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Walden University

College of Health Sciences

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Andrew Wesolowski

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee

Dr. Joan Moon, Committee Chairperson, Nursing Faculty

Dr. Amelia Nichols, Committee Member, Nursing Faculty

Dr. Tracy Wright, University Reviewer, Nursing Faculty

The Office of the Provost

Walden University
2019

Abstract

An Evidence-Based Clinical Guideline to Improve Pediatric Asthma Outcomes

by

Andrew Wesolowski

MS, Walden University, 2016

BS, Chamberlain University, 2010

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

Walden University

November 2019

Abstract

Asthma is a disease that compromises the airways of the respiratory system, and is a prominent reason for hospitalization and emergency care needs. Over 6.1 million children are estimated to suffer from asthma. Asthmatic patients at an urban pediatric hospital emergency department (ED) were found to have higher revisit rates than the national average for large urban hospitals. The lack of a clinical guideline for educating families in patient care management at home could have contributed to readmission rates. The purpose of this project was to develop an evidence-based pediatric asthma education clinical guideline to aide healthcare providers with discharge education and home management of the pediatric asthmatic patient. The practice question that guided this project focused on discovering what evidence-based pediatric asthma guidelines could be found in the literature for providing discharge education instructions for the pediatric asthma patient from which the guideline for the ED could be developed. The appraisal of guidelines research and evaluation II instrument was used to guide and score the project. An expert panel consisting of the nurse educator of the ED and medical directors of the ED and Pulmonology scored the guideline resulting in an overall score of 83%. The experts recommended the guideline without modification. Providing families with education on home patient management might enable caretakers to identify problems, recognize potential exacerbations, and prevent return visits to the ED, resulting in social change by improving the wellbeing of pediatric patients with asthma and their families.

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Dedication

I would like to dedicate this everyone that is affected by asthma from children to adults, individuals living with asthma and their support systems. I hope this will help improve the care they receive and their overall quality of life.

Acknowledgments

I would like to dedicate this first and foremost to my family, for without their support none of this would be possible. I also would like to acknowledge my project committee for their time and guidance throughout this entire process and helping me get to where I am today.

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Section 1: Nature of the Project

Introduction

In the past several years there has been an increase in health care visits by asthma patients (Johnson, Chambers, & Dexheimer, 2016), and asthma exacerbations are a common complaint in pediatric healthcare facilities with revisit rates tending to be a constant issue (Parikh et al., 2018). The American Association for the Advancement of Science (2018) found pediatric patients in large urban settings have a 20% chance of returning to the hospital within the subsequent year for an asthma exacerbation. According to my project site's emergency department (ED) nurse educator, asthmatic patients at the urban pediatric hospital were found to have a 3% revisit rate over 30 days, a 7% revisit rate at three months, and a 22% revisit rate at 1 year.

Research supports the importance of developing systems to effectively treat asthmatic patients through proper treatment, education of both patient and caregiver, and a clear understanding of an at home asthma treatment regimen (Parikh et al., 2018). Clinical guidelines and pathways give providers a way to administer consistent care to patients following the best recommendations from evidence-based practice. The lack of a clinical guideline for pediatric asthma contributes to ineffective care and treatment (Sleath et al., 2017). The development of an evidence-based education clinical guideline for the study site healthcare team to use with pediatric asthmatic patients is to fill a void and help improve patient care (Parikh et al., 2018). Patient education is a part of clinical practice guidelines and was the focus of this Doctor of Nursing Practice (DNP) project.

Discharge instructions are an important aspect of care and must be consistent, promote self-management, and allow for individualization. Camp et al. (2014) found that improving discharge instructions, parental plans, and follow-through improved care and decreased revisit rates. The authors also found that multiple benefits can trickle down from improved care in addition to decreased return rates, such as decreasing patient volume due to unnecessary follow up and relief of some of the burden on already strained healthcare facilities due to high patient volumes. Pollart, Compton, and Elward (2015) stated that discharge instructions and patient education play an integral part in the management of asthma and decrease the likelihood of asthma exacerbations. Empowering patients and their families to understand the disease process, manage their disease, and identify symptoms of exacerbation and how to deal with them can promote positive social change by strengthening the family unit in care of the disease, thereby improving the quality of life for the patient, ensuring better use of healthcare resources, and promoting stewardship of health care dollars.

Problem Statement

The problem I identified in this DNP project was that there were no consistent discharge instructions provided to the patients upon discharge from the ED at my project site. According to the site's nurse educator, on some days, nearly a quarter of the patients seeking medical treatment at the facility were doing so for asthma. The ED nurse educator reported that site has higher than average revisit rates for pediatric asthmatic patients, and steps need to be taken to improve the management of these patients. Parikh (2018) found that the only single-component significantly associated

with a lower rate of revisits for pediatric asthma exacerbation at 3 months was having comprehensive content of education $P < .029$. Incomplete discharge instructions, not ensuring complete understanding by patients and caregivers, and not scheduling outpatient follow-up appointments are some of the challenges to effective discharge (Camp et al., 2014). Other barriers exist for patients, such as low socioeconomic status and lack of knowledge and understanding of medications and the disease process.

Purpose

The purpose of this DNP project was to develop an evidence-based pediatric asthma education clinical guideline (PAECG) to aide healthcare providers with discharge education and home management of the pediatric asthmatic patient. The gap in practice was the lack of a pediatric asthma clinical guideline for patients being discharged from the ED; the evidence-based literature shows that the gap can be bridged with education. Camp et al. (2014) noted that evidence-based literature has shown a direct correlation between effective patient education and a decrease in asthma exacerbations and ED revisits. In this, DNP project, I sought to bridge the gap in practice through development of a PAECG. The guiding practice focused questions for this project were:

RQ1: What evidence from the literature supports the use of evidence-based discharge instructions for the pediatric asthma patient to decrease exacerbations and revisits to the emergency department?

RQ2: What evidence-based pediatric asthma guidelines can be found in the literature for providing discharge education instructions for the pediatric asthma patient from which the guideline for the ED can be developed?

Nature of Doctoral Project

Sources of Evidence

I completed focused searches via the Walden University Library, the National Center for Biotechnology Information, and PubMed to find supporting evidence regarding common problem areas that lead to revisits of patients with asthma. With these searches, I worked to identify current education clinical guidelines from other healthcare organizations pertaining to pediatric asthma and discharge. In the databases, I searched for the following keywords in various combinations: *emergency department, pediatric, asthma, clinical guideline, discharge topics, discharge instructions, and education*. I included materials that addressed pediatric populations living with asthma and, more specifically, having asthma exacerbations. I excluded materials on patients being seen for complications in addition to asthma. I limited my database searches to articles published within the past 5 years.

Approach

Following the Walden University Clinical Practice Guideline Manual (2017), I first conducted a literature search for guidelines. I then compared the guidelines using the inclusion and exclusion criteria. To ensure the search targeted appropriate guidelines, I focused on asthma in pediatric populations, discharge instructions, and the education and discharge of patients and their caregivers. A select few guidelines from which I developed the education clinical guideline for this DNP were included in the literature review matrix (see Appendix A). Prior to submission to members of an expert panel, I developed the education clinical guideline with input from individual members of the

quality improvement and policy development committees, at the current facility where the project was completed at, related to formatting and presentation of topics in the guideline. Once I developed an acceptable guideline, an expert panel evaluated the guideline via the checklist from the Appraisal of Guidelines Research and Evaluation (AGREE) II scoring instrument. The expert panel consisted of the medical directors from both the ED and pulmonary department, and the ED nurse educator. I summarized the results from each of the three members and evaluated the project and myself. After completion of the project, I plan to present the guideline to hospital leaders, the quality improvement team, and the policy development team at the facility.

Significance

With a project encompassing patient care delivery, there were numerous stakeholders who I needed to consider. Goodman and Thompson (2017) stressed the importance of stakeholder engagement as necessary to ensuring that input is obtained from all members who will be directly influenced by the projected change. For this project, stakeholders included doctors and nurse practitioners, bedside nurses, nurse educators, other members of the healthcare team, and pediatric patients and their caregivers. The PAECG will assist healthcare providers in administering consistent and thorough education and discharge instructions to pediatric patients with asthma and caregivers. Improving upon patient education and their understanding of asthma and home management will empower not only healthcare members to confidently care for these pediatric patients but also their caregivers.

Practitioners and nurses will benefit from implementation of this guideline by offering individualized discharge instructions and ensuring complete understanding by the patient prior to discharge to limit errors that might occur if these topics are not discussed. Patients and caregivers can be given the opportunity to voice any and all concerns, improving confidence and understanding regarding pediatric asthma and the importance of outpatient follow-up care. Once review of the clinical guideline is complete, both the healthcare worker and the patient or caregiver will sign the form to acknowledge that the process is complete.

The PAECG contributes to advancing the nursing profession by promoting patient-specific care through discharge education. According to the National League of Nursing (2108), patient care, including education, should be individualized to best serve each patient and their specific needs. This project not only helps improve care and education for patients and their caregivers during discharge from the ED but also application in other settings. Using this guideline as a template will enable application to other chronic disease processes for which patients might make frequent visits to the ED. The PAECG should not be limited to discharge education in the ED; it could aid with discharging patients on the inpatient side as well. With better understanding and management of pediatric asthma through their caregivers, pediatric patients should have a higher quality of life and improved outcomes. Positive social change will be accomplished by improving the condition of the pediatric asthma patient through ensuring that patients and families are receiving evidence-based patient education

(Walden University, 2017). Positive social change will also result from better use of healthcare resources.

Summary

This section introduced the practice problem of no consistent discharge instructions provided to the pediatric asthma patients upon discharge from the ED at my project site. Providers in the ED had no discharge clinical guideline available for use with these patients, and Johnson, Chambers, and Dexheimer (2016) noted that such lack of guideline can lead to errors and unnecessary revisits to the hospital. Development of the PAECG will help providers to ensure all necessary topics for ongoing home care are discussed prior to discharge. The education clinical guideline addresses important educational aspects that I identified in the literature as directly impacting revisits. In Section 2, I will discuss the background and context of the DNP project.

Section 2: Background and Context

Introduction

The problem identified in this DNP project was that there were no consistent discharge instructions provided to the patients upon discharge from the ED at my project site. The purpose of this DNP project was to develop an evidence-based PAECG to aide healthcare providers with discharge education and home management of the pediatric asthmatic patient. The practice focused questions were:

RQ1: What evidence from the literature supports the use of evidence-based discharge instructions for the pediatric asthma patient to decrease exacerbations and revisits to the emergency department?

RQ2: What evidence-based pediatric asthma guidelines can be found in the literature for providing discharge education instructions for the pediatric asthma patient from which the guideline for the ED can be developed?

This section will elaborate on the relevance and background of the DNP project and the framework I used for completing it. I also discussed the study's relevance to nursing practice and the role stakeholders played in the development of the PAECG. Also, the local background and context will be looked at more thoroughly.

Framework

Application of various frameworks and theories is necessary to help guide and support the development of clinical guidelines (Greene, Tuzzio, & Cherkin, 2012). For development of the PAECG, I used the Walden University Clinical Guideline Development Manual (2017). The AGREE II (AGREE Research Trust, 2017) provided

the framework for the project, and the expert committee used the AGREE II scoring instrument to evaluate the guideline (See Appendix B).

The AGREE II (AGREE Research Trust, 2017) offers a framework ideal for projects involving the development of clinical practice guidelines, offering a systematic approach to addressing various practice problems. Specifically, it provides a systematic approach to identifying a problem, identifying evidence, developing a guideline, thoroughly evaluating evidence used within the guideline, and disseminating findings to stakeholders. Translating evidence-based literature into practice can be difficult, but the AGREE II framework helps to ensure validity and quality of guideline development. The AGREE II instrument focuses on six primary domains: scope and purpose, stakeholder involvement, rigor of development, clarity of presentation, applicability, and editorial independence (AGREE Research Trust, 2017).

In the literature review for this DNP project, I found that numerous studies have been done that directly utilized the AGREE II instrument and identified the benefits of using this instrument. Zupon et al. (2018) discussed how the overall quality of guidelines could not be previously quantified, but the AGREE II instrument offers a scale for doing so. The development of prior clinical guidelines in the ED setting has benefited from AGREE II instrument. Novo et al. (2016) developed a clinical practice guideline using the AGREE II instrument to address postpartum hemorrhage, which helped ensure production of a guideline that was based on the latest findings from evidence-based practice. The AGREE II instrument (AGREE Research Trust, 2018) has been endorsed by several organizations such as the National Institute for Health and Clinical

Excellences and the World Health Organizations Advisory Committee on Health Research; it is the international gold standard for practice guideline evaluation and development.

Relevance to Nursing Practice

Clinical practice guidelines have given healthcare organizations a way to provide consistent care based on the latest findings from evidence-based literature. Zupon et al. (2018) noted the important role clinical practice guidelines play in the ED setting and that, when implemented, there were improved patient outcomes and decreased revisit rates for patients with various conditions, including asthma. Management of pediatric patients with asthma can be even more challenging because of the complexity of this situation and the fact that care is dependent on the caregiver (Ortiz-Alvarez, Mikrogianakis, & The Canadian Pediatric Society Acute Care Committee, 2012).

Camp et al. (2014) discussed the current state of ED visits by pediatric patients seeking treatment for asthma exacerbations. The researchers argued that additional effort needs to be made by healthcare staff to ensure complete understanding of discharge instructions, parental home treatment plans, and follow-up care. Chappel (2015) also identified that medication adherence remained a challenge with pediatric patients with asthma and that incorporating patient-specific discharge instructions will help promote adherence.

To keep up with the continually advancing best practices in the healthcare industry, education of staff is necessary, but deficiencies still exist (Klok, Kaptein, & Brand, 2013). Curtis et al. (2017) discussed how important knowledge translation is

when translating research evidence into practice. Supervising healthcare organizations, such as the Joint Commission (2019), mandate standards within facilities, but ultimately each healthcare facility decides how to implement practices into the clinical practice setting. Healthcare facilities utilize protocols to mandate standards of care, but use of clinical guidelines and pathways are helpful for more patient-specific issues such as a clinical guideline to improve care for and home management of pediatric asthma patients.

Clinical guidelines have been utilized in clinical practice for many years, and there have been inconsistencies in teaching regarding pediatric asthmatic patients (Curtis et al., 2016). Klok, Kaptein, and Brand (2013) noted that in the ED setting there was a lack of education for the patient and caregiver, and discharge instructions did not address the necessary components of home management of asthma. The American Association for the Advancement of Science (2018) noted various strategies that can be used for to discharge instructions, including education clinical guideline use. Upon discharge, confirmation of patient understanding of asthma and their specific outpatient treatment regimen is needed. Although not all facilities use clinical guidelines with pediatric asthma, Camp et al. (2014) found that implementing measures to address discharge instructions, parental plans, and outpatient follow up care directly improved outcomes with pediatric patients with asthma. Parikh et al. (2018) identified that using a clinical guideline with asthma patients upon discharge was an effective measure and improved revisit rates at pediatric hospitals.

In the ED setting there are various chief complaints patients present with that benefit from use of clinical practice guidelines; pediatric asthma is one of them. Despite

asthma being a common complaint at this specific ED, there is currently no clinical guideline to assist the healthcare team with patient education and discharge instructions. A clinical guideline will provide an effective way to assist staff with discharge teaching and will be multifocal, addressing patient education, understanding, medication administration and adherence, discharge instructions, and follow up care. This facility is not the only one that has faced such issues with pediatric asthma; others have already addressed this problem through the use of various education clinical guideline forms. Kerckmar et al. (2017) discussed the importance of ensuring adequate understanding of discharge instructions and follow up care, and found that doing so resulted in a decrease in the re-exacerbation of asthma. Addressing the factors that contribute to failure in home management of asthma benefits both patients by controlling their asthma and ED staff by decreasing the burden through limiting unnecessary visits. The education clinical guideline simplifies the information to be covered into a concise form that patients can take home with them for reference.

Development of the PAECG adds a new component to assist the healthcare team in the ED setting. Sheikh et al. (2018) explained the importance of outpatient care and appropriate follow up, and noted that deficiencies in this area need to be addressed by instituting guidelines for healthcare organizations. The lack of a clearly defined guideline in the ED was a problem that needed to be addressed at my project site. The PAECG can fill this gap by presenting the latest evidence-based recommendation in an efficient manner for use with patients in the ED.

Local Background and Context

The local institution for this project was a level-one pediatric trauma hospital in a large urban community that currently has 188 beds and sees over 70,000 patients in the ED each year. Bryant-Stephens et al. (2012) identified that over a quarter of the surrounding community are below the poverty line. Since this facility is a teaching hospital, there is a continuous development of clinical guidelines that can be utilized by staff to treat particular illnesses and disease processes. Many pathways, protocols, and guidelines have been developed to cover a wide array of ailments but asthma was an area that has been overlooked and does not have any clinical guidelines to assist the healthcare team in the ED. Gathering evidence-based literature and developing the PAECG helped outline the specific areas to be discussed with patients with asthma and caregivers prior to discharge. Consideration was made that more than 80% of patients who seek treatment at the facility are eligible for Medicaid, many patients have financial issues limiting access to affordable healthcare services and medications, and they tend to use the ED setting as a primary care resource (project site ED nurse educator, personal communication, October 1, 2018). For this specific reason, there was a dedicated area with pediatricians to evaluate and treat non-emergent patients.

Bryant-Stephens et al. (2012) found that 27% of the local pediatric population in the city where this facility is located suffers from asthma. As noted previously, the current facility had a 3% revisit rate over 30 days, 7% revisit rate at three months, and 22% revisit rate at one year which have increased slightly from previous years (project site ED nurse educator, personal communication, October 1, 2018). High return rates of

these patients indicated that improvement was needed and addressing this issue with an asthma checklist could be the answer. An education clinical guideline can be considered for implementation by the healthcare team for all patients seeking treatment for this complaint.

Bryant-Stephens et al. (2012) discussed the prevalence rate of asthma within inner city pediatric populations are much greater than other locations. Despite being a prominent issue, pediatric asthma lacked formal support of evidence-based practice within the practice setting, such as this ED. El-Rachidi, LaRochelle, and Morgan (2017) noted that pediatric medication adherence is an ongoing issue and focus should be placed on the caregiver because pediatric patients are reliant on them for management of chronic illnesses such as asthma. Black et al. (2015) identified that there is an ongoing struggle to overcome individual and organizational deficiencies of evidence-based practice in the clinical setting and implementing clinical guidelines supported by literature to empower both clinicians and patients and ensure they are educated on the most up to date care practices.

Definition of Terms

The following terms were used within the PAECG DNP Project.

Education clinical guideline: a component of a clinical guideline that helps complete a task in the clinical setting and eliminate human error due to limitations of memory and ability to cope with stress, fatigue, illness, interruptions, new situations, and production pressure that healthcare team members are faced with (Winters et al., 2009).

Socioeconomic status: the social standing or class of an individual or group, which is often measured as a combination of the individual's education, income, and occupation (American Psychological Association, 2019).

Role of the DNP Student

Currently, I am a nurse practitioner within the ED setting and I see pediatric patients seeking evaluation and treatment for asthma exacerbations. Staff within the clinical practice setting tend to be the best source to identify areas that need to be addressed or improved upon to support the healthcare team and improve care delivery (Greene, Tuzzio, & Cherkin, 2012). While working with colleagues over the past few years, the lack of a pediatric asthma education clinical guideline added to the difficulty of ensuring and promoting continuity of care with pediatric patients seeking treatment for asthma exacerbations. Multiple binders with hard copies and electronic versions on shared drives accessible from every computer throughout the hospital were available to providers to quickly view various guidelines, pathways, and discharge education and instructions.

Having access to multiple clinical pathways and guidelines is very beneficial since staff have evidence-based instruments that can be individualized for each patient. One of the most common complaints by pediatric patients within the ED setting is asthma exacerbation (Johnson, Chambers, & Dexheimer, 2016). Treatment is a straightforward process, but education and patient-specific discharge instructions can be overlooked. Parikh et al. (2018) noted common variables that were not being addressed several facilities that contributed to return rates. Variables that Parikh et al. (2018) found

included a lack of education for patients surrounding asthma, not knowing when and what medication to give, improper administration of these medication, and no follow-up care. As a healthcare professional, my job and duty to advocate for patients and conducting this doctoral project was my contribution towards this.

Due to the high incidence of asthma at this facility, and being an asthmatic sufferer myself, I felt as though I could provide support for these patients. I can appreciate how difficult asthma can be to manage, especially for caregivers, and more should be done to support these individuals. Being a visual learner myself, I tend to experience the best results by having something tangible that I can have as reference if need be. Bombard et al. (2018) noted that engaging patients through multiple senses will help reinforce topics of discussion; help empower these individuals and directly improve care. This finding directed me towards developing an education clinical guideline due to the ability to be verbally discussed with the patient and caregiver in addition to providing a hard copy for the healthcare team to utilize and give to patients to have for reference at home

An important factor to keep in mind throughout any project is to remain unbiased and ensure that I look at the application of this clinical guideline not just from the provider perspective but also that of the patient and caregiver. To help promote the validity of the project and the findings, additional variables needed to be identified that could be of influence. Although experience can be used to identify problem areas, to best serve this project, evidence-based literature findings were used to support the guideline. Incorporating the feedback of stakeholders and that of the experts helped ensure the

guideline remained unbiased and incorporated more than one viewpoint. Application of the AGREE II instrument (AGREE Research Trust, 2017) helped ensure that the education clinical guideline was based on the findings from evidence-based literature. The instrument provided a methodological strategy to develop the guideline and assess the quality of information incorporated and how information was presented in the guideline.

Role of the Project Team

IRB and site approval was needed to move on to the development and application phase of the clinical guideline. The project team assisted with obtaining approval from the practice site. Due to the nature of the DNP project, various stakeholders were incorporated throughout the process, which helped reduce the likelihood of overlooking any topics that should have been addressed. Members of the project team included individuals of the quality improvement team, policy development team, and nurse educator at the facility who have experience with the development of clinical guidelines and offered ways to make the education clinical guideline best suited for this project along with the expert panel. Members of the expert panel included the medical director of the emergency department, the director of the pulmonary department at the facility, and the nurse educator for the emergency department. Communication with various quality improvement, policy development team members, and nurse educator were conducted through informal weekly meetings via conference call and email that were scheduled to last from half an hour to an hour. Members at the meetings will be presented with the clinical practice question, the current version of the education clinical

guideline, and what will be addressed during the current meeting. Team members had the opportunity to provide input during the development of each individual section within the education clinical guideline. Over the course of two to three weeks, the education clinical guideline was completed and members were given drafts of the proposed education clinical guideline.

Members were given a week to review and provide input regarding the checklist during a weekly conference call. I reviewed all recommendations and if they helped to improve the checklist and address the clinical practice question, revisions were made and then returned to team members for follow up evaluation. Once a satisfactory guideline was developed, the guideline was presented to the expert panel for further review per the AGREE II instrument (AGREE Research Trust, 2017), responses were returned within a week. No revisions were warranted after their review. After completion of the DNP project, the findings can be disseminated to key stakeholders of the Pediatric Asthma Education Clinical Guideline to share project results and findings. From there the guideline can be presented for possible implementation within the facility.

Summary

This section focused on the background surrounding the lack of a clinical guideline pertaining to pediatric asthma education and discharge instructions within this facility. Applying the AGREE II (AGREE Research Trust, 2017) framework provided a plan to develop and evaluate the clinical guideline for staff to use. The project team helped ensure that all appropriate topics were addressed within the Pediatric Asthma Education Clinical Guideline and confirmed the validity of the clinical guideline. The

clinical guideline was based upon the latest findings from evidence-based practice. The following section will address the collection and analysis of evidence to support the need for such a checklist.

Section 3: Collection and Analysis of Evidence

Introduction

The problem identified in this DNP project was that there were no consistent discharge instructions provided to the patients upon discharge from the ED at my project site. The purpose of this DNP project was to develop an evidence-based PAECG to aide healthcare providers with discharge education and home management of the pediatric asthmatic patient. In the surrounding community there is a large population at or below poverty level, and a lack of understanding of discharge instructions, education about asthma, poor home management, and lack of outpatient follow-up all contribute to higher ED revisit rates. Educating both patients and caregivers prior to discharge with the latest recommendations from evidence-based practice promotes effective home management and decreases unwarranted revisits. In this section, I discuss the overall practice problem and the practice-focused questions.

Practice-Focused Questions

The problem identified in this DNP project was that there were no consistent discharge instructions provided to the patients upon discharge from the ED. The purpose of this DNP project was to develop an evidence-based PAECG to aid healthcare providers with discharge education and home management of the pediatric asthmatic patient. The low socioeconomic status and educational level of the surrounding community contributes to a lack of understanding of disease processes, access to healthcare resources, and unwarranted ED revisits. The gap in practice involved the lack of pediatric asthma clinical guideline and the evidence-based literature that speaks to the

effectiveness of patient education in decreasing exacerbations and revisits. The gap in practice was bridged through development and initiation of the PAECG. The practiced focus questions were:

RQ1: What evidence from the literature supports the use of evidence-based discharge instructions for the pediatric asthma patient to decrease exacerbations and revisits to the emergency department?

RQ2: What evidence-based pediatric asthma guidelines can be found in the literature for providing discharge education instructions for the pediatric asthma patient from which the guideline for the ED can be developed?

The PAECG addresses common variables associated with home medical regimen non-adherence based on the latest recommendations from the literature. The education clinical guideline serves as a reminder for healthcare staff to discuss the important topics covered within. With validation from an expert committee, support from the organization, and the apparent need for these guidelines, this project provides practitioners with an additional educational resource for the treatment of patients suffering from asthma. The primary sections within the education clinical guideline are education on asthma, personalized asthma action plan including medication, and outpatient follow-up care.

Sources of Evidence

To address the practice problem, I completed a literature search to identify evidence-based guidelines focusing on topics relevant to developing the PAECG for the ED pediatric patients with asthma. I used the Walden University Library, the National

Center for Biotechnology Information, and PubMed to find studies containing the key terms *pediatric asthma*, *discharge instructions*, *clinical guideline*, and *clinical tools* published within the previous 5 years. I used studies from the literature review to develop the PAECG. An education clinical guideline offers a clear and concise guideline that can be taken home by the patient and family for reference (Winters et al., 2009). Camp et al. (2014) noted that using a clinical guideline to confirm understanding of discharge instructions, home care plans, and follow up care promoted compliance to home regimens. I developed the clinical guideline using the latest recommendations from evidence-based practice. Evidence from literature offered insight into what topics should be included within this education clinical guideline to help assist healthcare team members with this particular patient population. Walgreens Healthcare Clinic (2019) identified numerous educational topics in its patient handout to include within the guideline. The asthma action plan was adapted from previous asthma action plans from both the American Lung Association (2019) and the Asthma and Allergy Foundation of America (2018).

Evidence Generated for the Doctoral Project

Participants

Selected from the identified stakeholders, the expert panel included the medical directors of the ED and pulmonary department, and the ED nurse educator. I recruited these individuals for their expertise concerning this topic. The DNP project was focused directly on a medical condition pertaining to the pulmonary system within the ED setting. The leaders of the two departments and the nurse educator for the unit that will be

influenced the most by this project served as the best expert panel to address the problem of revisits to the ED. They used the checklist from the AGREE II instrument to evaluate the model, offer their insight, and review the proposed guideline.

Procedures

The 23-item AGREE II instrument was developed by Dr. Brouwers of McMaster University to offer a consistent and effective evaluation of clinical guidelines (AGREE Research Trust, 2018). The instrument's two primary focus areas are overall guideline quality and recommendation for use. Hoffmann-Eber et al. (2018) investigated the strength of the AGREE II instrument via a survey and found a strong assessment of both guideline quality and recommendation for use. Revisions to the original AGREE instrument were completed in 2009 to improve upon the reliability, quality, and transparency of the tool, resulting in AGREE II (AGREE Research Trust, 2017). Siebenhofer et al. (2016) noted that although the AGREE II instrument can be time consuming in comparison to other tools available, the AGREE II instrument is superior and the gold standard for clinical guideline appraisal because of its methodical look at the quality and application of a guideline.

Protections

Throughout this DNP project, it was important that I ensured that all participants and the facility remained anonymous. The Walden University IRB approval in addition to site approval documentation for the project was obtained before I initiated the project. In addition to this approval, I distributed an expert panel packet which included a brief

summarization of the project, what I requested of each expert, and the Disclosure to Expert Panelist Form for Anonymous Questionnaires (See Appendix C).

Analysis and Synthesis

The PAECG was presented to both medical directors and nurse educator who scored the guideline using the AGREE II instrument (AGREE Research Trust, 2017). Results of the AGREE II instrument (AGREE Research Trust, 2017) were analyzed by the expert panel to ensure that the latest recommendations from evidence-based research were used within clinical guideline. In the evaluation section, I offer more detail regarding how I obtained and reviewed the data from the AGREE II instrument. The review of the education clinical guideline was a straightforward process of compiling all the scores and answers by the expert panel. Results are found in Appendix B and no alterations were suggested by expert parties so the guideline was kept as is. The evidence gathered within the literature review matrix supported the PAECG for use within the ED setting. In this DNP project, I addressed various areas within discharge instructions that were found to contribute to asthma exacerbations.

Summary

The collection and analysis of evidence was a key part of the DNP project and the foundation for developing the PAECG. The American Association for the Advancement of Science (2018) has noted that there is a direct correlation between ineffective discharge instructions and the increase of revisit rates. Due to the lack of discharge continuity and lack of instruction, EDs need to find ways to promote patient understanding and follow up care. To improve patient comprehension of asthma and

their home management plan, there needs to be a clinical guideline that healthcare staff can apply to ensure that all necessary topics are discussed with these patients and caregivers prior to discharge.

After development of the PAECG, was a need to be an evaluation by appropriate individuals to ensure appropriate application within the ED setting. An expert panel served as the review board for this guideline, using the AGREE II instrument. All three experts recommended the guideline for use with no alterations. In Section 4, I discuss the findings and recommendations, provide an assessment of the effectiveness and validity of the education clinical guideline, and discuss how the educational guideline can be applied in the clinical setting.

Section 4: Findings and Recommendations

Introduction

The local problem I addressed in this DNP project was the lack of an evidence-based asthma education guideline in the ED at my project site. The two practice focused questions were:

RQ1: What evidence from the literature supports the use of evidence-based discharge instructions for the pediatric asthma patient to decrease exacerbations and revisits to the emergency department?

RQ2: What evidence-based pediatric asthma guidelines can be found in the literature for providing discharge education instructions for the pediatric asthma patient from which the guideline for the ED can be developed?

The overall purpose of this DNP project was to develop an evidence-based PAECG to aide healthcare providers with discharge education and home management of the pediatric asthmatic patient.

In Section 4, I discuss the findings and implications identified through the scoring of the PAECG by the content experts. Next, I discuss the contribution of the doctoral project team, followed by the strengths and limitations of the project.

Findings and Implications

Via an in-depth literature review, I identified important topics and assembled evidence that I used to formulate the clinical guideline. I used education topics from Walgreens Healthcare Clinic's (2019) to help formulate the initial page of the PAECG (see Appendix D). The asthma action plan was adapted from previous asthma action

plans from both the American Lung Association (2019) and the Asthma and Allergy Foundation of America (2018). The American Lung Association (2019) and the Asthma and Allergy Foundation of America (2018) offered asthma action plans currently in use, which I adapted to formulate the action plan included in the PAECG.

The expert panel used the AGREE II rating scale to validate the content of the clinical guideline. The AGREE II instrument grades a clinical guideline based on 23 items within six domains. The three members of the expert panel were given a packet (see Appendix C), that included a copy of the PAECG, the AGREE II instrument, directions on how to grade the clinical guideline, and the specific location of items that are not directly included within the education clinical guideline but were included within the DNP project paper during the development stages. The ratings of the 23 items by each member of the expert panel are shown in Appendix B.

The scores were grouped within the six domains of the AGREE II instrument. The calculation of each domain score were based on a range of 1 to 7 which was converted to a percent, with 7 being 100% score. Acceptable scores for each domain were scores over 50%. The results for each domain were: Domain 1 – 85%, Domain 2 – 81%, Domain 3 – 85%, Domain 4 – 90%, Domain 5 – 82%, and Domain 6 – 88%. The overall score of the education clinical guideline was 83%. All the scores were very favorable, indicating a high-quality clinical guideline. All three reviewers unanimously approved the guideline without any modifications (see Appendix B).

There were no unanticipated limitations or outcomes, which indicated that the education clinical guideline encompasses the latest recommendations from evidence-

based practice. The approval of the education clinical guideline helped ensure the guideline is appropriate for the target population and will help educate these individuals prior to discharge. The surrounding community is dependent on this facility for medical care and, due to the higher than average prevalence of pediatric asthma, such a guideline will not only promote the health of individuals within the community but also community itself.

There are multiple benefits that can come from this DNP project. Implementing the PAECG will provide effective caregiver home management of the pediatric asthmatic patient to maintain and improve the wellbeing of pediatric patients with asthma, thus promoting positive social change. The PAECG will also result in better use of healthcare resources.

Recommendations

The gap in practice was the lack of a pediatric asthma clinical guideline; however, evidence in the literature shows that guidelines can improve overall health. Drawing on evidence-based literature, I developed an education clinical guideline to help decrease exacerbations and revisits. After completion of the project, the PAECG will be presented to the project site's policy development team to consider for implementation. The asthma action plan addresses important review points, ways to manage the disease, and early identification of signs of a possible asthma exacerbation so patients can seek treatment as early as possible. The guideline will be initiated prior to discharge, and both the healthcare team member and patient/caregiver will review and sign the guideline. The initial form will stay with the patient's chart to signify completion of all aspects of the

guideline. This education clinical guideline should be required prior to discharge for each patient presenting to the ED for asthma exacerbation.

Contribution of the Doctoral Project Team

The DNP project team was an integral part of the development of the education clinical guideline. Multiple meetings were required with team members via conference call. During these meetings the updated guideline was distributed to members by email the presentation and information were discussed and what changes should be made to the guideline. I made multiple revisions over the course of 3 weeks, and helped to have the input from these individuals to try and develop a quality product prior to distribution to the expert panel to ensure validity of the guideline, address the issue of variability in guideline quality, and assess the methodological rigor and transparency in which the guideline was developed (AGREE Research Trust, 2017). The expert panel was important to ensure that the guideline met the intent of the AGREE II framework to assist the practitioner in providing evidence-based education to pediatric asthma patients. After review of the PAECG by the expert panel, there were no modifications to be made. In the future, I will present the guideline to the policy development team at this facility for consideration of implementation into the practice setting. The guideline can be a great asset to the organization on both the healthcare and patient side.

Strengths and Limitations of the Project

Team members from different departments provided strength to the project. Because pediatric asthma is a prevalent topic, there were many resources I used to help

formulate this guideline. One possible limitation is that this project will not be implemented prior to the completion of the DNP doctoral project.

This project was focused within the ED, but the clinical guideline can be considered for implementation within the inpatient pediatric asthma setting as well. Other diagnoses can have education guidelines developed using the same template as this clinical practice guideline.

Summary

Evidence identified in the literature review matrix supports the use of a clinical guideline to address the lack of any formal guideline for healthcare staff to use in the ED (see Appendix A). Using the AGREE II instrument, the expert panel noted that the PAECG is an acceptable guideline for this DNP project. The overall AGREE II score of the clinical guideline was 83%, and each of the three expert panelists recommend the guideline for use with no modifications. I will present the PAECG to the policy development team to consider for implementation, which should greatly benefit healthcare team members and patients. In Section 5, I will discuss dissemination of findings and provide an in-depth self analysis in the various capacities of a DNP-prepared nurse.

Section 5: Dissemination Plan

Introduction

I developed this DNP project to address a gap in the ED department regarding pediatric asthma. To best present the PAECG to the organization, I plan to formulate a PowerPoint presentation. In the presentation, I will discuss the evidence supporting the development of the guideline and the findings of this project. Individual copies will be printed of the guideline for distribution as well. I will arrange for time during a policy development meeting to present this to team members. After completion, the members can consider possible implementation within the facility.

The findings of this project are not limited to this facility and can be implemented in other facilities and capacities. Findings could be disseminated via presentations, online meetings, and webinars for healthcare team members and administrators who are linked to the ED. Exposing findings to members of pediatric pulmonary clinics and even pediatricians may also be beneficial since they all directly deal with the patient population and problem. Presentation of these findings will help stakeholders to implement strategies for similar issues in their respective practice areas.

Analysis of Self

From the beginning of my career, I knew I wanted to help patients as much as possible and improve upon the current state of the healthcare system. After starting as a bedside nurse, I knew I wanted to advance my practice and seek a career as a nurse practitioner. I have always enjoyed my time in the ED setting, and over time I noted areas that could use improvement. Directly speaking with patients on a daily basis taught

me how important communication is to bridging patients with the healthcare world. Healthcare professionals need to take the latest recommendations of evidence-based practice and effectively communicate this to patients and ensure there is continuity of care among these patients. I can see that I have grown not only as a healthcare professional but also as a person. I have not been in many team leadership roles, and having a project team throughout this journey helped me apply the various skills and techniques of being an effective leader. I certainly can appreciate just how important leadership roles are in the healthcare field, and I have developed in multiple capacities such as that of a practitioner, scholar, and project manager.

Practitioner

As a practitioner, I have a better understanding of the various components needed within this role. The scope of a practitioner is multifocal and requires individuals to identify and implement change and assist with the ongoing advancement of healthcare. Practitioners also need to understand team dynamics and working with colleagues and other personnel, and this project offered me first-hand experience of working in a team. I now feel much more prepared for this extended role within nursing that facilitates both leadership and change.

Scholar

Healthcare is based upon the latest recommendations of evidence-based practice, and nursing is no different. Having completed the coursework in the DNP curriculum and this project added to my understanding of how to identify a practice problem, conduct a literature review, formulate and implement change, and appropriately evaluate

the project and myself. These are all components necessary to be an effective scholar and they prepared me for the expanded role of a DNP-prepared nurse.

Project Manager

This project was unlike anything I have previously done or have been exposed to. The project helped me continue to work on my time management skills in a different capacity. Prior to this experience I had to only take into consideration myself during projects, but having a project team made the process more complex and a great learning experience. Working with a project team reinforces the importance of setting a schedule of events and continually planning for the future while also making necessary adjustments during the process. Rarely do projects pan out as planned, so flexibility is imperative and comprehensive planning and adjustments help ensure a smooth process throughout the project. Being a manager does not mean one needs to micromanage every aspect of a project, but rather that one leads when required and knows when to take a backseat with certain areas. I hope to take these skills from my coursework and this project and move into more leadership and management positions when they arise.

Summary

Throughout this project, it was clear to see that literature supports the continued implementation of evidence based practice. Pediatric asthma is an ongoing issue and the lack of a PAECG the ED was an area that needed to be addressed. Evidence supports the application of such a guideline, and I identified similar guidelines to assist with developing an education clinical guideline. The project team helped formulate the guideline, and evaluation by the expert panel helped ensure that the guideline and content

was valid and appropriate for application. The PAECG should help the facility improve care, educate patients and caregivers, and improve outcomes by decreasing asthma exacerbations and revisit rates and improving the wellbeing of pediatric patients with asthma.

References

- AGREE Research Trust. (2018). *About the AGREE Enterprise*. Retrieved from <https://www.agreetrust.org/about-the-agree-enterprise/>
- AGREE Research Trust. (2017). *The AGREE II Instrument* [Electronic version]. Retrieved from <http://www.agreetrust.org>.
- American Association for the Advancement of Science. (2018). *Discharge strategies to prevent asthma readmissions*. Retrieved from https://www.eurekalert.org/pub_releases/2018-02/cnhs-dst020918.php
- American Lung Association. (2019). *Asthma action plan for home*. Retrieved from <https://www.lung.org/assets/documents/asthma/asthma-action-plan-for-home.pdf>
- American Psychological Association. (2019). *Teaching tip-sheet: Self-efficacy*. Retrieved from <https://www.apa.org/pi/aids/resources/education/self-efficacy.aspx>
- Asthma and Allergy Foundation of America. (2018). *Asthma overview*. Retrieved from <https://www.aafa.org/asthma.aspx>
- Asthma and Allergy Foundation of America. (2018). *Asthma action plan*. Retrieved from <https://www.aafa.org/media/1601/asthma-action-plan-aafa.pdf>
- Black, A. T., Balneaves, L. G., Garossino, C., Puyat, J. H., & Qian, H. (2015). Promoting evidence-based practice through a research training program for point-of-care clinicians. *Journal of Nursing Administration*, 45(1), 14–20.
doi: 10.1097/NNA.0000000000000151

- Bombard, Y., Baker, G. R., Orlando, E., Fancott, C., Bhatia, P., Casalino, S. . . . Pomey, M. P. (2018). Engaging patients to improve quality of care: A systematic review. *Implementation Science: IS*, *13*(1), 98. doi: 10.1186/s13012-018-0784-z.
- Bryant-Stephens, T., West, C., Dirl, C., Banks, T., Briggs, V., & Rosenthal, M. (2012). Asthma prevalence in Philadelphia: Description of two community-based methodologies to assess asthma prevalence in an inner-city population. *Journal of Asthma*, *49*(6), 581-585. doi: 10.3109/02770903.2012.690476.
- Camp, P. G., Norton, S. P., Goldman, R. D., Shajari, S., Smith, M. A., Heathcote, S., & Carleton, B. (2014). Emergency department visits for children with acute asthma: Discharge instructions, parental plans, and follow-through of care-a prospective study. *Canadian Journal of Emergency Medicine*, *16*, 467-476.
doi: 10.2310/8000.2013.131229.
- Chappel, F. (2015). Medication adherence in children remains a challenge. *Prescriber*, *19*, 31-34. doi: 10.1183/23120541.00087-2015.
- Curtis, K., Fry, M., Shaban, R. Z., & Considine, J. (2016). Translating research findings to clinical nursing practice. *Journal of Clinical Nursing*, *26*(5-6), 862-872.
doi: 10.1111/jocn.13586.
- El-Rachidi, S., LaRochelle, J. M., & Morgan, J. A. (2017). Pharmacists and pediatric medication adherence: Bridging the gap. *Hospital Pharmacy*, *52*(2), 124–131.
doi: 10.1310/hpj5202-124.

- Goodman, M. S., & Sanders Thompson, V. L. (2017). The science of stakeholder engagement in research: Classification, implementation, and evaluation. *Translational Behavioral Medicine*, 7(3), 486-491.
doi: 10.1007/s13142-017-0495-z.
- Greene, S. M., Tuzzio, L., & Cherkin, D. (2012). A framework for making patient-centered care front and center. *Permanente Journal*, 16(3), 49–53.
doi: 10.4236/health.2012.56A2008.
- Hoffmann-Eber, W., Siering, U., Neugebauer, E., Brockhaus, A. C., McGauran, N., & Eikermann, M. (2018). Guideline appraisal with AGREE II: Online survey of the potential influence of AGREE II items on overall assessment of guideline quality and recommendation for use. *BMC Health Services Research*, 18(1), 143-148.
doi: 10.1186/s12913-018-2954-8.
- Johnson, L. H., Chambers, P., & Dexheimer, J. W. (2016). Asthma-related emergency department use: Current perspectives. *Open Access Emergency Medicine*, 8, 47–55. doi: 10.2147/OAEM.S69973.
- Joint Commission, (2019). *About our standards*. Retrieved from https://www.jointcommission.org/standards_information/standards.aspx
- Kercsmar, C. M., Beck, A. F., Sauers-Ford, H., Simmons, J., & Wiener, B. (2017). Association of an asthma improvement collaborative with health care utilization in medicaid-insured pediatric patients in an urban community. *Journal of the American Medical Association Pediatrics*, 171(11), 1072-1080.
doi: 10.1001/jamapediatrics.2017.2600.

- Klok, T., Kaptein, A. A., & Brand, P. L. (2013). Improving adherence in pediatric respiratory disease. *Breathe*, *9*(4), 269-277. doi: 10.1183/20734735.002513.
- National League of Nursing, (2018). *Core Values*. Retrieved from <http://www.nln.org/about/core-values>
- Novo, A., Subotic-Popovic, A., Strbac, S., Kandic, A., & Horga, M. (2016). Application of agree II instrument for appraisal of postpartum hemorrhage clinical practice guidelines. *Journal of the Society for Medical Informatics*, *24*(3), 211-4. doi: 10.5455/aim.2016.24.211-214.
- Ortiz-Alvarez, O., Mikrogianakis, A., & Canadian Paediatric Society, Acute Care Committee, (2012). Managing the pediatric patient with an acute asthma exacerbation. *Paediatrics & Child Health*, *17*(5), 251–256. doi: <https://doi.org/10.1093/pch/17.5.251>.
- Parikh, K., Hall, M., Kenyon, C. C., & Teufel, R. J. (2018). Impact of discharge components on readmission rates for children hospitalized with asthma. *The Journals of Pediatrics*, *195*, 175-181. doi: <https://doi.org/10.1016/j.jpeds.2017.11.062>.
- Pollart, S. M., Compton, R. M., & Elward, K. S. (2015). Management of acute asthma exacerbations. *American Family Physician*, *84*(1), 40-47. doi: <https://doi.org/10.1002/alr.21554>.

- Sheikh, H., Brezar, A., Dzwonek, A., Yau, L., & Calder, L. A. (2018). Patient understanding of discharge instructions in the emergency department: Do different patients need different approaches? *International Journal of Emergency Medicine, 11*(1), 5. doi: 10.1186/s12245-018-0164-0.
- Siebenhofer, A., Semlitsch, T., Herborn, T., Siering, U., Kopp, I., & Hartig, J. (2016). Validation and reliability of a guideline appraisal mini-checklist for daily practice use. *BMC Medical Research Methodology, 16*(1), 39. doi: 10.1186/s12874-016-0139.
- Sleath, B., Carpenter, D. M., Slota, C., Williams, D., Tudor, G., Yeatts, K., . . . , Ayala, G. X. (2017). Communication during pediatric asthma visits and self-reported asthma medication adherence. *Pediatrics, 130*(4), 627- 633. doi: 10.1542/peds.2012-0913.
- Walden University, (2017). *Manual for Clinical Practice Guideline Development (CPGD)*. Retrieved from https://academicguides.waldenu.edu/ld.php?content_id=32773066
- Walgreens Healthcare Clinic, (2019). *Asthma Management*. Retrieved from https://www.walgreens.com/topic/scheduler/asthma-treatment_66.jsp
- Winters, B. D., Gurses, A. P., Lehmann, H., Sexton, J. B., Rampersad, C. J., & Pronovost, P. J. (2009). Clinical review: Clinical guideline - translating evidence into practice. *Critical Care (London, England), 13*(6), 210. doi: 10.1186/cc7792.

Zupon A., Rothenberg C., Couturier K., Tan, T. X., Siddiqui, G., James, M., ...

Venkatesh, A. K. (2018). An appraisal of emergency medicine clinical practice guidelines: Do we agree? *International Journal of Clinical Practice*, 29(10), e13289. doi: 10.1111/ijcp.13289.

Appendix A: Literature Review Matrix

Author/ Date	Purpose of Overview	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for Future research	Implications For practice
Bryant- Stephens West Dirl Banks Briggs Rosenthal (2012)	Comparis on of local prevalenc e of asthma in high-risk areas of pediatric patients to the national average.	Local asthma prevalence in high-risk areas may vary greatly from national averages.	Door-to- Door Survey of 2360 children in school.	Found that in a high-risk area, asthma prevalenc e of 21.7% was 4.9% higher than the national average.	National averages give a vague overview but high risk localized areas can have higher percentages of asthma with pediatric patients.	Special considerations should be made when addressing asthma in high-risk areas and additional research into environmental factors and availability of resources.	High-risk areas should be focal areas to develop additional asthma resources to help promote screening and improve outcomes for pediatric patients.
Camp Norton Goldman Shajari Smith Heathcote Carleton (2014)	Investigati on of the extent to which parents of children with asthma implemen t recommen dations by ED staff.	Communicat ion between ED staff and parents of children with asthma directly effects the management of their asthma.	Prospective study involving 148 children with asthma.	82% of the parents did not obtain any printed asthma education materials. 67% of the patients returned to ED for asthma exacerbati on without any follow up with PCP or pulmonol ogist.	Improvement s need to made to help educate parents of asthmatic patients to improve management and only using the ED for emergencies.	Future research would benefit to suggest measures to encourage parents to seek follow up care after an ED visit and promote and increase confidence in home management.	Discharge instructions for asthmatic patients needs to focus on patient-specific home management and the importance of follow up care.
Chappel (2015)	Evaluatio n of contributi ng factors causing medicatio n non- adherence .	What challenges cause medication non- adherence and can strategies be taken to improve adherence.	Systematic review of challenges directly related to medication adherence.	Studies found that factors contributi ng to medicatio n non- adherence include lack of communic ation, non-oral route medicatio ns, and schedulin g conflicts. 30% to 70% of pediatric	Factors contributi ng to non- adherence need to be considered upon prescription of medications with both the patient and caregiver to ensure proper administratio n.	Taking variables noted in the article and evaluating the best medications to administer to pediatric patients to improve medication adherence rates.	Simplifying medication instructions and schedules is important to promote the adherence of medications of chronic illnesses.

				patients with chronic illnesses do not adhere to their medication schedules.			
Curtis Fry Shaban Considine (2016)	Describing methods to effectively translate research into clinical practice.	What contributes to successfully translating research into the clinical practice setting?	Clinical practice discussion.	Success of research implementation is dependent on clinician/consumer behavior change and the implementation strategy needs to include this.	The clinician/consumer behavior is a vital component to successful implementation in the clinical setting.	Identifying one variable to contribute to successful implementation into practice can lead to additional factors to improve the implementation of research.	Translating best research evidence will enable a more transparent and sustainable healthcare service.
El-Rachidi LaRoche Morgan (2017)	How to assist with improving medication adherence of pediatric patients.	What can be done to improve the success rate of medication administration in pediatrics?	Systematic review of literature.	Contributing factors to medication adherence include age, understanding of disease and medication, culture, socioeconomic status, family structure, schedule of medication, and taste.	Multiple variables need to be taken into consideration when developing a medical regimen to help promote adherence.	By noting multiple variables that contribute to medication adherence, additional evaluation can be done to identify additional factors.	Practitioners need to ensure proper evaluation of the patient and caregiver to increase the likelihood of medication adherence.
Goodman Sanders-Thompson (2017)	Identifying the importance of stakeholder engagement in research.	What contribution does stakeholder engagement play in research.	Clinical practice discussion.	Necessary to engage multilevel stakeholder engagement for successful research throughout the process and identification	Stakeholder engagement is a crucial component throughout the research process and assists with producing high quality evidence.	Identification of the importance of stakeholder involvement can lead to additional research to focus on how else stakeholders can improve research.	Research needs to directly involve stakeholders throughout the entire process to help produce the highest quality of findings.

				ion of outcomes.			
Greene Tuzzio Cherkin (2012)	Developing a framework to promote patient-centered care.	What benefits come about when placing patient-centered care at the forefront.	Multidimensional characterization.	Moving patient-centered care into the primary focus improved patients' satisfaction, compliance, and health outcomes.	Patient-centered care has a positive response on both patient satisfaction and outcomes.	Steps can take to identify additional ways to incorporate patient-centered care to improve care.	Healthcare members have to remember to always keep the patient at the center of their care.
Johnson Chambers Dexheimer (2016)	Addressing the current state of asthma research in the ED setting within the United States.	What is the current state of research surrounding asthma in the emergency setting?	Systematic review of literature.	Current research is surrounding the importance of long-term management with controller medications and controlling triggers in the home environment.	Long-term use of controller medications and the identification of triggers within the home environment decrease the risk of asthma exacerbations.	Steps can be taken to identify statistics surrounding use of controller medications in relationship to asthma exacerbations rates.	Practitioners need to stress to patients the importance of maintaining consistent use of controller medications and removing trigger exposure.
Kercsmar Beck Sauers-Ford Simmons Wiener (2017)	Identifying current measures to reduce asthma hospitalizations with children in low socioeconomic status.	What can be done to reduce asthma related hospitalizations for Medicaid pediatric patients.	Interrupted time-series analysis.	Increasing availability and accessibility of treatment reduced the 30-day revisit rate from 12% to 7% over a 12 month period.	Promoting asthma related services to low socioeconomic communities can decrease pediatric asthma revisit rates.	These applications can be applied to other groups to see if improvements can be made within other patient populations.	Low socioeconomic communities should continue to advocate for additional resources for pediatric patients suffering from asthma.
Klok Kaptein Brand (2013)	Identify variables that contribute to medication adherence in pediatric respiratory disease.	What measures can be taken to promote the adherence of home regimens in pediatric respiratory disease?	Systematic review of literature.	Offering various treatment plans to patients and caregivers and allowing them to aid in the decision was shown to improve adherence.	Communication with caregivers and incorporating them in the decision process of home management aids in adherence with the regimen.	Evaluating additional ways to incorporate caregivers in the healthcare decision process.	Practitioners need to involve caregivers in the development of a home regimen plan.

Ortiz-Alvarez Mikrogianakis (2012)	Identifying the importance of asthma guidance in pediatric patients.	What variables should be addressed in the ED setting to prevent asthma exacerbation and decrease chronic morbidity.	Systematic review of literature.	Preparing a written asthma action plan, reviewing medication administration technique, encouraging follow up with PCP or asthma specialist, and education on environmental history and symptom recognition all contributed to improved management of asthmatic patients.	Guidance involving proper discharge planning, follow-up care, and education surrounding asthma will help to prevent exacerbation and decrease chronic morbidity.	Additional research could be performed to focus on specific discharge instructions in detail to propose as a clinical guideline for universal usage.	Practitioners should ensure complete documentation of and understanding of discharge instructions by the caregiver.
Parikh Hall Kenyon Teufel (2018)	Comparison of the application of discharge components in relation to the revisit likelihood of asthmatic patients.	Ensuring the discussion of 13 asthma-specific discharge components will decrease revisit rates.	Retrospective cohort study using the quality leaders from 49 hospitals.	The single component associated with a lower rate of revisit was having comprehensive content of education ($P < .029$).	Certain combinations of discharge components for pediatric asthma complaints will reduce healthcare utilization.	Additional research will assist with further identification of what specific comprehensive content of education should be covered with asthma discharge instructions.	Ensuring comprehensive content of education is discussed prior to discharge will decrease revisit rates.
Pollart Compton Elward (2015)	Best practice recommendations based on evidence-based literature.	What are the best recommendations to handle asthma exacerbations based on evidence-based literature?	Systematic review of literature.	In the outpatient setting for pediatric patients, patients should have access to their rescue medication that should be used with a spacer and if no	Caregivers should have direct access in the outpatient setting to rescue medications and if treatment fails they should seek emergency treatment immediately.	Supplemental research could focus on identifying clear outpatient measures for caregivers to follow to decrease incidence of asthma exacerbation.	Prior to discharge healthcare members need to ensure patients are given appropriate home medications and educated on how to handle an asthma exacerbation appropriately.

				relief patient should present to the ED.			
Sleath Carpenter Slota Williams Tudor Yeatts Ayala (2017)	Evaluate the relationship between communication and patient compliance.	How do certain aspects of provider-patient communication relate to child asthma medication adherence?	Cross sectional analysis.	The study of 250 children found that direct input by the caregiver with pediatric asthma patients increased medication adherence from 72% to 85% one month later.	Providers should ask for caregiver input towards the treatment plan to help improve medication adherence.	Additional strategies should be evaluated to identify specific methods to increase compliance of pediatric asthma patients.	Providers should seek the input of caregivers when planning home asthma treatment plans.
Winters Gurses Lehmann Sexton Rampersad Pronovost (2009)	Utilizing guidelines to improve efficiency and adherence to care.	What principles and strategies would help to further develop and encourage the implementation of checklists into medical practice?	Systematic review of literature.	Application of checklists within the medical field assisted in goal attainment and improved care.	Checklists can be applied in numerous ways and they can greatly improve healthcare by providing concise listing of goals.	The application of checklists should continue to grow within healthcare and additional research can focus on exploring additional opportunities for use.	Checklists can be beneficial for both the healthcare team and patients and checklists can help ensure all objectives are addressed and completed.
Zupon Rothenberg Couturier Tan Siddiqui James Savage Melnick Venkatesh (2018)	Developing methods to quantify clinical guidelines.	Can a formula be developed to quantify clinical guidelines within healthcare?	Systematic assessment.	20 guidelines were evaluated using the AGREE II instrument benefited through this method to validate the quality of underlying evidence.	Utilizing the AGREE II instrument is helpful to validate the evidence for which the guideline is based upon.	Additional research will assist to confirm benefits of utilizing the AGREE II instrument.	The AGREE II instrument should be used to evaluate the evidence applied in the formation of clinical guidelines.

Appendix B: AGREE II Instrument Results from Expert Panel

Domain 1: Scope and Purpose (Items 1-3)

	Appraiser 1	Appraiser 2	Appraiser 3	Total
Item 1	7	6	6	19
Item 2	6	6	6	18
Item 3	6	6	6	18
Total	19	18	18	55

Domain 1 Score: 85%

Domain 2: Stakeholder Involvement (Items 4-6)

	Appraiser 1	Appraiser 2	Appraiser 3	Total
Item 4	6	6	6	18
Item 5	6	5	5	16
Item 6	7	6	6	19
Total	19	17	17	53

Domain 2 Score: 81%

Domain 3: Rigor of Development (Items 7-14)

	Appraiser 1	Appraiser 2	Appraiser 3	Total
Item 7	6	5	5	16
Item 8	7	6	6	19
Item 9	6	6	6	18
Item 10	7	6	6	19
Item 11	6	5	6	17
Item 12	7	6	6	19
Item 13	7	7	7	21
Item 14	6	6	6	18
Total	52	47	48	147

Domain 3 Score: 85%

Domain 4: Clarity of Presentation (Items 15-17)

	Appraiser 1	Appraiser 2	Appraiser 3	Total
Item 15	7	6	6	19
Item 16	6	6	6	18
Item 17	7	7	7	21
Total	20	19	19	58

Domain 4 Score: 90%

Domain 5: Applicability (Items 18-21)

	Appraiser 1	Appraiser 2	Appraiser 3	Total
Item 18	6	5	5	16
Item 19	7	6	7	20
Item 20	6	6	6	18
Item 21	6	5	6	17
Total	25	22	24	71

Domain 5 Score: 82%

Domain 6: Editorial Independence (Items 22-23)

	Appraiser 1	Appraiser 2	Appraiser 3	Total
Item 22	7	7	7	21
Item 23	7	5	5	17
Total	14	12	12	38

Domain 6 Score: 88%

Overall Guideline Assessment

Rate the Overall Quality of this Guideline

Appraiser 1	Appraiser 2	Appraiser 3	Total
6	6	6	18

Overall Assessment Score: 83%

Expert Overall Recommendation

I would recommend this guideline for use:

	Appraiser 1	Appraiser 2	Appraiser 3
Yes	X	X	X
Yes, with modifications			
No			

Appendix C: Expert Panel Packet

Dear Expert Panel Member,

I would like to thank you for taking the time to assist with my DNP project as an expert reviewer. This tool will serve as a guideline for healthcare team members to utilize during discharge of asthma patients from the Emergency Department. Enclosed is a copy of the guideline, which was developed by my project team consisting of individuals from the quality and improvement teams and a nurse educator.

- 1. Please review the Disclose to Expert Panelist Form for Anonymous Questionnaires, which is a part of this packet.**
- 2. Next, read the guideline carefully.**
- 3. Lastly, score the content utilizing the enclosed 23 item AGREE II Instrument.**
- 4. Comments are welcome for all items but mandatory for any score below**
- 5. Addressing what can be done to improve the guideline will be truly appreciated. If you have any additional questions or concerns about any aspects of this process, please feel free to contact me.**

Thank you again for your time and assistance.

Sincerely,

Andrew Wesolowski

Disclosure to Expert Panelist Form for Anonymous Questionnaires

To be given to an expert panelist prior to collecting questionnaire responses—note that obtaining a “consent signature” is not appropriate for this type of questionnaire and providing respondents with anonymity is required.

Disclosure to Expert Panelist

You are invited to take part in an expert panelist questionnaire for the doctoral project that I am conducting.

Questionnaire Procedures

If you agree to take part, I will be asking you to provide your responses anonymously, to help reduce bias and any sort of pressure to respond a certain way. Panelists' questionnaire responses will be analyzed as part of my doctoral project, along with any archival data, reports, and documents that the organization's leadership deems fit to share. If the revisions from the panelists' feedback are extensive, I might repeat the anonymous questionnaire process with the panel of experts again.

Voluntary Nature of the Project

This project is voluntary. If you decide to join the project now, you can still change your mind later.

Risks and Benefits of Being in the Project

Being in this project would not pose any risks beyond those of typical daily professional activities. This project's aim is to provide data and insights to support the organization's success.

Privacy

I might know that you completed a questionnaire but I will not know who provided which responses. Any reports, presentations, or publications related to this study will share general patterns from the data, without sharing the identities of individual respondents or partner organization(s). The questionnaire data will be kept for a period of at least 5 years, as required by my university.

Contacts and Questions:

If you want to talk privately about your rights in relation to this project, you can call my university's Advocate via the phone number 612-312-1210. Walden University's ethics approval number for this study is (Student will need to complete Form A in order to obtain an ethics approval number).

Before you start the questionnaire, please share any questions or concerns you might have.

Appendix D: Pediatric Asthma Education Clinical Guideline

Patient Label

Pediatric Asthma Education Clinical Guideline - (CHART COPY)**Review topics****No****Yes**

Has patient been compliant with current management plan

___ ___

Discuss evident barriers/obstacles

___ ___

Is asthma controlled with current medication

___ ___

Note triggers for the patient's asthma

___ ___

Discuss symptoms of asthma exacerbation

___ ___

Medications:

Rescue

___ ___

Controller

___ ___

Demonstrate proper administer of medications

___ ___

When to give medications

___ ___

Adequate Refills

___ ___

Educational topics for patient/caregiver:**Yes No**

Basic asthma facts

___ ___

Ways to avoid asthma triggers and preventative measures

___ ___

Importance of treatment plan compliance

___ ___

Purpose and potential side effects of medications

___ ___

Proper administration technique for medications

___ ___

Follow-Up Care**Yes No**

Confirm provider location, date, and time

___ ___

Patient Education

- Asthma is a disease that affects the airways causing inflammation and mucus production, leading to difficulty breathing and poor oxygenation. Managing asthma properly is paramount for best outcomes to stay healthy and avoid hospitalization. Asthma is best managed by following your personalized Asthma Action Plan, avoiding triggers, and by taking all of your prescribed medications as directed by your healthcare provider.
- Asthma triggers are certain physical/environmental factors that cause an individual to experience an asthma exacerbation when exposed to them. Examples could be pollution, smoke, pollen, dust, or upper respiratory viruses to name a few. Triggers make asthma symptoms worse and can cause a downward spiral of symptoms, so it is essential to know what your triggers are and how to avoid them.
- Rescue medications are some of the first line treatments of asthma and are taken when asthma symptoms become bothersome. Asthma symptoms include coughing, wheezing, chest tightness, and shortness of breath. Rescue medications act fast and need to be readily available on your person to administer in the event there is an exposure to an asthma trigger or in case of an asthma exacerbation. These medications are often inhalers so it is important you discuss proper administration of these medications with your healthcare professional as well as potential side effects.
- Controller medications are second line asthma treatment medications that must be taken daily to manage asthma symptoms. These medications are taken even if you feel well and not just when your asthma symptoms intensify. These medications are also inhalers so please understand proper administration techniques and potential side effects as well.
- If there is a failure for the rescue medication to work and there is no improvement of symptoms, it is essential to seek emergency care.

All additional questions or concerns by patient/caregiver to be directed to healthcare provider in ED

See Reverse for Asthma Action Plan

Follow-Up Care

Name: _____

Address: _____

Date/Time: _____

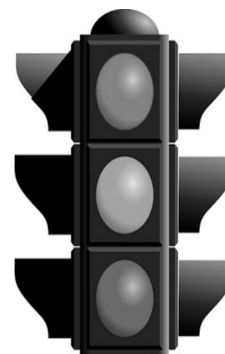
Adapted from Walgreens Healthcare Clinic's asthma handout
Guideline to be evaluated and updated annually to stay up to date on latest recommendations.
Revised: 7/2019

Asthma Action Plan (Patient Copy)

Adapted from the American Lung Association and Asthma and Allergy Foundation of America

Triggers

- Colds Smoke Weather Air Pollution Dust
 Exercise Animals Food Other: _____



GREEN ZONE (GO)

Use these daily controller medications

You have *all* of these:

- Breathing is good
- No cough or wheeze
- Sleep through the night
- Can work & play

MEDICINE	HOW MUCH	HOW OFTEN/WHEN
For asthma with exercise, take:		

YELLOW ZONE (CAUTION) Continue control medications and add rescue medications

You have *any* of these:

- First signs of a cold
- Exposure to known trigger
- Cough
- Mild wheeze
- Tight chest
- Coughing at night

MEDICINE	HOW MUCH	HOW OFTEN/WHEN
Call your asthma care provider.		

RED ZONE (DANGER)

Continue control medicines and add medications listed below

Asthma is getting worse fast:

- Medicine is not helping
- Breathing is hard & fast
- Nose opens wide
- Trouble speaking
- Ribs show (in children)

MEDICINE	HOW MUCH	HOW OFTEN/WHEN

IF IN RED ZONE, SEEK MEDICAL HELP IMMEDIATELY, DO NOT WAIT!!!

Make an appointment with your asthma care provider within two days of an ER visit or hospitalization.

Healthcare Professional Authorization:

Signature and Date: _____

Parent/Guardian Authorization:

Signature and Date: _____