asthma attack mean that you should not use your controller medication.  
  - a) False
  - b) True

6. The spacer allows the patient to inhale the medication by breathing in slowly and deeply for 5 to 10 breaths.
- a) True
  - b) False
7. Purpose of asthma self-management plan (SMP) for providers are to facilitate a change in nursing practice, to improve clinical outcomes, and lower healthcare costs.
- a) True
  - b) False
8. Purposes of SMP for patients are to promote feelings of self-control, to prevent exacerbation episodes, and decrease ED visits.
- a) True
  - b) False

**Part 2: Multiple-choice**

9. Which one of the following is NOT a symptom of asthma?
- a) Coughing
  - b) Wheezing
  - c) Shortness of breath and chest tightness
  - d) Decrease in appetite
10. Which one of the following are NOT important factors for poorly control of asthma?
- a) Inadequate physical activities
  - b) Inadequate knowledge of disease
  - c) Poor perception of symptoms
  - d) Poor compliance with medication
11. Which one of the following is/are NOT contributing factors related to asthma exacerbations?
- a) Improper use of asthma medications
  - b) Ethnicity and age

- c) Lack of asthma action plan
- d) Lack of appropriate collaborative care

12. Annual total direct healthcare cost of asthma in children is around:

- a) 10.5 million dollars
- b) 11.0 million dollars
- c) 9.3 billion dollars
- d) 8.0 billion dollars

13. The Rosswurm and Larrabee's model goes through how many steps to assist with translation of evidence into practice?

- a. 4
- b. 6
- c. 5
- d. 8

14. The purpose for developing the evidence-based asthma self-management plan

(SMP) and curriculum is to:

- a) Prevent asthma exacerbation symptoms
- b) Promote patient well being
- c) Increase hospital admission rates
- d) a & b

15. Which one of the following is NOT the role of a written, personalized Asthma

Action Plan (AAP)?

- a) AAP helps to reduce and prevent flare-ups through day-to-day management
- b) Reduces and prevents ED visits
- c) Eliminates the need for follow up care
- d) With AAP parents are more confident to provide care for their child during an asthma exacerbation

16. Possible side effects of quick-relief (Albuterol) include all of the following

except:

- a) Decrease in heart rate
- b) Increase in heart rate
- c) Tremor
- d) Thrush in the mouth

17. Which one of the following is NOT true about a peak flow meter (PFM)?

- a) All patients with asthma should have a PFM
- b) Purpose of PFM is to measure how well air moves out of the lungs
- c) Purpose of PFM is to measure how well air moves into the lungs
- d) Device *measures* air flowing out of the *lungs*, called peak expiratory flow rate (PEFR)



## Appendix E

## Qualitative Summative Evaluation

**Qualitative Summative Evaluation Stakeholders/Committee Members**

**Title of Project:** Evidence-Based Asthma Self-Management Plan and Educational Curriculum

**Student:** Foroogh Narmani

Thank you for completing the Summative evaluation on my project. Please complete and send anonymously via interoffice mail to: forooghabadan@yahoo.com

**A. This project was a team approach with the student as the team leader resulting in outcome products.**

**1. Please describe the effectiveness (or not) of this project as a team approach related to meetings, communication, and desired outcomes etc.**

2. How do you feel about your involvement as a stakeholder/committee member?

3. What aspects of the committee process would you like to see improved?

**B. There were outcome products involved in this project such as the evidence-based asthma educational plan, curriculum plan, pretest/posttest item, pretest/posttest expert content validation, objectives' content expert validation, and qualitative summative evaluation.**

1. Describe your involvement in participating in the development/approval of the products.

2. Share how you might have liked to have participated in another way in developing the products.

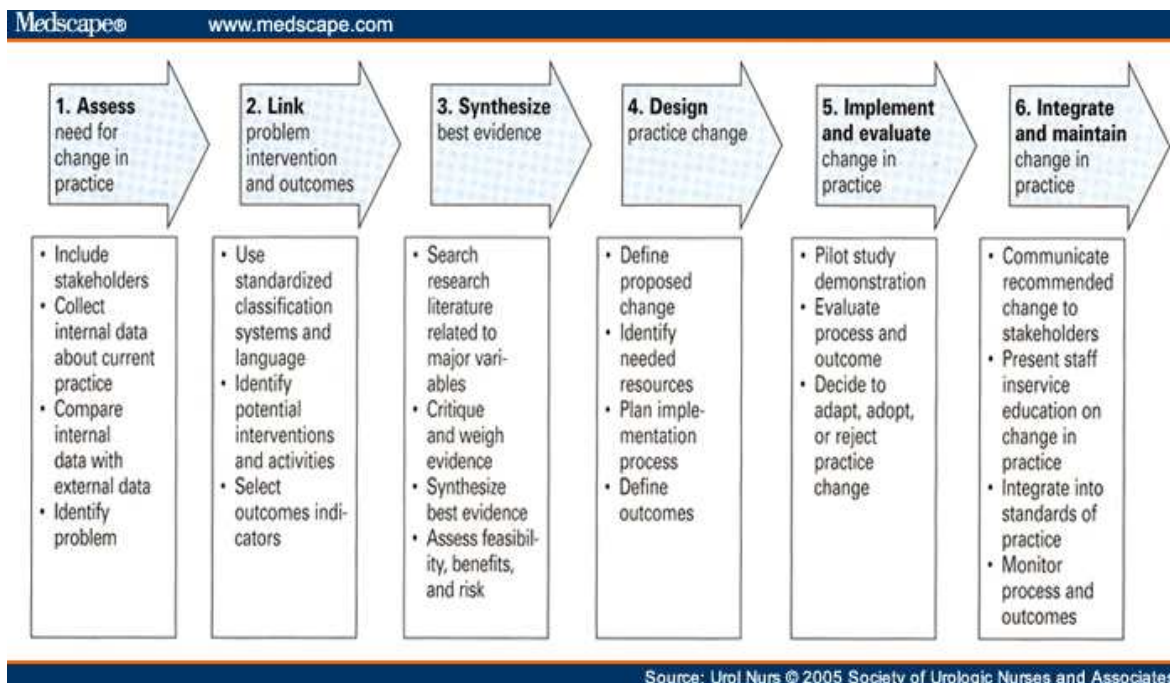
**C. The role of the student was to be the team leader.**

1. As a team leader how did the student direct the team to meet the project goals?
2. How did the leader support the team members in meeting the project goals?

**D. Please offer suggestions for improvement.**

## Appendix F

## Rosswurm and Larrabee's Conceptual Model (RLCM)



## Appendix G

## Content Expert Evaluation of the Curriculum Plan

Date:

Student: Foroogh Narmani

Name of Reviewer:

**Products for Review:** Curriculum Plan, Complete Curriculum Content, Literature

Review Matrix

**Instructions:** Please review each objective related to the curriculum plan, content and matrix. The answer will be a met or not met with comments if there is a problem understanding the content or if the content does not speak to the objective.

At the conclusion of this educational experience, the participant will be able to:

Objective 1: The individual participant will understand the objectives of the educational curriculum plan in regards to the overview of the qualitative initiative (QI) project.

**Met**            Not Met

Comments:

Objective 2: The individual participant will identify the steps of the RLCM model for integrating evidence-based knowledge into practice.

**Met**            Not Met

Comments:

Objective 3: The individual participant will be able to define the asthma, significance of asthma, asthma in children, and outcomes of poorly controlled asthma.

**Met**            Not Met

Comments:

Objective 4: The individual participant will be able to understand exacerbation of asthma, signs and symptoms of exacerbation and contributing factors related to asthma exacerbations.

**Met**            Not Met

Comments:

Objective 5: The individual participant will be able to state the purpose of asthma self-management plan for patients and providers and the components of an asthma self-management plan (SMP).

**Met**            Not Met

Comments:

## Appendix H

## Content Expert Evaluation of Curriculum Plan Summary

Not Met = 1 Met – 2

At the conclusion of this educational experience, the participant will be able to:

Objective Number	Evaluator 1	Evaluator 2	Average Score
1. The individual participant will understand the objectives of the educational curriculum plan in regards to the overview of the qualitative initiative (QI) project.	2	2	2
2. The individual participant will identify the steps of the RLCM model for integrating evidence-based knowledge into practice.	2	2	2
3. The individual participant will be able to define the asthma, significance of asthma, asthma in children, and outcomes of poorly controlled asthma.	2	2	2
4. The individual participant will be able to understand exacerbation of asthma, signs and symptoms of exacerbation and contributing factors related to asthma exacerbations.	2	2	2

5. The individual participant will be able to state the purpose of asthma self-management plan for patients and providers and the components of an asthma self-management plan (SMP).	2	2	2
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Recommendations: None

## Appendix I

## Expert Content Validation Pretest Posttest

Date:

Student Name: Foroogh Narmani MSN, FNP-C

Reviewer's Name:

Packet: Expert Content Validation Pretest Posttest

Instructions: Please check each item to see if the question is representative of the course objective and the correct answer is reflected in the course content.

**Test Item #**

1. Asthma is the least common chronic disease in childhood followed with airway constriction and inflammation.

c) False

d) True

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

2. Asthma is a leading chronic childhood disease that affected approximately 7.0 million children in 2010.

c) False

d) True

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

3. Asthma is treated with two medications short-acting beta2-agonists which are preventers and inhaled corticosteroids which are quick-relief.

c) False

d) True

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**



Comments:

4. Guidelines (NHLBI & GINA) recommend skill training, providing a written asthma action plan and regular medical review as essential to self-management.

- a) **True**  
b) False

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

5. Warnings signs of an asthma attack mean that you should not use your controller medication.

- c) **False**  
d) True

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

6. The spacer allows the patient to inhale the medication by breathing in slowly and deeply for 5 to 10 breaths.

- c) **True**  
d) False

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

7. Purpose of asthma self-management plan (SMP) for providers are to facilitate a change in nursing practice, to improve clinical outcomes, and lower healthcare costs.

- c) **True**  
d) False

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

8. Purposes of SMP for patients are to promote feelings of self-control, to prevent exacerbation episodes, and decrease ED visits.

- c) True
- d) False

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

9. Which one of the following is NOT a symptom of asthma?

- e) Coughing
- f) Wheezing
- g) Shortness of breath and chest tightness
- h) Decrease in appetite

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

10. Which one of the following are NOT important factors for poorly control of asthma?

- e) Inadequate physical activities
- f) Inadequate knowledge of disease
- g) Poor perception of symptoms
- h) Poor compliance with medication

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

11. Which one of the following is/are NOT contributing factors related to asthma exacerbations?

- e) Improper use of asthma medications
- f) Ethnicity and age
- g) Lack of asthma action plan
- h) Lack of appropriate collaborative care

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

12. Annual total direct healthcare cost of asthma in children is around:

- e) 10.5 million dollars
- f) 11.0 million dollars
- g) 9.3 billion dollars
- h) 8.0 billion dollars

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

13. The Rosswurm and Larrabee's conceptual model goes through how many steps to assist with translation of evidence into practice?

- a. 4
- b. 6
- c. 5
- d. 8

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

14. The purpose for developing the evidence-based asthma self-management plan (SMP) and curriculum is to:

- e) Prevent asthma exacerbation symptoms
- f) Promote patient well being
- g) Increase hospital admission rates
- h) a & b

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

15. Which one of the following is NOT the role of a written, personalized Asthma Action Plan (AAP)?

- e) AAP helps to reduce and prevent flare-ups through day-to-day management
- f) Reduces and prevents ED visits
- g) Eliminates the need for follow up care
- h) With AAP parents are more confident to provide care for their child during an asthma exacerbation

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

16. Possible side effects of quick-relief (Albuterol) include all of the following

except:

- e) Decrease in heart rate
- f) Increase in heart rate
- g) Tremor
- h) Thrush in the mouth

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

17. Which one of the following is NOT true about a peak flow meter (PFM)?

- e) All patients with asthma should have a PFM
- f) Purpose of PFM is to measure how well air moves out of the lungs
- g) Purpose of PFM is to measure how well air moves into the lungs
- h) Device *measures* air flowing out of the *lungs*, called peak expiratory flow rate (PEFR)

**Not Relevant**    **Somewhat Relevant**    **Relevant**    **Very Relevant**

Comments:

## Appendix J

## Summary of Content Expert Validation of Pretest/Posttest Items

Not Relevant = 1, Somewhat Relevant = 2, Relevant = 3, Very Relevant = 4

Test Item	Evaluator 1 Score	Evaluator 2 Score	Average Score
<p>1. Asthma is the least common chronic disease in childhood followed with airway constriction and inflammation.</p> <p>a) False b) True</p>	4	4	4
<p>2. Asthma is a leading chronic childhood disease that affected approximately 7.0 million children in 2010.</p> <p>a) False b) True</p>	4	4	4
<p>3. Asthma is treated with two medications short-acting beta2-agonists which are preventers and inhaled corticosteroids which are quick-relief.</p>	4	4	4
<p>4. Guidelines (NHLBI &amp; GINA) recommend skill training, providing a written asthma action plan and regular medical review as essential to self-management.</p> <p>a) True b) False</p>	4	4	4
<p>5. Warnings signs of an asthma attack mean that you should not use your controller</p>	4	4	4

<p>medication.</p> <p>a) <b>False</b> b) True</p>			
<p>6. The spacer allows the patient to inhale the medication by breathing in slowly and deeply for 5 to 10 breaths.</p> <p>a) <b>True</b> b) False</p>	4	4	4
<p>7. Purpose of asthma self-management plan (SMP) for providers are to facilitate a change in nursing practice, to improve clinical outcomes, and lower healthcare costs.</p> <p>a) <b>True</b> b) False</p>	4	4	4
<p>8. Purposes of SMP for patients are to promote feelings of self-control, to prevent exacerbation episodes, and decrease ED visits.</p> <p>a) <b>True</b> b) False</p>	4	4	4
<p>9. Which one of the following is NOT a symptom of asthma?</p> <p>a) Coughing b) Wheezing c) Shortness of breath and chest tightness d) <b>Decrease in appetite</b></p>	4	4	4
<p>10. Which one of the following are NOT</p>	4	4	4

<p>important factors for poorly control of asthma?</p> <ul style="list-style-type: none"> <li>a) Inadequate physical activities</li> <li>b) Inadequate knowledge of disease</li> <li>c) Poor perception of symptoms</li> <li>d) Poor compliance with medication</li> </ul>			
<p>11. Which one of the following is/are NOT contributing factors related to asthma exacerbations?</p> <ul style="list-style-type: none"> <li>a) Improper use of asthma medications</li> <li>b) Ethnicity and age</li> <li>c) Lack of asthma action plan</li> <li>d) Lack of appropriate collaborative care</li> </ul>	4	4	4
<p>12. Annual total direct healthcare cost of asthma in children is around:</p> <ul style="list-style-type: none"> <li>a) 10.5 million dollars</li> <li>b) 11.0 million dollars</li> <li>c) 9.3 billion dollars</li> <li>d) 8.0 billion dollars</li> </ul>	4	4	4
<p>13. The Rosswurm and Larrabee' conceptual model goes through how many steps to assist with translation of evidence into practice?</p>	4	4	4

<ul style="list-style-type: none"> <li>a) 4</li> <li>b) 6</li> <li>c) 5</li> <li>d) 8</li> </ul>			
<p>14. The purpose for developing the evidence-based asthma self-management plan (SMP) and curriculum is to:</p> <ul style="list-style-type: none"> <li>a) Prevent asthma exacerbation symptoms</li> <li>b) Promote patient well being</li> <li>c) Increase hospital admission rates</li> <li>d) a &amp; b</li> </ul>	4	4	4
<p>15. Which one of the following is NOT the role of a written, personalized Asthma Action Plan (AAP)?</p> <ul style="list-style-type: none"> <li>a) AAP helps to reduce and prevent flare-ups through day-to-day management</li> <li>b) Reduces and prevents ED visits</li> <li>c) Eliminates the need for follow up care</li> <li>d) With AAP parents are more confident to provide care for their child during an asthma exacerbation</li> </ul>	4	4	4
<p>16. Possible side effects of quick-relief (Albuterol) include all of the following except:</p>	4	4	4



<ul style="list-style-type: none"> <li>a) Decrease in heart rate</li> <li>b) Increase in heart rate</li> <li>c) Tremor</li> <li>d) Thrush in the mouth</li> </ul>			
<p>17. Which one of the following is NOT true about a peak flow meter (PFM)?</p> <ul style="list-style-type: none"> <li>a) All patients with asthma should have a PFM</li> <li>b) Purpose of PFM is to measure how well air moves out of the lungs</li> <li>c) Purpose of PFM is to measure how well air moves into the lungs</li> <li>d) Device <i>measures</i> air flowing out of the <i>lungs</i>, called peak expiratory flow rate (PEFR)</li> </ul>	4	4	4

Content Validation Index =1.0

Recommendations: None

## Appendix K

## The Cone Health Nursing Research Abstract Guidelines



2016 Cone Health/AHEC Nursing Research Symposium: “Re-imagining Health Care Across the Continuum in 4D Vision: Dream, Discover, Design, Disseminate”

The Cone Health Nursing Research Council invites you to submit an abstract for presentation at the 2016 Annual Nursing Research and Evidence Based Practice Symposium in Greensboro, North Carolina on Friday, November 18, 2016- Greensboro-Marriott Downtown

#### Guideline for Abstract:

**Evidence-Based Practice abstracts:** Project must contain a literature review and have been implemented with evaluated outcomes.

#### Abstract Objective:

Please list at least two objectives for your poster or podium presentation. List 3 objectives for panel presentations - one objective per topic.

#### Abstract Authors:

- Communications about submitted abstracts will only be made with the first author.
- Presenters must register for the conference and pay the registration fee. If the presenter is unable to attend the conference, one of the other **listed presenters** may present.

#### Abstract Selection Criteria:

Abstracts are selected by a blind review from an impartial panel and are considered according to the following:

- **RESEARCH** abstracts are scored on scientific merit, clinical relevance, synthesis of the literature review, quality and implementation of the study design, and evaluation of findings.
- **EVIDENCE- BASED PRACTICE** abstracts are scored on the scope and significance of the practice problem, the purpose, and synthesis of findings from the

literature, the implementation of the project, the evaluation plan, outcomes, and implications for nursing.

### **Evidence-Based Practice Abstract Format:**

- **Background/ Significance:** Why do we care about the problem? What is its scope and significance? Why is it important?
- **Purpose:** Project aim and objectives/goals
- **Study Design (if research):** Type of study, e.g. descriptive study, hypothesis-generating study, observational study, cross-sectional study, cohort study, field study, before-and-after implementation of a new protocol or guideline, survey sample, case-control study, randomized controlled trial, meta-analysis, etc.  
**Methodology/Procedure:** Implementation of the project or study - How did you carry it out? What information was collected, measured, analyzed? What was the plan for the evaluation of outcomes?

### **Include Setting and/or Sample:**

- **Setting:** Where did the research or best-practice project take place? Was it a multi-center project or just at one hospital, school, community center, clinic, ED, ICU, etc.
- **Sample:** How many participants were in the study or quality improvement project? What type of sampling technique was used? (E.g. this was a convenience sample of 88 older adults, age 65 and older.)
- **Results/Outcomes:** What were the results or outcomes of your study/ project? Findings and lessons learned? How was success measured? Were the outcomes statistically significant?
- **Discussion/Conclusions:** Synopsis of the most important things you learned from this project or study. What remains to be learned? What are the next steps or recommendations?
- **Implications:** What are the implications of your findings for nursing science, patient outcomes, practice, education, leadership, and/ or policy?

## Appendix L

## Poster Presentation



A higher degree. A higher purpose.

### Development of an Evidence-Based Asthma Self-Management Plan for Pediatric Patients

Forough Narmani, MSN-FNP-C; Joan Moon, RN, Ed. D.; Nancy Moss, RN, Ed.D

Background	Purpose	Outcome	Conclusion
<p style="color: green; font-weight: bold;">Abstract</p> <p style="font-size: x-small;">Asthma is the most common chronic disease in childhood. Education directed toward asthma self-management is vital and emphasizes patient participation in symptom monitoring and control. The DNP candidate lead the team and initiated the QI project to develop an evidence-based asthma management plan which included a staff education component and a patient self-management component. Rosswurm and Larrabee conceptual model (RLCM) served as the practice framework to guide the change in process. A positive social change will occur because the development of the asthma education plan and protocol will address the gap between what is practiced in the clinic setting and what is shown to be effective in the evidence-based literature related to asthma self-management.</p>	<ul style="list-style-type: none"> <li>Asthma is a public health problem and leading chronic childhood disease</li> <li>Asthma affected approximately 7.0 million children in 2010</li> <li>In 2009, 157,000 hospitalizations, 640,000 ED visits, and 185 deaths were due to pediatric asthma</li> <li>Asthma self-management education is essential to the control of asthma.</li> <li>Research supports the benefit of having an asthma management plan for parents and their children</li> <li>The use of a symptom-based written asthma action plan (AAP) can improve patient asthma outcomes and reduce acute care visits</li> </ul>	<ul style="list-style-type: none"> <li>The purpose of this QI DNP project was to develop an evidence-based asthma management plan for pediatric practice</li> <li>To increase knowledge and skills of staff, patients and their families for appropriate self-management</li> <li>To prevent exacerbation of symptoms resulting in ED visits</li> </ul>	<ul style="list-style-type: none"> <li>A literature review matrix created</li> <li>An educational curriculum plan for I or QI project team members developed</li> <li>An evidence-based protocol for asthma self-management for practice setting developed</li> <li>An asthma self-management education established for the pediatric patients and their families.</li> </ul>
<p style="color: green; font-weight: bold;">Significance</p> <p style="font-size: x-small;">Contribution of the evidence-based asthma self-management plan would:</p> <ul style="list-style-type: none"> <li>Increase the awareness and prevention of asthma exacerbations in patients</li> <li>Decrease emergency department visits and lower the cost of asthma care</li> <li>Improves a feeling of self-control, and promotes the relationship between the provider and patient</li> <li>Such outcomes are important for reducing asthma morbidity and asthma mortality</li> </ul>	<p style="color: green; font-weight: bold;">Methods</p> <ul style="list-style-type: none"> <li>Quality team approach designed</li> <li>The RLCM framework utilized to develop educational plan and protocol</li> <li>A pretest/posttest developed</li> <li>From review of literature an EBP asthma educational curriculum was designed</li> <li>Three experts conducted the evaluation and validation of the literature review matrix, educational curriculum, and pretest/posttest</li> <li>The content experts validated the pretest/posttest items by using 4-point Likert-type rating scale that ranged from "not relevant" to "very relevant."</li> <li>The content experts evaluated the curriculum plan by using the form which consisted of nine itemized objectives in a "merit met" evaluation format.</li> <li>A summative evaluation by stakeholders for evaluation of the project, process, and DNP leadership</li> </ul>	<p style="color: green; font-weight: bold;">Rosswurm and Larrabee Conceptual Model</p> 	<p style="color: green; font-weight: bold;">References</p> <p style="font-size: x-small;"> <a href="#">Albright, J.L., Morrison, J. G., Blythe, C., Johnson, D.S., King, M., Johnson, C., et al. (2012). <i>World Asthma Prevalence, Health Care Use, and Mortality in the United States, 2001-2010</i>. National Center for Health Statistics. <i>Vital Health Statistics</i>, 16, Number 248.  <a href="#">http://www.cdc.gov/nchs/data/series/wr/wr248.pdf</a> </a></p> <p style="font-size: x-small;"> <a href="#">Center for Disease Control and Prevention of CDC (2012). <i>National Burden of Asthma: The United States, 2001-2010</i> (NCHS Publication No. 2012-264-043). Retrieved from <a href="#">http://www.cdc.gov/nchs/data/series/wr/wr264.pdf</a> </a></p> <p style="font-size: x-small;"> <a href="#">Chen, Y. Y., Chen, S., Wang, C., Cheng, L., &amp; Johnson, H. S. (2010). The effect of self-management on health-related quality of life in asthma. <i>Journal of Nursing Research</i>, 19(2), 206-213.         </a></p> <p style="font-size: x-small;"> <a href="#">Ellis, A., &amp; Frankel, A. J. (2012). Perception of parents and children regarding asthma management responsibilities. <i>Journal for Specialists in Pediatric Nursing</i>, 17(2), 78-79.         </a></p> <p style="font-size: x-small;"> <a href="#">Global Initiative for Asthma (2015). <i>GINA asthma strategy</i>. Retrieved November 18, 2015, from <a href="#">http://www.ginasthma.org</a> </a></p> <p style="font-size: x-small;"> <a href="#">National Heart, Lung, and Blood Institute (NHLBI) (2011). <i>Guidelines for the diagnosis and management of asthma</i>. NCHS Publication Number (E-950). Retrieved from <a href="#">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3122226/</a> </a></p> <p style="font-size: x-small;"> <a href="#">Rosswurm, M. A., &amp; Larrabee, J. B. (1998). <i>A model for change in evidence-based practice</i>. <i>Journal of Nursing Leadership</i>, 10(4), 167-172.         </a></p> <p style="font-size: x-small;"> <a href="#">Zappavigna, M. E., &amp; Wells, W. (2011). <i>Evidence synthesis and evidence-based practice</i>. In C. Taylor (Ed.), <i>The state of chronic practice research: A case model for advanced practice nursing</i> (pp. 11-12). Sudbury, MA: Jones &amp; Bartlett publishers.         </a></p>

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## Appendix M

## Institutional Review Board (IRB) Number

My study met Walden University's ethical standards and the IRB approval number for this study is 06-21-16-0519188.