2021

Development of a Clinical Guideline for an Emergency Department Fast Track Protocol

Cyrus C-Max Doe
Walden University

Walden University

College of Nursing

This is to certify that the doctoral study by

Cyrus C-Max Doe

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

Review Committee
Dr. Deborah Lewis, Committee Chairperson, Nursing Faculty
Dr. Marisa Wilson, Committee Member, Nursing Faculty
Dr. Patti Urso, University Reviewer, Nursing Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2021

Abstract

Development of a Clinical Guideline for an Emergency Department Fast Track Protocol

by

Cyrus C-Max Doe

MS, Walden University, 2015

BS, Fort Hays State University, 2012

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

May 2021

Abstract

Due to the large influx of patients, emergency departments (ED) across the United States strive to efficiently manage and improve workflow to increase the quality of care and reduce wait times for patients who present at the ED for care. Well-organized workflow is critical to providing efficient and time-sensitive care, beginning with the Fast Track (FT) area. The FT is a designated area of the ED where lower acuity or noncritical patients are seen and treated. Improving workflow in the FT area of the ED can help lessen wait times and overall length of patient visit and improve the delivery and efficiency of care. The goal of this project is to develop an evidence-based clinical practice guideline (CPG) for use in the ED FT area to steer and improve workflow. Queuing theory, supply chain management, and the lean thinking concepts informed this project. Development of this CPG utilized the Walden CPG manual and the AGREE II tool. Three clinical experts in ED care who were also stakeholders evaluated the CPG using the AGREE II instrument. The quality score for each domain was calculated by adding all the scores for each item in each of the six AGREE II domains and scaled as a percentage of the maximum possible score for that domain. All three stakeholders graded domains one (scope and purpose) and two (stakeholder involvement) at 100%. Other domain scores ranged from 93-96% indicating high agreement with the CPG. This project has the potential for impacting positive social change by reducing overcrowding, improving patient flow, and ED workflow, staff and patient satisfaction and reduced risk of poor outcomes as a result of overcrowding in the ED.

Development of a Clinical Guideline for an Emergency Department Fast Track Protocol

by

Cyrus C-Max Doe

MS, Walden University, 2015

BS, Fort Hays State University, 2012

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

May 2021

Dedication

Dedicated to the loving memory of Aunty Doris Jah Gibson for her love, kindness, and support. The foundation you laid, the finger and footprints of benevolence and favor you gave and left, carved a desire for fulfillment, achievement, and career aspiration. Your self-sacrifice (and you) will NEVER be forgotten. Rest on in Heaven.

Acknowledgments

Above all, glory and honor to God for the strength, grace, insight, and blessings afforded to me in my pursuit of a career and attaining a doctorate degree in nursing. Special thanks, love, and appreciation to the following individuals for your immense support and contribution towards helping me accomplish this goal: Dr. Brian Johnson (Uncle Brian) and Aunty Ruth Johnson, Dr. Diane Whitehead, Dr. Deborah A. Lewis, Dr. Carlos Ramirez, Dr. Bethany Blacketer, and Massa Talawoly. I hereby enthusiastically voice that your assistance and or guidance served as a landmark towards the success of my project and, eventually, the completion of my doctorate degree. I am also thankful for my parents – Mr. Charles Doe and Ms. Susannah Jah, host of family members, instructors, critics, and the few good friends and coworkers who helped me, even in the smallest way, achieve such a milestone.

Table of Contents

List of Tables

Section 1: Nature of the Project

Introduction

Due to the large influx of patients, emergency departments (EDs) at different hospitals across the United States continue to endure and face the burden of efficiently managing workflow and reducing wait times and delays for patients who present at the ED for evaluation. Workflow implies a sequence of tasks, including how they are accomplished and who is assigned to and accomplishes which tasks. A well-organized workflow in the ED is critical to providing efficient and time-sensitive care. Improving workflow and or processes in the ED can help lessen wait times and overall length of patient visit in the ED, as well as improve the delivery and efficiency of care in the ED (Yarmohammadian et al., 2017).

EDs continue to encounter mounting tasks in the delivery of high quality and time-efficient care despite an ever-increasing patient influx and limited capital. The obvious disconnect between the ED's capacity to deal with stretched resources and patient demands are associated with poor patient health outcomes as well as a reduction in the quality of care delivered (Richard & Jarvis, 2016). Thus, overcrowding affects ED performance and is a major barrier to achieving effective and efficient emergency care. ED overcrowding also causes delays in evaluation of patients and implementing plan of care, while also resulting in increases in wait times and lengths of stay (Khalifa, 2016).

Problem Statement

Timely and efficient care are critical for attaining quality care outcomes in the ED. Waiting times and delays in initiating care can alter the prospect of quality care and

increase the risks of complication for patients with life-threatening injuries or illnesses. Wait times vary depending on factors such as the number of patients checking in, the number of patients being seen, ED and ancillary or inter-departmental hospital staffing levels, and or availability of inpatient beds (Shen & Lee, 2018).

The influx of patients in the ED has levied an overburdening and offsets of departmental services and a string of consequences on workflow and on clinical outcomes for the department. Overcrowding of the ED affects the department's workflow and output in terms of quality and efficiency of care. Overcrowding is a situation whereby the ED function is impeded primarily because of the excessive number of patients waiting to be seen, undergoing assessment and treatment, or waiting for departure compared to the physical or staffing capacity of the ED (Yarmohammadian et al., 2017). EDs across different regions in the United States bridge the gap in care between the decreased availabilities of primary care physicians, access to care at healthcare clinics, and high rates of uninsured or underinsured patients (Crowley et al., 2020). Workflow connotes sequences of tasks, including how they are accomplished and who is assigned to and accomplishes which tasks. A well-organized clinical workflow in the ED is critical to providing efficient and time-sensitive care.

The local practice that provides the focus for this DNP practice problem is a metropolitan southern U.S. hospital. Many of the patients seeking care are uninsured and have low health literacy. The ED has also become an entry point for many individuals with nonemergent complaints due to access or convenience (24-hour access versus

primary care offices, as well as being uninsured versus insured), causing large numbers of patients with a variety of complaints seeking care.

Purpose

The purpose of this project is to establish an evidence-based emergency department fast track protocol or guideline to be implemented by providers of an ED of a metropolitan hospital in southern Texas to improve workflow caused by overcrowding and other aspects of overcrowding. By implementing an evidence-based clinical practice guideline designed to improve workflow, overcrowding can be controlled or minimized. It is foreseen that following the recommendations described herein will remove problems associated with ED overcrowding and improve the quality and efficiency of patient care, boost patient safety, and improve patient satisfaction. This project will align with the Walden University Manual for Clinical Guideline DNP Scholarly Project.

Nature of the Doctoral Project

The formation of this clinical practice guideline includes the use of research domains and appraisal tools such as the US Agency for Healthcare Research and Quality (AHRQ), the Institute of Medicine (IOM), and the Appraisal of Guidelines Research and Evaluation (AGREE) tool to obtain high quality, effective evidence-based clinical guidelines and reviews on the topic of this project. This project will also follow the guidelines outlined in Walden University's DNP manual for Clinical Practice Guidelines. This clinical guideline includes a review of a combination of the best evidence-based research literature available from the past five years (2015 to 2020) with expert consensus on the best practice. Inclusion criteria will be a review of current clinical

practice guidelines published in the last five years. Key words include *workflow, patient flow, overcrowding, workflow strategies, improving overcrowding, improving ED workflow* and *emergency department* or *emergency room*. Online databases from the Walden University library were used in this search and included CINAHL & Medline combined search, CINAHL Plus with full text, Embase, ProQuest Nursing and Allied Health Sources, PubMed, and Cochrane Systematic Reviews.

The metrics for the ED of the specific hospital being used for this project were evaluated. The times associated with ED workflow – length of stay, door-to-provider, door-to-discharge, door-to-admission, wait times, admission-to-bed-assignment, for example, – were obtained from the facility's electronic medical record. The evaluation method identified the facility's current ED throughput data and measured the times associated with throughput in hours. Any intervention outlined will require a joint venture of ED staffs, including nurses, charge nurses or nurse leaders, departmental management staffs, physicians, and administrative or executive leaders.

To date, there is no comprehensive evidence-based clinical practice guideline being used by this ED to combat overcrowding and improving ED workflow. Therefore, the findings of this project defined the means by which the gap between research or knowledge and practice regarding the improvement of ED workflow to overcome ED overcrowding can be linked. The outcomes or findings and recommendations of this project can also lead and influence clinical work and provide important and relevant information that can be used to improve the quality of ED workflow, patient care, and patient care outcomes in the ED.

Significance

This project outlines effective approaches or guidelines to achieve and maintain evidence-based ED workflow protocols and functionality of the ED without compromising quality care outcomes as well as outlined methods of improving workflow patterns in the ED setting.

Stakeholders

The stakeholders involved are the facility, ED nurses and management staffs, ED physicians, hospital-wide physicians (those responsible for admission), and administrative staffs.

Contributions to nursing practice

The central benefit of this project is to improve the quality of patient care and clinical practice in the ED by outlining recommendations to guide the practice and delivery of care using the best available and current evidence. Another significant contribution this project provides is the decrease of the shift or variation in healthcare practice and care delivery.

Transferability

Improvements in care and practice outcomes are more achievable when the research findings bridge the research-practice gap through practice and policy implementation. The transferability of the recommendations of this research project is attainable through clinical partnerships, practice engagements, and sharing of knowledge between ED providers. Readers, including ED providers, are encouraged to make connections between the findings and recommendations and their own experience.

Impact on Social Change

This project has the potential for impacting positive social change by evaluating evidence-based strategies that have improved overcrowding, patient flow, and ED workflow strategies, staff and patient satisfaction and reduced risk of poor outcomes as a result of overcrowding in the ED.

Summary

Section one described the problem of overcrowding of an ED in a southern Texas Metropolitan hospital and the importance of this problem to this facility. The purpose of this project is to explore current evidence-based strategies that have been implemented to improve workflow in EDs generally. The project question is: Will an evidence-based Fast Track Protocol Guideline for improving ED workflow and overcrowding in the ED be supported by ED stakeholders for future implementation? Section two introduces the models that support this project, the relevance to nursing practice demonstrating the need for ED workflow management, the local background and context for the project and my role in the project development.

Section 2: Background and Context

Introduction

The function of the ED is to provide patients with prompt and effective clinical care; it is the entry point for patients that is designed and responsible for receiving, sorting, assessing, stabilizing, and managing patients arriving at its door with different degrees of urgency and complexity (Abdelsamad et al., 2018, p. 1). An imbalance between patient demand, a poorly constructed functional design of the ED due to stakeholders' involvement, and the ED's capacity to deliver care leads to poor workflow and ED overcrowding (Jarvis, 2016; Abdelsamad et al., 2018). Overcrowding of patients in the ED is a continued threat to the quality, safety, timeliness, and outcome of care. The purpose of this project is to explore current evidence-based strategies or protocols that have been successfully implemented by some EDs in order to establish an evidence-based clinical practice guideline that can be used by the principal ED (the southern Texas Metropolitan hospital) to improve ED overcrowding and workflow. The project question is: Will an evidence-based Fast Track Protocol Guideline for improving ED workflow and overcrowding in the ED be supported by ED stakeholders for future implementation? This section discusses the following: concepts, models, and theories (models that manage ED workflow, causes of ED overcrowding, impact of ED overcrowding, managing ED overcrowding); relevance to nursing practice, local background and context, and role of the DNP student.

Concepts, Models, and Theories

The use of theoretical principles, models, or concepts in establishing practical guidelines are meant to describe and or guide the process of translating research into practice, explain the outcomes to be attained as a result of implementing the theory or model, and to evaluate the implementation process and or the outcomes (Nilsen, 2015). In this project, there are few theories and models that support the importance of managing workflow within an organization or in an ED:

Queuing Theory

Queuing theory is a concept that helps establish the competence of services that can potentially change over a period of time. This concept underscores or verifies that an intervention which focuses on aligning the needed resources, based on needs, can significantly improve delays. For example, the alignment of adequate interventional radiology services strictly for ED patients can avoid delays in care. It is most useful with scheduling and staffing patterns for nursing and ancillary staffs. This philosophy is grounded on the basis that increasing resources and staff will improve productivity (Komashie et al., 2015). Queuing theory discusses delays in the provision of care caused by a disproportion between requests for care and the ability to meet the needs. Aligning provider resources into the fast tract setting is also a component of this concept.

Supply-Chain Management

Supply-chain management entails techniques used to compare resources and expenditures with demands as vital life-saving measure for healthcare (Rakovsa & Stratieva, 2018). It proactively addresses events that can cause disruptions in the

provision of care. It also seeks to maintain functional capacities of the department and adequate provision of resources needed to keep the department functional. Departmental or hospital-wide supply chains are responsible for numerous economic shortfalls and negative departmental effects (Duque-Uribe et al., 2019). When the demand for certain care protocols is higher, the more resources should be made available to keep that department operational. For example, the supply of laceration repair kits, suture threads, and functional electrocardiograph machines in the ED are in direct proportion to the demand for them. Where and when these resources are lacking, there is a negative effect on practice, care outcomes, workflow, and wait times.

Lean Thinking

Lean thinking is a tool used by manufacturing industries to refine production in a way that improves workflow and productivity patterns and reduces wait times by avoiding disruptions and waste of time, efforts, or resources ("NJEM Catalyst," 2018). Central to this concept are detailed tasks, rationalized communication, theory-driven problem-solving schematics, and simple good process style. A perfect example to this concept is "ED Core Measures – Code Stroke and Code Blue." This model improves productivity. By applying the principles of this method, many hospitals have succeeded in making their work process reliable, stable, and have also succeeded in increasing their work capacity, decreasing costs, and improved staffs' and patients' satisfaction scores (Isfahani et al., 2019). From a practical standpoint, the applicability of this concept to ED processes increases the effectiveness of services and reduces wait times. Inspecting and

restocking the crash cart or the Rapid Sequence Intubation (RSI) kit after use improves the efficiency of critical care as well as reduces the wait time for a patient.

Relevance to Nursing Practice

This project endeavors to improve workflow and ease overcrowding in the ED with an eventual goal of promoting patient safety and improving the quality and efficiency of patient care in the ED. Additionally, I anticipate that this project will also assist providers in the ED with evidence-based clinical knowledge and practice designed to systematically improve workflow and minimize or solve overcrowding. Evidence obtained via research have given rise to the best healthcare practices and have also resulted into an integration of clinical proficiency in healthcare. Theoretical approaches, models, or frameworks in nursing provide an understanding of how certain healthcare processes guide practices or affect or influence outcomes (Nilsen, 2015). In establishing a clinical practice guideline to improve ED overcrowding and workflow, the use of nursing models, theories, and or frameworks help describe, explain, and or predict processes, experiences, and outcomes. The relevance herein is that an evidence-based clinical practice guideline establishes or recommends a methodical or efficient approach to identifying practices that yield the best care outcomes when adopted for use by the ED of the southern Texas metropolitan hospital.

Models that Manage ED Workflow

The growing demand and access of healthcare continue to cause overcrowding in the ED as well as negative impacts on the clinical capability of emergency departments. Efforts to overcome ED overcrowding have shifted on the management of workflow

processes and the increasing demand for care (Ahsan et al., 2019). The following models have been used individually by other EDs and have shown to be effective in improving ED workflow:

Rapid Assessment Model

The rapid assessment model, like the name applies, is the rapid initiation of assessment, evaluation, and early or prompt treatment of patients immediately after arriving in the ED by an intake team comprising a nurse, a patient registrar, and a nurse practitioner or physician (Richard & Jarvis, 2016). This model offers a potential resolution in improving the overall wait, treatment, and discharge times of lower acuity patients. In the same token, applying this model avoids having the patient repeat the same information numerous times prior to beginning treatment.

Patient Streaming Model

The patient streaming model asserts that patients are assigned to specific areas in the ED based on the severity of their illness or the nature of their complaints (Richard & Jarvis, 2016). Lower acuity patients needing a single intervention such as an intramuscular administration of pain medication or an antibiotic or having an imaging study are assigned to a particular area in the ED. Patient streaming within the ED improves the patient journey as well as wait and discharge times. It also facilitates early assessment, fast track protocols, and a speedy start of care – a symbol or foundation of the rapid assessment model.

Fast Track Model

The fast track model creates a secondary area in the ED that parallels the acute setting but intended to regulate workflow for patients who present with simple, non-complex health complaints. With this model or workflow, patients are placed in a specific area of the ED for non-acute complaints such as minor illnesses and injuries with a goal of discharge in a shorter time period. Many EDs use nurse practitioners to manage the section. According to Doetzel et al. (2016), nurse practitioners have advanced knowledge and decision-making skills in patient education, health promotion, health assessment, diagnosis, and medical or nursing management – an expertise that can safely be integrated into this setting in order to provide appropriate comprehensive care (p. 52). This model has shown to be effective in decreasing the overall waiting times and length of stay for EDs that have effectively implemented it using a nurse practitioner. According to results obtained via an integrative study done in a large hospital in the Champagne-Ardenne region in France between 2015 and 2017, successful implementation of a FT model in the ED saw a reduction of the overall length of stay (Chrusciel et al., 2019).

Causes of ED Overcrowding

Overcrowding occurs when the need for services identified for a specific ED exceeds the resources for patients in said ED. From an experiential viewpoint, prolonged length of stay in the ED, delay in obtaining and resulting laboratory imaging studies, the absence of available or vacant inpatient beds, and the delay of professional or specialty consultants are some of the prominent reasons for overcrowding in the ED. There are multiple factors that contribute to this growing crisis. With a population increase due to

immigration (for this hospital, specifically a migrant influx from Central America) to this region in southern Texas, growth in number of uninsured and underinsured individuals have been imminent. Morley et al. (2018) explained the causes of ED overcrowding under three labels or categories: (a) *input*, or presentations with urgent and or complex healthcare needs due to an increase in the elderly population, increase volume of low acuity presentations, and poor access to primary care; (b) *throughput,* or ED nursing and ancillary staff shortages, presence of junior medical staffs in the ED, and delays in receiving test results and delayed disposition decisions; and (c) *output* or access block and Intensive Care Unit (ICU), Cardiac Telemetry, and medical departments census. Access block implies the inability of patients to gain inpatient access to the hospital from the ED (for admission) within a reasonable time period and eventually causing overcrowding and diversion of ambulances.

Impact of ED Overcrowding

Overcrowding in the ED is a major healthcare delivery problem that greatly affects the delivery of care and workflow in that department. “Overcrowding in the ED has true costs and real consequences;” other impacts are ancillary staff performance, patient care and patient flow processes – including patient safety and mortality, poor ED performance according to McKenna et al. (2018, p. 190). These consequences lead to undesirable effects in delays in assessment, treatment, and evaluation and the overall patient care delivery process. According to Morley et al. (2018), overcrowding can be assorted into outcomes that affect patients and those that affect staffs as well as the healthcare system or hospital with some overlap. Overcrowding is a major problem for

EDs, and it is associated with a variety of consequences ranging from poor health outcomes to an increased likelihood of return visit to the ED. According to Salway et al. (2017), major consequences include increase in patient walkouts, including those needing admission, reduction in the quality of care and an increase in the likelihood of medical errors, increase in patient mortality rate, and increase in the total length of stay which eventually worsens access to care.

Managing ED Overcrowding

Reducing overcrowding in the ED has potential logistical, financial, and structural benefits. Therefore, establishing and implementing evidence-based strategies is important for many EDs and hospitals across the country. What makes management of overcrowding a harder-to-accomplish task is a striking fact that overcrowding is contextually distinct to a particular environment and the management strategy must be tailored to or designed specifically for that environment. However, diversion and increasing ED and or hospital capacity are important management interventions.

Kirkland et al. (2019) reveal that approximately between 13.7% and 27.1% of ED visits in the United States could be safely managed at alternative locations such as Urgent Care and Primary Care centers and result in an estimated cost-savings of over $4 billion (p. 97). One strategy of management of ED overcrowding is diversion of patients. This implies that low-acuity patients can be redirected to different healthcare locations. However, the apparent political controversy surrounding this strategy is that it deviates from a key standard of care – safety (Kirkland et al., 2019). Contrary to this, there is not a foreseeable threat to a patient's health if he or she is diverted from the ED to a primary

care setting unless in instances of non-compliance with patient follow up or of another sort. For example, patients with toothache who present to the ED for care are redirected to a dentist. They may not seek care at a dentist because they are uninsured or underinsured.

Increasing ED and hospital capacity does not only relate to increasing the number of staffs, but rather other processes targeted to improve capacity. McKenna et al. (2019) listed the following curative interventions: smoothing of elective admissions, early discharge, weekend discharge, and full capacity place (p. 190).

Local Background and Context

The background for this scholarly project is the ED of a southern Texas metropolitan hospital; the background also includes prior, current, and relevant studies on ED overcrowding and ED workflow and how they affect patient care outcomes. The ED described herein has become an entry point for many individuals with non-emergent complaints due to access or convenience (24-hour access versus primary care offices, insured versus uninsured), causing an influx of patients and the subsequent utilization of diagnostic workups, reduced patient safety outcomes, and low patient satisfaction ratings (Freibott, 2017). Thus, this requires the need for clinical practice guidelines to improve workflow, practice, patient care and patient care outcomes.

Occurrences of ED overcrowding has reportedly existed for as long as there have been emergency departments and it became a problem in the United States in the early 1990s when both lay press and the research community began to consider its impact on patient care (Jeanmonod & Jeanmonod, 2017). This phenomenon has now become

widespread across to both larger and smaller, public and private EDs nationwide and is still expanding. Previous studies have given various definitions of overcrowding, provided insights into the historical contexts and nature of overcrowding; and described the causes, effects, and management of overcrowding.

The central concern is that overcrowding of EDs across the U.S. levies excessive burden of care with limited resources and it signifies a supply and demand imbalance in the provision of health care that ends in unfavorable consequences for patients. The ED almost serves as a medium of convenience for patients with a variety of non-emergent complaints: they (EDs) are opened 24 hours a day, co-payments are not required prior to consultation with a provider or prior to treatment, and laboratory and imaging studies results are given and discussed prior to discharge. Each facility affected is seeking to institute strategies that will improve care processes in the ED.

Role of the DNP Student

I am responsible for providing nursing care using the best available research evidence as well as in treatment-making decisions. Given the current transformation and expansion in healthcare, contribution to nursing practice and leadership are assured the provider's training and education (Salmond & Eschevarria, 2017). As such, I am the primary researcher or investigator who established and managed the research protocol – formatting and submitting research study proposal, data collection, outlining a plan and providing purpose of the research, obtaining consent from research participants where and when applicable, and obtaining regulatory approvals when required – and will translate the evidence obtained into practice. I am also a nurse practitioner working in the

ED and have witnessed and experienced first-hand the effects overcrowding and poor workflow on ED patient care outcomes. Thus, the need to help this local ED with a clinical practice guideline to improve workflow and reduce overcrowding is paramount.

I established a demography of the team of stakeholders; I also have identified key stakeholders and have given them a conspectus of this project. I am currently employed at this facility. My role is free of any implicit and or explicit bias. My goal is to establish an evidence-based clinical practice guideline that adequately manages ED overcrowding and eventually improves workflow and patient care outcomes in the ED that will be adopted by this facility.

Summary

ED overcrowding has shown to cause negative consequences on several factors of workflow and consequently, threatens the quality and efficiency of patient care, length of stay, clinical and quality patient care outcomes, patient and staff satisfaction. Some theories, frameworks, and or practice concepts have shown to improve ED workflow as evidenced by the amount of success shown by those who have implemented them. The need for increasing and spreading evidence-based knowledge rests on providers and is the medium through which to efficiently improve the field and practice of nursing and healthcare. Section three outlines the collection, analysis, synthesis of evidence.

Section 3: Collection and Analysis of Evidence

Introduction

Overcrowding involves an assortment of multifactorial problems that affect the healthcare delivery process in the ED, causing increase in wait times and discharge times as well as a disruption of workflow. In this section, I provide a description of the procedures and methods used to collect and analyze data associated with this project.

Practice-Focused Question(s)

The gap in nursing knowledge and practice concerning ED overcrowding and improving ED workflow is that there is no established evidence-based clinical practice guideline being used by the ED in this study to combat overcrowding and improve ED workflow to-date. Consequently, adopting and implementing evidence-based clinical practice guidelines would address this gap in knowledge and practice. The project question is: Will an evidence-based Fast Track Protocol Guideline for improving ED workflow and overcrowding in the ED be supported by the ED Stakeholders for future implementation?

Ethical Protection

Human participants were involved in this research project. The human participants are the stakeholders who also are expert reviewers. The specific names and other pertinent identifiers of the stakeholders were withheld for ethical protection. The name of the facility used for this research was excluded to mask identification and to protect the facility. Walden IRB approval was obtained before initiating this project and a

consent was reviewed by each participant. The approval number for this study was 03-24-21-0444891

Sources of Evidence

The primary source of evidence is evidence-based literature that address ED overcrowding and patient outcomes and were obtained from Walden University library databases and other online resources – CINAHL, PubMed, Medline, Wiley Online Library, and Cochran Reviews. Evidence that addressed the practice-focused question and validated clinical practice guidelines were obtained from several peer-review articles using the following key words: *emergency department, emergency room, workflow, fast track, ED workflow, causes of ED workflow, improving ED workflow, effects of ED workflow, ED workflow models, ED length of stay, ED workflow theories,* and *ED workflow concepts*. The titles and abstracts of the articles were screened for eligibility. When deemed useful or applicable for this project, a full copy of the article was printed from the database. The journal articles obtained were printed in the English language. The central exclusion criterion for a journal article was one that addressed a search item or word, such as workflow or length of stay, outside of the ED. Only peer-reviewed articles published from 2015 to 2020 were included. The research articles that were selected were evaluated for evidence-based clinical practice guidelines that addressed or have successfully addressed ED overcrowding.

Analysis and Synthesis

This clinical practice guideline project is purposely designed to assist ED providers to adopt an evidence-based practice guide in providing safe and effective care

in the ED relative to improving workflow and overcrowding. This is done in adherence to the defining principles listed in Walden University's Manual for Clinical Practice Guideline and they include: describing appropriate care based on the best available scientific evidence; reducing preventable variations in practice; providing a rational basis for referral; providing focus for continuing education; promoting efficient use of resources; providing a focus for quality control, highlighting gaps in existing literature; and suggesting appropriate areas for future research (Walden University, 2017, p. 1). The most current evidence-based clinical practice literatures were evaluated using the Appraisal of Guidelines Research and Evaluation (AGREE) II instrument for quality and research development and framework. Additionally, evaluation of the most recent evidence-based clinical practice guideline research studies included primarily the highest level on the level of evidence hierarchy pyramid because they provide the strongest evidence, avoid research bias, and help identify cause-and-effect relationships (Glasofer & Townsend, 2019). In addition to improving ED overcrowding, this project also attempts to establish a knowledge- and practice-based guideline that will afford providers with the best knowledge and work pattern to improve patient safety and the quality of care in the ED. This evidence-based clinical practice guideline is tailored to provide perceptual and practical understanding of ED workflow processes that have been advantageous is addressing ED overcrowding. The approach is a review of pre- and post-intervention ED workflow-related data for ED patients. The workflow-related data include door-to-provider, door-to-discharge, length-of-ED-stay, time of admission, patient satisfaction, bed assignment time, and ancillary provider response times. Pre-

intervention data will be extracted from the facility's electronic medical record (EMR) and the department's patient survey tracker or the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAPS) survey. Stakeholders that comprise ED medical directors, hospitalist, and specialty physicians; ED nurse practitioners, ED charge nurse and manager, pharmacists, laboratory staffs, and others in leadership and administration, were chosen. They were taught about the process as well as the clinical practice guideline and how to critical appraise and communicate effects of the interventions.

Additionally, the stakeholders were required to evaluate the clinical practice guideline and interventions with the eventual goal of standardizing the clinical practice guideline for departmental adaptation and use.

Summary

Overcrowding is a common problem for many EDs across the U.S. Despite the significance of the impact, evidence to improve prove ED workflow and overcrowding are limited and are still being researched. Improving the efficiency of ED workflow simultaneously improves the quality of patient care, care outcomes and patient satisfaction but it requires a match between the cause and the solution (Morley et al., 2018). No evidence-based workflow clinical practice guideline exists for or is being utilized by providers in or by this ED. Section four outlines findings generated from this study as well as recommendation for future studies and for implementation of guidelines to avert overcrowding and improve workflow in the ED.

Section 4: Findings and Recommendations

Introduction

The demand for immediate care and services by consumers, being uninsured, and concerns regarding noncompliance have given rise to overcrowding in the ED at this partner facility. The struggle to maintain plausible and effective ED metrics and other workflow indicators of the ED affects important aspects of ED patient care. Finding a solution to ED overcrowding requires a modification of the overall process of ED workflow as well as an incorporation and coordination of ED and ancillary staffs and to an even greater extent, hospital administrators. The project question is: Will an evidence-based Fast Track protocol guideline for improving ED workflow and overcrowding be supported by stakeholders for future implementation? The goal for this project is to establish a high quality, evidence-based clinical practice guideline using the AGREE II rating and the US AHRQ appraisal tools for facility's approval. Following approval, the ultimate goal is that it will be adopted and implemented by providers of the ED of a metropolitan hospital in southern Texas to improve workflow caused by overcrowding as well as other aspects of overcrowding.

Findings and Implications

The central idea behind ED overcrowding is a hindrance in patient flow when the demands for emergency services outweigh the available resources. Additionally, increased length of stay in the ED, delayed laboratory and imaging studies results, and lack of sufficient inpatient beds are some of the causes of overcrowding. The establishment and enactment of evidence-based clinical guidelines are critical to

influence policies and practices that affect the quality and performance of care as well as to improve overcrowding in the ED. A balance between the following factors needs to be ascertained for improvement purposes: management methods, how performances are monitored, and a reflection of how care is delivered in the ED. The imbalance between these factors has contributed highly to ED overcrowding. These findings have implications for theory, practice, education, and research relating to the establishment of evidence-based clinical guidelines to guide practice and healthcare delivery in the ED. No conceptual model is preferred or recommended over another given that management of overcrowding is difficult to accomplish in that it (overcrowding) is contextually distinct to a particular environment and the management strategy must be tailored to or designed specifically for that environment.

Obtaining research literature about the project was done primarily through Walden University library databases and other professional databases. The search contents were restricted by key words, coupled with other inclusion and exclusion criteria. The inclusion criteria were limited to a review of CPG published within the last five years (2015 – 2020). Key words used were *workflow, patient flow, overcrowding, workflow strategies, improving overcrowding, improving ED workflow, emergency department,* and *emergency room*. Articles that were obtained and used for this project contained evidence-based literature from the databases searched. More than 20 peer-reviewed journal articles were used to develop this project covering the range of dates described.

The literature describes what workflow and what ED overcrowding mean; the major causes of ED overcrowding; the significance of ED overcrowding including concepts, models, and theories that have been successful in managing workflow and improving overcrowding; and impact of ED overcrowding in a way that is uniformed with the partner facility's current ED workflow pattern. It is also notable that the effects of the Coronavirus pandemic may have had an impact on the ED's workflow pattern.

The goal of this project is to develop an evidence-based clinical practice guideline to improve ED workflow and manage ED overcrowding to be adopted by the ED of a local metropolitan hospital in southern Texas. I anticipate that this CPG (Appendix A) will not only serve as a practice guideline for ED providers and staffs but also as a teaching material and that adopting and employing it will promote and improve the quality of patient care, improve ED workflow, and increase patient safety. The steps involved in creating this project included the use of the AGREE II tool. Similarly, this appraisal tool also influenced the validation of the CPG. The stakeholders were provided an opportunity to review this CPG and to use the AGREE II tool to grade it. There were three stakeholders who provided feedback after a review of the project.

The results of the appraisals using the AGREE II rating tool (Appendix B) are summarized in the following two tables. Of the 23 areas, 21 were applicable to this project and were graded; all three stakeholders rated 11 areas as strongly agree (52.4%). Two stakeholders rated two areas as agree (9.5%) and one stakeholder rated eight areas as agree (38.1%). All three stakeholders graded domains one and two at 100% as described in Tables 1 and 2.

Table 1

Domain 1

Stakeholders	Item 1	Item 2	Item 3	Total
Stakeholder 1	7	7	7	21
Stakeholder 2	7	7	7	21
Stakeholder 3	7	7	7	21
Total	21	21	21	63

Table 2

Overall Result of the Appraisal

Number	AGREE II Domain	Stakeholder 1	Stakeholder 2	Stakeholder 3
1	Scope and Purpose	100%	100%	100%
2	Stakeholder Involvement	100%	100%	100%
3	Rigor of Development	96%	96%	94%
4	Clarity of Presentation	100%	100%	100%
5	Applicability	100%	96%	93%
6	Editorial Independence	N/A	N/A	N/A
7	Overall Assessment	7	7	6

The quality score for each domain was calculated by adding all the scores for each item graded by the stakeholder in each of the six AGREE II domains and scaled as a percentage of the maximum possible score for that domain. The formula used is described herein: Attained score / maximum possible score x 100%. Participation in this

activity was voluntary. Activities about this project were mainly through phone conversations, emails, and zoom videoconferencing. The final project will be provided to the designated institution for approval.

It is anticipated that this project will impact positive social change by evaluating evidence-based strategies that have improved ED overcrowding and workflow strategies, staff and patient satisfaction as well as reduced risks of poor health outcomes. It requires synchronized efforts between ED practitioners, ED nurses, laboratory and imaging services, on-call physicians and specialists, and inpatient units to attain quality throughput in the ED and an eventual improvement in overcrowding and workflow. Any interruption in the services done by any of the independent parts will offset the entire workflow process and eventually affect the quality and efficiency of care in the ED. Priority must be place on improving ED patient care by each stakeholder, whether in or out of the ED.

Practice Guideline Recommendations

The recommended practice guideline is structured in a Care Model format, specifically, the rapid assessment and fast track models, where specific workflow responsibilities for patient care will be clearly defined and delineated for and coordinated between nurse practitioners, nurses, laboratory and imaging services staffs (Appendix A). The rapid assessment and fast track models build on the principles of reducing wait times and overall length of stay for patients with non-emergent, non-urgent complaints that require a simple intervention such as viral swabs and or chest x-ray. This format will be managed by nurse practitioners and will exclude care for patients with emergent or

critical presentation – who will be managed by the ED physicians. To better explain this recommendation, the feasibility, appropriateness, meaningfulness, and effectiveness (FAME) framework is used. The FAME framework is used to critically appraise an intervention or a recommendation in clinical practice; the feasibility, appropriateness, meaningfulness, and effectiveness framework of healthcare practices is described by the best available evidence and the context in which the care is delivered (Jordan et al., 2019). Feasibility depicts the degree to which an activity or an intervention is practical. NPs with experience and competency training in emergency medicine can incorporate evidence-based practice as their framework for managing patient conditions while applying the following components of care: assessment, differential diagnosis/diagnoses, medical decision making, and treatment or management of patients (Campo et al., 2016). Appropriateness is the extent to which the activity or intervention fits the situation. This is assured when NPs with postgraduate education or fellowship training in emergency medicine are placed there to provide care for patients. Nurse practitioners can perform rapid assessment of and triage a patient's condition by taking a focused and pertinent history, identifying risk factors performing an applicable focused or complete physical examination, and by ordering and/or providing preventative or diagnostic procedures (Campos et al., 2016) Meaningfulness describes the positive experience in the form of an opinion, a thought, or the interpretation of the intervention or activity by the patient. This is satisfied by patient surveys if they reveal higher satisfactory responses or experiences versus negative encounters. A Press-Ganey survey of 225 patients conducted by Hwang, Lipman, and Kane (2015) showed that the application of an ED fast track was associated

with statistically considerable increases in Press-Ganey scores. According to Ruiz (2020), placement of nurse practitioners in fast-track areas of the ED have shown improvements in patient care and patient experiences when the workflow is clearly well-defined and communicated. Effectiveness describes the relationship between an intervention and the accomplishment of the desired effect. This item is directly proportional to the meaningfulness of this framework. A higher patient satisfaction score and a valuable experience would mean that the intervention is effective. Advanced practice nurses with postgraduate training and education of ED care protocols are equipped to perform the initial assessment of patients, thereby putting them in a key position to initiate care protocols quickly. According to Proffitt and Hooper (2020), the swift implementation of care in rapid assessment and fast track areas of the ED was regarded as effective because it reduced wait times from 13 minutes to four minutes in a survey of 106 patients.

Some of the foreseeable barriers to implementation of this project are costs, the concept of change in both the unit set-up and workflow during or given the impact of the Coronavirus pandemic, and the presence of an understaffed unit. The costs associated with implementing this project involves costs related to reconstruction or expansion of the ED to meet the design and flow of the practice model chosen. The Fast Track and Rapid Assessment/Triage areas handle more daily patient volumes than that of the ambulance arrival areas. The concept of change in the style of practice appears to be a major barrier from the facility's overall administration although there are sufficient theory-based evidence that allude to the success of the suggested practice guideline. The relative barrier anticipated is the magnitude of the change and administrative support.

The exit of many ED nurses who pursued higher-paying travel and disaster-related jobs with the likes of Angel Staffing and Krucial Staffing caused the unit to be understaffed. Some departed without or with short notice as opposed to the 2-week required notice and are, thus, not eligible for rehire. Successful implementation of this care model requires a fully staffed unit.

Strengths and Limitations of the Project

As the term implies, clinical practice guidelines have evolved over the past decades into becoming a major part of healthcare and one that guides clinical practice. The efforts and ability to make clinical practice decisions and operate a practice setting are influenced by clinical practice guidelines. The primary value of recommending a clinical practice guideline is to improve the quality of care or avert a problem that affects the delivery of care.

Potential Strengths

Primarily, improving and achieving quality health care outcomes is paramount and the desired result of this project. Authenticating guidelines that endorse interventions with demonstrated advantages and oppose those that are ineffective can ultimately reduce morbidity and mortality associated with the delivery of care. Clinical practice guidelines can ultimately influence healthcare policy by addressing problems that affect clinical practice, alerting staffs or clinicians and consumers to interventions that prevent a major health problem, as well as improving the uniformity of care across practice locations. The leadership team of the ED was involved, resulting to heightened interest for improving ED workflow and reducing ED overcrowding. The project endorses the need fill the gap

in nursing practice by outlining an evidence-based clinical practice guideline tool that addresses the affore-mentioned problems.

Potential Limitations

The recommendations suggested herein may not be appropriate for every ED. Quality Improvement (QI) groups or committees at different practice sites often require significant time and resources to formulate evidence or outline interventions for practice. Because they are influenced by the opinion and experience of location-specific or practice-specific QI groups, any recommendation for or against a particular guideline should be subjectively appraised by the QI group at that ED and weighed against the potential harm, cost-control, and other interests of said facility.

Summary

Improving ED overcrowding and ED workflow requires a proposal and or implementation of different conceptual models that address overcrowding, the availability of needed resources, redesigning workflow pathways, and the use of rapid assessment sections. The project question is: Will an evidence-based Fast Track Protocol Guideline for improving ED workflow and overcrowding in the ED be supported by the ED Stakeholders for future implementation? The gap in nursing practice concerning ED overcrowding and improving ED workflow is that there is no established evidence-based clinical practice guideline being used by this ED to reduce overcrowding and improve ED workflow to-date. To address this gap in nursing practice, there is a strong need for adopting and implementing an evidence-based clinical practice guideline tool.

Section 5: Dissemination Plan

Introduction

This process began with presenting the proposal to and obtaining expert evaluation and approval from the ED leadership team – stakeholders – of the local partner site who have experience in departmental and or organizational leadership. Institutional Review Board (IRB) approval was obtained from Walden University and the approval number is referenced here: 03-24-21-0444891.

Applying the Fast-Track model, coupled with the queuing theory and rapid assessment is the most beneficial for this local ED. Many ED nurses, departmental manager, and physicians also confirmed interest in improving ED workflow and overcrowding by using this combination.

Subsequently and following success of the proposed guideline, other means of dissemination will include those that offer a wide range of opportunities to reach out to large number of audiences such as face-to-face interaction, interactive workshops with targeted audiences, video instructions, and publication of full abstract and summary of the project in peer-review journals that are exclusively about ED or emergency medicine. These strategies will further help translate the evidence obtained or clinical guidelines established into practice.

Analysis of Self

I have worked as a registered nurse and a family nurse practitioner in the ED since 2013 and have experienced firsthand the nature of work needed and done in the ED. I have always had the desire to implement changes that will improve healthcare practice

and community health. My self-analysis of this activity draws an explanation of the following three distinct components:

1. Skills development: this project helped fostered cognition and construction of ideas and skills relative to research. It provided guidance and insights into how to identify, evaluate, and organize and connect old and new research data to construct guidelines for implementation purposes.
2. Values development: this is essentially relative to the scholarly learning-teaching process. The scholarly learning-teaching process allowed me, as a DNP scholar, to acquire and transmit knowledge and thought processes as well as develop a sense of life-long commitment of those values.
3. Knowledge acquisition: this project offered a platform for self-improvement in learning relative to research development and the creation and distribution of thorough relative evidence-based knowledge. This component of my self-analysis augments *Skills Development*.

Summary

Disruptions in clinical workflow in the ED create barriers to healthcare outcomes including patient safety and quality of care and are the result of ED overcrowding. Overcrowding in the ED results from inefficiencies in departmental workflow pattern, departmental and or facility-wide set-up. This project aims to establish an evidence-based clinical practice guideline that will streamline workflow patterns with the ultimate goal of reducing overcrowding and improving ED workflow. The most challenging but proven strategy for the success of the adoption and implementation of the project requires an

interdisciplinary collaboration between major stakeholders, departments, and acceptance of a change process. Such collaborative methodology of adopting and implementing an evidence-based CPG and restructuring ED workflow establishes a new concept of care and services plus a culture of understanding of care patterns between the ED providers and ancillary (laboratory, radiology, and nursing) staffs.

References

Abdelsamad, Y., Rushdi, M., & Tawfik, B. (2018). Function and spatial design of emergency departments using quality function deployment. *Journal of Healthcare Engineering, 2018*(Article ID 9281396), 1-7. https://doi.org/10.1155/2018/9281396

Ahsan, K. B., Alam, M. R., Murel, D. G., & Karim, M. A. (2019). Emergency department resource optimisation for improved performance: A review. *Journal of Industrial Engineering International, 15(1)*, 253-266. doi:10.1007/s40092-019-00335-x

Bucci, S., De Belvis, A. G., Marventano, S., De Leva, A. C., Tanzariello, M., Specchia, M. S., Ricciardi, W., & Francheschi, F. (2016). Emergency department crowding and hospital bed shortage: Is lean a smart answer? A systematic review. *European Review for Medical and Pharmacological Sciences, 2016* (20), 4209-4219. doi:10.1993/eurpub/ckv175.145

Campos, T. M., Carman, M. J., Evans, D., Hoyt, K., Sue, K., Kincaid, K., Ramirez, E., Roberts, E., Stackhouse, K., Wilbeck, J., & Weltge, A. (2016). Standards of practice for emergency nurse practitioners. *Advanced Emergency Nursing Journal, 38*(4), 255-258. doi:10.1097/TME.0000000000000127

Carlson, E., Staffileno, B., & Murphy, M. (2018). Promoting DNP-PhD collaboration in doctoral education: Forming a DNP project team. *Journal of Professional Nursing, 34*(6), 433-436. https://doi.org/10.1016/j.profnurs.2017.12.011

Celona, C. A., Amaranto, A., Ferrer, R., Wieland, M., Abrams, S., Obusan, F., & Joy, V

(2018). Interdisciplinary design to improve fast track in the emergency department. *Advanced Emergency Nursing Journal, 40*(3), 198-203. doi:10.1097/tme.0000000000000199

Chrusciel, J., Fontaine, X., Devillard, A., Cordonnier, A., Kanagaratnam, L., Laplanche, D., & Sanchez, S. (2019). Impact of the implementation of a fast-track on emergency department length of stay and quality of care indicators in the Champagne-Ardenne region: A before-after study. *BMJ Open, 9*(6), 1-8. https://doi.org/10.1136/emj.2008.057919

Crowley, R., Daniel, H., Cooner, T. G., & Engel, L. S. (2020). Envisioning a better US health care system for all: Coverage and cost of care. *Annals of Internal Medicine*, *172*(2 Suppl), S7-S32. https://doi.org/10.7326/M19-2415

Doetzel, C. M., Rankin, J. A., & Then, K. L. (2016). Nurse practitioners in the emergency department: Barriers and facilitators for role implementation. *Advanced Emergency Nursing Journal, 38*(1), 43-55. https://doi.org/10.1097/tme.0000000000000090

Duque-Uribe, V., Sarache, W., & Gutierrez, E. V. (2019). Sustainable supply chain management practices and sustainable performance in hospitals: A systematic review and integrative framework. *MDPI Open Access Journals, 11*(21), 5949. https://doi.org/10.3390/su11215949

Freibot, P. (2017). Optimizing emergency department throughput using best practices to improve patient flow. *Journal of Nursing & Interprofessional Leadership in Quality & Safety, 1*(2), 1-12.

https://digitalcommons.library.tmc.edu/uthoustonjqualsafe/vol/iss2/7

Glasofer, A., & Townsend, A. B. (2019). Determining the level of evidence. *Nursing Critical Care, 14*(6), 22-25. doi:10.1097/01.cnn.0000580120.03118.1d

Hwang, C., E., Lipman, G. S., & Kane, M. (2015). Effect of an emergency department fast track on Press-Ganey satisfaction scores. *Western Journal of Emergency Medicine, 16*(1), 34-38. https://doi.org/10.5811/westjem.2014.11.21768

Isfahani, H. M., Tourani, S., & Sevedin, H. (2019). Features and results of conducted studies using a lean management approach in emergency department in hospital: A systematic review. *Bulletin of Emergency and Trauma, 7*(1), 9-20. https://doi.org/10.29252/beat-070102

Jarvis, P. R. E. (2016). Improving emergency department patient flow. *Clinical and Experimental Emergency Medicine, 3*(2), 63-68. https://doi.org/10.15441/ceem.16.127

Jeanmonod, D., & Jeanmonod, R. (2017). Overcrowding in the emergency department and patient safety. https://www.intechopen.com/books/vignettes-in-_patient-safety-volume-2/overcrowding-in-the-emergency-department-and-patient-safety

Jordan, Z., Lockwood, C., Munn, Z., & Aromataris, E. (2019). The updated Joanna Briggs Institute Model of evidence-based healthcare. *International Journal of Evidence-Based Healthcare, 17*(1), 58-71. https://doi.org/10.1097/xeb.0000000000000155

Khalifa, M. (2016). Utilizing health analytics in improving emergency room performance. *Studies in Health Technology and Informatics, 2016*(225), 138-142.

Kirkland, S., W., Soleimani, A., Rowe, B. H., & Newton, A. S. (2019). A systematic review examining the impact of redirecting low-acuity patients seeking emergency department care: Is the juice worth the squeeze? *Journal of Emergency Medicine, 36*(2), 97-106. https://doi.org/10.1136/emermed-2017-207045

Komashie, A., Mousavi, A., Clarkson, P. J., & Young, T. (2015). An integrated model of patient and staff satisfaction using queuing theory. *IEEE Journal of Translational Engineering in Health and Medicine, 2015*(3), 1-10. doi:10.1109/jtehm.2015.2400436

McKenna, P., Heslin, S., M., Viccellio, P., Mallon, W. K., Hernandez, C., & Morley, E. J. (2019). Emergency department and hospital crowding*:* Causes, consequences, and cures*. Clinical and Experimental Emergency Medicine, 6*(3), 189-195. doi:10.15441/ceem.18.022

Morley, C., Unwin, M., Peterson, G. M., Stankovich, J., & Kinsman, L. (2018). Emergency department crowding: A systematic review of causes, consequences, and solutions. *PLoS One, 13*(8), 1-42. https://doi.org/10.1371/journal.pone.0203316

Nilsen, P. (2015). Making sense of implementation theories, models, and frameworks. *Implementation Science, 10*(53), 1-13. https://doi.org/10.1186/s13012-015-0242-0

Proffitt, R. D., & Hooper, G. (2020). Evaluation of the (qSOFA) Tool in the emergency department setting: Nurse perception and the impact on patient care*. Advanced*

Emergency Medicine Journal, 42(1), 54-62. doi:10.1097/tme.0000000000000281

Rakovsa, M. A., & Stratieva, S. A. (2018). A taxonomy of supply chain management practices. *Supply Chain Forum: An International Journal, 19*(1), 4-24. https://doi.org/10.1080/16258312.2017.1395276

Richard, P., & Jarvis, E. (2016). Improving emergency department workflow. *Clinical Expert in Emergency Department, 3*(2), 63-68. doi:10.15441/ceem.16.127

Ruiz, L. M. (2020). Multidisciplinary team attitudes to an advanced nurse practitioner service in an emergency department. *Emergency Nurse, 28*(1), 33-42. https://doi.org/10.7748/en.2018.e1793

Salmond, S. W., & Eschevarria, M. (2017). Healthcare transformation and changing roles for nursing. *Orthopedic Nursing. 36*(1), 12-25. https://doi.org/10.1097/nor.0000000000000308

Salway, R. J., Valenzuela, R., Shoenberger, J. M., Mallon, W. K., & Viccellio, A. (2017). Emergency department (ED) overcrowding: Evidence-based answers to frequently asked questions. *Revista Medica Clinical Las Condes, 28*(2), 213-219. https://doi.org/10.1016/j.rmclc.2017.04.008

Shen, Y., & Lee, L. H. (2018). Improving the wait time to consultation at the emergency department. *BMJ Open Quality, 7*(1), 1-5. doi:10.15441/ceem.16.127

Walden University. (2017). Manual for clinical practice guideline development (CPGD): Doctor of Nursing Practice (DNP) scholarly project. https://academicguides.waldenu.edu/ld.php?content_id=32773066

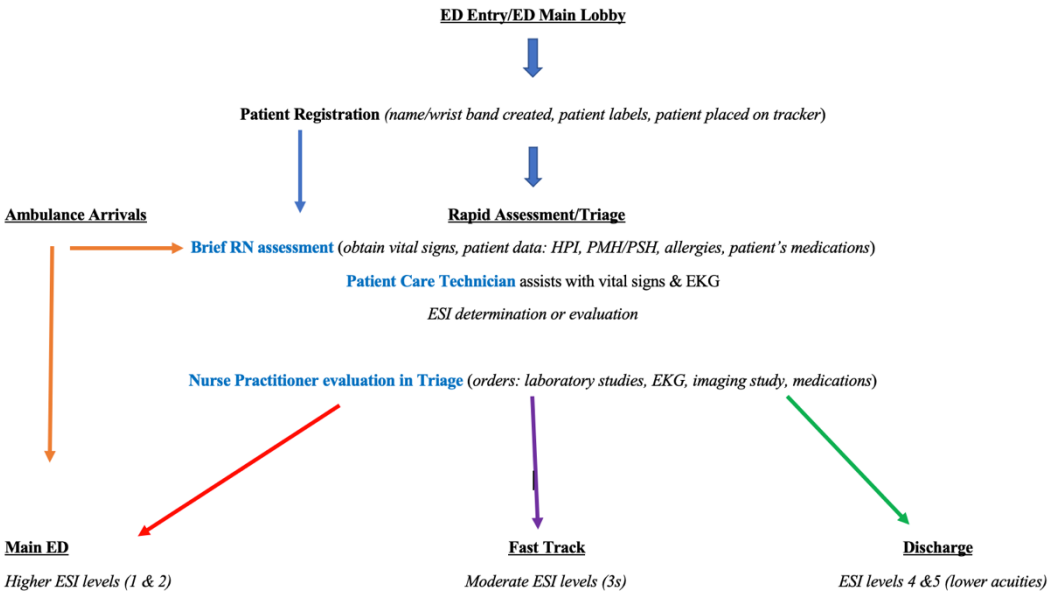
Yarmohammadian, M. H., Rezaei, F., Haghshenas, A., & Tavakoli, N. (2017).

Overcrowding in emergency departments: A review of strategies to decrease future challenges. *Journal of Research in Medical Sciences, 22*(23), 1-9. https://doi.org/10.4103/1735-1995.200277

Appendix A: Clinical Practice Guideline

Clinical Practice Guideline: Fast Track/Rapid Assessment Model

In the ED setting, workflow constitutes the movement of patients, information, or equipment between departments. With an understanding of the clinical practice guideline design and principles, this ED can improve workflow and decrease overcrowding by improving patient safety, physician or provider efficiency, quality and efficiency of care and operational effectiveness of the ED using the below guideline recommendation.



Appendix B: AGREE II Scores

AGREE II Score Sheet

Domain	Item	AGREE II Rating						
		1 *Strongly Disagree*	2	3	4	5	6	7 *Strongly Agree*
Scope and purpose	1. The overall objective(s) of the guideline is (are) specifically described.							3
	2. The health question(s) covered by the guideline is (are) specifically described.							3
	3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.							3
Stakeholder involvement	4. The guideline development group includes individuals from all the relevant professional groups.							3
	5. The views and preferences of the target population (patients, public, etc.) have been sought.							3
	6. The target users of the guideline are clearly defined.							3
Rigor of development	7. Systematic methods were used to search for evidence.						1	2
	8. The criteria for selecting the evidence are clearly described.						1	2
	9. The strengths and limitations of the body of evidence are clearly described.						1	2
	10. The methods for formulating the recommendations are clearly described.						1	2
	11. The health benefits, side effects and risks have been considered in formulating the recommendations.							3
	12. There is an explicit link between the recommendations and the supporting evidence.						1	2
	13. The guideline has been externally reviewed by experts prior to its publication.							3
	14. A procedure for updating the guideline is provided.						2	1
Clarity of presentation	15. The recommendations are specific and unambiguous.						1	2
	16. The different options for management of the condition or health issue are clearly presented.						1	2
	17. Key recommendations are easily identifiable.							3
Applicability	18. The guideline describes facilitators and barriers to its application.						1	2
	19. The guideline provides advice and/or tools on how the recommendations can be put into practice.							3
	20. The potential resource implications of applying the recommendations have been considered.							3
	21. The guideline presents monitoring and/ or auditing criteria.						2	1
Editorial independence	22. The views of the funding body have not influenced the content of the guideline.							N/A
	23. Competing interests of guideline development group members have been recorded and addressed.							N/A
Overall Guideline Assessment	1. Rate the overall quality of this guideline.	1 *Lowest possible quality*	2	3	4	5	6	7 1 *Highest possible quality*
Overall Guideline Assessment	2. I would recommend this guideline for use.	*Yes*	*Yes, with modifications*					*No*
		3						