2016

Advanced Practitioner Provided Pre-Hospital Discharge Asthma Education

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This is to certify that the doctoral study by

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2016

Abstract

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by

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Masters of Science in Nurse, Pediatric Nurse Practitioner

University of Maryland, 2013

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

July 2016

Abstract

Asthma is a leading cause of pediatric hospital admissions. Parents of children under the age of 18 with asthma require education to recognize and manage the signs and symptoms of the disease. Parent education has shown to decrease their children's hospital admission and readmission rates. The purpose of this pilot project was to develop an asthma educational module for the parents of children with asthma and obtain parent feedback on the content. Families with children under the age of 18 who had been admitted to the hospital with a diagnosis of asthma, an asthma exacerbation, or status asthmaticus were invited to participate. A nurse practitioner provided three parents with information on the signs, symptoms, and medication management of asthma, as well as hands-on demonstration of inhaler use. Twenty-eight staff nurses provided verbal feedback on module content, including educational benefit and readability for parents. Parent and staff verbal feedback indicated the module was both a useful and effective tool for asthma education. Clinical leaders plan to expand the pilot study on two additional pediatric units using the same module used in the pilot program with intent to analyze readmission rates. The project promotes social change through parent empowerment to care for their child in the home environment.

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Chapter 1: Nature of the Project

Overview of the Evidence-Based Project

Asthma is a lifelong chronic disease that affects the lungs, causing bronchoconstriction, wheezing, chest tightness, and difficult breathing. Identified as one of the most common long-term diseases in children by the Centers for Disease Control and Prevention (2015), it is estimated that 8.3% of the children in the United States suffer from asthma, ranging in severity from mild to severe persistent. Many children will face asthma exacerbations throughout the year, and unfortunately some children will face the need for inpatient hospitalizations due to status asthmaticus. According to Chung, Hathaway, and Lew (2014), asthma is the number one cause of pediatric hospital admissions. This includes all severities of asthma from a child experiencing his or her first episode of wheezing through the most severe form, status asthmaticus. Even more staggering than the hospital admission rate is the hospital readmission rate for children with asthma. Approximately 40% of all children with asthma have a readmission for similar symptoms (Kenyon et al., 2014). Children with asthma need specialized care outside of the hospital to prevent readmissions.

Current discharge practices are not specific to pediatric patient symptoms, or potential symptoms and medication management. Nurses in the organization have a patient ratio of 1 nurse for every 2-4 patients, and discharge education is often filled with interruptions due to other patient care needs. Current practice is for the nurse to make an educated decision about what discharge education the family should receive based on an available data bank of materials. The material selected is often not specific to a child's

needs and does not support parents in making child-specific informed decisions about symptom and medication management, or how to respond to worsening clinical symptoms.

In this project, I created a pediatric-focused asthma module for parents with information that is specific to the child being discharged from the hospital. Education focused on the admitting diagnosis, which reflected the severity of asthma symptoms at the time of admission including diagnosis of asthma, asthma exacerbation, and status asthmaticus. The intent of this module was to decrease the 30-day hospital readmission rate for asthma related symptoms. The purpose of this module for this academic purpose was to create a pilot intervention and to gain feedback on the module from a limited number of parents and staff nurses. For example, if a child was discharged on Flovent, information about how to administer Flovent to a 4-year-old was included. If there were triggers that had been identified for a specific child, suggestions for trigger management were also included in the discharge educational information.

Significance to Clinical Practice

Regardless of the diagnosis, caring for a pediatric patient means caring for the parents of that child. The patient in a clinical situation extends beyond the individual receiving care, and is targeted toward the family. Prior to discharge, all providers must assess the parents' readiness for discharge and target interventions to provide the skills needed to care for their child outside of the hospital walls. "Parental preparation for a child's discharge from the hospital sets the stage for successful transitioning to care and recovery at home" (Weiss et al., 2008, p. 282). Traditionally, bedside nurses have

provided the education needed for families to prepare for discharge; however, patient satisfaction scores at the current practicum site demonstrated that nearly 30% of parents verbalized a concern about their readiness to be discharged from the hospital, and a concern associated with their ability to meet their child's needs. One study in particular indicated that the quality of nursing discharge education had a significant impact on parental readiness for discharge, and affected parental feelings of preparedness to care for their child at home (Weiss et al., 2008).

To successfully discharge a child with asthma from the hospital, the practitioner providing the education must alter the content to meet the specific care needs of the patient. Because asthma is a complex diagnosis with multiple required areas of education to address, the provider must be skilled in asthma content as well as hands-on training for medication devices.

The need for an advanced practice nurse (APN) to provide pre-discharge asthma education remains present at the practicum site. Not only did this concept standardize asthma discharge teaching, but it ensured that families received the needed materials to increase their readiness for hospital discharge and hopefully decrease readmission rates due to multiple factors including medication compliance, lifestyle modification, and symptom recognition. In a similar program developed by Boston Children's Hospital, McCarty and Rogers (2012) determined that

> the [inpatient asthma nurse practitioner] IANP has played the key role in the completion of AAPs and education for patients hospitalized for asthma. The IANP provides continuity and high quality care that is difficult to maintain in a

> teaching hospital where teams rotate frequently and patients with asthma are hospitalized on a variety of services and inpatient units. (p. 269)

Project Question and Significance of Change

Individualized, uninterrupted education provided to parents prior to their child leaving the hospital equips them to care for their child. Providers frequently rely upon textbook knowledge to complete discharge instructions with information about diet, activities, and discharge care. Unfortunately, these instructions are often generic and rarely contain the information that parents need to make informed decisions and respond appropriately to the daily challenges of caring for a child with asthma and the change in symptoms they may need to recognize to seek further medical attention. “Discharge readiness encompasses physiologic, functional, cognitive, affective, psychological abilities and limitations, stability, competency of the patient and family, perceived self-efficacy, availability of social support, and access to the healthcare system” (Titler & Pettit, 1995, p. 11). Discharge instructions provide the foundation for competency and perceived self-efficacy.

The long-term outcome for this project will answer the primary research question: Will individualized, uninterrupted parent discharge education provided by a nurse practitioner help to reduce 30-day readmission rates for pediatric patients with asthma, asthma exacerbations, or status asthmaticus? For the purposes of this academic project, the primary research question was as follows: What are the initial responses of a limited number of parents and staff nurses to the development of a pediatric nurse practitioner provided asthma patient education module? The role of the nurse practitioner in this

situation was unique because she can provide evidence-based education, but with the additional advanced knowledge of medications, disease processes, and complications. With a focus on health care to implement evidence-based practice interventions, patient education should be no different. In an environment that strives to be current, timely, cost effective, and most importantly safe, the need to provide education that is based on evidence is becoming more and more obvious.

The possible effects of this intervention expand beyond the child and parent and include the greater health care community. Because children with asthma are cared for outside of the hospital setting, the availability of inpatient beds increases to provide care for children truly needing hospital monitoring. Pediatric asthma accounts for over 14 million lost school days in pediatric patients across the United States. With this number of missed school days, it is estimated that "parental revenue lost to children not attending school totals nearly 200 million dollars" (Carrol et al., 2012, p. 460). Listed as one of the major objectives for Healthy People 2020, the reduction of hospitalization for asthma and emergency department visits related to asthma is a major nationwide priority.

Terms and Limitations

Prior to implementation of the project, it was important to define terms that would be used throughout the project, specifically terms that may have similar meanings at various institutions. For this project, *asthma* was defined by the National Asthma Education and Prevention Program (NAEPP) as

> a chronic inflammatory disease of the airways in which many cells and cellular elements play a role: in particular, mast cells, neutrophils, eosinophils, T

lymphocytes, macrophages, and epithelial cells. In susceptible individuals, this inflammation causes recurrent episodes of coughing (particularly at night or early in the morning), wheezing, breathlessness, and chest tightness (NAEPP, 2014).

Status asthmaticus was defined as "an acute exacerbation of asthma that remains unresponsive to initial treatment with bronchodilators" (NAEPP, 2014, and *asthma exacerbation* was defined as "acute or subacute episodes of progressively worsening shortness of breath, coughing, wheezing, and chest tightness or any combination thereof" (NAEPP, 2014). Because this project focused on the treatment of children with asthma, I needed to define what age group was considered a child. For this project, a pediatric patient was considered any patient under the age of 18 years because this is the age of patients currently being cared for in the children's hospital.

Discharge education was defined by The Joint Commission as discussion along with written documentation that is provided to the patient prior to leaving the hospital that covers the following topics: equipment and supplies, home space, healthcare tasks, special foods, medications, giving care at home, and arranging follow up (Joint Commission, 2014). A *30 day readmission* was defined by Centers for Medicare and Medicaid Services (2016) as "an admission to an acute care hospital within 30 days of discharge from an acute care hospital".

Because inclusion criteria were limited to pediatric patients with a diagnosis of asthma, asthma exacerbation, or status asthmaticus, the number of available patients was dependent on the current inpatient census and patient diagnosis. Additionally, I needed to assume that parents were available and willing to participate with the child between the

hours of 6:00 a.m. and 5:00 p.m. to receive discharge instruction by the APN. If parents arrived late to the hospital to take their child home, they received the current standard of discharge education due to the limitations of the APN schedule. Parents who were selected to participate in this project also needed to be English speaking. Because the current practicum site largely has a demographic of Caucasian, English-speaking, middle-class patients, resources to provide education to non-English speaking families is very limited and must be arranged multiple days in advance. Limitations to this project involved patient accessibility, primary language, parental preference, and parental consent.

Summary

Asthma is a serious and potentially fatal disease affecting children and adults across the United States and beyond. The need for a standardized asthma educational program provided by an APN is evidenced by asthma readmission rates and patient readiness for discharge scores. Through this program, parents reported feelings of empowerment to care for their children with asthma after hospital discharge, and to improve the overall health of the youngest patients with asthma.

Chapter 2: Review of Scholarly Evidence

Asthma Literature

Asthma in the United States

Asthma is a national problem that is being addressed by major organizations that focus on the health and well-being of children in the United States and across the world. In 1999, the Centers for Disease Control (CDC) launched The National Asthma Control Program to reduce the overall morbidity and mortality associated with asthma. With a focus on decreasing missed school days, work, hospitalizations, emergency department visits, and deaths, the NACP promotes evidence-based interventions for asthma management and constantly monitors for progress and success.

These interventions and program goals correctly with the Healthy People 2020 goals to educate and serve the asthmatic population. Throughout the CDC (2015) asthma website, parents of children with asthma can seek valuable resources including symptom control techniques, lifestyle modification suggestions, and basic information on the disease process. Children with asthma can find a variety of age-appropriate resources including games, coloring pages, and support groups.

Healthy People 2020 is a national government sponsored health initiative that strives to improve the health of all Americans. By setting 10-year national objectives, the Healthy People program promotes scientific interventions that aim to improve collaboration across communities, empower individuals to make healthy lifestyle choices, and measure the success of prevention strategies being offered (Healthy People, 2015).

With successful outcomes over the last three decades, Healthy People 2020 has targeted asthma as a national goal for improvement.

Multiple pediatric-specific asthma goals have been identified by the Health People 2020 initiative. These goals include

> reduce asthma deaths among children and adults under age 35, reduce hospitalizations for asthma among children under the age of 5, reduce emergency department visits for children with asthma under age 5, and reduce the proportion of children age 5 to 17 who miss school days due to asthma. (HealthyPeople, 2015)

With interventions and resources focused on trigger identification, medication management, exacerbation recognition, and use of an asthma action plan, the educational model proposed by this project will serve to meet these goals and others.

Hospital Readmissions

The reduction of hospital readmission rates is a goal that almost every organization is attempting to meet. Starting October 1, 2012, the Centers for Medicare and Medicaid Services (CMS) offered a reduced payment to hospitals for excessive readmission rates. With specific chronic diseases affecting the calculation of individual hospital readmission rates, many organizations are initiating programs to reduce the 30-day readmission rate. Through the Affordable Care Act, CMS has developed the Hospital Readmission Reduction Program that examines readmission closely and ultimately affects payment (Centers for Medicare and Medicaid Services, 2016). With the current

practicum site supporting methods to reduce readmission, increased asthma education is needed to align with this goal.

Asthma Education Literature

Multiple studies have been published supporting the need for increased asthma education for hospitalized children before leaving the hospital. “Evidence to date on information needs of North American parents of a child with asthma indicates a pervasive need for education, but little is known about parents’ perceptions of their knowledge gaps” (Archibald, Caine, Samina, Harling, & Shannon, 2015, p. 20). While some studies published showed success, others did not have the benefit that was anticipated, such as decreasing emergency department visits, decreasing hospital readmissions, and decreasing asthma-related complications.

In a study by Archibald et al. (2015), parents of children with any type of asthma were interviewed about their experience with receiving education, what information they found to be helpful, how the information was provided, and what their general knowledge was about the condition of asthma. After the initial interview, parents discussed their experience with caring for a child with asthma in an effort to provide a contextual understanding of the parents’ information needs. At the completion of the interviews, researchers identified that “for many parents, the information they felt they needed and the gaps identified during the research teams’ interpretation were not the same” (Archibald et al., 2015, p. 22). Results from this study indicated the need for recognition of symptom severity, the most critical need for successful management. Many parents during these interviews admitted to not having adequate education to recognize the

hallmark signs of an exacerbation. Instead, parents often attributed these symptoms to something else until they were told to seek urgent or emergency medical care by a provider. One parent reported “we weren’t really informed of the severity of her condition and we brought her home and said well we’ll rest her, its nothing… until the doctor said, you know, we need to get her to the hospital right away” (Archibald et al., 2015, p. 22).

The second area of concern for parents was the ability to manage an acute attack Archibald et al. (2015) . Many parents reported lack of confidence in their ability to correctly use an inhaler when needed, and for that reason many parents reported feeling helpless during an attack. Frequently, parents reported that health care providers used and taught different techniques for administration, which left them feeling confused. A common theme in the reports of these parents was the need for hands-on learning for correct inhaler administration with a consistent approach and a trained health care provider Archibald et al. (2015).

Prevention versus crisis orientation was the third theme identified by the parents as a knowledge gap in their ability to care for their children outside of the hospital. In this thread, topics such as the need to educate parents on the chronicity were identified. One parent explained that her daughter had been diagnosed with and struggled with asthma for 8 years before she fully understood that asthma is something “she deals with every day, not just a disease that comes and goes” (Archibald et al., 2015, p. 23). Other themes that emerged included reduction of trigger control and techniques to improve compliance with recommended medications. Many parents reported feelings of guilt and frustration

when they forgot to administer daily medications or forgot to pack a rescue inhaler for when a need for use arose.

The final theme identified by Archibald et al. (2015) was knowing about asthma. In this topic, Archibald et al. identified that "many parents were unable to describe what many healthcare providers consider basic asthma knowledge" (p. 19). Although parents reported this information was helpful, it was placed at the highest level of the hierarchy in terms of education needed to successfully provide care to their children. Archibald et al. noticed that a clinical change in a patient's condition or an emotional motivator often drove parents to have a deeper understanding of their child's condition, and to seek additional information. When parents were asked specific targeted questions addressing what asthma is, medication side effects, and how medications work in the body, most parents could not provide responses. One mother reported "I don't really look up information… everything I need to know I can find it if I really need to find it" (Archibald et al., 2015, p. 24).

Overall, Archibald et al. (2015) demonstrated that asthma education is essential and needs to be improved. Most parents reported that they received very little education at the time of initial diagnosis, and almost all parents reported that they received and continue to receive very little education in the emergency department setting. Some of the parents in this interview reported they did not receive "any real education" until they were seen in an "asthma clinic" (Archibald et al., 2015, p. 25). When asked to describe this experience, these parents reported value in "the personalized nature of these visits and the follow up received" (Archibald et al., 2015, p. 25). Additionally, these parents

reported a positive influence with "receiving information tailored to their child in a non-emergency context in which the child's particular presentation and treatment response was evaluated by consistent healthcare providers" (Archibald et al., 2015, p. 25).

Borgmeyer, Gyr, Jamerson, and Henry (2008) examined the role of the pediatric nurse practitioner (PNP) in the management of children admitted to the hospital with asthma. PNPs were evaluated by four individual groups: staff physicians, floor nurses, families and patients, and intern residents. When specifically asked about the PNP's role as a health educator, individuals from every group noted the strong ability of the PNP to provide effective and accurate information that meets the family's needs. Of the staff nurses who were surveyed, 100% responded that "PNPs provided education that more effectively allowed the bedside nurse to educate their patients about asthma" (Borgmeyer et al., 2008, p. 277) as compared to a staff physician or intern. When evaluating PNPs as a members of the asthma management team for children with asthma, Borgmeyer et al. found no significant difference in the length of stay, charges for room and board, pharmacy, laboratory supplies, and radiology as compared to physicians. Additionally, there was no significant change in the readmission rate or emergency department visit rate post discharge in the group that was treated by the PNP as compared to the physician-led team (Borymeyer et al., 2008, p. 280).

In January 2006, a short group-based inpatient educational program was developed at a children's hospital in New England. The curriculum was based on the guidelines established by the National Heart, Lung, and Blood Institute for the management of asthma. The idea behind the group method was not only to provide a

training session that was less labor intensive and could accommodate more than one family, but also to provide social support and networking possibilities for the families and patients who attended. The program was run by nursing staff who worked full time in a pediatric respiratory clinic and were considered experts in pediatric asthma management.

Tolomeo (2009) found that despite this program being offered to all families with an inpatient diagnosis of asthma, only 42% of children had charted documentation of complete asthma education prior to discharge. Tolomeo (2009) discussed the possibility that although the program was offered, patients viewed this session as voluntary and not all parents wanted to participate in group education. For those parents who did attend, the bedside nurse did not reeducate on topics covered in the group program; therefore, parental understanding at the time of discharge was not assessed. Although this group module has many advantages for the provider including the ability to train multiple families, the individual one-on-one attention that was well received in the previous studies was not available. Additionally, the program had multiple limitations in that it could not truly be child specific and potentially left parents with a false sense of security.

It is no surprise that technology is changing the face of education. As more children than ever have access to the Internet, providing safe and reliable resources for children and parents to obtain accurate information is essential. Martinasek et al. (2011) reported that adolescents are the number one users of Internet resources, and nearly two-thirds of all teenagers report going online at least daily to participate in social networking websites. Martinasek et al. further explored the use of social media technology (SMT) as a method to improve health education specific to children and adolescents with asthma.

Results of this study indicated that many adolescents felt disconnected to the education being provided because they could not relate to the way the information was being taught. While SMT has barriers and challenges, this study highlighted the importance of providing age-appropriate resources to children and adolescents.

As noted above, many studies have demonstrated the discrepancy in what parents feel is critical information as compared to what health care providers find necessary education for discharge. Clayton (2005) noted the importance of education for asthma management, but pointed out that many parents were not provided the correct information to make them want to be compliant with treatment regimens. Clayton reported that many parents were misinformed about the potential side effects of medications, and some parents reported fear that their children would become dependent on inhalers for breathing. Additionally, some parents reported fear of steroids and fear of overdosing on medications, yet very few parents reported these fears to the health care provider providing the education (Clayton, 2005).

A lack of awareness about different priorities in asthma education may lead the health care provider to miss critical pieces. Clayton (2005) suggested that an appropriate way to start a conversation about medications would be to ask the parents their understanding of side effects and necessity, and to build off of this foundation. For providers, understanding the parental needs for education can help to promote trust and improve compliance with the management of childhood asthma.

Despite multiple publications, the literature continues to support the need for additional programs to be developed to accommodate the learning needs of parents whose

children are hospitalized with asthma. It is not acceptable to defer education to the primary care doctor who is often limited due to time constraints. An educational module developed by an advanced practice provider may be able to accommodate many of the needs presented in the literature, and may provide information that is timely, effective, safe, and well received by both patients and colleagues.

Parental Readiness for Discharge

The last section of literature that can be examined is focused on parental perception of preparedness for discharge.

"The consequence of shorter hospitalizations is having less time to educate patients and family members and to coordinate home and community services. Ultimately, many patients and families are discharged with unmet home care needs and at increased risk for complications and hospital readmissions." (Lerret, 2009, p. 246)

Providers must have a plan to begin discharge teaching at the time of admission to accommodate the family's learning needs. One of the important points that is well documented in the parental readiness literature is the idea that the amount of education a family needs is not correlated with the severity of the child's illness, and that often nursing staff will report a parent to be more knowledgeable than the parents will report (Lerret, 2009).

As a provider, our goal should constantly be to provide the best care to the patient and family, but our duty to provide care extends after discharge. We have a responsibility to provide parents with the tools needed to safely care for their child after they leave the hospital. An inpatient asthma educational program to meet these needs, and be a tool that

could potentially be generalizable to a large variety of pediatric chronic diseases would accomplish this.

Similar Discharge Programs

The most common disease process that focused on inpatient education prior to discharge in the pediatric population is new onset diabetes in patients who present in diabetic ketoacidosis (DKA). Much of the literature on this topic provides information on programs developed by a multidisciplinary team, and focuses on readmission rates and overall health well-being with a focus on glucose control. Unlike asthma, diabetes management can be more objectively evaluated through laboratory levels. However, the lack of laboratory data for asthma does not decrease the need for education.

One study, conducted by Koves et al., (2014) examined the effectiveness of a DKA care bundle which not only included guidelines for medical care of the patient, but also recommendations for the education that must be completed prior to discharge from the hospital. This team consisted of nurses, physicians and other healthcare professionals which included child life, dietitians, social workers and outpatient endocrinology. This model focused on the "why" the "how" and the "what." For this program, the why focused initially on why the child was in the hospital and why the child was experiencing these symptoms. The how focused on how to manage this, which included how to administer insulin, how to check blood sugar and how to recognize changes in patient condition. The what focused on what this means for the rest of the life of a child with diabetes. This section allowed for individualization based on severity, age, activities and lifestyle of the family. Results of the study demonstrated that this pathway was activated

99% in the first year of use and was overall reported as well received by the nursing staff and families. This study did not provide specific data as to readmission rates.

Conceptual Model

The Health Belief Model (HBM) served as the foundation for this project. The HBM focused on four cognitive dimensions which will allow the program designer to understand the parental expectations of caring for a child with asthma. These dimensions include: (a) perceived susceptibility to an illness, (b) perceived severity of an illness, (c) perceived benefits of various coping responses, and (d) perceived barriers to coping (Holden et al., 1998, p. 52). Although a dated study, Holden et al., was one of the first authors to utilize the HBM as a foundation for understanding pediatric asthma, and the role of the parents in management.

Since this initial study, various other authors have examined the use of the HBM with pediatric asthma, outcome expectancy and compliance. Zebracki and Drotar (2004) utilized the HBM to understand the relationship between perceived self-efficacy and adolescent behaviors including medication compliance, morbidity and self-management behaviors. Without understanding the parent/child perception of asthma and asthma management, it was impossible to target interventions to meet those needs.

The HBM was specifically used in this project as a starting point to parental education, and to better determine the parents' understanding of the condition, consequences and outcomes. For example, if a parent did not believe that asthma is a worrisome condition, or did not believe that children with asthma can die or have lasting consequences as a result of a severe asthma attack, provider education first needed to

focus on educating the parent about the severity of the disease, prior to discussing treatment options and lifestyle interventions. When discussing home modifications, if a parent believed that “it won’t happen to my child,” parents were unlikely to comply with recommendation, and therefore, the provider conducting the discharge education needed to be aware of this, and target interventions that a parent will likely utilize.

During implementation of this project, it was determined that the dimension that included perceived severity of illness was most relevant and applicable to the patient population. Parents who reported their child as having severe asthma and being at a higher risk for complications were far for susceptible to education, as well as providing feedback to the educational module for areas of improvement. Perceived benefits of various coping responses was found to be the least applicable, as parents shared little information about how they are coping with a complex diagnosis and childhood condition.

Chapter 3: Approaches and Methods

Project Design and Methods

A quality improvement project was designed based on the needs assessment and literature review. With the completion of the literature review, five main areas were continuously reported as critical pieces of information for both parents and health care providers: basic asthma disease understanding, medications and medication side effects, symptoms and symptom control including lifestyle modifications, how to recognize an exacerbation, and the use of an asthma action plan. This information was organized into an asthma resource binder that was provided to parents while their child was in the hospital to allow parents to review and ask questions throughout the hospital stay. This binder was unique in that it was customized to the individual child, containing information about his or her specific medications, triggers, and action plan. The information in this binder was different from the current standard of care because it allowed parents to have all the information in one central location instead of loose-leaf handouts provided by the bedside nurse. By receiving this binder early in the hospital stay, parents could take notes and ask questions of the various specialists who were working with their child.

The day prior to discharge, a nurse practitioner scheduled an individualized teaching session with the parent and child if age appropriate. During that time, the expectation was that the focus would be on education, and other interruption was minimized. The APN began the educational session by asking the parents a very open-ended question: “Tell me what you know about asthma, and how we can help you to keep

[child's name] out of the hospital?" Based on the parents' response, the APN then tailored the educational session to meet those specific needs, while still covering the required materials.

The educational session covered basic asthma pathophysiology, which included a parent-friendly description of what asthma is and how it can affect everyday life. The resource binder contained large pictures that allowed the parent to visualize what is happening inside the body and how that relates to symptom manifestations. The second portion of the educational session focused on medications. Included in the resource binder was list of all the medications the child would be discharged with, the doses, when to take the medications, and what they were needed for. The APN reviewed the side effects of each medication with the parent. The resource binder included a log for parents to record when the medication is given as a method to improve compliance. Lastly, the APN discussed methods to improve medication compliance including setting alarms, using appropriate apps, and asking a school nurse to administer daily medications if compliance was a challenge. The final task of this section was to have the APN demonstrate proper inhaler use with a spacer and mask if applicable, and have the parents conduct a return demonstration prior to discharge.

Symptom recognition and symptom management addressed the family's lifestyle and how lifestyle changes can reduce symptoms. This section focused on smoking cessation, allergen control, environmental triggers, and overall living conditions. This section allowed for transition into the fourth section of the project in which recognizing an exacerbation was discussed at length. This section involved reflection on the current

hospitalization to allow parents to identify early warning signs. The APN discussed early and late warning signs of an exacerbation, and when to notify the primary care doctor or go to the emergency department.

The final section of the asthma education focused on the use of an asthma action plan. The National Heart, Lung, and Blood Institute's (NHLBI) 2015 current guidelines mandate that all individuals with asthma have a written plan to use at home to guide their self-management techniques. Although most pediatric patients at the practicum site are given a plan, very little time is spent reviewing the plan and understanding how parents can use this tool to avoid future hospitalizations. The APN reviewed the steps parents need to take when they recognize an exacerbation, and how to play an active role in self-care.

In addition to the resource binder that was provided to parents, an instructor binder was created for the APN to review prior to administering the education. This ensured continuity and that correct information was provided each time. The instructor binder contained additional resources that may be provided to parents, as well as the science behind the binder and how to effectively teach parents the provided information. For completion of this project, one APN completed one plan-do-study-act (PDSA) cycle with three asthmatic children to assess for unintended barriers or complications. Additionally, the APN hosted three lunch-and-learn sessions with the staff nurses caring for children with asthma to allow for project information dissemination.

Population and Sampling

The specific population that this educational model served was children under the age of 18 who at the time of admission had been diagnosed with one of the following: asthma, asthma exacerbation, or status asthmaticus. The parent and child needed to be English speaking only, and the parent needed to be present during normal business hours to participate in this educational program. The sampling technique was convenience sampling.

Data Collection and Data Analysis

No data were collected or analyzed as part of this project. Instead, parental responses were verbally obtained and were used to make further revisions to the project for future implementation. Future revisions of this project will focus on obtaining baseline admission and readmission data for children with asthma, and data will be collected to assess the 30-day readmission rate after the educational module was implemented; however, these data were not collected as part of this project.

Project Evaluation Plan

Using the impact evaluation method, I will look at hospital readmission rate as the primary measure to determine project success in the long term. Although looking at the 30-day readmission rate for rehospitalization of pediatric asthma patients is important, it is not the only way to evaluate the success of this intervention. Other possible options that should be explored to determine the overall utility of this project include physician and nurse satisfaction, satisfaction of the advanced practice providers administering the tool, and satisfaction of the residents in the teaching facility. These measures will not be

enacted during the time frame for this academic project, but will be suggested for future follow up.

The only information that was used to evaluate the effectiveness of this project was parental responses post module, staff nurse responses post lunch-and-learn session, and APN experiences during project implementation.

Sustainability for a project is critical to determine the true success of a project over a long period of time, but this was outside of the Walden University project timeline. There are multiple ways in which this APN project could be sustained beyond May, 2016, and these ideas will be provided to the practicum site faculty. Hershey Medical Center currently employs 1.5 full-time health educators, and although they are not nurse practitioners, the ability to train these employees to conduct this education may serve as an additional inpatient resource. Additionally, the dissemination of this program to the outpatient primary care providers could change the direction of the program and allow for this information to be given on an outpatient basis when a child is well, and simply reviewed on an inpatient basis should that happen. Lastly, if this teaching program is found to be beneficial, the long-term plan would be to train the bedside nurse so that every parent, regardless of his or her availability during the day, would receive this comprehensive asthma education.

Chapter 4: Discussion and Implications

Summary and Evaluation

Although implemented on a small scale with only three total sets of parents, the pediatric advanced practitioner provided pre-hospital discharge education project was a success. Over the course of a few days, three patients with asthma of varying severities entered the pediatric hospital and were identified to fit the inclusion criteria for this project. Patient A was a 5-year-old female admitted with a diagnosis status asthmaticus. Patient B was a 14-year-old male with an admission diagnosis of asthma exacerbation, and Patient C was a 27-month-old female with an admission diagnosis of asthma exacerbation. For all three of the patients, the families were English speaking and were available for education during standard business hours. The developed patient education binder was distributed on either the first or second hospital day, and all three sets of parents were able to schedule the educational session with the nurse practitioner prior to discharge.

As stated above, no formal analysis of data was conducted; however, parents of all three admitted children voiced high levels of praise for the educational binder. The parent of Patient B verbalized, “I wish I had this years ago. You come into the hospital. They give you a bunch of papers and you leave. I don’t even read them.” This parent voiced appreciation over having an individualized binder with information that was specific to her teenager and some of the challenges they may face after discharge. This same parent also voiced an increased understanding of why inhaler spacers are used, and

correct technique for administration. She stated, “In all the times we’ve been discharged, no one has ever asked [B] to see how he uses his inhaler.”

Few negative comments were received from the parents who participated in the project; however, the one set of negative comments came from the family of Patient A who felt that this individualized education actually prolonged their hospital stay. This parent made a reference to a previous admission, “where the nurse just brought in some papers and we could go home.” Although the family did raise concern, they had multiple positive things to say about the program, and did report learning new information despite their initial perception that they had a good understanding of asthmatic control.

In addition to implementation with three parents, the project design and plan for implementation were shared during three staff nursing lunch-and-learn sessions. These sessions were approximately 30 minutes in length and took place during all three shifts of the nursing day. The goal of this presentation was to make the staff nurses aware of this project and to gain their input for long-term sustainability and future project development.

Overwhelmingly, the staff nurses supported and provided constructive criticism for the project. During the lunch-and-learn sessions, I found it particularly challenging to keep the nurses focused on the topic of asthma because they were quick to identify other diagnoses that were also in need of individualized education. The nursing staff suggested that in the future this binder should be administered at admission so that families could better use the resource page that provides an opportunity to ask providers questions, and overall use the space as an ongoing notebook to write comments and educational tips.

This project was overall extremely successful, and I look forward to future design and implementations.

Discussion of Findings

The theoretic framework for this project was the health belief model. Theorizing that obtaining parental input of severity of disease and perception of potential complications would increase educational involvement, the HBM served as a solid foundation for this project. Parents quickly verbalized a variety of responses, which ranged from, “I already know how to take care of my child’s asthma, but I can always learn more,” to, “I am very scared to take my child home.” The HBM helped to focus the intervention on targeting specific fears and concerns.

When comparing the findings of this project to the findings published in the literature, I noted that parental responses were similar. Because this was only a small pilot project, I did not measure the long-term outcomes to understand the full effect of this educational project. Journal submission of this particular project will add new information to the literature. I am hopeful that publication of this information will allow other nursing staff and educators to be inspired to make further adjustments to this project in an effort to provide best practice discharge education to pediatric populations with chronic diseases.

Implications

While the initial implications of this project seem small, the potential for future implications to clinical practice are huge. After completion of my Walden University project, my goal is to obtain IRB approval through Milton S. Hershey Medical Center to

conduct a larger pilot project that not only looks at parental response, but also readmission rates for pediatric patients with asthma being discharged from the hospital. If successful, this program could be taught to the bedside nursing staff in an effort to provide the same education to all patients regardless of the date or time of discharge. Additionally, this project has the potential to be translated into Spanish, which is the second most common language spoken by the pediatric patients that are served.

Beyond the diagnosis of asthma, this project is laying the foundation for discharge education for a variety of chronic pediatric diseases. Because providers at the practicum site care for a large population of patients with chronic inflammatory bowel disease, diabetes, chronic lung disease, and other endocrinological disorders, this project has the potential to be expanded to other patient populations. If the program is successful in decreasing readmission rates, I am hopeful that the cost saved could be reallocated to hire a full-time pediatric nurse educator whose primary job would be inpatient education.

In today's society where hospitals are rated not only on patient care but also patient education, comfort, and amenities, preventing readmission and improving patient satisfaction are implications for social change. The days are done when a patient goes to the local community hospital to seek care. Now more than ever, patients and families have a choice in where to seek care and what specialists are involved in the care of their beloved child. Being known for best practice in medical management as well as low readmission rates and high patient satisfaction scores would benefit hospitals and medical centers.

Strengths and Limitations

One of the major strengths of this project was the involvement of fellow nurses, physicians, advanced practice providers, leadership, and resident physicians. The feedback from the various stakeholders was extremely valuable in making revisions to the project, anticipating barriers, and overcoming institutional challenges for project implementation. Another strength of this project was the ability to disseminate this information to nursing staff on both shifts in the pediatric intermediate care unit and the pediatric acute care unit. These lunch-and-learn sessions provided an excellent opportunity for questions and answers related to this project, as well as for fellow nurses to see a DNP project in action. I received many questions from interested nurses about continuing education and what the next steps are in the DNP degree and clinical advancement.

The main limitation of this project was the small number of patients who were able to receive this educational binder. Although this project was intended to be a small pilot, my initial desire was to reach more than three patients. This number needed to be decreased due to time limitations surrounding this academic project. Other limitations included the inability to determine the long-term outcome of this project. Although future plans for this project include additional data collection, I was not able to do so for the purposes of this academic project.

Analysis of Self

The role of student can include many responsibilities. Although many students in the program would openly admit that they enjoy being a student and a scholar, I found

this program to be particularly challenging because of system issues beyond my control. Prior to this program, I had never been through the process of obtaining Institutional Review Board (IRB) approval and was therefore unprepared for the lengthy process. This led to other delays in the project, which ultimately led to hasty implementation and project completion to reach an anticipated graduation date.

Through the practicum experience, I am hopeful that I have inspired other nurses to engage in scholarly activities such as research, project design and development, quality improvement, needs assessments, and literature reviews. My opinion of the DNP-prepared nurse has greatly changed because I now have a much better appreciation for her or his dedication to patient safety and quality. As a nurse, I am proud of the way my practicum experiences have prepared me for future scholarly activities in my workplace and clinical practice, as I continue to strive to provide evidence-based care to my patients.

This project was a learning experience for me in terms of project assessment, development, and implementation. Overall, I found this project to be extremely frustrating in terms of timing and advancement of the implementation phase. The process, however, was very easy to understand, and I am hopeful that I can replicate it in future unit initiatives. As a project developer, I feel that I did take on strong leadership characteristics and clear communication with my team and committee members, which allowed for a smooth and successful implementation once approved.

The roles of student, practitioner, and project developer are at times interchangeable and at other times separate and distinct tasks. As a clinician on a daily basis, I feel the DNP degree has empowered me to use these terms to define my everyday

role and to inspire other nurses to do the same. Although I previously felt that quality and research were outside my scope of practice as a nurse, I now feel educated and motived to seek solutions to everyday problems using best practice techniques. The possibilities for future development of this project are endless as I identify other diseases that need specific and focused discharge education.

Chapter 5: Scholarly Project

Because this project was conducted using a small number of participants, further implementation is needed to include a larger number of children with asthma. In doing so, the true effect of this project will be known, and the project can be evaluated on a much larger scale. For that reason, I have elected to wait on publication until after a second revision of this project can be implemented. My goal for the future is acceptance of an abstract in the *Journal of Pediatric Hospitalist Medicine*, which often includes pilot studies and case reports about a variety of topics including educational experiences that affect that care of children in the hospital setting under the care of a pediatric hospital service.

Conclusion

Asthma is a serious and potentially fatal disease affecting children and adults across the United States and beyond. With diagnosis rates continuing to rise, the number of children admitted to the hospital every year with asthma is frightening and costly. The need for a standardized asthma education program provided by an APN is evidenced by both asthma readmission rates and patient readiness for discharge scores. The current method of discharge education at the current practicum site is inadequate to prepare parents for the many challenges of caring for an ill child outside of the hospital setting.

An asthma education program designed and administered by an APN can meet the needs of parents, as well as institutional and national goals for reduction of hospital readmissions. A parental resource binder that focuses on asthma pathophysiology, medications, side effects, exacerbations, and the use of an asthma action plan is ideal to

empower parents to make informed decisions based on their child's unique circumstances. This quality improvement project has the potential to be not only beneficial but sustainable over long periods of time, serving as a foundation to change the way discharge education for parents and families is conducted.

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