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Nurse-Driven Protocols in the Pediatric Emergency Department: A Systematic Review

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Roberta Miller

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Walden University
2020

Abstract

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MSN, University of Texas at Arlington, 2011

BSN, West Texas A&M University, 2001

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Long wait times in emergency departments across the United States contribute to overcrowding, and adverse patient outcomes. Adult emergency departments use nurse-driven protocols to decrease time to treatment and wait times. However, nurse-driven protocols are not commonly used in the pediatric emergency department (ED). The purpose of this project was to evaluate and appraise current evidence to determine if nurse-driven protocols can be safely implemented to improve ED wait times, time to disposition, patient/family satisfaction, and patient outcomes in the pediatric emergency setting. The Iowa model of evidence-based practice (EBP) was used to guide the mixed methods systematic review. A comprehensive review of the literature was completed using CINAHL, Medline full text, Cochrane Review, Joanna Briggs, PubMed, and other relevant databases. Peer reviewed studies published in English between 2010 and 2020 that addressed nurse-driven pediatric protocols were included in this review. A total of 55 articles were identified and 8 met the inclusion criterion. Included studies were appraised for level of evidence using the Fineout-Overholt and Melnyk method and quality using the Iowa model of EBP. Most studies were appraised at level IV with a quality of B indicating that stronger evidence is needed. Although existing evidence supported decreased time to treatment and length of stay (LOS), more studies are needed to determine the safety and efficacy of nurse-driven protocols in the pediatric emergency setting. The findings of this mixed method systematic review can be used to promote positive social change by guiding future research and implementation of nurse-driven protocols in pediatric emergency settings.

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Dedication

This paper is dedicated to ill and injured pediatric patients who require visits to the emergency department and the healthcare professionals dedicated to providing the safest high-quality care.

Acknowledgments

I would like to thank Dr. Valdez for the exceptional guidance and mentoring throughout the project. I would also like to thank Dr. Matero for encouragement and the support throughout the project. Additionally, I would like to thank my daughter, Frieda, for her patience and my co-workers for the encouraging me. Without the support and encouragement from each of these people, I would not have accomplished the completion of this project.

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Section 1: Nature of the Project

Introduction

Prolonged waiting in the pediatric emergency department (ED) puts children at risk for deterioration, dissatisfaction, exposures, and leaving without treatment; therefore, exploring new approaches to expediting care is of utmost importance. Improving the throughput process in the ED improves patient safety, satisfaction scores, and patient outcomes (Berkowitz et al., 2018). Adult EDs use nurse-driven protocols routinely to decrease time to treatment and improve patient outcomes (Moore, Vermuelen, Taylor, Kinara, & Wahome, 2019). Nurse-driven protocols improve time to treatment and adherence to treatment guidelines (Moore et al., 2019). Although nurse-driven protocols decrease the length of stay (LOS) and improve patient outcomes, pediatric patients require special considerations.

Different stages of growth and development and differences in anatomy and physiology associated with pediatric patients make standardization of care difficult. Despite the differences in developmental stages, studies have shown that nurse-driven protocols implemented in the ED decrease time to treatment and improve patient outcomes (Pinto, Schairer, & Petrova, 2014). Implementation of nurse-driven protocols in the pediatric ED could improve overall care. Even though evidence supports the use of nurse-driven protocols, minimal nurse-driven protocols exist in the pediatric ED. High-quality evidence recommends the implementation of nurse-driven protocols in the ED to reduce wait times, improve satisfaction, and improve outcomes (Barto, 2019). However, limited evidence exists to support nurse-driven protocols in the pediatric setting. Finding

the most effective methods for order initiation improves patient throughput and patient outcomes in the pediatric ED.

The over-crowding of EDs and the potential impact of nurse-driven protocol utilization requires attention. ED visits continue to increase across the United States, and improving the patient flow improves satisfaction, increases safety, and positively affects patient outcomes (Villa et al., 2018). Overcrowding is a recognized issue for EDs nationally, and evidence indicates nurse-driven protocols positively impact patient care.

Problem Statement

The focus of this project was to discover literature and the best evidence to improve patient outcomes in the pediatric ED. The author focused on the quality of care for pediatric patients seen and treated in the ED. The author used a systematic review to evaluate the safety and efficacy of nurse-driven protocols in the pediatric emergency setting.

Local Context for Gap in Practice

The urban pediatric ED in the southern region of the United States treats over 100,000 patients every year and uses limited nurse-driven protocols to expedite care. However, literature exists supporting the use of nurse-driven protocols in the emergency setting. Nurse-driven protocols expedite diagnostic testing and support adherence to clinical guidelines while improving patient satisfaction and patient outcomes (Settelmeyer, 2018). Due to the difference in growth and developmental stages, the implementation of nurse-driven protocols faces challenges in the pediatric ED. The pediatric ED relies significantly on provider-initiated orders, while nurses and patients

wait for the availability of a provider for testing or treatment. The total time in the ED for each patient frequently exceeds four hours, and during times of high census, the average time exceeds eight hours, with a majority of the time attributed to waiting for provider evaluation and orders. In the United States, the goal LOS in the ED is 4 hours (Al-Onazi et al., 2017). Nurse-driven protocols are successfully used across the United States to decrease time to treatment (Slain et al., 2014). In an effort to improve patient safety and satisfaction, improvements must be made in the throughput process in the pediatric ED.

Local Relevance and Practice Environment. Despite evidence supporting nurse-driven protocols in the emergency setting, there is a lack of protocols initiated by nurses in the pediatric ED during or immediately following triage. Decreased waiting times or decreased time to treatment improve patient outcomes and increase community trust in the organization (Marino, Mays, & Thompson, 2015). The number of ED visits continues to increase across the United States, requiring nurses and providers to explore innovative measures to prevent bottlenecks in patient flow (DeAnda, 2018; Supat et al., 2019). ED overcrowding associated with extended wait times leads to delays in medication administration and increased rates of morbidity and mortality (DeAnda, 2018). Major challenges for pediatric EDs include prolonged wait times and overcrowding, which require action to improve patient outcomes (Supat et al., 2019). Pediatric patients who wait extended amounts of time have the potential to deteriorate. Despite differences in developmental stages and pediatric anatomy, studies indicate nurse-driven protocols decrease time to treatment and admission or discharge (Pinto et al., 2014). Methods for expediting care and reducing wait times must be explored.

Significance and Implication for Nursing Practice. The number of patients seen and treated in the ED frequently taxes resources and pulls providers in many directions at once, resulting in longer lengths of stay in the ED. Waiting for the initial evaluation and orders encompasses much of the waiting time. Special consideration must be taken for pediatric patients due to fragility and differences in developmental stages. However, improving patient safety is essential for improving overall care in the pediatric ED (Al-Onazi et al., 2017). Comprehension of current and robust evidence is needed to develop the most effective methods for decreasing wait times while delivering safe and effective care. Decreasing patient wait times, improving throughput, and easing ED over-crowding are crucial to improving ED quality of care (Barata et al., 2015). Discovery of the best methods for improving pediatric ED patient care will help improve safety and quality of care.

Purpose Statement

The purpose of this DNP project was to evaluate and synthesize the best available evidence related to nurse-driven protocols to support the recommendation of changes to improve throughput in the pediatric ED. The author used the systematic review method to search, identify, evaluate, synthesize, and disseminate the literature findings. This project may contribute to the development of improved nursing practice to support enhanced patient outcomes in pediatric ED patients.

Gap in Practice

In this systematic literature review, the author examined available evidence from the literature to discover and summarize the findings to support guidelines for the

management of pediatric patients seen and treated in the ED. The use of EBP draws the best scientific evidence to support clinical decision-making and changes to practice (Leach & Tucker, 2018). Any gap in practice contributes to suboptimal quality of care and patient outcomes; therefore, closing the gap decreases expenditures related to outdated practices (Leach & Tucker, 2018). Evidence exists supporting the safety and efficacy of nurse-driven protocols in the adult emergency setting; however, there is little evidence supporting the use in the pediatric setting. ED visits continue to increase and approaches to expediting safe evidence-based care are lacking in the pediatric setting. Adult EDs use nurse-driven protocols to improve patient throughput (Moore et al., 2019). A practice gap exists in the pediatric ED. This DNP project may provide more effective methods for implementing care and improving patient care in the pediatric ED. Nurse-driven protocols will support the provision of safe and effective care in the pediatric ED.

Practice-focused Question

The practiced-focused question for this systematic review was: In pediatric ED patients, how do nurse-driven protocols compare to provider order entry only in improving ED wait times, time to disposition, patient/family satisfaction, and patient outcomes? A practice-focused question is used to identify the population, practice problem, interventions, and desired outcomes (Leach & Tucker, 2018). Extended wait times due to delays in provider evaluation orders result in a gap in practice. Extended wait times in the ED negatively impact satisfaction, safety, and patient outcomes (Liptak, Super, Baker, & Roghmann, 2015). The author used the practice-focused question to focus on the problem and explore the impact of varied processes for decreasing wait

times, increasing safety, and improving satisfaction and outcomes. In a systematic review, the researcher synthesizes the evidence and summarizes the results of multiple studies to support clinical practice changes (Barker & Marin, 2019). The desired expectation for this is to discover the feasibility of nurse-driven protocols in the pediatric emergency setting.

Addressing the Gap in Practice

Currently, the pediatric ED has limited use of nurse-driven protocols to expedite diagnostic studies and patient care. Nurse-driven protocols use evidence-based protocols to initiate care without provider orders (Agency for Healthcare Research and Quality [AHRQ], 2015). The lack of nurse-driven protocols in the pediatric ED setting may have detrimental effects on patients. The author's goal for the systematic review was to address the gap in practice by exploring high levels of evidence and summarizing significant findings. Providing the highest quality evidence to providers and administrators increases buy-in for developing new practice approaches. Gaps in practice result in a risk to patient safety and possible adverse patient outcomes. Providing the highest quality evidence to nurses, providers, and administrators increases buy-in for developing new practice approaches. The project goal was to discover the benefits of nurse-driven protocols similar to those achieved in adult Eds, which may be applied to the pediatric setting through synthesis of the literature.

Nature of the Doctoral Project

The nature of the project was to develop a practice problem-based question and find an answer to the question by reviewing related literature. The project goal was to

provide a thorough and complete summary of current literature related to the practice question. The use of careful evaluation of high-quality evidence reduces the likelihood of bias (Davies, 2019). In this systematic review, the author identified and synthesized the evidence to propose the safest and most effective practice changes.

Sources of Evidence

To find the best evidence, the author used multiple data sources. After obtaining Institutional Review Board (IRB) approval, the author completed a comprehensive review of the literature using CINAHL, Medline full text, Cochrane Review, Joanna Briggs, PubMed, and other relevant databases to find peer-reviewed articles. the author used the practice-focused question to direct the formulation of key terms and search phrases. The sources included nursing textbooks and journals, pediatric-specific journals, and emergency care focused journals and textbooks. Key terms included *nurse-driven protocol, emergency department, emergency room, ED, pediatrics, children, nurse-led protocols, guidelines, pathways*, and other related synonyms. Nawijn et al. (2019) indicate that clear and concise research guidelines improve reproducibility and the critical appraisal of the literature.

Approach

I followed the Walden University *DNP Systematic Review Manual* for this project. The study design is an integrative or mixed-method systematic review, and Aromataris (2015) recommends types of studies for inclusion as quantitative, qualitative, case studies, case-control, and descriptive studies. The author used published guidance from Fineout-Overholt, Melnyk, Stillwell, and Williamson (2010) to appraise the

literature critically (Walden University, 2019). Using a table to divide the literature according to the Fineout-Overholt et al. (2010) levels of evidence, the author arranged the level of evidence from systematic reviews at level I to expert opinion at Level VII and included title, author, publication date, problem, aim, design and results. The author synthesized the information obtained from the literature to make evidence-based suggestions for clinical guidelines in the pediatric ED. The purpose of this DNP project was to evaluate and synthesize the best available evidence related to nurse-driven protocols to support the recommendation of changes to improve throughput in the pediatric ED.

Significance

The project impacts healthcare consumers by exploring pediatric patient safety, satisfaction, and outcomes in the ED. Discovering the most effective methods for the implementation of orders and treatment interventions will improve throughput and outcomes. Improving the efficiency of patient flow and order entry while refining safety measures in pediatric emergency care significantly impacts all aspects of pediatric health care (Cramer, & Shorr, 2016). Empowering nurses to use critical thinking skills strong decision-making skills positively impacts nursing as a profession. The project will benefit pediatric ED patients and nurses by attempting to improve satisfaction rates and patient outcomes.

Stakeholders

With the increased number of visits to the pediatric ED, the focus must remain on high-quality, evidence-based care and those who provide the care. Long wait times in the

pediatric ED are associated with increased hospital admissions and return visits (Doan et al., 2019). Nurses routinely provide care to ill or injured pediatric patients and develop keen critical thinking skills while learning common signs, symptoms, and treatments (Hoffman & von Sadovsky, 2018). The completed doctoral project impacts multiple stakeholders due to possible practice change and the potential to improve patient outcomes. Stakeholders in the DNP project include ED physicians, nurses, managers, educators, patients and families, medical and nursing directors. The patients and families are stakeholders because of the potential for improved quality of care. The healthcare professionals are directly involved in the care. The physicians must collaborate to develop safe and effective protocols. Buy-in from the healthcare team is essential to the sustainment of any changes in practice (Leung, Trevena, & Waters, 2016). Nursing administration and directors must be involved to influence policy change. Educators assist nurses in learning new processes. The project has the potential to impact multiple members of the healthcare team in the pediatric ED.

Contributions to Nursing Practice

The DNP project contributes to nursing practice by focusing on ED nurses' critical thinking and autonomy while addressing pediatric patient safety and outcomes. Results of the systematic review may improve patient and family satisfaction, safety, and outcomes. The Centers for Medicare and Medicaid Services (CMS) support the use of evidence-based, multidisciplinary plans of care and protocols in the ED to improve efficiency and quality of care (Barata et al., 2015). The use of the evidence may improve the efficiency and quality of care in pediatric EDs.

The purpose of the DNP degree is to expand nursing knowledge through the synthesis of the evidence and to expand access to quality nursing care (American Nurses Association [ANA], 2018). The systematic literature review will be used to analyze information and implement practice changes based on the evidence. The DNP project may contribute to practice changes improving the quality of pediatric patient emergency care to reduce extended waits and poor outcomes. Decreased admissions and return visits may also decrease expenditures related to ED visits for pediatric patients.

Potential Transferability

The results of the systematic review may benefit similar practice areas. EBP in nursing aims to incorporate evidence into clinical expertise and decision-making (Mackey & Bassendowski, 2017). The project is an approach to influence clinical decision-making and improve the quality of care using high-quality evidence to develop best practice recommendations for expediting care in the pediatric ED. The results of the project can be used in other pediatric EDs and critical care areas within the hospital. The information is also transferable to local and state pediatric-focused EDs or critical areas. EBP is an effective approach to cultivating guidelines to improve the quality of care and reduce healthcare costs (Mackey & Bassendowski, 2017). Findings from this systematic review can be used to evaluate the feasibility, advantages, and disadvantages of implementing nurse-driven protocols in a variety of emergency settings. The DNP project can provide an overview of evidence-based guidelines for nurse-driven protocols in the pediatric ED at the project site and all pediatric hospitals throughout the state.

Implications for Social Change

The project can create social change by empowering nurses to use critical thinking and problem-solving skills to care for pediatric patients in the ED by focusing on patient safety, satisfaction, and outcomes. Discovery of the most effective methods for order implementation for pediatric ED patients will decrease the risk of bottlenecks. Providing efficient, timely, and safe care to meet the needs of the pediatric patient creates a positive social change by creating long-term improvements in pediatric health care (Cramer, & Shorr, 2016). The project benefits pediatric ED patients and nurses by attempting to improve patient and caregiver satisfaction rates and patient outcomes. Nurse-driven protocols potentially increase patient and caregiver satisfaction with care by reducing the amount of time spent waiting for diagnostic studies or treatment and improve nursing satisfaction by expanding the use of critical thinking skills and decreased patient complaints (Schoolman-Anderson et al., 2018). The adoption of EBP facilitates change in the practice area and continuously strengthens the quality of care.

Summary

Expediting safe care is an essential component of emergency care, and evidence supports the use nurse-driven protocols in emergency setting. However, special considerations for growth and development or congenital anomalies complicate pediatric emergency care. Maintaining the safest and highest quality of care while decreasing wait times are essential for improving satisfaction, quality of care, and outcomes in the pediatric ED. Long wait times contribute to ED crowding, delays in treatment, reduced patient satisfaction, and potential deterioration (DeAnda, 2018). Decreasing patient wait

times, improving throughput, and alleviating ED over-crowding are essential to enhancing ED quality of care (Barata et al., 2015). Conducting an extensive search of high-quality literature and synthesizing the findings will support the best practice guidelines for improving care in the clinical setting (Davies, 2019). The author's goal for this project was to discover evidence-based strategies for decreasing waiting in the pediatric ED. Reducing time to evaluation, diagnostics, and treatment decreases the risk for deterioration, dissatisfaction, exposures, and leaving without treatment (Al-Onazi et al., 2017).

Section 2: Background and Context

Introduction

Patients in the pediatric ED who experience long wait times are at an increased risk for exposure to communicable illnesses, dissatisfaction, and poor outcomes. Decreasing the time to diagnostic studies and treatment improves the quality of care in the ED. Literature supports to use of nurse-driven protocols in the emergency setting to expedite care (Settelmeyer, 2018). Although nurse-driven protocols have successfully been implemented in EDs across the United States, according to an ED nurse manager at the study site, pediatric EDs are less likely to use nursing protocols before provider evaluation and order entry. The problem that the author addressed in this project was the limited use of nurse-driven protocols in the pediatric ED and associated outcomes such as LOS and patient outcomes. The practiced-focused question for this project was: In pediatric ED patients, how do nurse-driven protocols compare to provider order entry only in improving ED wait times, time to disposition, patient/family satisfaction, and patient outcomes? The purpose of this DNP project is to evaluate and synthesize the best available evidence related to nurse-driven protocols to support the recommendation of changes to improve throughput in the pediatric ED. The section for background and context includes the description of concepts, models, and theories used to inform the doctoral project, the relevance of the project to nursing practice, local background and context, and the role of the DNP student.

Concepts, Models, and Theories

The systematic review used a nursing theoretical framework and an EBP model to guide the exploration of the literature. The Iowa model of EBP was used to guide the systematic review. The Iowa model offers a model for a step-by-step process for addressing clinical problems and finding appropriate interventions based on the evidence (Buckwalter et al., 2017). The Iowa model is used to determine the importance of addressing an issue and the use of the EBP approach for exploring health care improvement. The identification of the level of evidence used the steps established by Fineout-Overholt, Melnyk, Stillwell, and Williamson (Fineout-Overholt et al., 2010). The levels of evidence range from level I to level VII (Fineout-Overholt, Melnyk Stillwell, & Williams, 2010a). The descriptions of the levels are systematic reviews at level I, randomized control trial at level II, control trial without randomization at level III, case-control and cohort studies at level IV, systematic review of qualitative and descriptive studies at level V, qualitative or descriptive studies at VI, and expert opinion at level VII (Fineout-Overholt et al., 2010a).

Rationale for Concepts, Model, and Theory

With continued overcrowding and extended wait times in the ED, there must be motivation to find the best methods for improving the current practice. ED over-crowding negatively affects patients across the country by limiting or delaying access to emergency interventions (Castner & Suffoletto, 2018).The author used the Iowa model for this review because it provided a framework for discovering strong evidence relevant to practice. Using the Iowa model helped me to identify the first step in the EBP project as

the evaluation of the importance of the project (Hanrahan, Fowler, & McCarthy, 2019). The project selection aligns with the organizational goals of increased patient safety and increased satisfaction, which makes the topic relevant to the practice area. After identifying of the purpose and selecting the project priority, the researcher begins the literature search. The following steps include assembly, appraisal, and synthesis of the evidence (Hanrahan et al., 2019). The steps the author used when applying the Iowa model framework align with the systematic review. The Iowa model emphasizes the importance of evaluating the literature and weighing the quality, quantity, consistency, and risk (Buckwalter et al., 2017). The Iowa model method for literature synthesis was appropriate for the purpose of the systematic review.

Critical appraisal of the evidence is essential to determining the quality and relevance to practice. The purpose of critical appraisal of the literature using the Fineout-Overholt and Melnyk method was to determine the value of the literature by guiding the process of evaluating the literature (Fineout-Overholt et al., 2010b). The first three steps of the Melnyk, Fineout-Overholt, Stillwell, and Williams (2010) steps for EBP served as a guide for the author to find and appraise the literature. The steps include approaching the topic with a spirit of inquiry, searching for the best evidence, and critically appraising the evidence (Melnyk et al., 2010). With the initial findings using the steps from Melnyk et al. (2010), the literature must be rapidly reviewed to determine the relevance of the articles to practice, and only those found to be relevant to the practice problem and practice area were used for the systematic review.

Clarification of Terms

[Please be sure that all terms are given in Title Case. All terms must be given in alphabetical order. Please change the order in which you have listed the terms.]

Bottleneck: The inability to move more patients into treatment areas in the ED due to the inability to move patients out of the ED, usually related to waiting for diagnostics or admissions (DeAnda, 2018).

Emergency department throughput: Processes in the ED that impacts the flow of patients in and out of the ED (Jarvis, 2016).

Leaving without being seen: The patient leaves the ED before provider evaluation and orders (ED nurse manager, personal communication, November 3, 2019).

Length of stay: Patients total time in the ED from arrival to departure (Driesen et al., 2018).

Nurse-driven protocol: written guidelines used by nurses for implementing procedures before a physician or advanced practice provider treats patients (The Joint Commission [JC], 2013). Protocols are also referred to as pathways, guidelines, or preemptive orders.

Pediatric patients: Patients aged birth to eighteen years.

Wait times: Measures the time between arrival of the patient to the ED and the time the patient has initial contact with the ED physician. (Centers for Disease Control and Prevention [CDC], 2014).

Relevance to Nursing Practice

Allowing nurses to use careful judgment and critical thinking skills can empower them to positively affect patient outcomes in the pediatric ED. This doctoral project consists of a systematic review of the literature to identify information related to the safety and efficacy of nurse-driven protocols in the pediatric setting. Although nurse-driven protocols are commonly implemented in the adult setting, limited nurse-driven protocols exist for pediatric patients in the ED.

History of the Broader Problem in Nursing Practice

People of all ages receive care in the ED in the United States, including diagnosis and treatment of emergency conditions, and the documented history of the emergency room spans 50 years (Suter, 2012). Specific emergency care began in the early 1960s with four physicians who remained available for patients any time of the day or night (Suter, 2012). Emergency care continued to grow over the next 50 years from the emergency room to the ED, seeing hundreds of thousands of patients annually across the United States (Suter, 2012). The average number of emergency visits in the United States continues to increase by 3.5% each year (DeAnda, 2018). The number of patients treated in the ED frequently strains resources and pulls providers in many directions at once. Crowding in the ED across the United States presents significant safety concerns associated with delays in care, increased left without being seen rates, and increased morbidity and mortality (Higuchi, Davie, & Ploeg, 2017; DeAnda, 2018; Settelmeyer, 2018; Barata et al., 2015; Liptak et al., 2015). ED overcrowding challenges healthcare professionals, creates long wait periods, and puts patient safety at risk.

Bottlenecks associated with ED overcrowding increase wait times and the LOS in the ED and contribute to poor outcomes (DeAnda, 2018). Operational processes and staffing grids in the ED are not designed to provide extensive care for long periods of time (Eriksson, Gellerstedt, Hillerås, & Craftman, 2018: Yarmohammadian, Rezaei, Haghshenas, & Tavakoli, 2017). Many of the patient visits are for minor medical or injury complaints, which increases wait times and the risk of deterioration for patients with serious illness or injury (Sancton, Sloss, Berkowitz, Strudom, & McCracken, 2018). Overcrowding creates public health problems related to long lengths of stay and the inability to bring more patients in for treatment (Eriksson et al., 2018).

The inability to move patients through the ED contributes to decreased access to care for patients without primary care (Sancton et al., 2018). The increased workload for healthcare professionals contributes to adverse events and the number of errors with the increased workload for healthcare professionals (Eriksson et al., 2018; Henderson & Boyle, 2014). Overcrowding in the ED increases patient mortality, compromises the function of the department, and decreases overall patient and staff satisfaction (Henderson & Boyle, 2014). Overcrowding in the ED leads to worsening patient outcomes; therefore, EDs should review their procedures for treating patients to avoid adverse events (Henderson & Boyle, 2014; Yarmahammadian et al., 2017).

Nurse-Driven Protocols

Nurse-driven protocols are a tool for implementing safe and effective care in many areas of healthcare. Nurse-driven protocols allow nurses to use clinical judgment based on collaboratively designed protocols and allow physicians more time to focus on

critical patients or those who do not present with common complaints (Barto, 2019). Evidence-based nurse-driven protocols reduce morbidity and mortality, improve efficiency and costs, and improve compliance with guidelines while improving evidence-based decision-making (Jun, Kovner, & Stimpfel, 2016). Standardized nurse-driven protocols allow the nurse to initiate diagnostic testing and complaint specific treatments before the physician initiates orders (Yang, Franco, Wallace, Williams, & Blackmore, 2019). Clearly established nurse-driven protocols decrease the time to treatment and improve patient wait times in the ED (Moore et al., 2019). Well-written, collaborative nurse-driven protocols contribute to the improved patient outcome (Moore et al., 2019; Yang et al., 2019; Jun et al., 2016). Implementation of nurse-driven protocols benefits patients treated in the ED.

EDs require metrics for identifying and addressing clinical processes, and the dissemination of the results with similar facilities supports a culture of change and improvement (Emergency Nurses Association [ENA], 2017). Pediatric EDs should evaluate the contributing factors for long wait times and the possibility of improving the overall quality of care by implementing nurse-driven protocols. Emergency nurses and providers must work together to develop effective policies and protocols to standardize defining criteria for initiating nurse-driven protocols to expedite care and disposition (ENA, 2017). The ENA (2017) supports the development and implementation of standardized protocols.

Nurse-driven protocols in adult EDs address many medical and trauma-related complaints. The need for nurse-driven protocols in the ED resulted from the need to

address overcrowding and improve patient outcomes (Douma, Drake, O'Docharaigh, and Smith, 2016; Wacht et al., 2018). Diagnosis-specific or complaint-specific protocols expedite diagnostic studies and shorten ED stays because diagnostic results become available for the physician to review during the initial assessment (Douma et al., 2016). Nurse-driven protocols address pain-control measures and diagnostics by focusing on common complaints or known diagnoses (Douma et al., 2016). Common chronic diagnoses or complaints included in nurse-driven protocols in the adult setting include sepsis, asthma, stroke, sickle cell crisis, chest pain, abdominal pain, diabetic-related complaints, and head injuries (Douma et al., 2016; Blackmore et al., 2016; Wacht et al., 2018). Patients treated after initiation of nurse-driven protocols received expedited treatment, thus decreasing morbidity and mortality associated with delays in care (Wacht et al., 2018; Blackmore et al., 2016). Early diagnosis and treatment of possibly life-threatening illnesses and injuries improve patient outcomes.

Although evidence exists reinforcing the benefits of nurse-driven protocols, limited information supports their use in the pediatric emergency setting. Nurse-driven protocols established by a collaborative team of healthcare professionals decrease the time to treatment for pediatric patients, and evidence supports that the use of nurse-driven protocols in the ED improves patient flow (Lukes, Schjodt, & Strewe, 2019; Cramer & Shorr, 2016; Dreyfus et al., 2017; Moore et al., 2019). However, variability in developmental stages, assessment skills of healthcare professionals, and communication skills create challenges for developing specific protocols for pediatric patients (Staveski, 2017). Throughout pediatric hospitals, nurse-driven protocols are used to treat pain,

fever, and specific diagnoses (Dobrasz et al., 2013; Dreyfus, Javouhey, Denis, Touzet, & Bordet, 2017; Shavit et al., 2016). For example, dehydration-based protocols grant nurses the ability to provide oral rehydration in the pediatric patient to decrease the incidence of severe dehydration and deterioration (Bowen et al., 2018). Nurse-driven protocols for pain control in pediatric patients improve patient perceptions of care and assist when performing radiographic studies (Shavit et al., 2016; Dreyfus et al., 2017). Using pediatric-specific evidence and a collaborative of healthcare professionals is the best method for developing safe and effective nurse-driven protocols in the pediatric setting (Dreyfus et al., 2018; Shavit et al., 205; Long et al., 2017). Evidence supports the establishment of nurse-driven protocols by a collaborative team in the pediatric setting when differences in developmental status are considered (Dreyfus et al., 2018). Many of the pediatric emergency nurses maintain advanced certification in pediatric emergency nursing. The physicians who provide care to the higher acuity patients obtain certification in pediatric emergency medicine. The healthcare professionals in the pediatric ED have the expertise to develop pediatric-specific nurse-driven protocols. Overcrowding in the ED requires strategic plans to improve throughput and patient outcomes.

Strategies used by nurses in the past made little progress in the effort to increase the use of nurse-driven protocols in the pediatric ED. Complexities specific to pediatric development and congenital conditions increase the reluctance from physicians to develop nurse-driven protocols (Deforest & Thompson, 2012). The Children's Hospital Association (CHA) sepsis collaborative recommends rapid recognition and treatment of pediatric patients at risk for sepsis by using nurse-driven protocol during triage in the

ED (CHA, 2016). However, initiation of the sepsis pathway requires physician evaluation and agreement with the assessment to carry out treatments (ED nurse manager, personal communication, November 3, 2019). The use of nurse-driven protocols for sepsis in the ED decreases the time to treatment and improves patient outcomes (Moore et al., 2019). Adoption of nurse-driven protocols similar to adult-based facilities may improve patient outcomes in the pediatric setting. Adult-based EDs address overcrowding and extended wait times by developing nurse-driven protocols in collaboration with a multidisciplinary healthcare team (Cairney, & Clancy, 2014). The use of early warning systems in some EDs assigns points based on the assessment findings to apply to an algorithm for nursing decision-making (Cairney & Clancy, 2014). The use of a point-based system, such as the Pediatric Early Warning System (PEWS, supports nursing decision-making processes and improves physician confidence in the use of nurse-driven protocols in the emergency setting (Cairney & Clancy, 2014). A point-based system is an approach to gaining physician support of nurse-driven protocols. Findings from this systematic review will be used to facilitate discussion between physicians, nurses, and administrators about the advantages and disadvantages of implementing nurse-driven protocols in the pediatric emergency setting.

Local Background and Context

The literature indicates that nurse-driven protocols shorten ED stays across the US. Although the ENA supports the use of EBP to collaboratively developed nurse-driven protocols, there is limited use of such protocols in the pediatric ED. The project site is an urban pediatric ED in the Southwestern region of the United States. The ED is

part of a large pediatric healthcare system, with over 120 thousand emergency visits annually (ED nurse manager, personal communication, November 3, 2019). The system's mission and vision aim to improve the health of children in the region through treatment and prevention of illnesses and injuries.

The pediatric ED continues to struggle with extended wait times, especially during the busy winter season, when census and acuity are higher than other times of the year (ED nurse manager, November 3, 2019). The expected average ED LOS in the US should not exceed four hours, with the actual average LOS being six hours (Driesen et al., 2018). The national median percentage of patients who left without being seen is 2.7 hours (Driesen et al., 2018). Longer wait times and LOS increase the risk of those who leave without being seen, which increases the risk of poor outcomes (Driesen et al., 2018). During winter months at the practice facility, patients wait two hours or more to be seen by the physician, the average LOS is eight hours, and the percentage of patients who left without being seen increases to over five percent (ED nurse manager, personal communication, November 3, 2019). Five percent is not a small number when between six and seven hundred pediatric patients present to the ED daily during the winter season (ED nurse manager, personal communication, November 3, 2019). Long wait times contribute to the number of patients who leave before treatment and increase the risk of adverse outcomes.

In the project facility, a few basic nursing protocols exist; however, significantly more nurse-driven protocols exist in the adult ED. Providers are apprehensive about implementing nurse-driven protocols in the pediatric setting. The existing nurse-driven

protocols allow nurses to collect rapid strep specimens for children with fever and sore throat and to treat fever or pain with weight-based medication dosages (ED nurse manager, personal communication, November 3, 2019). There is a need to evaluate the potential impact of adding additional nurse-driven protocols on wait times and patient outcomes in the pediatric ED. Findings from this systematic review can be used to facilitate discussion between physicians, nurses, and administrators about the advantages and disadvantages of implementing nurse-driven protocols in the pediatric emergency setting.

Role of the DNP Student

I currently practice as a clinical practice and education specialist for the pediatric ED in an urban pediatric medical center. As an education specialist, I not only focus on the education needs of nursing staff but also opportunities for professional growth. My role includes the implementation and sustainment of EBP and providing information to nurses for improvements in care and current practice guidelines. In my role, ED throughput issues frequently negatively impact the treatment patients receive in the pediatric ED. The throughput issues frequently top the list of areas for improvement.

My doctoral project is a systematic review to explore the safety and efficacy of nurse-driven protocols in the pediatric ED. If the information supporting the use of nurse-driven protocols exists, the findings will be presented to key stakeholders. Implementing current EBP improves patient outcomes. If the evidence supports change, patient wait times may decrease, and satisfaction may increase as a result of disseminating evidence to support nurse-driven protocol development.

As a DNP student, I have the responsibility of providing evidence and educational information leading to sustainable change based on current EBP. Any proposed practice change must improve patient safety, outcomes, and satisfaction. The motivation for the doctoral project includes the possibility of improving patient flow and decreasing patient deterioration while waiting for treatment. The motivation for the project also stems from the potential to improve nursing satisfaction with the ability to use critical thinking skills and active participation in improved patient care. The only identified bias is the assumption that the successful implementation of nurse-driven protocols in other settings means nurse-driven protocols will be successful in the pediatric setting. I am aware of the potential for bias and the need to complete an extensive literature search and review to evaluate the applicability to the pediatric setting. Pediatric patients differ from adults in growth and developmental stages and cannot communicate symptoms. These differences make pediatric emergency care more intricate.

Summary

A systematic review of the literature may result in the adoption of nurse-driven protocols in the pediatric ED. The gap in practice is extended wait times without intervention in the pediatric ED, while evidence supports the use of nurse-driven protocols to improve throughput in the adult ED. The Iowa model will guide the processes of information gathering and dissemination of the findings. The following section describes the approach to the literature review and includes the sources of evidence used to guide the analysis and synthesis of evidence.

Section 3: Collection and Analysis of Evidence

Introduction

The problem the author addressed with the DNP project was long wait times in the pediatric ED, putting children at risk for poor outcomes and limited processes for expediting care. The development of processes to decrease the time patients spend waiting in the ED decreases the probability of deterioration related to time to treatment and improves general satisfaction with care (Marino et al., 2015). Nurse-driven protocols accelerate the waiting process by allowing nurses to implement early diagnostic studies or treatments (Settelmeyer, 2018). The purpose of this DNP project was to evaluate and synthesize the best available evidence related to nurse-driven protocols to support the recommendation of changes to improve throughput in the pediatric ED. The author evaluated evidence related to nurse-driven protocols in the pediatric ED. Although nurse-driven protocols are used in adult EDs, minimal nurse-driven protocols exist in the pediatric ED (ED nurse manager, personal communication, November 3, 2019). The objective of the systematic review of the evidence is to evaluate the effectiveness of nurse-driven protocols in the pediatric emergency setting, the possible impact on wait times, patient and family satisfaction, and patient outcomes.

The focus of Section 3 was the practice question, sources of evidence, methods of data analysis, and synthesis of the project. Methodologies used for data collection and article critiques are critical to safeguarding the integrity of the project. The section outlines the project plan.

Practice-focused Question

The gap in practice that the author examined for this project was the extended wait times in the pediatric ED resulting from delays in provider evaluation and orders and the limited use of nurse-driven protocols to expedite care. Extended wait times negatively impact patient satisfaction, increase ED overcrowding issues, and put patient safety at risk (Liptak et al., 2015). The practice site does not utilize nurse-driven protocols beyond minor point-of-care testing and treatment of fever; therefore, much of the patient's LOS in the pediatric ED is the wait time. The practice-focused question for the project was: In pediatric ED patients, how do nurse-driven protocols compare to provider order entry only in improving ED wait times, time to disposition, patient/family satisfaction, and patient outcomes? Decreasing patient waiting and alleviating ED over-crowding is crucial to improving patient outcomes and satisfaction in the pediatric ED (Barata et al., 2015). Answering the practice-focused question with the use of a systematic review may provide evidence to guide conversations with stakeholders regarding the development of more robust nurse-driven protocols in the pediatric ED.

Sources of Evidence

The purpose of this DNP project was to evaluate and synthesize the best available evidence related to nurse-driven protocols to support the recommendation of changes to improve throughput in the pediatric ED. Sources of evidence for this mixed methods systematic review consisted of current studies classified as level I through VII using the Melnyk and Fineout levels of evidence. Inclusion criteria included peer-reviewed studies published in English that evaluate nurse driven protocols in the pediatric setting. The

author accessed sources through the Walden University library databases, including CINAHL, Medline, ProQuest, PubMed, Cochrane Database of Systematic Reviews, Joanna Briggs Institute, and Ovid. The author used expert opinion from professional organizations to evaluate recommendations from existing clinical practice guidelines. The professional organizations include the Emergency Nursing Association (ENA), Pediatric Trauma Society (PTS), American College of Emergency Physicians, and the Society of Pediatric Nurses (SPN). The limit for publication years in the searches was between 2010 and 2020.

Relationship of the Evidence to the Purpose

The purpose of this DNP project was to evaluate and synthesize the best available evidence related to nurse-driven protocols to support the recommendation of changes to improve throughput in the pediatric ED. The author intended to conduct an exhaustive literature review to identify and appraise evidence relevant to the practice issue. The intent of gathering the evidence was to support or refute the safety and efficacy of nurse-driven protocols in the pediatric ED. A systematic review provides the highest level of evidence for supporting healthcare interventions (Aromataris et al., 2015).

Addressing the Practice-Focused Question

Decision-making in EBP depends on the analysis and synthesis of the best available evidence. EBP is a method for improving patient outcomes and reducing costs. Synthesizing all evidence available related to nurse-driven protocols in the ED and the applicability to pediatric patients is crucial to obtaining information to accurately answer the practice-focus question and applying the evidence to practice.

Key Terms

The author used the following word combinations for the literature search and the advanced search option for the search engines: *nurse-driven protocol* AND *emergency department* OR *room*, *nurse-led protocol* AND *emergency department/room, nursing protocol* AND *emergency department/room, nursing bundle* AND *emergency department/room, nurse guidelines* AND *emergency department/room, nurse pathway* AND *emergency department/emergency room*, *nurse-driven protocol* AND *pediatrics/children/adolescents, nurse-driven protocol/pathway/guideline/bundle* AND *emergency department/room* AND *pediatrics/children/adolescents,* and *nurse-driven protocol* OR *pathway* OR *guideline OR bundle* AND *emergency department/room* AND *pediatrics/children/adolescents* AND *outcomes.*

Exhaustive and Comprehensive Search

Measures to ensure the search was comprehensive and exhaustive included the use of various search terms and phrases in different combinations. The search terms and phrases encompassed the practice-focused question and the targeted population. The author reviewed the articles by title to identify inclusion and exclusion criteria. After identification of articles by title, the author reviewed the abstracts to determine relevance to the practice question. The author used references from studies to identify additional literature for review. Articles identified as relevant were read in full.

Analysis and Synthesis

Systems Used for Recording, Tracking, Organizing, and Analyzing the Evidence

The author manually organized the literature in table format on an Excel spreadsheet. The author organized the articles by the author(s). The sections for each article include the author(s), publication year, study purpose, research questions, study design, methods, inclusion criteria, sample size, findings, level of evidence, and quality of evidence. The author documented the quality of evidence was documented on the table, indicating the level of evidence. The levels of evidence range from level I to level VII (Fineout-Overholt et al., 2010a). They include the title, author, publication date, problem, aim, design, and results (Fineout-Overholt et al., 2010a).

Measures to ensure the integrity of the evidence included the use of inclusion and exclusion criteria, categorizing the literature based on the level of evidence, and using peer-reviewed articles. The author identified all strengths, weaknesses, and gaps in the literature. An in-depth systematic review was conducted after the articles relevant to the practice-focused question were discovered.

Summary

The completion of the project used a systematic review of the literature, including analysis and synthesis, to address the practice-focus question and gap in practice. The author's goal of the project is to investigate the lack of nurse-driven protocols in the pediatric ED. The outcomes of this systematic review may provide more information for improving throughout and patient safety in the pediatric emergency setting. The findings will be presented to key stakeholders to develop a multidisciplinary collaborative team

for evidence-based protocol development. The nurse-driven protocol project has the potential to decrease wait times and improve patient safety and satisfaction. The author's purpose of the following section is to outline the findings from the systematic review of the literature and the application to the practice-focused question.

Section 4: Findings and Recommendations

Introduction

Extended stays and long wait times in the pediatric ED put patients at risk for deterioration and dissatisfaction; therefore, safe and effective methods for expediting care must be explored. Standardized nurse-driven protocols initiated during or shortly after triage decrease the time to treatment and the risk of deterioration (Gatewood, Wemple, Greco, Kritek, & Durvasula, 2015; Retezar, Bessman, Ding, Zeger, & McCarthy, 2011, Rathlev et al., 2018). Literature indicates collaboratively developed nurse-driven protocols contribute to decreased time to treatment for pediatric patients and improve the patient flow in the ED (Lukes et al., 2019; Cramer & Shorr, 2016; Dreyfus et al., 2017; Moore et al., 2019). Differences in anatomy and physiology of pediatric patients create challenges for developing nurse-driven protocols in the pediatric ED. Evidence exists supporting the successful implementation of nurse-driven protocols for pediatric patients in areas outside of the ED (Pinto et al., 2014; CHA, 2016; Dreyfus et al., 2018; Staveski, 2017). However, limited nurse-driven protocols exist in the pediatric ED. The gap in practice is the lack of nurse-driven protocols in the pediatric ED to expedite care and improve patient outcomes. The practice-focused question for the project was: In pediatric ED patients, how do nurse-driven protocols compare to provider order entry only in improving ED wait times, time to disposition, patient/family satisfaction, and patient outcomes? The purpose of this DNP project was to evaluate and synthesize the best available evidence related to nurse-driven protocols to support the recommendation of changes to improve throughput in the pediatric ED.

Sources of Evidence

The *Walden University DNP Systematic Review Manual* served as a guide for this project. To answer the practice-focused question, the author conducted a systematic review of the literature from August 2019 to April 2020. Inclusion criteria included peer-reviewed studies published in English that evaluated nurse-driven protocols in the pediatric setting. Databases used for the search included CINAHL, Medline full text, Cochrane Review, Joanna Briggs, PubMed, and Ovid. The specific search terms used to narrow the search included *nurse-driven protocol, nurse-led protocol, nursing bundle, nurse pathway, guidelines, emergency department, emergency room, pediatric, child,* and *adolescent.* The Boolean operators *and* and *or* were used to associate the terms to conduct the search. To limit the evidence to current findings the project included only evidence published between January 1, 2010, and May 1, 2020.

Using the search technique, the author identified a total of 55 articles published in the last 10 years. The author discovered five additional articles using citations from the articles in the search. Duplicates from the search were removed for a total of 51 articles for abstract review. The total for excluded articles was 40 following the abstract review. Full-text article review included 16 articles, and the author excluded eight articles. Exclusion reasons include not addressing nurse-driven protocols in the ED, addressing medical management, or evaluation of results based on ethnicity or other factors not related to the safety and efficacy of nurse-driven protocols in the pediatric ED. Eight quality studies met inclusion criteria and were selected for analysis and synthesis for the systematic review. The author used the Preferred Reporting Items for Systematic Review

and Meta-Analyses (PRISMA) reporting guidelines to present the evidence search and selection of articles (see Appendix A).

Studies that were identified for inclusion in this systematic review were entered into an Excel spreadsheet, and the level and quality of evidence were graded using the Iowa Model and levels of evidence outlined by Fineout-Overholt, Melnyk, Stillwell, and Williamson (2010b). The levels of evidence include systematic reviews at level I, randomized control trials at level II, controlled trial without randomization at level III, case-control and cohort studies at level IV, a systematic review of qualitative and descriptive studies at level V, qualitative or descriptive studies at VI, and expert opinion at level VII (Fineout-Overholt et al., 2010a). The author assigned the grade of evidence using the Iowa Model with grades A through C. Grade A indicated the expertise is clearly evident for nonresearch and clear, reproducible research strategies with adequate sample size and clear design for research and consistent results (Doody & Doody, 2011). Grade B indicates credible expertise for non-research and acceptable or appropriate and thorough research using adequate studies and reasonably consistent results for research (Doody & Doody, 2011). Grade C indicates unclear or questionable expertise for non-search and poorly designed, limited search strategies, inconsistent results, and inadequate evidence (Doody & Doody, 2011). The author developed an evidence table (see Appendix B) to demonstrate the level of evidence and provide a summary of the findings.

Findings and Implications

Eight articles met the inclusion criteria and addressed the practice question. The author used analysis and synthesis to examine the safety and efficacy of nurse-driven protocols in the pediatric emergency setting. This section and Appendix B include information regarding the articles, including authors, publication years, purpose, study design or methods, setting, measures, findings, and level and quality of evidence. The author analyzed and synthesized each article to determine the strengths of the findings and implications for practice in the pediatric ED. The selected articles were all relevant to the practice question and addressed the purpose of the DNP project. The articles were all relevant to nurse-driven protocols in the pediatric ED.

Pediatric Sepsis Protocol

Cruz et al. (2011) designed a quality improvement process to facilitate early intervention for suspected septic pediatric patients in the ED. The purpose of the intervention program was to improve early recognition of pediatric patients at risk for septic shock and to facilitate the implementation of nationally recognized guidelines for treatment (Cruz et al., 2011). The sample included all children who had the shock protocol. The sample included 191 discrete encounters in 167 unique patients with suspected sepsis with 158 enrolled at triage and 33 after triage (Cruz et al., 2011). The authors participated in the development of electronic alerts to drive nurses to consider the septic shock protocol based on vital signs. The alerts empowered nurses to activate the protocol, and the initiation of the protocol allowed the nurse to expedite care in a timely manner. Collaboratively designed protocols for pediatric sepsis in the ED helps decrease

time to treatment and can improve patient outcomes (Cruz et al., 2011). Areas for future study include early recognition and treatment of sepsis in stages before shock and collaborative development of protocols beyond sepsis. The quality improvement project was limited as the measures focused on whether the protocol was initiated or not and did not delve into the accuracy of treatment or outcomes based on the treatment.

Rehydration Protocols

In a retrospective chart review, Doan, Chan, Leung, Lee, and Kissoon (2010) compared outcomes for patients with gastrointestinal complaints over 4 years to evaluate the results of an oral rehydration protocol. The purpose of the cohort study was to evaluate the efficacy of an oral rehydration clinical pathway for children ages 6 months to 17 years with mild to moderate dehydration from gastroenteritis in the pediatric ED on LOS, the need for intravenous fluids, and return visits (Doan et al., 2010). A total of 11,816 children meeting the eligibility criteria for age range and mild to moderate dehydration related to gastroenteritis. There was a decrease in LOS among those receiving oral rehydration therapy, a clinically negligible decrease in intravenous fluid administration, and readmission rates remained low throughout the study (Doan et al., 2010). The authors analyzed all ED visits during the study period to rule out other factors affecting the decreased LOS. ED visits for all other complaints showed an increase in the LOS. The findings from the study concluded that implementing protocols for nursing interventions before physician assessment helps to begin treatment earlier and decrease the LOS (Doan et al., 2010). Implications for future study include exploring the safety of

standing orders for antiemetics when possible and collaboration in developing additional standardized protocols for common childhood illnesses.

Hendrickson, Zaremba, Wey, Gaillard, and Kharbanda (2018) conducted a pre- and postintervention analysis of the use of a nurse-driven protocol for initiation of an assessment of signs and symptoms of gastroenteritis and the management of the symptoms in triage. The study included patients between the ages of 6 months and 5 years who present to the ED with gastrointestinal complaints (Hendrickson et al., 2018). The study included a total of 128 patients presenting to an urban pediatric teaching ED. The purpose of this study was to assess the effects of a protocol allowing initiation of antiemetic therapy and oral rehydration therapy for pediatric patients at the time of ED triage, based on a formal assessment of dehydration by the triage nurse (Hendrickson et al., 20180. The formal assessment was a standardized assessment tool used by the nurse in triage to determine the severity of dehydration (Hendrickson et al., 2018). The study protocol expanded on previous oral rehydration protocols to include the administration of antiemetics to minimize intravenous fluids, hospital admissions, and return visits. The implementation of interventions was based on assessment of the symptoms and a dehydration algorithm. A collaborative team of ED nurses and physicians developed the protocol. The protocol included an algorithm for implementing oral rehydration or antiemetics before trialing oral rehydration based on assessment findings (Hendrickson et al., 2018). Study findings indicate that the nurse-initiated protocol can significantly decrease the use of intravenous fluids without increasing the LOS, hospital admissions, or return visits. The hospital admission rate for patients with the oral rehydration study was

2.5% compared to 11% for those not involved in the rehydration protocol (Hendrickson et al., 2018). There were no unscheduled return visits for patients compared to 15 to 19% before the study (Hendrickson et al., 2018). Limitations of the study include reliance on retrospective data collection from the pre- and postintervention period for comparison of findings and documentation limitations (Hendrickson et al., 2018). Implications for further studies include expanding sample size and including the algorithm in the electronic documentation to include alerts for considering the nurse-initiated protocol.

Febrile Pediatric Oncology Protocol

In a retrospective chart review of all pediatric oncology patients presenting to the ED with a complaint of fever, Dobrasz et al. (2013) explored the use of a nurse-driven protocol to restructure the rapid treatment of the high-risk group. Dobrasz et al. (20130 used the chart review to develop a quality initiative to develop a protocol for early recognition and treatment of pediatric oncology patients with fever. The purpose of the study was to evaluate the impact of an EBP change aimed to reduce the time between arrival and administration of antibiotics (Dobrasz et al., 2013). The study consisted of a total of 2758 medical records of febrile hematology/oncology patients seen in the ED (Dobrasz et al., 2013). The outcome measures were the average length of time until antibiotic administration, compliance with initiating the protocol, and LOS (Dobrasz et al., 2013). An interdisciplinary team consisting of representatives for nursing, physician, and pharmacy worked to develop a protocol for the identification and treatment of the febrile oncology patient. The protocol provides guidelines for nurses to start interventions before physician assessment, which expedite antibiotic administration. Study results

showed an increase in compliance with treatment guidelines from a prestudy rate of 30% to 80%, a decrease in the average time to antibiotics from 110 to 61 minutes, and an overall decrease in LOS after implementation of the nurse-driven protocol (Dobrasz et al., 2013). Implications for future studies include the possibility of the development of protocols by multidisciplinary teams for early identification and treatment of other high-risk groups, such as patients with sickle cell.

Jaundice Protocol

Long et al. (2017) used an observational study design and a retrospective chart review to analyze the utility of a jaundice management nurse-driven protocol in the pediatric ED. The purpose of the study was to assess the effectiveness of a nurse-driven neonatal jaundice management protocol for serum bilirubin sampling and phototherapy for neonates presenting to the pediatric ED with hyperbilirubinemia (Long et al., 2017). Long et al. (2017) used the chart review to develop a comparison of the time to obtaining samples for serum bilirubin, the initiation of phototherapy, the total ED LOS, the rates of admission, completion of direct antiglobulin test and nursing documentation for 12 months before and after implementation of the protocol. The study included 266 neonates (131 control and 135 intervention). The authors evaluated randomly selected charts to compare times and documentation. There was a decrease in time to initiation of phototherapy for the intervention group. The median time to phototherapy was 42 minutes in the control group compared to 34 minutes in the intervention group (Long et al., 2917). There was no significant change in LOS between the control groups; however, the intervention group had a significantly shorter LOS for discharged patients with the

LOS being 118 minutes for the intervention group and 135 minutes for the control group (Long et al., 2017). There was a significant decrease in the number of hospital admissions, decreased time to laboratory studies, and improved nursing documentation for the intervention group. Hospital admissions decreased to 17% from 35.9% in the control group (Long et al., 2017). Limitations of the study include incomplete documentation affecting the ability to analyze all outcomes. Even with chart randomization, the mean for the initial bilirubin was lower in the intervention group. Future studies are needed to explore outcomes for patients with higher initial bilirubin levels and to explore transferability.

Asthma Management Protocols

Qazi et al. (2010) used a prospective precomparison and postcomparison observational study to explore outcomes of training and education for emergency nurses to use a nurse-driven protocol for pediatric asthma treatment. The purpose of the study was to establish the effectiveness of an ED nurse-driven asthma management protocol on time from door to nebulizer treatment (Qazi et al., 2010). The nurses began the use of the treatment protocol in triage after the completion of asthma management training. The study consisted of 125 participants in both the before and after groups. The initiation of the protocol reduced the time to nebulizer by over 30 minutes (Qazi et al., 2010). Time to steroids was decreased by 22.8 minutes, and second nebulizer times were also decreased by 21.7 minutes after the initiation of the protocol Qazi et al., 2010). The nurse-driven protocol improved time to treatment and expedited relief of symptoms for pediatric emergency patients, which improves patient outcomes and satisfaction. Implications for

future studies include expanding the nurse role in asthma management initiated at the time of triage.

Pain Management Protocols

In a prospective observational clinical study, Schoolman-Anderson et al. (2018) examined the patient and caregiver experience with pain management in the pediatric ED. The purpose of this study was to determine the impact of a pain protocol initiated during triage using intranasal fentanyl (INF) on time to analgesia administration (TTA) and patient and caregiver satisfaction (Schoolman-Anderson et al., 2018). A multidisciplinary team from the ED, including nurses, physicians, and pharmacists developed the protocol using current evidence. Study participants included 132 patients, 72 before and 60 after guideline implementation, between the ages of 3 and 17 years and a clinically suspected isolated extremity injury (Schoolman-Anderson et al., 2018). The study participants included 72 patients before and 60 patients after the initiation of the protocol. Schoolman-Anderson et al. (2018) found no difference in the TTA between the groups and no difference in the percentage of patients receiving pain medications. However, the utilization of INF increased from 41% to 60%, and documentation improved for the post-implementation group. Unnecessary intravenous catheter insertion rates decreased by 24% after the implementation of the protocol (Schoolman-Anderson et al., 2018). The decrease in intravenous catheterization and effective use of INF improved patient and caregiver satisfaction reports (Schoolman-Anderson et al., 2018). Limitations of the study include the differences in seasons between the before and after groups, which may contribute to differences in ED census and limited transferability to states where

certain analgesics require a provider order. Implications for further studies include exploring the safety of standing orders for INF, transferability to other similar facilities, and the applicability to pain control for more presenting complaints.

Using a retrospective chart review cohort study Settlemeyer (2018) evaluated an evidence-based throat pain protocol to determine the effects on improving ED throughput. The purpose of the study was to evaluate the effect of an evidence-based throat-pain protocol in the ED. The medical records of 117 patients presenting to the ED with throat pain to measure the number of patients that left without being seen, LOS, and antibiotic prescriptions. The charts were separated into three categories to review the outcomes. The categories were patients who received no throat swab for laboratory testing, nurse-initiated testing, and provider-initiated testing. Before implementing the protocol, 81% of nurses working in the ED provide bedside or work in the triage area were trained to implement the protocol (Settlemeyer, 2018). Patients in the group with the nurse-initiated protocol implemented had the shortest LOS, received the fewest prescriptions for antibiotics z948% compared with 52%z0, and had no left without being seen patients (Settlemeyer, 2018). The average LOS was 115 minutes with an average of 108 minutes for those receiving the nurse-driven protocol (Settlemeyer, 2018). The protocol for throat pain not only decreased the LOS, but it also improved patient perception of the visit. Limitations to the study include incomplete documentation altering the findings and variability in adherence to the protocol. Implications for future studies include assessing changes in outcomes with improved education, adherence to the protocol, and improved documentation.

Unintended Limitations

The majority authors of the articles used chart reviews to collect data. The limitations of the use of chart reviews includes reliance on completeness and accuracy of documentation. The number of studies specific to pediatrics is limited and no high level studies were identified. The author excluded several articles from the systematic review due to either not including pediatric patients or including protocols used outside of the ED. The author excluded articles to maintain the focus on nurse-driven protocols for pediatric patients in the ED. Differences in regulations for standing orders and medication administration between regions were another limitation on the standardization of nurse-driven protocols. There are a limited number of studies exploring pediatric-specific nurse-driven protocols in the ED.

Implications

The implications drawn from the evidence include the implementation of nurse-driven protocols can expedite care in the ED. The evidence applies to pediatric patients ranging in age from newborn to seventeen years. The studies indicated a decreased time to treatment, decreased number of LWBS, and decreased return visits for patients with the implementation of a nurse-driven protocol versus patients with provider only orders (Settemeyer, 2018; Qazi et al., 2010; Long et al., 2017; Dobrasz et al., 2013; Hendrickson et al., 2018; Doan et al., 2010; Cruz et al., 2011). Most of the studies used multidisciplinary teams to develop and trial the protocols. Nurses required additional training and education for the proper application of standardized protocols in the clinical setting. Findings from this systematic review of the literature indicate that nurse-driven

protocols contribute to decreasing ED overcrowding for pediatric patients, which contributes to improved patient outcomes. Implementation of collaboratively developed nurse-driven protocols in the pediatric ED can decrease wait times and improve time to treatment to reduce the risk of deterioration or LWBS in the pediatric ED.

Recommendations

After a thorough analysis and synthesis of the available literature, the author determined there is a need for further research regarding the safety and efficacy of nurse-driven protocols in the pediatric ED. Although the existing studies indicate nurse-driven protocols reduce the time to treatment and the LOS, there is limited data evaluating the safety of nurse-driven protocols in the pediatric population specific to the emergency setting. The gap in practice is the limited use of nurse-driven protocols in the pediatric ED to expedite and improve care. The conclusions drawn from the literature indicate that the limited use of nurse-driven protocols is common for pediatric settings and not unique to the practice setting. The recommendation based on the findings from this systematic review is that more high-level studies, including randomized controlled trials, are needed to evaluate the efficacy and the safety of various pediatric-specific nurse-driven protocols in the ED.

The findings from the evidence suggest nurse-driven protocols in the pediatric ED can improve patient outcomes and satisfaction rates. Common childhood illnesses, including gastroenteritis and sore throat, follow standard treatment guidelines. Development of nurse-driven protocols using practice guidelines and interdisciplinary teams can improve adherence to guidelines and decrease time to treatment (Cruz et al., 2011; Dobrasz et al., 2013; Long et al., 2017; Qazi et al., 2010). The existing evidence supports the use of nurse-

driven protocols to expedite care and decrease admissions. However, more studies are needed to support the safety of implementing additional nurse-driven protocols in the pediatric ED.

Strengths and Limitations of the Project

Strengths

A strength of the project is evidence supporting the use of nurse-driven protocols to expedite care and improve patient and caregiver satisfaction with care. There were no reports of negative outcomes with the implementation of the nurse-driven protocols. Although the safety of the interventions was not thoroughly investigated in the existing studies, there were no reports of adverse outcomes. All studies except for Schoolman-Anderson (2018) indicate improvements in the LOS and time to treatment without negative findings. Cruz et al. (2011) indicated nurse-driven protocols developed by multidisciplinary teams effectively decrease time to treatment. The study by Schoolman-Anderson et al. (2018) indicated nurse-driven protocols decrease the time to pain medication administration. The use of nurse-driven protocols is a recommendation from ENA to improve throughput in the ED in response to continued overcrowding (ENA, 2017).

Limitations

The most significant limitation of this systematic review of the literature is the lack of large randomized trials and the reliance on retrospective chart reviews. Documentation errors or omissions can alter the findings. Cohort studies are useful because they allow the researcher to collect data in real-time and evaluate outcomes based on treatment (Challen, Bradburn, & Goodacre, 2015), but limited in application of EBP. The lack of pediatric

ED specific studies is another limitation of the project. Literature exists supporting the use of nurse-driven protocols for pediatric patients outside the ED and for adult ED patients. However, studies specific to the pediatric emergency setting are limited.

Future Projects

Further investigation of the safety and efficacy of nurse-driven protocols in the pediatric ED is needed. Based on the findings of the systematic review, pediatric EDs can successfully implement nurse-driven protocols to improve throughput (Settemeyer, 2018; Qazi et al., 2010; Long et al., 2017; Dobrasz et al., 2013; Hendrickson et al., 2018; Doan et al., 2010; Cruz et al., 2011). The findings from my review suggest a need for more research on nurse-driven protocols for the specific population. Future studies should focus on safety and applicability to more common childhood illnesses and injuries. There is a need for cohort studies and randomized control studies to measure outcomes stratified by age. There is a great opportunity for research around nurse-driven protocols in the pediatric ED. Until the gap in practice is addressed, nurses must continue to look for innovative ways to prevent pediatric patient deterioration and LWBS while waiting for provider evaluation in the pediatric ED.

Section 5: Dissemination Plan

The purpose of this DNP project was to evaluate and synthesize the best available evidence related to nurse-driven protocols to support the recommendation of changes to improve throughput in the pediatric ED. Long wait times in the pediatric ED contribute to overcrowding and possible poor outcomes. Dissemination of the findings from the evidence is essential for both suggesting further research and implementing patient-centered practice changes. Although nurses value EBP for providing the highest quality care, they do not always have the knowledge of the current findings (Duffy, Culp, Marchessault, & Olmsted, 2020). Key stakeholders for the project include the multidisciplinary members of the emergency care team. Dissemination of evidence-based findings evaluating interventions increase knowledge and provides new evidence for practice (Oermann & Hays, 2019). The dissemination plan includes presenting information to key stakeholders.

Dissemination of EBP results should target the stakeholders to increase the spread of the knowledge related to interventions and the impact on patient outcomes. The data related to the safety and efficacy of nurse-driven protocols in the pediatric ED are limited. Therefore, the need for further research in the area is evident for decreasing overcrowding and improving outcomes. Nurse-driven protocols decrease wait times and improve throughput in the ED; however, limited data exists proving the safety of nurse-driven protocols in the pediatric emergency setting (Douma et al., 2016; Blackmore et al., 2016; Wacht et al., 2018). The evidence supports the possibilities of decreased LOS in the pediatric setting, and more research is needed to evaluate the quality and safety

aspects of nurse-driven protocols in the pediatric ED (Settlemeyer, 2018). The results of the project will be shared with the key stakeholders identified in section one.

Dissemination of the project findings will have different formats. Black, McNamee, Mack, Ali, and Baumbusch (2019) recommend presenting the manuscript to key stakeholders as one method for disseminating information found during the systematic review. Black et al. (2019) suggests different forms of presentation including posters at annual EBP presentations, a portfolio presentation at the ED leadership meeting, and publication in a national journal. Conference presentations and journal publications reach a larger audience and may encourage further studies related to the safety and efficacy of nurse-driven protocols in the pediatric emergency setting (Black et al., 2019). Oermann and Hays (2019) indicate that publication is an essential form for disseminating findings from literature or studies, developing the scientific base of nursing, and sharing opportunities for further studies. Through dissemination of the findings of this project, healthcare professionals involved in the care of patients in the pediatric ED will have information supporting the potential decrease in tine to treatment and LOS and the need for further exploration of the use of nurse-driven protocols.

Analysis of Self

The DNP journey has advanced my leadership knowledge and skills. Engagement in the DNP program prepared me to function in advanced roles in leadership and to influence improvements in healthcare delivery and patient outcomes (American Association of Colleges of Nursing [AACN], 2006). The DNP project provided the opportunity to take a scholarly approach to a practice issue in need of further exploration.

As a nursing leader, I had the opportunity to evaluate a practice-focused question and explore the safety and efficacy of possible answers to the practice problem.

My experiences with the project contributed to my professional growth as a nurse, an educator, and a scholar. The project allowed me to share my knowledge with other healthcare professionals involved in the care of pediatric patients in the emergency setting. Although research in pediatric patients is essential to improving care and outcomes, limited studies exist due to the complexities of growth and development and ethical considerations (Podany, 2017). On the scholarly journey, I learned the importance of exploring all possible sources of information and overcoming bias. I expected the literature to fully support the safety and efficacy of nurse-driven protocols in the pediatric ED; however, there was limited supporting evidence. I will continue to explore approaches to improving the quality of care and patient outcomes in the pediatric ED.

The DNP project provided the opportunity for growth in the areas of practitioner and project manager. Evaluation of current practice provides the opportunity to evaluate current practice in the practice setting and apply the newly gained knowledge to educational opportunities. I read articles related to protocols used in the ED and methods for preparing nurses to care for patients receiving new treatments or new methods of implementing care. The new knowledge applies to my educator role. Learning the project manager role for the DNP program is beneficial to my future role as a nurse leader and change agent. Through the DNP project, I had to chance to experience the beginning stages of applying evidence to practice. I was able to identify a problem and work through the process of determining if the problem was significant enough to practice

warranting a change (Buckwalter et al., 2017). Working through each step of the *Walden University DNP Systematic Review Manual* gave me more insight into the important role of the project manager and my ability to organize and advance the project.

Project Completion

All challenges encountered during the DNP project encountered solutions and continued progress toward the end product. A significant barrier to completion of the project was limited evidence addressing the practice-focused question. Evidence exists supporting nurse-driven protocols; however, limited evidence supports the use in the pediatric emergency setting. I explored citations from articles to find more evidence. Although the result was an expanded knowledge base, it led to reviewing articles not related to the practice question. Another challenge was evaluating the true findings of the literature and not inferring positive results supporting the benefits of nurse-driven protocols. Diligent work allowed each challenge to be met and the completion of the project. The DNP project taught me effective nursing leadership skills by analysis and synthesis of evidence surrounding a practice issue and development of a dissemination plan.

Summary

Long wait times pose a risk to pediatric patients in the emergency setting; therefore, exploring approaches to decreasing the time to treatment and LOS are essential to improving the quality of care. Nurse-driven protocols developed by interdisciplinary teams can decrease time to treatment and overall LOS (Settemeyer, 2018; Qazi et al., 2010; Long et al., 2017; Dobrasz et al., 2013; Hendrickson et al., 2018; Doan et al., 2010;

Cruz et al., 2011). However, more research is needed to determine the safety of nurse-driven protocols for the pediatric population addressing special needs and differences in growth and developmental stages. Nurse-driven protocols can decrease the time from arrival until the initiation of pain management, which improves patient and caregiver perception of care (Schoolman-Anderson et al., 2018; Settlemeyer, 2018). Overall, there was a decreased time to treatment and decreased LOS varied from minimal decrease to a significant decrease (Cruz et al., 2011; Qazi et al., 2010; Long et al., 2017; Dobrasz et al., 2013). The evidence suggests nurse-driven protocols can benefit pediatric patients in the ED; however, additional studies are needed to fully support the safety and efficacy of nurse-driven protocols in the pediatric ED.

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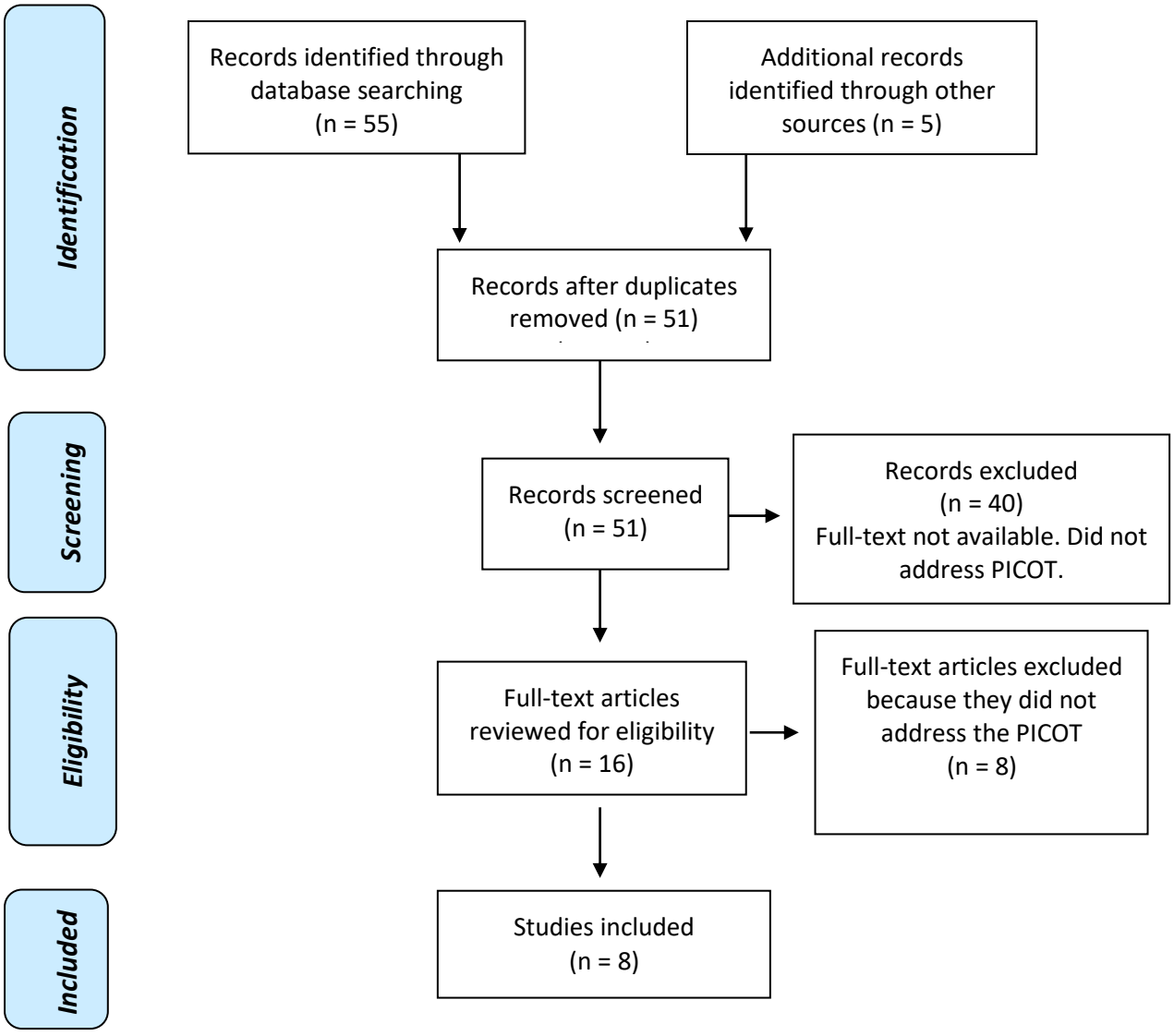
Appendix A: Flow Diagram



Appendix B: Nurse-Driven Protocols in the Pediatric ED Table

Author(s) /Year	**Purpose/Aim**	**Design/Sample/ Setting**	**Measures**	**Finding(s)**	**Level of Evidence And Quality ***
Cruz, A. T., Perry, A. M., Williams, E. A., Graf, J. M., Wuestner, E. R., & Patel, B. (2011).	The purpose of this quality-improvement (QI) intervention was to maximize the recognition of patients at risk for septic shock and facilitate the ED implementation of preexisting national guidelines.	Prospective QI project to measure the impact of early recognition and treatment of pediatric sepsis. All children for whom the shock protocol was implemented were included. The sample included 191 discrete encounters in 167 unique patients with suspected sepsis, 158 were enrolled at triage and 33 after triage. The setting is a large urban pediatric ED.	The QI project measured timeliness of resuscitation form triage time to initiation of fluid boluses and antibiotics. Data were analyzed using MiniTab. Statistical process control charts were used to compare outcome measures in time order in consecutive patients from 2009 to the study period (February to August 2010).	Collaboratively designed protocols for pediatric sepsis patients decrease time to treatment and may improve outcomes.	VII B

Doan, Q., Chan, M., Leung, V., Lee, E., & Kissoon, N. (2010)	The purpose of the study is to measure the impact of implementing an oral rehydration clinical pathway for children with mild to moderate dehydration from gastroenteritis in the pediatric emergency department (ED) on the indicators of health care utilization.	A retrospective ED chart review to compare outcomes for patients presenting with gastroenteritis symptoms without severe dehydration over a four-year period surrounding the development and implementation of the oral rehydration clinical pathway. The study included patients ages 6 months to 17 years with gastroenteritis related complaints for less than seven consecutive days. A total of 11,816 children were identified. The setting includes a children's hospital ED and a tertiary pediatric referral facility.	The study measured the ED LOS for children affected by the clinical pathway to evaluate effects of the pathway implementation. Secondary outcome measures included IV rehydration, unscheduled return visits to the ED and hospital admission.	The patients affected by the pathway had a modestly decreased LOS. No significant changes were noted in admission rates or unplanned returns to the ED.	IV A

Dobrasz, G., Hatfield, M., Jones, L. M., Berdis, J. J., Miller, E. E., & Entrekin, M. S. (2013)	The purpose of the QI project and retrospective review was to evaluate the impact of an EBP change to streamline the door-to-drug process of prompt identification of febrile patients and initiation of antibiotic therapy.	Retrospective chart review of all children with cancer who presented to the ED with a report of fever and a known history of pediatric cancer. A total of 2758 medical records were included in the review of febrile hematology/oncology patients seen in the ED during the study period. The setting is two ED in a pediatric health care system ED.	Data collection consisted of a medical record review of febrile patients with cancer treated during a 56-month period from September 1, 2008, until May 31, 2012. Outcome measures included the average length of time until antibiotic administration, nurses' compliance in initiating the protocol, and ED LOS.	During the review period, the decreased LOS, time to antibiotics decreased, and the protocol compliance improved in both hospitals. Additionally, the collaboration be ED physicians, oncology physicians and nursing lead to the recognition of the need for protocols for additional pediatric populations.	VII B

Hendrickson, M. A., Zaremba, J., Wey, A. R., Gaillard, P. R., & Kharbanda, A. B. (2018).	The purpose of this study is to assess the effects of implementation of a protocol allowing initiation of anti-emetic therapy and oral rehydration therapy(ORT) for pediatric gastroenteritis patients at the time of ED triage, based on a formal assessment of dehydration by the triage nurse.	This study was a pre- and post-intervention analysis of the use of a clinical pathway to support the initiation of gastroenteritis assessment and management in triage. The study included patients 6 months and 5 years of age presenting to the ED with concern for gastroenteritis. A total of 128 patients were enrolled in the study. The setting is an urban pediatric teaching ED.	The primary outcome measures included the use ORT, use of anti-emetics and administration of IV fluids. The secondary outcomes measures include admission rate, unscheduled return visits for persistent symptoms, laboratory testing, and LOS.	A triage-nurse based protocol for early assessment of dehydration in children with gastroenteritis can result in a significant decrease in the use of intravenous fluids and blood testing, without an increase in the LOS in the pediatric ED or admissions to the hospital. These findings support the safety and efficacy of nurse-initiated use of ondansetron and oral rehydration in children with symptoms of gastroenteritis	IV A

Long, M., Farion, K. J., Zemek, R., Voskamp, D., Barrowman, N., Akiki, S., & Reid, S. (2017)	The purpose of the study is to assess the effectiveness of a nurse-initiated neonatal jaundice management protocol for serum bilirubin sampling and phototherapy for neonates presenting with hyperbilirubinemia to the pediatric ED.	A retrospective health records review was performed for jaundiced neonates 12 months prior to the introduction of the management protocol. This study included 266 neonates (131 control and 135 intervention). The setting is a tertiary care center ED.	Randomly selected charts were evaluated for time to serum bilirubin sampling, phototherapy initiation, ED LOS, admission rate, completion of direct antiglobulin test and nursing documentation.	The implementation of a neonatal jaundice nurse-driven management protocol was associated with statistically significant improved time to interventions.	IV A
Qazi, K., Altamimi, S. A., Tamim, H., & Serrano, K. (2010)	The purpose of the study is to determine the effect of an ED nurse-initiated asthma management protocol on door to first salbutamol nebulization time.	A prospective pre-comparison and post-comparison study. The sample included 125 patients in each of the pre-groups and post-groups. The mean age of the study subjects was 3.8 ± 2.9 years. The study sample was predominantly male (n = 164; 65.6%). The setting is an urban pediatric ED.	The study reviewed ED records to determine unscheduled return visits to the ED within 48 to 72 hours of the initial visit. The main outcome measure of the study was time from door to first nebulization.	The emergency nurse initiated asthma protocol reduced the door-to-first-nebulization-time by more than half an hour. Door to steroid time and second nebulizer treatment were also reduced.	IV A

Schoolman-Anderson, K., Lane, R. D., Schunk, J. E., Mecham, N., Thomas, R., & Adelgais, K. (2018).	The purpose of this study was to determine the impact of a pediatric ED triage-based pain protocol utilizing intranasal fentanyl (INF) on time to analgesia administration (TTA) and patient and parent satisfaction.	The study was a prospective observational clinical study. Eligible patients were between 3 and 17 years of age with a clinically suspected isolated extremity injury. The study included a total of 132 patients, 72 patients before and 60 patients after guideline implementation. The setting is tertiary care children's hospital ED.	The outcomes measures were a comparison of median time to analgesia administration before and after guideline implementation and compared the difference in the proportion of subjects that received any form of analgesia.	The study found the introduction of a triage-based, nurse-initiated INF pain management guideline did not demonstrate a significant reduction in overall time to analgesia. However, there was a reduction in time to analgesia for those receiving intranasal fentanyl compared to IV opiate, a significant reduction in unnecessary IV placement, and increased patient and parental satisfaction without compromising effectiveness of pain management.	IV B

Settelmeyer, D. (2018)	The purpose of the study is to evaluate the effect of an evidence-based throat-pain protocol.	The study is a retrospective chart review of convenience sample from all ED patients, ages 3 years and older, who presented for medical care during a 90-day period. The medical records for 117 patients presenting with throat pain t o the ED were reviewed. The intervention took place in a not-for-profit, community hospital ED.	The main outcome variables include the number of patients who left without being seen, patient LOS, and antibiotic prescribing.	Adoption of throat pain protocol decreases the number of patients who leave without being seen, increased the adherence to clinical guidelines and improves antibiotic stewardship.	IV B