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SEARCH STRATEGY

Set No.	Searched for	Databases	Results
S1	Journal of Emergency Nursing: JEN	Ebook Central, Public Health Database, Publicly Available Content Database	3455°

° Duplicates are removed from your search and from your result count.

A Time and Motion Analysis of Nursing Workload and Electronic Health Record Use in the Emergency Department: JEN

ABSTRACT (ENGLISH)

Introduction

The use of an electronic health record may create unanticipated consequences for emergency care delivery. We sought to describe emergency department nursing task distribution and the use of the electronic health record.

Methods

This was a prospective observational study of nurses in the emergency department using a time-and-motion methodology. Three trained research assistants conducted 1:1 observations between March and September 2019. Nurse tasks were classified into 6 established categories: electronic health record, direct/indirect patient care, communication, personal time, and other. Nurses' perceived workload was assessed using the National Aeronautics and Space Administration (NASA) Task Load Index.

Results

Twenty-three observations were conducted over 46 hours. Overall, nurses spent 27% of their time on electronic health record tasks, 25% on direct patient care, 17% on personal time, 15% on indirect patient care, and 6% on communication. During morning (7 am-12 pm) and afternoon shifts (12 pm-3 pm), the use of the health record was the most commonly performed task, whereas indirect patient care was the task most performed during evening shifts (3 pm-12 pm). Using the National Aeronautics and Space Administration (NASA) Task Load Index, nurses reported an increase in mental demand and effort during afternoon shifts compared with morning shifts.

Discussion

We observed that emergency nurses spent more time using the electronic health record as compared to other tasks. Increased usability of the electronic health record, particularly during high occupancy periods, may be a target for improvement.

FULL TEXT

DETAILS

Subject:	Research; Emergency medical care; Electronic health records; Usability; Patients; Occupancy; Data collection; Emergency services; Nursing; Workloads; Intensive care; Nurses; Statistical analysis
Business indexing term:	Subject: Workloads
Company / organization:	Name: National Aeronautics &Space Administration--NASA; NAICS: 927110
Identifier / keyword:	Workload; Job demands; Electronic health record; Time-motion study; Emergency nursing; Operations

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Document type:	Journal Article
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ProQuest document ID:	2572873283
Document URL:	https://www.proquest.com/scholarly-journals/time-motion-analysis-nursing-workload-electronic/docview/2572873283/se-2?accountid=211160
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Database:	Public Health Database

The Needs of Families During Cardiac Arrest Care: A Survivor- and Family-led Scoping Review Protocol: JEN

ABSTRACT (ENGLISH)

Introduction

Sudden cardiac arrest is a leading cause of death. Family members often witness the event and attempt resuscitation. The physiological and psychological impact of a loved one's death, witnessed or unwitnessed, can be significant and long-lasting. However, little is known about the care needs of families during the cardiac arrest care of a loved one. This scoping review protocol was designed with, and will be performed in partnership with, persons with lived experience of sudden cardiac arrest (survivors and family members of survivors and nonsurvivors alike).

Methods

The review will be performed in accordance with accepted methods such as the Arksey and O'Malley methodology framework and the Levac extension. We will search multiple databases, and Google Scholar for both qualitative and quantitative scientific literature. Articles will be screened, extracted, and analyzed by a team with lived experience of cardiac arrest. Two reviewers will conduct all screening and data extraction independently. A descriptive overview, tabular and/or graphical summaries, and a directed content analysis will be carried out on extracted data.

Discussion

This protocol outlines a planned literature review to systematically examine the nature of existing evidence to describe what the care needs of families experiencing the cardiac arrest of a loved one are. Such evidence will contribute to the development of strategies to meet identified care needs. Persons with lived experience participated in the creation of this protocol, and they will also participate in the execution of this review as partners and coinvestigators, not as research subjects or participants.

The results of the scoping review will be disseminated upon completion of the work described in this protocol.

FULL TEXT

Contribution to Emergency Nursing Practice

••In the current literature the care needs of families experiencing cardiac arrest care of a loved-one are not well described.

••This article contributes a framework to systematically search the literature to answer the review question, "what are the care needs of families experiencing cardiac arrest of a loved-one?"

••Key implications for emergency nursing practice is that patient and family centered cardiac arrest care is an emerging concept of importance to nursing care.

Introduction

Sudden cardiac arrest (CA) is a leading cause of death worldwide.[1] In many jurisdictions, the survival rate after out-of-hospital CA (OHCA) remains lower than 10%, despite half a century of cardiopulmonary resuscitation advocacy, life-support guidelines, and invasive therapies. Given the finality of CA for most of the victims who experience it and the more than 50% of the survivors of CA who face long-term cognitive and/or physical disabilities,[2-5] it can be argued that the families and loved ones of those who experience CA share in the burden of this disease.[6-9] However, relatively little is known about the families' perspective on CA. This scoping review protocol was designed to identify the broad themes that describe the care needs of the families of victims of sudden CA and how best to address those needs whenever present.

CARDIAC ARREST

CA is defined as the loss of functional mechanical cardiac activity resulting in an absence of systemic circulation.[10]

Sudden CA affects the lives of hundreds of millions of people around the world every year. CA is often categorized as having either occurred OH or in hospital (IH).

OUT OF HOSPITAL CARDIAC ARREST

It is estimated that every year 275000 people in Europe experience CA and are treated by emergency medical services; yet, only 29000 of them survive to hospital discharge, a survival rate of 10.5%.[11] In England alone, 28729 CAs were attended to outside of hospitals in 2014, which amounts to 53 cases per 100000 of the resident population, with 8% surviving to hospital discharge.[12] Meanwhile, in the United States, 35 communities reported the incidence of CA as 55 per 100000 person-years.[13] The worldwide weighted incidence estimates according to person-years of treated CAs outside of hospital are 59.4 in Asia, 49.7 in Australia, 34.4 in Europe, and 53.1 in North America. The calculated survival-to-hospital-discharge rate ranges from 3.0% in Asia to 9.7% in Australia, with hospital discharge rates being 7.6% in Europe and 6.8% in North America.[14]

IN-HOSPITAL CARDIAC ARREST

IHCA is an acute event that can potentially affect any patient who is hospitalized.[15] Historically, an IHCA was often viewed as a condition with such poor outcomes that resuscitation may not even be warranted, but improvements have been made over recent decades.[16,17] To date, the incidence of IHCA worldwide has not been well described. The American Heart Association's Get With The Guidelines–Resuscitation registry[18] as well as the National Cardiac Arrest Audit from the Resuscitation Council (United Kingdom) and the Intensive Care National Audit &Research Centre provide the best insight into IHCA incidence.[19] On the basis of US data from 2003 to 2007, the incidence of IHCA in the US was estimated to be 211000 annually or approximately 6 to 7 CAs per 1000 admissions.[18] Data from 2008 to 2017 show that the incidence increased to 292000 annually or 9 to 10 IHCAs per 1000 admissions.[15] In contrast, the UK data estimate an incidence of 1.6 IHCAs per 1000 admissions from 2011 to 2013.19 Generally, the survival rate for IHCA is estimated to be 25%.[16]

FAMILY-CENTERED HEALTH CARE

Despite great effort in both OH and IH settings, most CA care is unsuccessful and ends in death. The death of a loved one has long been described as the most impactful life event a person can experience.[20] Moreover, the death of a loved one such as a child can have an effect that lasts many decades.[21] Consideration of the family's needs during and after the care of their loved one is at the core of family-centered care.

A family, as it relates to participating in and receiving health care services, is defined by the patient or, in the case of minors or those without decision-making capacity, by their surrogates. In this context, the family is composed of persons both related and unrelated to the patient, who provide support and with whom the patient has a relationship of significance.[22]

Patient-centered care involves respectful care provision through decision-making that includes the patients' beliefs, preferences, and values.[23] A natural extension of this concept is family-centered care, which acknowledges the family members' position and importance as well as the contribution that they often make by acting as patients' caregivers, representatives, surrogates, and decision-makers.[24] A universal model of family-centered care has been developed that includes the key components of consideration of the family context; patient, family, and care provider collaboration; dedicated policies and procedures; and illness-specific education.[25]

Patient- and family-centered care have been demonstrated to improve the quality of health care.[26] Families are increasingly recognized as an essential part of the health care team whose position in decision-making should be formalized through applicable policies and procedures.[27] The concept and practice of family-centered CA care is in its infancy. This review represents an important early step in shaping its development.

FAMILY PRESENCE DURING CARDIAC ARREST CARE

The predominant family-related intervention relative to CA care is the facilitation of “presence,” or being present to witness the resuscitation efforts by the health care team. In being present, family members may (1) choose to be actively involved in the resuscitation, (2) communicate with their relative and the provider team, (3) perceive the reality of death, and (4) see both comforting and distressing images.[28] Recommendations by numerous resuscitation guidelines,[29] learned societies,[30] hospital systems,[31] and health care personnel support the practice of family presence during resuscitation. Despite this, family presence during resuscitation, regardless of the outcome, remains controversial.[32] In a recent randomized clinical trial,[7] family members who were offered the choice of being present during resuscitation (including IHCA care) experienced improved clinical indicators related to posttraumatic stress syndrome, improved anxiety and depression scale scores, and less complicated grief when evaluated a year later.[32]

Although it is likely a central feature of family-centered CA care, the facilitation of family presence can inappropriately be viewed as a panacea for the care needs of families during CA care. Moreover, a family's presence (or absence) has emerged as a false dichotomy where families must choose to be fully in one state or the other. This is an oversimplification and incomplete conceptualization of family-centeredness that leaves much unknown about other family care needs, besides their presence or absence. We cannot assume to know what families need without first asking them.

This review will explore what the care needs of families during sudden CA are, regardless of the setting (OHCA or IHCA). This review intends to address the following research question: “What are the care needs of family members during the cardiac arrest of a loved one?” This research question has been previously identified by an international priority-setting partnership of clinicians, investigators, and carers, led by researcher K.N.D. and the James Lind Foundation.[33]

Objective

The objective of this paper is to disseminate the search protocol. The project is designed to systematically map evidence of family care needs during CA care to identify key concepts, types of evidence, and knowledge gaps for all settings of CA, as well as all types of families, family relationships, and ages of patients and family members.

Methods

Scoping review methods have been chosen owing to the exploratory nature of our research question, the absence of any prior knowledge-synthesizing in this topic area, and the diverse knowledge sources located during pilot-searching.[34,35] This search method will chart relevant research and gray literature to identify research gaps that may guide future research and systematic reviews surrounding the topic. Guided by the Arksey and O'Malley[36] framework, the enhancements by Levac et al,[37] and the 2020 guidelines of the Joanna Briggs Institute (JBI),[38] this review will follow a 6-stage framework: (1) research question identification, (2) relevant studies’ identification, (3) eligible studies’ selection, (4) data charting, (5) collating, summarizing, and reporting of results, and (6) contributor-provided resources.

The Arksey and O'Malley[36] framework and the enhancements by Levac et al[37] will be operationalized in this review in the following ways:

1. We will reflect on and revise our research question if required on the basis of the types of studies returned by our search and the lived experience of our team members.

2. Each article will be screened by at least 1 team member with lived experience to make sure that we are applying our inclusion criteria through the lens of their experience.

3. Two team members will independently chart the findings from the included articles and compare the results with our research question and with each other to ensure that there is agreement in the interpretation of the reported findings.

4. We will undertake a consultation exercise where we report our findings to members of our Family-Centered Cardiac Arrest Care working group, composed of survivors of CA, family members of survivors and nonsurvivors, and health care professionals who routinely provide CA care. The goal of our consultation will be clear reporting of our findings in a manner that is helpful for both care recipients and care providers.

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA ScR) will guide how this review is reported.[39] In addition, the PRISMA Extension for Protocols was to structure this protocol manuscript.[39-41] Our systematic gray literature search strategy will follow previously accepted peer-reviewed methods.[42,43]

This review will be performed in partnership with coinvestigators who have lived experience of CA as survivors or as family members of persons who experienced a CA (family members of survivors and nonsurvivors alike). For the purposes of this review, our coinvestigators either had a CA themselves or were physically present to provide early resuscitation or witness the resuscitation at their home or hospital. Our work is guided by the principles of patient engagement, defined by Marlett et al[44] as “collaborative research that is done by, with and for patients to inform health care and health research decisions and questions.” Our investigation will be performed in a manner that Macaulay et al[45] describe as “a mutually respectful relationship based on sharing responsibilities, costs, and benefits.” Our goal is to engage our patient/family coinvestigators through an “equitable collaboration with individuals, families and communities affected by a health topic at all stages of the research process, from conception of the study idea through dissemination of results/findings.”[46] Identification and mitigation of the common challenges and ethical issues of patient-partnered research[47] will be actively mitigated through consultation with the local Strategy for Patient-Oriented Research Unit[48] and university research ethics office.[49]

IDENTIFYING THE RESEARCH QUESTION

The JBI Population, Concept, and Context framework will be employed to ensure that the study selection connects the research question with the eligibility criteria.[38] Hence, the research question: “What are the needs of families experiencing the cardiac arrest of a loved one?”

The secondary questions to be explored on the basis of the breadth of the evidence returned include (but are not limited to):

••How do families want to be treated by health care providers?

••What information, resources, or environmental accommodations do families want to be provided?

••What factors contribute to unmet care needs in families experiencing CA?

••What are the family characteristics associated with certain care needs?

••In what settings, countries, and systems is evidence originating from?

••Determine the value of performing additional synthesizing studies such as a systematic review and meta-analysis or a meta-synthesis.

ELIGIBILITY CRITERIA

The JBI Population, Concept, and Context framework (Table 1) will determine the eligibility of studies that address the research question and guide the selection process.[38]

IDENTIFYING RELEVANT STUDIES

This scoping review will include all observational and experimental research published in peer-reviewed journals. We will also search gray literature for policy and procedures, clinical governance documents, and unpublished research that address our research question.

Published evidence will be sourced from multiple electronic databases and Web search engines that index the full text or metadata of scholarly literature. These include MEDLINE, Embase, CINAHL, ProQuest Dissertations &Theses Global, SocINDEX, Scopus, Web of Science, PsycINFO, and Google Scholar. Additional literature will be sourced from searches of the reference lists of articles and forward citations using “Cited by” logs for the included research.

The author will contact the corresponding author/s of all potentially relevant studies directly when articles are electronically unattainable to attain them. These authors will also be consulted at the completion of the search to identify any studies that may have been missed.

An academic librarian (L.D.) with expertise in obtaining literature on health care and social sciences will be consulted on the search strategy and its execution and will join as a coinvestigator in the completion of this review.

Furthermore, to ensure the feasibility of conducting this scoping review, a pilot search was conducted on 1 database (Ovid MEDLINE) by 2 reviewers using a draft search strategy that included relevant Medical Subject Headings and keywords such as “heart arrest/ or out-of-hospital cardiac arrest/” and “(family-centred* or family-centered*).mp.” The complete pilot strategy, including truncations, combinations, and results thereof, is provided in Table 2. Our systematic gray literature search strategy will consist of 4 parts: (1) internet search (Chrome anonymous browser for depersonalized Google search without geographical bias), (2) targeted website search of emergency medical services, emergency departments, and critical care and resuscitation organizations, (3) gray literature database search with a focus on conference proceedings, theses, and dissertations, and (4) social media platform search, including blogs. Gray literature sources and databases will be identified using the Canadian Agency for Drugs and Technologies in Health's Grey Matters, a practical tool for searching health-related gray literature.[50] The purpose of our gray literature search is to search citations for additional published literature and to gain insight from relevant policy, procedure, and clinical governance documents regarding what care is being provided to families during CA care.

PATIENT/FAMILY COINVESTIGATOR PREPARATION AND COLLABORATION

Our coinvestigators with lived experience will be involved in steps 2 through 5 of the JBI 6-stage framework ([2] identifying relevant studies, [3] selecting eligible studies, [4] charting of data, [5] and collating, summarizing, and reporting of the results). To facilitate this involvement, the project lead will meet one-on-one with each coinvestigator to provide an orientation to the review and determine the amount of training required. Our coinvestigators vary in review knowledge and experience, from an expert clinician-scientist who has led reviews to a person without research training. Although the former may only receive a quick introduction to the study, the latter will receive an orientation to each stage of the study, including the research question and goals, participation in lessons in screening, training in the use of screening software and undertaking multiple calibration exercises, identification of relevant findings in the included articles, and charting of the findings in a results table. Posttraining competency will be assessed by calibration reports during the screening phases and supervision of consensus meetings between article screeners and data extractors. Biweekly meetings will be held with the novice members of the team.

STUDY SELECTION

We will manage the search results using a reference manager software program (Covidence, Melbourne, Australia).[51] At least 2 investigators will independently screen the references' titles and abstracts against the inclusion criteria, obtaining a copy of eligible studies to determine their final inclusion. We will describe the entire eligibility and selection process in a PRISMA flowchart and report the reasons for the exclusion of ineligible studies in a specific table.

INCLUSION CRITERIA

The following criteria will ensure the inclusion of various sources of evidence and perspectives:

••Articles relating to the care needs of families experiencing CA care (including peer-reviewed studies of all designs, research letters, personal narratives, conference abstracts, and proceedings).

••The CA event, as informed by our coinvestigators with lived experience, begins at the time the family member is discovered without signs of life (absent of vital signs) and extends to the time the victim is no longer accessible (if deceased) or is discharged to home or rehabilitation setting.

••Articles describing the needs of youths and children will be analyzed separately.

••Articles describing the needs of families experiencing suicide or homicide will be analyzed separately.

••Gray literature relating to policy, procedure, or position statements regarding the care of families experiencing CA care.

••All dates and languages (English abstract required).

EXCLUSION CRITERIA

The scoping review will exclude the following:

••Expected deaths such as those in palliative care and hospice care, as well as those related to medical assistance in dying.

••Family members' experience of a loved one's death with a standing "Do not resuscitate" or "Do not attempt resuscitation" order in place.

The PRISMA ScR flowchart will capture and present a summary of the screening and inclusion and exclusion processes.[39]

CHARTING OF DATA AND TRUSTWORTHINESS

Before the extraction of study findings and any analysis, the coinvestigators performing the extraction will undertake a reflexive exercise to improve the validity of the reported findings and help prevent biases in reporting.[52] We will identify and record what team members believe the care needs of families are and how they should be met so that we can prevent their inadvertent insertion in our study results, which would affect interpretation.

A data extraction form and table will be used to extract and summarize relevant information from the located literature. This process will be performed by 2 investigators, working independently, to ensure that the data extracted are relevant, answer the research question, and address the eligibility criteria. Furthermore, the investigators will independently electronically populate the form with extracted data from each included article. In the event of disagreements during this process, a third team member will intervene through discussion until resolution through consensus. Owing to the iterative nature of this process, the data extraction form (Table 3) will be continually updated

to ensure that it is current and captures phenomena of interest.

COLLATING, SUMMARIZING, AND REPORTING THE RESULTS

The synthesis of the findings will be collectively described, coded, analyzed, and summarized by all team members in relation to the study objective, research question, and eligibility criteria. Any discrepancies will be resolved by consensus among the team members throughout the process.

Basic numerical counts will be provided to describe the articles included in the review, such as the number of family members and the time elapsed from death to data collection. If quantitative results can be pooled, descriptive statistical summaries will be provided. Qualitative results will undergo basic content analysis and be reported as counts and descriptions. The results will be presented in a summary chart.

The results will describe the needs of families during CA care and identify literature gaps. If possible, a conceptual model will be constructed to represent the review findings to aid in understanding. Suggestions for future research on the basis of the study findings will be summarized and reported on.

We anticipate that our review will take 12 months to complete. On the basis of the workflow used in our past reviews,[43,53-55] protocol development will require 2 months; search refinement, execution, and training team members will take 3 months; title and abstract screening will take 2 months; and full-text review and extraction will also take 2 months. We anticipate that data analysis, consultation exercises, and preparing a manuscript for publication will require a further 3 months.

Discussion

The aim of this scoping review protocol was to plan to systematically map evidence of family care needs during CA care to identify key concepts, types of evidence, and knowledge gaps. To our knowledge, there is no prior systematic search and review of the published literature on this topic. Furthermore, there are few reviews that partner fully with coinvestigators who have the lived experience of the phenomena under review to refine the research question, methods, and analysis. Through our partnership we intend to maximize the validity of the search and interpretation of our findings.

Our nonsystematic pilot review of the literature has found this to be an area that is underresearched. The care of families is absent from international resuscitation guidelines or is limited to offering presence only.[56,57] The reviewed literature seems to describe the experience of family members as full of uncertainty, of giving control to health care providers, and of advocating for their loved one.[58,59] Only very recently has the concept of family “cosurvivorship” appeared in the resuscitation literature.[5] We believe that the proposed review will make a worthwhile contribution to the knowledge base for care providers and health system leaders.

The rigorous and systematic nature of our review will identify relevant research findings related to our research question. Owing to the exploratory nature of our research question and the limited research conducted on this topic, we have created a broad search strategy and study inclusion criteria that seek to capture both direct and indirect evidence and provide the most comprehensive inquiry into family care needs during CA care.

Family-centeredness is a core principle of high-quality health care. Without a conceptualization of what families need, it is impossible to provide family-centered care, establish baseline performance, determine areas that need improvement, and determine if practice changes have led to progress. The results of this review may identify strategies to address the needs of families, which will help to guide the selection of interventions that are suitable for further study and can be used in subsequent family-centered care initiatives. The findings from the completed review will be disseminated and could be used to inform pedagogic planning and policy pertaining to the hospital and IH support of families experiencing CA care.

Limitations

Conducting a scoping review with no time and language limitations can prove time-consuming and costly. Hence, strict timelines will be implemented to ensure that the process is cost-effective, and it is completed.

Author Disclosures

Conflicts of interest: none to report.

Search concept	Description
Population	Families: Family membership is determined by the patient or, in the case of minors or those without decision-making capacity, by their surrogates. In this context, the family may be related or unrelated to the patient. They are individuals who provide support and with whom the patient has a significant relationship.[22]
Concepts	Cardiac arrest: Cardiac arrest is the sudden and unexpected loss of heart function. It is a medical emergency with high mortality rate that increases relative to delays and/or interruptions in treatment. Cardiac arrest may result from a wide range of etiologies, including trauma, ischemia, arrhythmia, sepsis, and overdose. Care needs: The needs of families, including formal and informal services as well as tangible and intangible supports. May include information, presence, resources, and follow-up at a later date.
Context	Sudden, unexpected, and treated: All settings, in-hospital and out-of-hospital settings, patients undergoing any degree of resuscitation, including first aid.
Publication year range	None.
Language	All, as long as there is an English abstract. Translation services will be employed as required.

Concept	Description
1. Heart arrest/ or out-of-hospital cardiac arrest/	32 960
2. ([Cardiac or heart or cardiopulmonary or circulat*] adj [arrest or standstill or asystol* or resuscitation] or [ventricular-tachycardia or ventricular-fibrillat* or asystole or pulseless electrical activity]).mp.	108000
3. 1 or 2	108000
4. (Family-centred* or family-centered*).mp.	4657

5. ([Family or families or guardian* or parent or parents or parental or spouse* or partner* or adult children] adj12 [involve* or care or caring or needs or support* or satisfaction or perspectives or grief or emotional distress or PTSD or traumatic stress]).mp.	213204
6. Professional-family relations/	14783
7. 4 or 5 or 6	220408
8. 3 and 7	813

Description
1. Author and year of publication
2. Title
3. Aim of the study
4. Quantitative, qualitative, or mixed methods
5. Specific study design
6. Country of origin
7. The setting of cardiac arrest (in-hospital vs out-of-hospital)
8. Patient demographics
9. Family demographics
10. How long after arrest data collected
11. Etiology of cardiac arrest
12. Key findings
13. Care need(s) identified
14. Theoretical framework
15. Data collection methods

16. Data analysis process
17. Conclusions
18. Notes

DETAILS

Subject:	Research; Emergency medical care; Relatives; Content analysis; Hospitals; Survivor; Teams; Patients; Death &dying; Health care; Nursing care; Decision making; Myocardial infarction; Caregivers; Resuscitation; Literature reviews; Patient-centered care; Families &family life; Heart attacks; Cardiopulmonary resuscitation--CPR
Location:	North America; United Kingdom--UK; Australia; Asia; Europe; United States--US
Identifier / keyword:	Patient-centered care; Family-centered care; Cardiac arrest; Patient and public involvement; Survivorship
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ProQuest document ID:	2572873276
Document URL:	https://www.proquest.com/scholarly-journals/needs-families-during-cardiac-arrest-care/docview/2572873276/se-2?accountid=211160
Copyright:	Copyright Elsevier Limited Sep 2021
Last updated:	2022-06-29
Database:	Public Health Database

Cesarean Scar Ectopic Pregnancy: A Case Report: JEN

ProQuest document link

ABSTRACT (ENGLISH)

Background

A cesarean scar pregnancy is a rare, life-threatening obstetric emergency. Early recognition and prompt treatment of cesarean scar pregnancy is essential because of the risk for long-term reproductive complications associated with this condition.

Case Presentation

A 33-year-old gravida 6 para 5 female presented to the emergency department with pain to the suprapubic area. Following assessment and diagnostic testing, she was diagnosed with a cesarean scar pregnancy. The patient was admitted to the women's services department where she received a multidose regimen of methotrexate. The patient was discharged home, and no further surgical interventions were necessary. Two months after her visit to the emergency department, the patient has not had any complications related to the cesarean scar pregnancy.

Conclusion

This manuscript outlines the case of a patient presenting to the emergency department with a cesarean scar pregnancy that was promptly recognized and treated. It is important for emergency nurses to quickly recognize the risk factors and clinical presentation of a cesarean scar pregnancy to reduce maternal morbidity and mortality.

FULL TEXT

Contribution to Emergency Nursing Practice

••The current literature on cesarean scar pregnancy indicates that it is a relatively new type of ectopic pregnancy that is related to an increasing number of cesarean deliveries.

••This article contributes by providing evidence-based recognition, treatment, and clinical risk factors of a patient presenting with a cesarean scar pregnancy.

••Key implications for emergency nursing found in this article are: Pregnant patients with a history of a cesarean delivery must be evaluated for cesarean scar pregnancy. Cesarean scar pregnancy must be rapidly identified and treated to preserve fertility and reduce the chances of life-threatening maternal complications. Emergency nurses with knowledge of factors leading to cesarean scar pregnancy can promote positive patient outcomes.

Introduction

Obstetric conditions are one of the most common complaints among patients presenting to emergency departments in the United States.[1] Pregnant patients are at an increased risk of experiencing a medical emergency related to pregnancy complications. A serious but rare pregnancy complication is cesarean scar pregnancy (CSP). Patients diagnosed with CSP are becoming increasingly more common because of the frequency of cesarean deliveries combined with improved diagnostic technology. Therefore, emergency nurses must be able to quickly recognize a CSP and provide rapid interventions to reduce maternal morbidity and mortality.

Case Report

A 33-year-old gravida 6 para 5 female presented with a chief complaint of abdominal pain. The patient's history revealed no previous medical problems or medical diagnosis. The patient reported no home medications, no allergies, and a past surgical history of a cesarean delivery. She reported that she was pregnant and that her last menstrual period was approximately 6 weeks earlier. Initial vital signs were as follows: blood pressure: 119/73; heart rate: 96 BPM, temperature 37.3 °C (99.2 °F) orally; and a pulse oximetry reading of 100% on room air.

On arrival, the patient reported that she was sent from an outpatient clinic to the emergency department for further evaluation following an abnormal ultrasound. A thorough physical examination revealed the patient to be awake, alert, and oriented to person, place, and time, with a Glasgow Coma Score of 15. The patient was calm and cooperative. The patient reported intermittent and cramping pain to her suprapubic area with no other symptoms. Her abdomen appeared normal with bowel sounds present in all 4 quadrants. The patient denied any vaginal discharge or vaginal bleeding. A pelvic exam revealed a closed cervical os with no evidence of bleeding, inflammation, or tenderness. The fundal height was not assessed because of the early gestational age.

Laboratory tests performed included a urinalysis, complete blood count, serum chemistry, quantitative human chorionic gonadotropin (hCG) level, and a blood type and screen. Pertinent lab results included a hemoglobin of 9.8 g/dL, hematocrit of 32.5%, and a hCG level of 7027 mIU/mL. Diagnostic testing consisted of an obstetric ultrasound. The ultrasound detected an intrauterine gestational sac with a fetal pole and active cardiac motion with a gestational age of 5 weeks and 6 days. However, the gestational sac was malpositioned and located within a cesarean delivery scar superior and anterior to the endocervical canal. Based on the results, the patient was diagnosed with a CSP.

The obstetrician on call requested that the patient be discharged and established an outpatient appointment with the patient scheduled for the following day. On assessment in the obstetrics and gynecology clinic the next day, the obstetrician sent the patient back to the emergency department. During her second visit to the emergency department, a repeat ultrasound was performed, which displayed an unruptured CSP. The emergency nurse administered an initial dose of intramuscular methotrexate. She was then admitted inpatient to the women's services department to receive a multidose regimen of methotrexate.

Following methotrexate administration, the patient's follow-up obstetric ultrasound detected an intrauterine gestational sac with no cardiac activity. Following discharge from the hospital, the patient was closely monitored outpatient by the obstetrician to ensure that she was able to pass all products of conception without the need for surgical intervention. No further medical or surgical interventions were required. Two months after the visit to the emergency department, the patient has not had any complications related to the CSP.

Discussion

CSP is an uncommon complication of pregnancy that occurs when the gestational sac is implanted in the myometrium at the exact scar site of a previous cesarean delivery.[2] A CSP is a relatively new type of ectopic pregnancy that is related to an increasing number of cesarean deliveries.[3] Rapid intervention and treatment of a CSP is associated with improved maternal prognosis. Therefore, it is important to evaluate and screen pregnant patients with a history of a cesarean section.[3]

CSP most commonly presents in the first trimester, although second trimester diagnoses have been reported.[4] Signs and symptoms of a CSP will vary depending on the severity and duration of the condition.[3,4] One-third of women are asymptomatic at the time of diagnosis.[4] Symptoms of a CSP include abdominal pain, pelvic pain, and painless vaginal bleeding.[5] Patients with a ruptured CSP may present with signs and symptoms of hypovolemic shock.[4]

Risk factors for CSP include a maternal age of older than 35 years, gravidity higher than 3 (especially gravidity higher than 5), history of a cesarean delivery performed at a rural facility, and an interval of less than 5 years (especially 6 Although a cesarean delivery is a prerequisite to the development of CSP, it is uncertain if the number of previous cesarean deliveries further increases the risk.[4] There is evidence to suggest that the indication for prior cesarean deliveries may be a risk factor for CSP.[4] Patients requiring a cesarean delivery because of a breech fetal presentation are more likely to experience a CSP.[4]

The gold standard for diagnostic imaging to diagnose CSP is a transvaginal ultrasound.[7] Grayscale combined with color Doppler ultrasound imaging are recommended for CSP diagnosis.[4] Transvaginal ultrasound combined with an abdominal ultrasound with a full maternal bladder can help visualize the uterus in relation to the gestational sac and bladder.[4] One challenge in the diagnosis of CSP is distinguishing the condition from other pregnancy complications that may appear similar on ultrasound, such as cervical ectopic pregnancies, spontaneous abortions in transit, or low implantation of an intrauterine pregnancy.[4]

Treatment and management of CSP is based on the severity and duration of the condition. However, optimal treatment is not known at this time and is typically a combination of surgical, medical, and minimally invasive therapies.[4] Treatment modalities include surgical interventions, such as laparotomy, open abdominal surgery, transvaginal surgery, and curettage.[4] Administration of intragestational injection of methotrexate or potassium chloride without surgical intervention are also effective treatment options.[2,4] Systemic methotrexate treatment was found to be the least effective treatment method in literature.[8] If left untreated, CSP complications include uterine rupture, maternal hemorrhage, hypovolemic shock, disseminated intravascular coagulation, and maternal death.[7] Undiagnosed CSP can result in a potential loss of fertility if complications necessitate a hysterectomy.[5]

Nursing Considerations

It is important for the emergency nurse to follow safe handling precautions if methotrexate is ordered, because this is a cytotoxic drug.[9] Personal protective equipment for hazardous drugs should be worn when administering methotrexate. This includes a protective gown, double chemotherapy-safe gloves, and eye/face protection.[10] Patient teaching following methotrexate administration should include: limit alcohol intake to reduce the risk of liver injury, increase fluid intake and avoid nonsteroidal anti-inflammatory drugs to reduce the risk of kidney damage, avoid folate in vitamin supplements and foods, and avoid prolonged exposure to sunlight.[10] Patients should be instructed to seek treatment immediately if they develop any type of rash or skin condition following administration, which can be indicative of methotrexate-induced cutaneous toxicity, an emergent medical condition.[10]

Patients that receive nonsurgical treatment should be instructed to undergo repeat ultrasound surveillance and beta-hCG level monitoring following discharge.[11] In addition to medication and follow-up teaching, patient teaching should include information on seeking emotional support, because a pregnancy loss can increase the risk of depression.[11]

Patients should be instructed to follow up closely with their obstetrician before attempting to conceive again.[11]

Conclusion

To promote optimal patient outcomes, the emergency nurse should be knowledgeable about the clinical presentation and risk factors of a CSP. Recognizing the condition and quickly intervening can salvage fertility and decrease the occurrence of further maternal complications and mortality.

Author Disclosures

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Changing Behaviors: The Behavior Change Wheel and Emergency Nursing: JEN

ABSTRACT (ENGLISH)

A major challenge in emergency nursing is to provide nonjudgmental and compassionate care to patients in the throes of their emergencies, regardless of their risk-taking behaviors of vaccination status, daredevil stunts, alcohol use, drug use, tobacco use, suicide attempt, self-injury, interpersonal violence, sexual activity, weapon use, hazardous vehicle or machine operation, or dangerous or extreme sports and contests. Best-practice emergency discharge procedures also include lifestyle behavior change coaching interventions such as smoking cessation and improving diet and physical activity habits. Nurse scholars often use the Theory of Planned Behavior5 or the Health Belief Model6 to plan and develop interventions that target behavior change.7-9 For example, McDonald et al7,8 developed an injury prevention program to reduce distracted driving for teen drivers that was based on the Theory of Planned Behavior model components of attitude, norms, and perceived control. Government, organization, and unit policies are necessary to support effective and successful interventions. [...]the third layer of the Behavior Change Wheel is composed of 7 policy categories: communication/marketing, guidelines, fiscal, regulation, legislation, environmental/social planning, and service provision.

FULL TEXT

Jessica Castner, PhD, RN, CEN, AE-C, FAEN, FAAN

In my emergency nursing practice, I was often treating patients after they had made some of the worst and riskiest decisions of their lives. A major challenge in emergency nursing is to provide nonjudgmental and compassionate care to patients in the throes of their emergencies, regardless of their risk-taking behaviors of vaccination status, daredevil stunts, alcohol use, drug use, tobacco use, suicide attempt, self-injury, interpersonal violence, sexual activity, weapon use, hazardous vehicle or machine operation, or dangerous or extreme sports and contests. Simply put, we often save patients from their own worst behaviors. Our patients' risky and emergency-inducing behaviors may seldom align with our personal priorities and values. The nurse may be tempted to engage in othering the patient, placing the patient at risk for lower-quality care.[1] Othering is a social process in which the nurse may see those who share their own worldviews within a hierarchically superior in-group and mentally polarize the patient into an out-group associated with biased perspectives of negative characteristics, blame, and subordinate status. We are professionally committed, trained, and socialized to deliver nursing care with a therapeutic and nonjudgmental approach. Ethical principles,[2] cultural humility,[3] and some theoretical frameworks[4-6] can provide useful tools to successfully and effectively deliver nonjudgmental approaches in these patient-care situations. For example, *All my Relations* (Mitakuye Oyasin) is a spiritual and cultural mindset practice that can be learned through personal heritage, relationships, or immersion in Lakota Native American culture to approach all living things as the nurse would their own kin. This approach, with the deep respect of familial-like bonds, seeks understanding and commonality before judgment and othering. The purpose of this editorial is to briefly introduce the Behavior Change Wheel[4] as a shared mental model to nonjudgmentally understand human behavior and develop effective emergency nursing behavior change interventions.

Behavior change is foundational to patient care in emergency nursing. Emergency nursing practice involves supporting patient self-management to care for new wounds, infections, splints, mobility limitations, sensory loss, medication regimens, health care system navigation, follow-up appointments, and more. Best-practice emergency discharge procedures also include lifestyle behavior change coaching interventions such as smoking cessation and improving diet and physical activity habits. On the basis of an ever-evolving scientific foundation, emergency nursing practice also requires near-continuous professional behavior change for the nurse to maintain updated practice standards. Motivating human behavior change is multifaceted and can be riddled with resistance and barriers. Nurse scholars often use the Theory of Planned Behavior[5] or the Health Belief Model[6] to plan and develop interventions that target behavior change.[7-9] For example, McDonald et al[7,8] developed an injury prevention program to reduce distracted driving for teen drivers that was based on the Theory of Planned Behavior model components of attitude, norms, and perceived control. Likewise, Burchill et al[9] used the theory to assess nursing knowledge, skill, and attitudes regarding blood sample hemolysis prevention. My own early work was informed by the Health Belief Model [10] because I learned through cultural immersion and work experiences in multicultural spaces.[11] The Health Belief Model guides the nurse to consider how demographic variables, susceptibility to illness, severity of illness, cost of

carrying out the behavior, perceived threat of illness, cues to action, health motivation, and perceived control may affect the likelihood of the patient engaging in any given health behavior. At those times when a patient's behavior is not congruent with the nurse's personal worldview or values, these theories inform therapeutic and nonjudgmental professional nursing to both understand patient motivations and respectfully develop mutually agreed on interventions to target behavior change. An important gap in the Theory of Planned Behavior and Health Belief Model is that a great deal of health behavior was simply never planned, rational, or consciously chosen. Rather, mental shortcuts (called heuristics in psychology), impulse, emotional drives, or unexamined or thoughtless habit may govern patient action. The Behavior Change Wheel[4] incorporates these additional emotional impulse and unhealthy habit dimensions. Better understanding of the Behavior Change Wheel model can aid the emergency clinician in developing effective interventions meant to target behavior change.

First, the emergency nurse can consider 3 foundational questions about the source of behavior using the Behavior Change Wheel[4]:

1. Is the patient capable of the behavior?

2. Does the patient have the opportunity to enact the behavior?

3. Is the patient motivated to enact the behavior?

The most fundamental factor underlying behavior is also referred to as the COM-B system, which is an abbreviation for Capability, Opportunity, Motivation, and Behavior (Figure 1). Here, capability, opportunity, and motivation all influence one another and interact with behaviors. The emergency clinician can further consider 2 subcomponents for each of these 3 underlying factors, visualized in the center circle of Figure 2. Capability requires psychological and physical capacity that nurses consider in routine care. Is the patient's cognitive capacity impaired by a history of stroke? Does arthritis limit their physical ability to complete the desired task? Opportunity requires a physical environment and social culture or worldview for the behavior to occur. On discharge, emergency nurses routinely recommend follow-up with community-based primary or specialty care that requires the patient to have access to the internet or telephone. People experiencing homelessness may have no opportunity to schedule these appointments. Cultural taboos may limit the social opportunity for patients to initially seek or continue some mental health treatments, genitourinary or reproductive care, or palliative care services. Motivation is the emotional energy to induce and direct behavior. Motivation is broken down into reflection and intentional processes of logical decision-making and automatic processes of habit, emotions, and impulses. A great deal of nursing care and instructions to caregivers at discharge involves assessing for gaps in patient capability, opportunity, and motivation for nursing interventions that either provide the target behavior for the patient who is dependent or enable and support the factors leading to the self-management health behavior. Although the Behavior Change Wheel is introduced here in relation to the individual patient, the concepts can also be applied to the unit, the nursing workforce on the unit level, or even a whole population. I found that usual nursing practice routines can often pragmatically overemphasize education alone as the predominant factor in behavior change. Nearly all of my patients cognitively understood in detail that smoking cigarettes was unhealthy behavior and had accurate knowledge about smoking cessation information. But we still routinely provide written instructions, rote verbal instructions, and follow-up resources for near-endless internet-based multimedia instruction. The Behavior Change Wheel can be particularly useful for devising strategies when the patient cognitively understands all the facts related to the desired behavior but still lacks other opportunity, capability, or motivation to try or complete the behavior change.

The second layer of the Behavior Change Wheel[4] (Figure 2) is composed of 9 intervention functions to address a deficit in capability, opportunity, or motivation and support successful behavior change. These intervention functions are

education, persuasion, incentivization, coercion, training, restriction, environmental restructuring, modeling, and enablement. Successful nursing behavior change strategies often involve 1 or more of these interventions, and not all interventions are appropriate to each given situation. Table 1 includes each intervention, definition, and example in emergency nursing published in the *Journal of Emergency Nursing*. Many of these interventions focus on targeting emergency nurse workforce behavior, rather than focusing on clinical interventions for patient behavior change. We enthusiastically welcome manuscripts on clinical interventions for positive health behavior change in the patients and families served in the emergency care setting.

Government, organization, and unit policies are necessary to support effective and successful interventions. Thus, the third layer of the Behavior Change Wheel is composed of 7 policy categories: communication/marketing, guidelines, fiscal, regulation, legislation, environmental/social planning, and service provision. Table 2 provides definitions and emergency nursing examples published in the *Journal of Emergency Nursing*. The Behavior Change Wheel as a shared mental model allows emergency nurses to use systems thinking to analyze the success or failure of interventions with the broad need to strengthen, support, reform, create, or abandon related policies. More details on the links between the policy categories and intervention functions can be found in the original publication on the model by Michie et al.[4]

In conclusion, the Behavior Change Wheel[4] provides a useful evidence-based mental model for emergency nurses to better understand the barriers and support needed to meet the goals for both patient behavior and emergency nursing workforce behavior with a nonjudgmental and compassionate approach. Emergency nursing practice involves near-continuous patient education, coaching, and support to achieve a new behavior change. The Behavior Change Wheel provides a foundation for critical thinking when assessing if the patient has the skills, motivation, and opportunity for the health behavior. Does the nurse have a habitual practice of delivering patient education in a set routine that isn't reaching the patient? Perhaps the patient does not have a deficit in cognitive capacity and understanding but a gap in motivation and opportunity. The Behavior Change Wheel can help emergency nurses think through the full breadth of potential intervention functions in addition to rote or habitual practices of merely providing more information alone. Above and beyond individual patient behavior, the theory can also help craft more effective nursing workforce practice change and population health interventions.

Interventions	Definition[4]	Example from the Journal of Emergency Nursing
Education	Providing information or instruction focusing on knowledge and understanding	Knowledge test scores improved for emergency nurse participants using the ENA toolkit as an educational intervention on terminology, effective communication techniques, and types of gender-affirming surgeries in care of the patients who identify as LGBTQ+.[12,13]

Persuasion	Communication intended to appeal to feelings that motivate action	Let's Choose Ourselves intervention included a component about adolescent attitudes toward cell phone use during driving. The behavioral target was decreasing distracted driving as injury prevention.[8]
Incentivization	Connect action to reward or to expectation of reward	The Culture Change Toolkit included public recognition for emergency nurses on a gratitude board (“kudos” board) located in the emergency employee break room and a thank-you card program.[14]
Coercion	Connect action to punishment/cost or expectation of punishment/cost	Theoretically, emergency nurses can file police reports or press criminal charges against a patient who assaults the nurse at work in some jurisdictions.[15]
Training	Providing demonstration, information, or instruction focusing on attaining skills	A simulation intervention was designed for emergency nurses addressing skills of airway management and weight-based dosing calculation for a pediatric patient in status epilepticus.[16]
Restriction	Reduce opportunity to take a particular action or assign rules and prohibitions to prevent an action	Physical patient restraints may be applied for emergency patients who are assessed as a danger to self or others, thus reducing the opportunity for violent behavior, preferably after less-restrictive interventions and de-escalation have been attempted.[17]
Environmental restructuring	Changing the physical or social context	Reducing sensory stimuli for patients with autism by dimming lights, providing a patient room, and limiting the number of interactions with staff, visitors, or other patients may prevent overwhelming or overloading the patient.[18]
Modeling	Providing an example	A newly licensed nurse observes an emergency nurse preceptor's professional behavior of interacting with compassion and respect during patient care.[19]
Enablement	Remove barriers to action, increase opportunity or capability for action	Personalized care plan interventions were designed to increase opportunity to use available outpatient specialists and resources for patients with ≥4 emergency visits in the last year for the same health problem.[20]

Policy	Definition	Example from the Journal of Emergency Nursing
Communication/ marketing	Disseminating a message broadly using any or all components of multimedia modalities	In a single-institution study, the intervention as an electronic health record banner reminding the triage nurse to adhere to guidelines for sickle cell vaso-occlusive crisis. The intervention increased the proportion of patients triaged according to guidelines.[21] Although this intervention was not yet a policy at the institution, the study is an example of testing a potential new communication dissemination method policy for the organization.
Guidelines	Creating documents to recommend protocols or practices	ENA's Clinical Practice Guidelines such as the one on the Massive Transfusion Scoring Systems recommend specific nursing care activities.[22,23] In another example, outpatient antibiotic prescribing behavior for acute uncomplicated cystitis demonstrated poor concordance with national guidelines for empiric therapy prescribed with 22% duration, 77% of the dosing, and 70% of the therapy concordance.[24]
Fiscal	Using systems of insurance payment, organizational budgeting and payments, or taxation to increase or reduce costs	Sexual Assault Nurse Examiner/Forensic Nurse staffing program was redesigned to provide more thorough staffing coverage over a multihospital system with overall cost savings.[25]
Regulation	Establish rules or principles of action or practice	The ENA has advocated on the local, state, and national levels to establish, standardize, and expand the sexual assault nurse examiner role to best serve patients with care needs resulting from interpersonal violence or criminal behavior.[26,27]

Legislation	Making or changing laws	ENA's Government Relations team has successfully advocated for injury prevention and trauma system legislation addressing mandatory seat belt use, motorcycle helmet wear, ED violence, firearm safety, domestic and violent crimes, and trauma-funding reauthorization.[27]
Environmental/social planning	Designing, changing, or regulating the physical or social context	Using a parking garage space, the triage and screening of patients with respiratory presentations was physically redesigned into a telemedicine-enabled drive-through system for patients with respiratory presentations to lower exposure risks to coronavirus disease.[28]
Service provision	Creating or delivering a service line	A bridge paramedic academic program was developed and delivered specifically for those already licensed as health care professionals.[29]

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Development and Implementation of a Pediatric Telesimulation Intervention for Nurses in Community Emergency Departments: JEN

ABSTRACT (ENGLISH)

The need for virtual education for nursing staff has dramatically increased because of social distancing measures after the coronavirus disease pandemic. Emergency departments in particular need to educate staff on caring for patients with coronavirus disease while concurrently continuing to ensure education related to core topic areas such as pediatric assessment and stabilization. Unfortunately, many nurse educators are currently unable to provide traditional in-person education and training to their nursing staff. Our inter-professional team aimed to address this through the rapid development and implementation of an emergency nursing telesimulation curriculum. This curriculum focused on the nursing assessment and initial stabilization of a child presenting to the emergency department in status epilepticus. This article describes the rapid development and implementation of a pediatric emergency nursing telesimulation. Our objectives in this article are (1) to describe the rapid creation of this curriculum using Kern's framework, (2) to describe the implementation of a fully online simulation-based pediatric emergency training intervention for nurse learners, and (3) to report learners' satisfaction with and feedback on this intervention.

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It's Time to Provide Evidence-Based Care to Individuals with Sickle Cell Disease: A Call to Action: JEN

ABSTRACT (ENGLISH)

In the current issue of the Journal of Emergency Nursing, Linton et al1 report on their successful implementation of a clinical support tool (a banner to recommend emergency severity index [ESI] triage level 2) to improve the care of sickle cell disease (SCD) for individuals presenting to the emergency department with severe pain referred to as vaso-occlusive crisis (VOC). The resolution provides background on SCD and aims to disseminate the National Heart, Lung, and Blood Institute (NHLBI) guidelines from the National Institutes of Health for the treatment of SCD, published in 2014, and includes recommendations for the treatment of VOC in the emergency department.2 Specifically, a comprehensive pain assessment and rapid aggressive pain control are recommended. In 2019, the American Society of Hematology (ASH) published similar guidelines that align with the NHLBI recommendations supporting rapid aggressive treatment of pain and the use of individualized or standard SCD protocols.4 The ASH guideline for treatment of VOC also recommends the use of subcutaneous and intranasal routes to facilitate rapid administration.4 In particular, intranasal fentaNYL in children has been found to reduce the time to first dose.5 The

overarching goal of the recommendations is to facilitate rapid pain control and avoid hospitalizations by resolving the crisis in a timely fashion. Among health care providers, there is a long-standing perception that individuals with SCD are addicted to opioids; however, data to support this claim does not exist.11 A review of national data from the Centers for Disease Control and Prevention from 1999 to 2013 compared deaths from opioid overdose between those with SCD and all other diseases.

FULL TEXT

In the current issue of the *Journal of Emergency Nursing*, Linton et al[1] report on their successful implementation of a clinical support tool (a banner to recommend emergency severity index [ESI] triage level 2) to improve the care of sickle cell disease (SCD) for individuals presenting to the emergency department with severe pain referred to as vaso-occlusive crisis (VOC). The researchers and clinical team are to be commended. The correct assignment of a high priority triage level is evidence-based and important to facilitate rapid placement in a treatment area to expedite pain management. Individuals with SCD experience sudden onset of excruciating pain that they often describe as feeling as though their bones are breaking. Historically, pain management for these individuals has been frustrating for patients and ED providers. Evidence-based management of SCD is a priority for the Emergency Nurses Association (ENA). The work by Linton et al[1] is in alignment with ENA's priorities that were reflected in 2019 at the General Assembly with the passage of resolution GA-19-09 (passed with 87.6% of the 653 delegates).[2]

GA-19-09, “Management of Vaso-Occlusive Episodes in Persons with Sickle Cell Disease in the Emergency Department,” addresses an important topic for emergency nurses’ care of individuals with SCD. The resolution provides background on SCD and aims to disseminate the National Heart, Lung, and Blood Institute (NHLBI) guidelines from the National Institutes of Health for the treatment of SCD, published in 2014, and includes recommendations for the treatment of VOC in the emergency department.[2] Specifically, a comprehensive pain assessment and rapid aggressive pain control are recommended. Assignment of ESI level 2 is recommended. In 2020, ENA published the ESI manual, which recommends a triage category of ESI level 2 for individuals who experience a VOC.[3] Administration of the first analgesic dose in 60 minutes from arrival, use of parental opioids, and development of individualized analgesic protocols when possible or a standard SCD protocol otherwise are also included. NHLBI also recommends repeat dosing, every 15 to 30 minutes until pain is controlled. Careful assessment and reassessment of pain and sedation are also important components of the guidelines. In 2019, the American Society of Hematology (ASH) published similar guidelines that align with the NHLBI recommendations supporting rapid aggressive treatment of pain and the use of individualized or standard SCD protocols.[4] The ASH guideline for treatment of VOC also recommends the use of subcutaneous and intranasal routes to facilitate rapid administration.[4] In particular, intranasal fentaNYL in children has been found to reduce the time to first dose.[5] The overarching goal of the recommendations is to facilitate rapid pain control and avoid hospitalizations by resolving the crisis in a timely fashion. Patients who receive rapid pain control are more likely to be discharged home and continue to manage their pain at home. These guidelines are supported by evidence.[5,6] In 2018, Tanabe et al[7] published findings from a randomized controlled trial comparing the reduction in pain score between patients treated with an individualized pain protocol and those treated with a standardized weight-based opioid protocol. Patients treated with the individualized protocol achieved a greater reduction in pain score from arrival to ED discharge when compared with those treated with a weight-based protocol. More patients were discharged home than admitted to the hospital when treated with individualized versus weight-based doses; however, this was not statistically significant. The NHLBI and ASH guidelines are evidence-based and should be followed.

However, national implementation of the guidelines for SCD may continue to prove challenging. In a recent survey of 516 adolescents and adults with SCD and 243 ED providers from 7 regions of the United States, many barriers were identified. Overall, 48% of patient respondents reported never or sometimes being satisfied with their ED care. A total of 54% of patients reported not being treated in a timely manner, and 46% of patients believed physicians did not care about them; 35% believed nurses did not care about them.[8] In follow-up individual interviews, patients also identified high patient volumes, lack of SCD protocols, stigma, and poor communication with providers as barriers to

ED care.[9] In an examination of a large national dataset of 17,1789 ED visits between 2003 and 2008, the time to physician evaluation from arrival was compared for all ED complaints (general complaints and long bone fracture) with a chief complaint with SCD.[10] Despite patients with SCD being assigned a higher acuity triage score, patients with SCD waited an average of 25% longer before seeing an ED physician when compared with the general complaint group. Given the recommendation of an ESI level 2 assignment, these are disturbing findings. Patients with low-priority complaints were still more likely to be evaluated by a physician quicker than those with SCD, a disease associated with many serious complications, severe pain, and an average lifespan of 30 years less than the US population. Even more disturbing, additional analysis compared the same outcomes only among Black patients in the sample. When compared with the long bone fracture group, patients with SCD waited an average of 50% longer for physician evaluation. These findings accounted for patient and hospital characteristics, triage level, and pain scores. These data clearly demonstrate disease stigma against treating individuals with SCD in the emergency department.

When examining barriers to ED care among the 243 ED providers, 75% of the respondents were unaware of the NHLBI recommendations for treatment of VOC; however, 98.1% reported being confident in their knowledge about caring for patients with SCD.[8] This is an important paradox and can be interpreted 2 ways: (1) providers may have actually internalized the evidence-based recommendations without realizing it and are providing evidence-based care or (2) they are not providing evidence-based care and are quite comfortable with this approach. This calls for the examination and comparison of individual ED SCD protocols, per the NHLBI and ASH recommendations. ED providers also identified the following as barriers to the treatment of VOC: opioid epidemic (62.1%), patient behavior (60.9%), crowding (58.0%), concern about addiction (47.3%), and implicit bias (37.0%).

Opioid Epidemic/Concern About Addiction/Patient Behavior

These 3 barriers to care are related and were identified by ED providers. Among health care providers, there is a long-standing perception that individuals with SCD are addicted to opioids; however, data to support this claim does not exist.[11] A review of national data from the Centers for Disease Control and Prevention from 1999 to 2013 compared deaths from opioid overdose between those with SCD and all other diseases. The total number of deaths from opioids during this time period was 17,4959 for individuals without SCD and 95 deaths for patients with SCD. These are compelling data; if individuals with SCD were truly addicted to opioids, there would be more than 6 overdoses per year. ED providers must abandon the belief that individuals with SCD are addicts seeking opioids; they are individuals with severe pain merely seeking relief.

The perception of opioid addiction has undoubtedly become more prevalent among the very real opioid epidemic. It is true that many patients with SCD experience both acute and chronic pain and require long- and short-term opioid therapy to manage pain. Yet emergency departments have strived to decrease the use of opioids because of the opioid epidemic; now we are on a slippery slope. Although the prescription of opioids by ED providers at discharge should be limited, treatment of severe pain with opioids still has its place in emergency care. Treatment of VOC is one example of when opioids are indicated, as they are clearly called out in the NHLBI and ASH recommendations for use in the emergency department and considered at the time of discharge.[2,4] If a patient with cancer or one who has experienced trauma described their bone pain or fracture as feeling as if their bones were breaking, would opioids be withheld? It is simply not ethical to withhold opioids from patients experiencing severe pain from any severe illness or injury, including SCD.

Racism and Implicit Bias

An important barrier to ED care for SCD identified by ED providers was implicit bias. In the US, most individuals with SCD are Black people. Implicit bias results from attitudes and beliefs we hold unconsciously.[12] In a recent systematic review of the literature that included 15 studies examining implicit bias among health care providers, low to moderate levels of implicit bias were identified in 14 of 15 studies.[12] Health care providers tended to think more favorably of white people than individuals of color. This bias was associated with negative patient/provider interactions, treatment decisions, and health outcomes.[12] The role that systemic racism and implicit bias plays in the treatment of pain for individuals with SCD in the emergency department is undoubtedly high. This often-unrealized bias contributes to

delays in treatment, undertreatment of pain, poor provider/patient communication, and mutual mistrust. Hoffman et al[13] demonstrated that white laypeople frequently believed Black people experience less pain than white people and also found that medical students and residents who endorsed this belief provided less accurate pain treatment to Black people. These findings are based on inaccurate beliefs of many biological differences between the races that are indeed not true. The current Black Lives Matter movement has increased dialogue about the topic of race in the US. There are countless calls to address systemic racism and implicit bias. A recent editorial in the *New England Journal of Medicine* eloquently addressed this issue and called out the opportunity to address racism that negatively affects care provided to individuals with SCD across the health care system.[14]

It is important that emergency nurses and other leadership begin to openly address racism and implicit bias. Many strategies have been suggested to reduce implicit bias. Marcelin et al[15] outlined an organizational model to decrease implicit bias; their approach is centered on leadership commitment to change. They identify specific organizational (leadership commitment and meaningful diversity training), individual (self-awareness and questioning stereotypes), and combination strategies (mentorship, cultural humility, and intentionally diversifying experiences). The Implicit Association Test is a validated assessment designed to measure an individual's level of implicit bias.[16] ED leaders should be encouraged to tackle this issue and can begin by administering the Implicit Association Test to all nurses in their department. Presentation of the results for the department can be the basis of a series of open discussions of how implicit bias affects nursing practice.

ENA is dedicated to improving health disparities resulting from racism and implicit bias. In the January 2021 issue of the *Journal of Emergency Nursing* in an editorial, Castner[17] discusses health disparities and introduces the January issue. Castner[17] reminds us of our ethical duty as nurses to reduce health disparities, which is outlined in our Emergency Nursing Code of Ethics.[18] ENA developed a resource for emergency nurses on the topic of racism: "Structural Racism in Health Care."[19] Specific to SCD and following the passage of GA 19-09, ENA developed the following resources specifically to improve management of SCD in the emergency department: (1) a SCD pediatric infographic and (2) a topic brief on the treatment of VOC. The next Emergency Nurse Pediatric Course and Trauma Nursing Core Course curriculum updates will include information on SCD. All of these resources will be available to ENA members.

Crowding

Finally, crowding was also recognized as an important barrier to providing care to individuals with SCD in the emergency department. Crowding is pervasive in emergency departments across the US. It is a long-standing problem that is perhaps the most difficult barrier that exists to receiving timely pain management; there are no easy solutions. Ensuring timely care based on acuity is essential. Creative solutions are needed. System interventions and ongoing education for ED providers are needed to ensure provision of evidence-based care to individuals with SCD. The first step is acknowledging that VOC requires rapid assessment, evaluation, and pain management.

Systematic Interventions to Address Care Are Needed

Linton et al[1] provided an excellent example of a systematic intervention designed to improve timely provision of analgesia to patients experiencing a VOC. The team developed a clinical support tool with a banner that recommended ESI level 2 for all patients presenting with a complaint of SCD at triage. The team conducted a blinded randomized control trial for 8 months. Nurses were randomized to either see the banner or not. Over the course of 8 months the triage category was evaluated for 384 visits. Nurses assigned to seeing the banner versus those who did not see the banner assigned the correct triage category more frequently (ESI 1 or 2), 65% versus 35%. Nurses also found the clinical support tool moderately acceptable, 4.1 to 4.9 on a 6-point scale. Although this is impressive, the goal of assigning the higher priority triage score is to facilitate rapid treatment of pain. However, this did not happen. There was no difference in the time to administration of analgesics between the intervention and control groups, 115 versus 107 minutes from arrival. Therefore, it is clear that there is a need for other systematic interventions along the care pathway to decrease the time to first analgesic.

Some emergency departments have instituted protocols to provide opioids in the waiting room for individuals with an individualized ED opioid protocol already developed by the patients' SCD provider. These plans should be readily

available to the ED provider. Anecdotally, these protocols have not been associated with negative outcomes. Reassessment of patients while in the waiting room is important, particularly if opioids are administered. Further data are needed to support this practice on a wider scale. Other systematic interventions include implementing a multidisciplinary quality improvement (QI) team focused on improving ED management of SCD. These groups can evaluate current SCD protocols and compare them with evidence-based recommendations. These teams can develop individualized opioid treatment protocols for VOC that can be made available to both the ED provider and the patient through their electronic health record patient portal. Both of these interventions are currently being evaluated in 2 trials funded by the National Institutes of Health: *Implementing an Individualized Pain Plan (IPP) for ED Treatment of VOE's in Sickle Cell Disease (ALIGN,* NCT04584528) and *Comparing Individualized vs. Weight Based Protocols to Treat VOE in SCD Occlusive Episodes in Sickle Cell Disease (COMPARE-VOE*, NCT03933397). QI teams should analyze important indicators such as time to first dose, triage category, and admission rates. The use of a health record audit and individualized feedback is often helpful. In the context of these discussions, teams can brainstorm other possible systematic interventions. This may include placement of patients with SCD in a specific unit in the emergency department or transfer to an observation unit after the provision of a few doses with some pain relief. Even with multiple system interventions, education of ED providers will still be required.

Educational Interventions

Educational efforts are necessary and should include registered nurses, physicians, nurse practitioners, residents, and physician assistants. Components of education should highlight (1) pathophysiology and complications, (2) implicit bias and racism, (3) the role of opioids, and (4) review of evidence-based guidelines in treatment of VOC, including ED-specific protocols. Many resources developed by ENA already exist and were described in earlier text. ENA and the American College of Emergency Physicians are members of the Emergency Department Sickle Cell Care Coalition.[20] This group includes numerous other professional associations and government organizations all with the goal of improving care for individuals with SCD in the emergency department. American College of Emergency Physicians also has numerous resources available for members and nonmembers.[20] In addition, a website was designed by several centers specifically for improving the ED treatment of individuals with SCD.[21] This website includes 8 short PowerPoint modules and associated 5- to 10-minute videos that support evidence-based care for a variety of acute complaints associated with SCD. Modules include the treatment of the *High ED Utilization and Perceptions of Addiction* and the *Treatment of VOC*.

It will be challenging to ensure all new nurses, advanced practice nurses, physician assistants, and physicians are up to date, especially given frequent high nursing turnover and the rotation of new residents in academic medical centers. For this reason, emergency nursing and physician leadership buy-in is critical. Standardizing the review of educational materials should be incorporated into new orientations for all types of providers. Leaders should engage and hold accountable nurse and physician educators, residency directors, and other leaders. One helpful approach may be to develop a SCD nurse and physician champion program. These individuals can obtain advanced knowledge of SCD and be accountable to oversee the education and QI efforts.

As registered emergency nurses, advanced practice nurses, physician assistants, and physicians, we always want to provide high-quality, evidence-based care. We do this in an incredibly challenging and demanding environment. All of our patients deserve our best; patients with SCD are no exception.

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Reunite… Reflect… Recharge: JEN

ABSTRACT (ENGLISH)

EN21X will be a reunion of emergency nursing professionals who will be able to share the experiences of the pandemic over the last 18 months. Once the pandemic infection control precautions are lifted, I encourage you to take the time to go to that concert, go to that event you have always wanted to experience, call that friend, make that road trip, have that adventure… do it for yourself. When you take this step, slow down for the focus—take time and breathe, take it all in.

FULL TEXT

Unlabelled image

I have been personally looking forward to many of us coming together again at EN21X for exceptional education, working in general assembly to further our association, reuniting with friends, making new friends, having fun, and recharging. Reunited, and it feels so good! That is a line from the 1978 hit song by Peaches and Herb, and that phrase is what I have been humming as we prepare to gather in-person and virtually at EN21X. EN21X will be a reunion of emergency nursing professionals who will be able to share the experiences of the pandemic over the last 18 months. A chance to reunite with one another to not only share, but to also appreciate the friendships we have made over the years and the new friends we will make. As many of you may know, the deadline for writing the President's Message is months in advance of the publication date. A personal struggle for me is to write the Message while attempting to foresee what might be relevant when it is published and into the next years. One idea I know will not change between how I feel while writing this now and the date of publication is “Reunion.”

I can imagine that I am not alone in these thoughts and feelings focused on reunion. In-person gatherings and reunions are experiences that I have missed over the last year. As of today, much around the United States is returning closer to prepandemic norms, although many around the world are still at various stages of conquering the coronavirus. As we begin to see the beginning of recovery from the pandemic, let us remember to pause and treasure the things we missed because of the pandemic as we reexperience them. For example, I recently attended mass and realized how much I missed the singing and hearing our priest chanting.

As we make that so-needed human connection at cookouts, community gatherings, concerts, and parades, I hope you treasure it. I have enjoyed seeing uncovered faces out and about and sharing smiles in passing. These gatherings and outings remind me how much I missed the little things. I challenge myself and others around me to not take these things for granted in the future. We saw how quickly conditions can change for all of us and the huge impact this pandemic has had on the entire world. Once the pandemic infection control precautions are lifted, I encourage you to take the time to go to that concert, go to that event you have always wanted to experience, call that friend, make that road trip, have that adventure… do it for yourself. When you take this step, slow down for the focus—take time and breathe, take it all in.

Time is precious and we cannot get it back once it has passed, but we can make the best of the present moment and the future ahead of us. As we come together and make those in-person human connections that many have missed, remember the line from that song… reunited and it feels so good.

Stay positive, stay focused, and be the good!

ELEVATE.

DETAILS

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Delirium in Emergency Departments: Is it Recognized?: JEN

ABSTRACT (ENGLISH)

Background

Delirium is a complex neurocognitive manifestation of an underlying medical or surgical abnormality such as substance abuse, infection, sepsis, or organ failure. A recognized risk factor for delirium is advanced age (age >65 years). The projected demographic changes over the next 2 decades suggest that the number of aging adults will grow dramatically, and emergency nurses will see an increasing number of older patients manifesting the wide range of neuropsychiatric symptoms associated with delirium.

Method

An examination of 5 commonly used delirium assessment tools was undertaken specific to clinical features, use, scoring, findings, advantages, and disadvantages.

Findings

Numerous factors contribute to the lack of effective delirium recognition. However, emergency nurses, with educational support, can successfully use the delirium assessment tools to recognize delirium.

Conclusion

Emergency nurses face challenges in recognizing delirium. One key challenge for many of these nurses is the appropriate use of assessment tools suitable for the ED setting.

FULL TEXT

Introduction

Delirium is an acute confusional state, described as an acute disorder of attention and cognition.[1,2] The presenting signs and symptoms include hallucinations, restlessness, agitation, combative behavior, calling out, moaning or making other sounds, and/or lethargy. Fuchs et al[3] identified that 32% of the older patients (aged >65 years) experienced delirium during hospitalization across all types of acute care units,[3] with higher prevalence in the intensive care unit.[3,4] Lange et al[5] found that delirium was prevalent in 12.5% of all patients and undiagnosed in 24.1% of the patients. Other researchers have reported different prevalence rates of delirium,[6,7] contributing to the conclusion that delirium is frequently not recognized or assessed by staff. Contributing to this conclusion is the fact that the utility of delirium screening tools is uncertain.

Delirium occurs in 7% to 20% of the older adults (aged >65 years) in the emergency department; yet, emergency nurses do not routinely evaluate ED patients for delirium, thus missing almost 70% of the cases.[8] Older patients in acute care facilities, including the emergency department, are at high risk for developing delirium. The contributing risk factors are the presence of comorbidities, the use of psychoactive medications, and advanced age. Emergency departments are often crowded,[9] placing nurses under pressure to simultaneously care for critically ill patients in general and older adults at risk for, or exhibiting, delirium in particular. In a national study, Lee[10] reported that delirium recognition by both nurses and physicians was poor in a sample of ED patients. The results also indicated that a significant number of these patients could have been discharged with unrecognized delirium. Their findings were similar to the early work of Boucher et al,[6] who documented unreported delirium in older patients in the emergency department, and supported by Arendts et al[11] in a more recent study. Boucher et al[6] as well as Arendts et al[11] reported that a risk screening and warning or action card (response by staff if delirium screening is positive) intervention in the emergency department did not significantly improve the rates of delirium detection. Registered nurses are well situated to systematically screen for, and recognize, delirium in older patients in the emergency department because of their significant presence at the bedside. Acute mental status changes in older adults in the emergency department are not routinely assessed using a standardized tool.[6,12] The reasons for a lack of assessment include an underappreciation of delirium and its impact on clinical outcomes. Explored in this paper are some of the common delirium screening tools and the challenges to their use by registered nurses within the context

of the emergency department.

Background

The *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition) defines delirium as a disturbance of consciousness, accompanied by a change in cognition that cannot be better accounted for by a preexisting or progressing dementia.[2] Delirium develops over a short period of time—hours to days—and can fluctuate throughout the course of the day. It is characterized by a reduction in clarity of awareness, inability to focus, distractibility, and change in cognition. It is commonly experienced by older adults on admission to a hospital or during hospitalization.[3-6]

Older adults constitute the largest percentage of acute care admissions within both the United States and Canada.[13, 14] Leslie et al[15] estimated that delirium affects up to 50% of the hospitalized older adults and costs more than $164 billion (2011) per year in the US. More recent economic data are not available, but delirium is responsible for adding more than $22000 to the cost of a hospital stay.[16] Delirium has been associated with poor hospital outcomes, including increased morbidity and mortality, prolonged length of stay, long-term care admission, and functional decline.[17-19]

With older adults being a substantial proportion of the patient demographics in the emergency department, delirium investigation should not be excluded from the assessments routinely conducted by nurses. Although ED providers may not have adequate time to perform in-depth delirium assessments, tools have been developed to help nurses assess, identify, and document delirium. A list of current tools is found in [Table 1]. Brief delirium assessments such as the Brief Confusion Assessment Method and 4 A's Test (4AT) have been validated in older ED patients[20,21] and require nurses to perform brief bedside cognitive testing. Although these assessment tools often take just 1 to 2 minutes to complete, nurses continue to underuse them in high-volume or crowded emergency departments.[22]

The presence of nurses at the bedside and their frequent assessments of older patients have ideally positioned them to recognize delirium.[23] Emme,[24] using a qualitative design with a focus group and individual interviews, concluded that the time that nurses spend with patients offers them the opportunity to detect subtle changes in behavior, potentially leading to the recognition of delirium. The researcher also noted that when dementia or mental health issues such as depression or psychosis are involved, delirium recognition is perplexing and problematic to recognize. A nurse's early recognition of delirium in the emergency department can reduce the negative consequences associated with it. El Hussein and Hirst[25] described delirium as having the characteristics of "hiding and camouflaging," which can lead a nurse into believing that a patient's delirious state is their baseline. The rapid turnover of patients in the emergency department and the nursing staff's lack of adequate knowledge to identify changes in older adults' mental status complicate the problem of delirium underrecognition. Moreover, the clinical, fast-paced, and working environment in the emergency department may itself contribute to a rapid decline in cognitive function in older patients, making delirium recognition more challenging.

Delirium Screening Tools and Nurses

Delirium has been shown to go undetected by nurses working in the emergency department[6,10]; therefore, the systematic use of validated, standardized assessment tools is crucial. El Hussein and Hirst[25] found that some registered nurses, working on acute care units, could identify a delirium tool but were unaware of its components or how to use it. Of note, research has identified that although delirium screening is frequently taught, there were inconsistencies in how it was taught, who taught it, and what screening tools were introduced to students.[26,27] Kennedy et al[22] acknowledged that without adequate training on how to use delirium assessment tools, the sensitivity and specificity of most of the tools were at best modest. The authors wrote that consequently these tools should not serve as a stand-alone test for ED delirium. Rather, they could serve as a supplement to other systematic delirium screening processes.[2]

A review of the literature identified a number of delirium screening tools. Shown in [Table 2] is a comparison among the Confusion Assessment Method (CAM), Recognizing Acute Delirium as Part of Your Routine (RADAR), 4AT, International Resident Assessment Instrument–Acute Care (interRAI-AC), and Nursing Delirium Screening Scale (Nu-DESC) tools identified in our search and selected for comparison because of their repeated identification in the

literature. There were several screening tools that were identified as of limited use, including the Memorial Delirium Assessment Scale,[28] Single Question in Delirium,[29] and Predicting Emergency Department Delirium with an Interactive Computer Tablet.[30] The CAM is the gold standard for delirium recognition, with high sensitivity and specificity rates: 94% to 100% and 90% to 95%, respectively.[31] However, each tool is constructed differently. As illustrated in [Table 2], each tool has advantages and disadvantages regarding its use.

Voyer et al[32] introduced the delirium screening tool called RADAR, which requires only observation by the primary nurse. Different from the CAM, this tool takes approximately 7 seconds to administer and was designed to be applied during routine medication administration at the bedside. Similar to the CAM, RADAR requires nurses to answer 3 simple questions ([Table 2]). In the study by Voyer et al,[32] an 82% to 98% agreement between the research assistant and primary nurse occurred, whereas the RADAR questions were in agreement with the respective CAM items 52% to 85% of the time. Voyer et al[32] suggested that for each positively scored item in RADAR, the possibility of detecting delirium increased by 43%. RADAR was also found to be successful in identifying both hyper- and hypoactive forms of delirium and was not considered burdensome to nurses. One disadvantage to RADAR is that it is designed to only be used by nurses when observing patients taking medications. If a patient does not require scheduled medications, then the functionality and utility of RADAR become nonexistent in recognizing delirium.

The interRAI-AC algorithm was also found to be successful in detecting delirium because those screened positive by the tool were 10 times more likely to be delirious than not, and in the case of patients who were cognitively impaired those screened positive by the tool were 3 times more likely to be delirious.[34] InterRAI-AC is limited as an isolated delirium tool, given that it was examined as part of a broader assessment. Solberg et al[35] found that although Nu-DESC improved detection and awareness of delirium slightly, no significant results were noted other than the tool overestimating a positive delirium screen when compared with the CAM. The 4AT assessment tool developed by Bellelli et al[36] was implemented in a quality improvement project in Scotland. Although this tool seems to be straightforward and requires minimal training, it does not assess for disorganized thinking or speech, which is indicative of delirium.

The CAM is a standardized, validated measure that has gained widespread use in screening for delirium. It continues to demonstrate preference by staff over other tools, but this does not mean that research should be limited to its use. When choosing a delirium screening tool, the context and setting of patients and nurses need to be considered.

The electronic health record delirium assessment component of a quality assurance initiative implemented by Solberg et al[35] was found to improve nurse–physician communication and subsequent treatment for patients who screened positive for delirium. Better interdisciplinary communication can occur if nurses are provided with objective cognitive and delirium assessment tools. Despite the various tools available for delirium screening, each tool has advantages and disadvantages regarding its use, potentially pointing to a debate about which tool is the most appropriate for delirium recognition. Some tools may save nurses time, but this may be at the expense of the accuracy of the assessment.

Implications for Emergency Nursing Practice

Preventing delirium is the most effective strategy for reducing its occurrence and related complications in older adults in the emergency department. Delirium frequently leads to poor health outcomes, including cognitive and physical deterioration, longer hospital stays, and institutionalization.[17-19] Successful preventive strategies should be focused on reducing the risk factors ([Figure]). When delirium occurs, nurses need to address all evident causes, provide supportive care, prevent complications, and treat behavioral symptoms.

El Hussein and Hirst[25] qualitatively investigated the clinical reasoning processes of registered nurses to understand their delirium recognition skills. The researchers found that the participants used a biomedical, physiological, or pathologic approach to recognize delirium. This tendency hindered recognition because the nurses viewed physiological indicators as a rule for the “stability” of a patient. If a patient’s presentation did not match a registered nurse’s definition, delirium was not recognized by that nurse. It is always the responsibility of the registered nurse to pursue learning if a knowledge deficit is self-identified. One strategy to obtain this knowledge might be through self-

directed learning, often a requirement of the hours of training required to maintain one's license. However, this implies that the emergency nurse is aware of a personal knowledge gap and is invested in ongoing learning about delirium.

Differentiating delirium from normal aging requires that clinical educational opportunities and resources be provided to registered nurses.[22] ED educators need to ensure that staff nurses are adequately educated. Patient outcomes can be positively affected by the integration and application of sufficient delirium teaching to nursing staff.[21,22] O'Sullivan et al[21] found that introducing participants to a website designed for delirium learning significantly increased delirium knowledge compared with participants unexposed to the website. Varghese et al[37] concluded that an educational program delivered over a 6-week period increased delirium knowledge and recognition and improved nursing practice in the use of the CAM tool.

An extension of education is coaching. Gordon et al[38] provided participants an educational session, pretest, and tool overview before initiating bedside coaching. Bedside coaching included support and immediate feedback to nurses using the new detection tool, followed by an assessment comparison between an expert clinician and the staff nurse. Pre-and posteducation chart reviews indicated that this intervention was successful in significantly increasing the rates of delirium recognition. Mentoring opportunities are a strategy to help novice registered nurses develop their delirium assessment skills. Previous experience was found to be an asset for delirium recognition among registered nurses.[25] In contrast, less-experienced registered nurses were more diligent in their efforts to uncover delirium than nurses with more experience. One reason for this finding may be that nurses searching for obvious indicators had reduced opportunities for observing delirium compared with those who took a holistic approach to patient assessment.

Organization factors specific to nursing practice that might contribute to the challenges of tool use include computer order sets and specific time requirements of mandated nursing tasks.[25] Other factors include the unit type, culture, and implementation strategies to which a registered nurse is subject. Unit policies and procedures set out by an organization can influence the type of delirium recognition tool used by registered nurses. To address underrecognition of delirium on an organizational level, policy change may be required to standardize assessments and successfully integrate delirium tools into routine emergency nursing practice. In addition, staffing levels of emergency nurses may need to be increased to equip them with more time for holistic patient interactions to improve delirium recognition.

Delirium and dementia often present with similar symptoms ([Table 3]). Delirium may be imposed on dementia, a potential health challenge when older patients are transferred from a continuing care facility to an acute care hospital. It is important for nursing staff in the emergency department to recognize the contribution that informal care providers such as family can make to the recognition of delirium in an older patient. Through conversing with them, the registered nurse can obtain baseline data such as previous cognitive status, primary language, and possible contributing factors to the symptoms demonstrated by the older patient in the emergency department. Mailhot et al[39] examined the ability of the family-rated Family CAM to identify delirium in the emergency department among patients with and without dementia as compared with the CAM. Using the Family CAM as part of a systematic screening strategy for the emergency department that could be supplemented by the families' assessments was promising and contributed to earlier detection by nurses.

Conclusion

Clear understanding of delirium presentation in older patients is important to provide quality nursing care in the emergency department. It is the responsibility of registered nurses working in the emergency department to assess older patients for the presence of delirium. In this paper, we have discussed the use of assessment tools in the recognition of delirium and identified some of the challenges that nurses face in the use of these tools. Yet, there is a need to acknowledge and encourage registered nurses working in the emergency department to educate their colleagues and to advocate within their acute care facilities for a teamwork approach to the assessment and treatment of delirium.

Tool
4AT (4 A's Test, abbreviated mental test)
CAM (Confusion Assessment Method)
The Intensive Care Delirium Screening Checklist
interRAI-AC (International Resident Assessment Instrument–Acute Care)
Nu-DESC (Nursing Delirium Screening Scale)
PrDICT (Predicting Emergency Department Delirium with an Interactive Computer Tablet)
PRISME (an acronym that can assist in identifying and relieving underlying factors that are modifiable and can contribute to the onset and perpetuation of delirium)
RADAR (Recognizing Acute Delirium as Part of Your Routine)
SQiD (Single Question in Delirium)
The Memorial Delirium Assessment Scale

Screening tool				
CAM	RADAR	4AT	interRAI-AC	Nu-DESC
Clinical features tested				
(1) Acute onset and fluctuating course; (2) inattention; (3) disorganized thinking; (4) altered level of consciousness	When nurse is administering medication: (1) Was the patient drowsy?; (2) Did the patient have trouble following your instructions?; (3) Were the patient's movements slowed down?	(1) Alertness; (2) abbreviated mental test; (3) attention; (4) acute change or fluctuating course	Four delirium items: (1) acute change in mental status from baseline; (2) mental function varies over the course of the day; (3) episode of disorganized speech; (4) easily distracted	(1) Disorientation and/or misperception; (2) inappropriate behavior; (3) inappropriate communication; (4) illusions/hallucinations; (5) psychomotor retardation

Use				
Individuals classified as high risk Minimal training required Nurse and physician use Completion in less than 5 minutes	Patients at risk for delirium (aged ≥65 y) Nurses during administration of scheduled medications	Patients at risk for delirium (aged ≥65 y)	Patients aged ≥70 y Used by trained research nurses	Used by nurses
Screening				
Item 1 and 2 with either 3 or 4 indicates positive CAM result of delirium	"Yes" to 1 or more items = positive RADAR result indicating delirium	Range of possible scores for each item 0-4 Score of 4 or greater = possible delirium ±cognitive impairment; 1-3 = possible cognitive impairment; 0 = delirium or severe cognitive impairment unlikely	Each item scored (0 = behavior not present; 1 = behavior present)	Each item scored (0 = no symptom; 1 = present but mild; 2 = present and pronounced/intense) Score of ≥2 = positive screen
Findings				
Sensitivity (94%-100%) Specificity (90%-95%) Negative predictor (90%-100%) Patient 20 times more likely to be delirious if rated positive by CAM	Sensitivity (73%) Specificity (67%) Each positively scored item increases chances of capturing delirium by 43% 73 times more delirium cases per minute than 3 assessments conducted with CAM and HDS		Sensitivity (82%) Specificity (91%) Positive (72%) and negative (95%) predictor value Patient screened positive = 10 times more likely to be delirious Patient with cognitive impairment 3 times more likely to be delirious if screened positive	Against CAM: sensitivity (85.7%); specificity (86.8%) Repeat studies: sensitivity (95%-96%); specificity (79%-87%)
Advantages				

Rapid identification of delirium Additional questionnaire component (total of 9 diagnostic criteria) Ability to detect various abnormal mental states Systematizes observation and documentation	No direct questioning Observation only Baseline functioning and additional information sources not required Can be completed during every medication administration Can detect hyper- and hypoactive forms of delirium Takes average of 7.2 s to complete Was not perceived to increase workload	Easy to use and rapid assessment tool	High negative predictor	Easy use perceived by nurses Takes little time to complete
Disadvantages				
Specific to use in older patients May be contraindicated in psychiatric disorders aside from delirium and dementia	Cannot be used if patient does not have scheduled medication	Does not test features such as disorganized thinking Abbreviated mental test may be contraindicated in patients with dementia or other cognitive impairments	Admission assessment requires 24-h observational period Tool was not used in isolation and was part of broader assessment	Specificity not as high as other tools such as CAM Overestimated the presence of delirium when compared with CAM

Features	Delirium	Dementia
Description	Delirium is a serious disturbance in mental abilities that results in confused thinking and reduced awareness of the environment.	Dementia is a general term for loss of memory, language, problem-solving, and other thinking abilities that are severe enough to interfere with daily life.
Duration	Acute	Chronic
Prognosis	Reversible	Lifelong
Onset	Appears in a few hours or days	Develops slowly over a few years

Symptoms (may include but not limited to)	Confused thinking	Anxiety
Disorientation	Confusion	Easily distracted
Difficulty in communicating	Experiences hallucinations	Memory loss
Reduced awareness of environment	Paranoia	Suddenly not able to do something as well as they used to
	Among possible causes	Variety of medical conditions, eg, dehydration, sensory impairment, variety of medical conditions, stress
Neurodegeneration in the brain	Vascular deficits	Neurometabolic disorders
Intervention goal	Reverse confusion by identifying and addressing precipitating causes	To delay decline in cognitive and physical functioning

DETAILS

Subject:	Patients; Aging; Substance abuse; Dementia; Sepsis; Older people; Nurses; Nurse led services; Emergency services; Delirium; Neuropsychiatric symptoms; Departments; Cognition &reasoning; Clinical assessment
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Evaluating Empiric Therapy for Acute Uncomplicated Cystitis in the Outpatient Setting: A Retrospective Cohort Study: JEN

ProQuest document link

ABSTRACT (ENGLISH)

Objectives

To evaluate the empiric therapy prescribed for acute uncomplicated cystitis in the outpatient setting (emergency department and ambulatory care clinics) and to characterize uropathogens for discordance between the therapy prescribed and susceptibility.

Methods

A retrospective review was conducted at an inner-city emergency department and multiple clinics to evaluate the empiric therapy prescribed and the uropathogens isolated from culture for patients with acute uncomplicated cystitis.

Results

A total of 144 urine cultures were included. Among the patients, 53.4% were empirically prescribed cephalexin, 20.1% ciprofloxacin, 11% nitrofurantoin, and 8.3% trimethoprim/sulfamethoxazole. The most common uropathogen

was *Escherichia coli* (72.4%), followed by *Streptococcus agalactiae* (7.6%) and *Klebsiella pneumoniae* (4.8%). Of the 107 *E. coli* isolates, 9 were extended spectrum beta-lactamase–producing. *E. coli* antimicrobial susceptibilities were as follows: ceFAZolin (97%), nitrofurantoin (96%), cefTRIAXone (91%), ciprofloxacin (87%), and trimethoprim-sulfamethoxazole (59%). The concordance rates with the Infectious Diseases Society of America treatment guidelines for acute uncomplicated cystitis and local resistance patterns were as follows: empiric therapy prescribed (70%), dosing of empiric therapy (77%), and duration of empiric therapy (22%). For empiric therapy prescribed and susceptibility mismatch, 5.6% of the isolates were not susceptible to therapy, 76.4% were susceptible to therapy, 14% did not have susceptibilities, and 4.2% did not receive therapy.

Conclusions

Most of the cases of acute uncomplicated cystitis at the subject institution can be managed safely and effectively with nitrofurantoin or first-generation cephalosporins. Institutions should use national guidelines in conjunction with local resistance and prescribing patterns to improve antibiotic prescribing in the outpatient setting.

FULL TEXT

Introduction

The outpatient setting, including the emergency department and ambulatory care centers, has been identified by the Centers for Disease Control and Prevention (CDC) as an area in which interventions are needed to improve antimicrobial stewardship (AMS). The emergency department is a unique setting that sees a high volume of patients compared with other outpatient settings, and it would benefit greatly from AMS interventions.[1,2] In 2014, emergency medicine providers were responsible for prescribing 14.2 million antibiotics, and it is estimated that 30% of all antibiotics prescribed in this setting are unnecessary.[1] The benefits of AMS programs and interventions are well known and include, but are not limited to, improved patient outcomes, decreased antimicrobial resistance, and decreased incidence of *Clostridioides difficile* infections (CDIs).[1,2] In an effort to combat inappropriate prescribing patterns of antibiotics in the outpatient setting, the CDC issued the “Core Elements of Outpatient Antibiotic Stewardship” in 2016. These core elements include a commitment to prescribe antibiotics safely, develop policies to improve antibiotic prescribing, track and report prescribing patterns, and educate providers and patients on antibiotics.[1,3]

Acute uncomplicated cystitis is 1 of the most common indications for the prescribing of antibiotics in the outpatient setting, and multidrug-resistant organisms (MDROs) are increasing among uropathogens.[4,5] The Infectious Diseases Society of America (IDSA) guideline for the treatment of acute uncomplicated cystitis and pyelonephritis currently recommends nitrofurantoin, fosfomycin, or trimethoprim/sulfamethoxazole (TMP-SMX) as first-line agents for empiric treatment. The IDSA warns against the use of TMP-SMX empirically if the resistance prevalence for *Escherichia coli* is known to exceed 20%.[5,6] Fluoroquinolones, owing to a high prevalence of resistance, and beta-lactams, owing to lower efficacy than other agents, are reserved as second-line agents. This guideline, however, was published 10 years ago, and specific recommendations from the guideline may not be applicable to every institution because local antimicrobial susceptibility to *E coli* and other common uropathogens varies significantly among regions.[5] In an effort to improve AMS in the outpatient setting at our institution, the objectives of this study were to evaluate the prescribing patterns and to characterize uropathogens in the outpatient population with acute uncomplicated cystitis.

Methods STUDY DESIGN

This study was a retrospective observational cohort study conducted in the emergency department of a tertiary teaching hospital and an associated ambulatory care center in the United States from January 1, 2016, to June 30, 2016. This study was approved by the St Joseph's University Medical Center Institutional Review Board (EX#2017-25).

STUDY SETTING AND POPULATION

The institution serves a multicultural patient population and the emergency department experiences a high patient volume with more than 160000 visits annually. The ambulatory care center has many clinics within, including an adult medicine clinic, HIV clinic, and adult and adolescent obstetrics and gynecology clinic. Both the emergency department and ambulatory care center commonly prescribe antibiotics for various indications, including acute

uncomplicated cystitis.

The eligible patients were identified through bacterial urine isolates from these centers. The IDSA defines patients with acute uncomplicated cystitis as nonpregnant, premenopausal women with no known urologic abnormalities. Therefore, this study included nonpregnant women between the ages of 16 and 45 years who were diagnosed with acute uncomplicated cystitis in the emergency department or ambulatory care center. The diagnosis of acute uncomplicated cystitis was based on the provider's diagnosis in the assessment/plan of the electronic medical record (EMR). Patients with a known urologic abnormality or comorbidity, genitourinary surgical procedure in the preceding 90 days, or whose condition warranted hospitalization were excluded. Patients who received antibiotics in the preceding 90 days, were hospitalized for 72 hours or more in the past 90 days, or those who resided in a long-term care facility (ie, nursing home or subacute rehabilitation center) were excluded because exposure to the health care setting and recent antibiotic use increase the risk of infection with an MDRO. Patients with urine cultures positive for fungi were also excluded.

DEFINITIONS

We used the 2010 IDSA guideline for the treatment of acute uncomplicated cystitis and pyelonephritis and local susceptibility patterns from our institution-specific antibiogram to define appropriate empiric therapy. Regimens of nitrofurantoin 100 mg twice daily for 5 days and cephalosporin therapy such as cephalexin 500 mg every 6 to 8 hours for 7 days were considered appropriate regimens. Cephalosporins were considered appropriate empiric treatment regimens because they are cost-effective agents for the patient population specific to our institution. Empiric therapy with TMP-SMX or fluoroquinolones was not considered appropriate owing to *E coli* resistance rates of 40% and 34%, respectively, on the basis of our institution-specific ED antibiogram.[5] The recommended duration of therapy for the treatment of acute uncomplicated cystitis was defined as 7 days for cephalexin, 3 days for ciprofloxacin, 5 days for nitrofurantoin, and 3 days for TMP-SMX.[5]

OUTCOMES

The primary end point was the choice of empiric therapy and duration of therapy prescribed for acute uncomplicated cystitis in the outpatient setting. The secondary end points included concordance between the empiric therapy prescribed and susceptibility to the uropathogen, number of revisits to the emergency department or ambulatory care center within 14 days of receiving initial empiric therapy, and characterization of the susceptibilities of the urine isolates.

DATA ANALYSIS

Descriptive statistics were calculated using Excel for Mac version 16.4 (Microsoft Corporation).

Results

Of the 1783 bacterial urine isolates evaluated, 144 were identified and met the inclusion criteria. Baseline characteristics can be found in Table 1. For the empiric therapy prescribed, most of the patients were prescribed cephalexin (53.4%), followed by ciprofloxacin (20.1%) and nitrofurantoin (11%) (Table 2). The duration of therapy varied and lacked consistency with current recommended treatment durations for select antimicrobials for acute uncomplicated cystitis. The appropriate duration of therapy prescribed was as follows: nitrofurantoin (31%), cephalexin (9%), ciprofloxacin (5.2%), and TMP-SMX (0%) (Figure 1).

The most common uropathogen observed was *E coli* (72.4%), followed by *Streptococcus agalactiae* (7.6%) and *Klebsiella pneumoniae* (4.8%). Of the 107 *E coli* isolates, 9 were extended-spectrum beta-lactamase (ESBL)–producing species (Figures 2 and 3). *E coli* antimicrobial susceptibilities were as follows: ceFAZolin (97%), nitrofurantoin (96%), cefTRIAXone (91%), ciprofloxacin (87%), and TMP-SMX (59%). These susceptibilities for *E coli* were consistent with the institution-specific ED antibiogram with the exception of ciprofloxacin (66% vs 87%) (Table 3).

The concordance rates with the IDSA guideline for the treatment of acute uncomplicated cystitis and local antimicrobial resistance patterns were as follows: empiric therapy prescribed (70%), dosing of empiric therapy prescribed (77%), and duration of empiric therapy prescribed (22%). Only 5.6% of the isolates were not susceptible to the empiric therapy prescribed. Most of the isolates (76.4%) were susceptible to the empiric therapy prescribed,

14% did not have susceptibility reported (ie, *S agalactiae*), and 4.2% were not prescribed empiric therapy. Eight revisits to the emergency department or ambulatory care center were identified owing to failed therapy (ie, resistance to empiric therapy), complicated infection (ie, pyelonephritis or renal calculi), or no initial empiric treatment prescribed.

Discussion

MDROs are a growing concern in the US. It is estimated that MDROs are responsible for approximately 3 million infections and 35000 deaths in the US.[2] Antibiotics are often not optimally prescribed up to 50% of the time, which contributes to the development of MDROs.[3] Antibiotics are also not always safe, and their use carries the risk of drug-drug interactions, development of CDIs, and adverse drug events such as allergic reactions.[1,2] The outpatient setting is afflicted with inappropriate prescribing patterns, and there is a growing need to improve AMS in this setting. In 2009, antibiotics prescribed in the outpatient setting accounted for 60% of the total antibiotic expenditure in the US.[7] Using 2010 to 2011 data, Fleming-Dutra et al[8] sampled nearly 200000 ambulatory care visits to evaluate the appropriateness of antibiotic prescribing. Approximately 13% of the visits were associated with a prescription for an antibiotic, and at least 1 in 3 antibiotics were inappropriate.[8] In 2015, the CDC estimated that nearly 270 million antibiotic prescriptions were dispensed, 30% of which were inappropriate. Many of these antibiotics prescribed in the outpatient setting were discordant with current guideline recommendations. The CDC is committed to improving the prescribing of antibiotics in the outpatient setting, and it released the “Core Elements of Outpatient Antibiotic Stewardship” in an effort to bring about change at the national level.[1,3]

AMS interventions reduce inappropriate prescribing of antibiotics as well as adverse drug events. Such interventions should be carried over from the inpatient setting to the outpatient setting.[9] Interventions include the CDC's “Core Elements” in addition to using EMR, guideline implementation, delayed prescribing, and point-of-care testing. The development of an outpatient AMS program should be multidisciplinary and include pharmacists, physicians, and other providers.[10,11] Institutions have demonstrated successful AMS interventions in the emergency department. Dinh et al[12] used many of these outpatient AMS recommendations to establish a program in the emergency department of their institution in France with the goal to improve the prescribing patterns of antibiotics in this setting. In 2 years after implementing the AMS interventions in their emergency department, there was a statistically significant reduction in not only the amount of inappropriate antibiotics prescribed, but also in the overall amount of antibiotics prescribed.[12]

We chose to evaluate the prescribing patterns and susceptibilities of uropathogens for acute uncomplicated cystitis because it is a common indication that results in a prescription for an antibiotic at our institution. There is also a national concern that resistance is increasing among uropathogens.[4,5,13-15] Bacterial pathogens that are typically responsible for acute uncomplicated cystitis are *E coli* and, to a lesser extent, other *Enterobacteriaceae* (*K pneumoniae* and *Proteus mirabilis*) and *Staphylococcus saprophyticus*. Our study population saw similar rates of *E coli* compared with national rates (75%-90%).[4,5] Our study had 9 patients with ESBL-producing *E coli*, demonstrating that MDROs can be observed in patients with acute uncomplicated cystitis from the community. Although this finding is concerning given the population, the potential risks of using broad-spectrum antibiotics empirically and overprescribing of antibiotics in general outweigh the benefits because the incidence was low.

On the basis of the results of this study, we recommend nitrofurantoin for a total duration of 5 days as the first-line agent for the empiric treatment of acute uncomplicated cystitis at our institution, unless contraindicated (ie, creatinine clearance 16-17 *E coli* demonstrated acceptable susceptibility to nitrofurantoin (96%) in our study population. Nitrofurantoin demonstrated activity against all 9 ESBL-producing *E coli* isolates as well. This is consistent with other studies demonstrating that nitrofurantoin has consistent and acceptable activity against MDROs.[4,13,14] The amount of *K pneumoniae* isolates (4.8%) in our study was not sufficient to determine a susceptibility pattern for nitrofurantoin because the number of *K pneumoniae* isolates was less than 30. *P mirabilis* is intrinsically resistant to nitrofurantoin; however, the amount of *P mirabilis* isolates (1.3%) in our study population was not concerning enough to recommend against the use of nitrofurantoin as the empiric first-line agent.[17] There were no treatment failures in our study population secondary to empiric nitrofurantoin use. The IDSA also recommends

nitrofurantoin and fosfomycin as first-line options for the empiric treatment of acute uncomplicated cystitis.[5] At our institution, fosfomycin is restricted, with use limited to specific clinical scenarios such as patients with documented cystitis with an MDRO in which other agents cannot be used or for patients with allergies to other antimicrobials. A first-generation cephalosporin such as cephalexin for a total duration of 7 days is an appropriate alternative to nitrofurantoin for the empiric treatment of acute uncomplicated cystitis at our institution. The IDSA currently reserves beta-lactam agents as alternatives for the treatment of acute uncomplicated cystitis because studies have demonstrated beta-lactams to be inferior to other treatment options.[5] In our study population, *E coli* had adequate susceptibility to ceFAZolin (97%), which can be used as a surrogate marker for other first- and third-generation cephalosporins for urinary isolates.[18] Cephalexin is also a cost-effective option for our patient population. We recommend against the use of third-generation cephalosporins at our institution for the empiric treatment of acute uncomplicated cystitis because these broader-spectrum agents may increase the risk of the development of infections with an ESBL and are generally not cost-effective for our patient population.[19] We caution providers that if they do choose a beta-lactam for empiric therapy then these agents require a longer treatment duration and closer follow-up than other agents.[4,5]

The IDSA currently recommends that fluoroquinolones be reserved as an option for the empiric treatment of acute uncomplicated cystitis because overuse can contribute to worsening fluoroquinolone resistance. Fluoroquinolones have a role in the treatment of more serious infections than acute uncomplicated cystitis, and increased resistance has been observed.[5] In 2016, the US Food and Drug Administration (FDA) issued a drug safety communication warning against the use of fluoroquinolones for acute bacterial sinusitis, acute exacerbation of chronic bronchitis, and uncomplicated urinary tract infections (UTIs) owing to safety concerns.[20] The FDA recently strengthened its current warning for fluoroquinolones, advising prescribers of potential blood glucose disturbances, central nervous system effects, and risk of rupture of aortic aneurysms.[21,22] Despite having adequate susceptibility, we recommend that fluoroquinolones be reserved as an option for the empiric treatment of acute uncomplicated cystitis at our institution in light of the recent FDA warnings and that they be limited to use in more serious infections.

Although TMP-SMX is considered a first-line agent by the IDSA for the empiric treatment of acute uncomplicated cystitis, its use is not recommended in this setting if the *E coli* resistance prevalence is known to exceed 20%. The resistance threshold of 20% in which TMP-SMX is no longer recommended in the treatment of acute uncomplicated cystitis is derived from consistent in vitro and mathematical data. For other antibiotics, there are limited data to recommend resistance levels that would preclude the use in acute uncomplicated cystitis.[5] In our study population, *E coli* susceptibility to TMP-SMX was only 59%, which is consistent with our institution-specific ED antibiogram (60%), and therefore TMP-SMX is not recommended for the empiric treatment of acute uncomplicated cystitis at our institution because it could potentially lead to treatment failure.

To address the discordance of duration of the therapy prescribed with current recommendations observed in our study, an in-service was provided to the ED staff to provide education on optimal prescribing for acute uncomplicated cystitis. In addition, a new EMR system was recently implemented, and the duration of therapy for antimicrobial agents was optimized to help guide prescribers. On the basis of the findings of our study, we also developed an institution-specific guideline for the empiric treatment of acute uncomplicated cystitis for the medical staff to use that includes antimicrobial recommendations as well as pricing information of various agents because appropriate, cost-effective options are critical to our patient population. This guideline has since been uploaded on the institution's AMS web page.

Implications for Emergency Clinical Practice

This study was a needs assessment at our institution to evaluate the antibiotic prescribing patterns for acute uncomplicated cystitis in the outpatient setting (emergency department and clinics) and how they aligned with the national treatment guidelines as well as local susceptibility patterns. Antimicrobial resistance is on the rise, and AMS efforts in the outpatient setting, including the emergency department, are an important measure to combat this. Overall, we found significant discordance with the prescribing practices at our institution and national guidelines. We recommend that institutions evaluate their antibiotic prescribing patterns for common antibiotic indications in the

emergency department and develop methods to improve them. By identifying areas for improvement, developing institution-specific guidelines, and providing education, all health care professionals on the team in the emergency department have a role in improving antibiotic prescribing. Clinicians prescribing antibiotics, pharmacists verifying antibiotic orders, and nurses discharging patients with antibiotics can use these resources to intervene and improve antibiotic stewardship.

Limitations

This study has possible limitations, including the fact that it was a single-center study and retrospective in design. We were not able to confirm adherence to the empiric regimen prescribed; revisits to other institutions; or adverse effects of antibiotics, such as CDIs or drug-drug interactions. By IDSA definition, a UTI in male patients is considered a complicated UTI. Our findings therefore cannot be applied to male patients because this was a study exclusion. In addition, 16 patients were diagnosed with acute uncomplicated cystitis, but they complained of flank pain, which may be indicative of pyelonephritis.

Conclusion

Our study demonstrated that most of the cases of acute uncomplicated cystitis can be managed safely and effectively with nitrofurantoin or first-generation cephalosporins. Our findings are consistent with national literature, demonstrating high rates of *E coli* (75%-90%) and a lower incidence of MDROs in this patient population.[5] We recommend that institutions use national guidelines, local resistance patterns, and institution-specific antibiograms in conjunction with education to improve the prescribing patterns in the outpatient setting, including the emergency department.

Author Disclosures

Conflicts of interest: none to report.

Acknowledgments

Dorothy McCoy, PharmD

Characteristic	N=144	
Mean (SD)	n (%)	Age, y
28.4 (8.4)		Height, cm
161.24 (28.3)		Weight, kg
71.4 (20.8)		Positive urinalysis

Empiric therapy	N=144 n (%)
Cephalexin	77 (53.4)
Ciprofloxacin	29 (20.1)

Nitrofurantoin	16 (11)
Trimethoprim/sulfamethoxazole	12 (8.3)
No therapy	6 (4.2)
Other	4 (2.7)

Percent susceptibility	Ciprofloxacin	Nitrofurantoin	TMP-SMX	CefTRIAXone	CeFAZolin	Total isolates
E coli isolates from study population, %	87	96	59	91	97	105
E coli isolates from 2016 antibiogram, %	66	94	60	83	N/A	1765

DETAILS

Subject:	Ambulatory care; Emergency medical care; Inner city; Susceptibility; National guidelines; Resistance; Multidrug resistant organisms; Urine; Prescribing; Escherichia coli; Cohort analysis; Emergency services; E coli; Acute; Trimethoprim; Drug resistance; Patients; Clinics; Antibiotics; Ambulatory health care; Antimicrobial agents; Infectious diseases; Cystitis; Disease control; Dosage; Urinary tract infections; Streptococcus infections
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Implementing Family Presence During Pediatric Resuscitations in the Emergency Department: Family-Centered Care and Trauma-Informed Care Best Practices: JEN

ABSTRACT (ENGLISH)

The included meta-analysis noted that family presence did not affect adult or pediatric clinical outcomes and may improve family psychological outcomes.12 The 4 systematic reviews noted that parents desire the option of family presence; family presence is helpful to the child,3 parent, and staff and does not cause additional psychological trauma; most families who were present during a resuscitation/invasive procedure would recommend being present to other parents; family presence provided a sense of control during the event and improved coping after the event while also dispelling doubts about the resuscitation/procedure; parental presence is associated with decreased

behavioral disturbances after discharge and no differences in care processes4; parents prefer to have the choice to be present5; and family members of adult patients noted strong preferences for presence across multiple countries/cultures.6 In this commentary, we aim to provide guidance on the implementation of family presence in emergency departments, with a specific focus on pediatric resuscitations. Giving parents the option to be present during resuscitations and invasive procedures has become the norm in the approximately 500 pediatric emergency departments where resuscitations occur daily to weekly.7 In pediatric emergency departments, family presence is often supported by training of staff before resuscitations and by a diverse group of practitioners—nurses, physicians, technicians, social workers, child life specialists, and chaplains—who are available to support families during resuscitations. [...]although institution- and provider-level awareness and acceptance of family presence has grown remarkably—with half of general emergency departments having family-centered care policies for children8—staff in general emergency departments report concerns related to insufficient staffing to support families, a lack of space, and the potential negative effects on the providers as barriers to family presence.9 Furthermore, implementation of pediatric evidence-based practices such as family presence is challenging in general emergency departments owing to the competing demands of efforts focusing on the more common adult patient population. The current American Academy of Pediatrics/American College of Emergency Physicians/Emergency Nurses Association guidelines recommend family presence during pediatric resuscitation and procedures and highlight the “development of a compendium of best practices” as a needed area of research.13 Two recent international surveys demonstrated that ED physicians, nurses, emergency medical technicians, paramedics, and other health staff commonly expressed interest in education and training on this topic, but few providers had received any formal education in specific skills.14,15 In the current climate of growing awareness and provider acceptance, it is important to move beyond general policies and mere family presence; it is time to assess and improve specific family presence as well as PFCC and TIC practices within pediatric resuscitations in all emergency departments.

FULL TEXT

In this issue of the *Journal of Emergency Nursing*, Vardanjani et al[1] report the findings of a rigorous umbrella review of 1 meta-analysis and 4 systematic reviews, which include a total of 70 studies that describe the impact of family presence on patients, families, providers, and clinical care processes regarding resuscitations and invasive procedures. This review of reviews concluded that family presence may benefit the people involved and does not have a negative impact on these individuals or on the clinical care processes. The included meta-analysis noted that family presence did not affect adult or pediatric clinical outcomes and may improve family psychological outcomes.[12] The 4 systematic reviews noted that parents desire the option of family presence; family presence is helpful to the child,[3] parent, and staff and does not cause additional psychological trauma; most families who were present during a resuscitation/invasive procedure would recommend being present to other parents; family presence provided a sense of control during the event and improved coping after the event while also dispelling doubts about the resuscitation/procedure; parental presence is associated with decreased behavioral disturbances after discharge and no differences in care processes[4]; parents prefer to have the choice to be present[5]; and family members of adult patients noted strong preferences for presence across multiple countries/cultures.[6]

In this commentary, we aim to provide guidance on the implementation of family presence in emergency departments, with a specific focus on pediatric resuscitations. Giving parents the option to be present during resuscitations and invasive procedures has become the norm in the approximately 500 pediatric emergency departments where resuscitations occur daily to weekly.[7] In pediatric emergency departments, family presence is often supported by training of staff before resuscitations and by a diverse group of practitioners—nurses, physicians, technicians, social workers, child life specialists, and chaplains—who are available to support families during resuscitations. However, for family presence to occur during most of the pediatric resuscitations in the United States, this practice must become standard in the more than 4500 general emergency departments where most of the total pediatric resuscitation events occur.[7] Of note, there are several challenges to implementing family presence during pediatric resuscitations in general emergency departments. Staff in these general emergency departments concurrently care for children and adults and often have limited access to pediatric-specific training. In addition, in

many general emergency departments, pediatric resuscitations occur as infrequently as once every 5 years, giving staff limited opportunity to practice family presence. And although institution- and provider-level awareness and acceptance of family presence has grown remarkably—with half of general emergency departments having family-centered care policies for children[8]—staff in general emergency departments report concerns related to insufficient staffing to support families, a lack of space, and the potential negative effects on the providers as barriers to family presence.[9] Furthermore, implementation of pediatric evidence-based practices such as family presence is challenging in general emergency departments owing to the competing demands of efforts focusing on the more common adult patient population.

The first step in implementing family presence during pediatric resuscitations is to create a culture where staff are comfortable honoring and supporting a family's decision to enter or not to enter the resuscitation room. Staff education and training for family presence should include the principles of patient- and family-centered care (PFCC) and trauma-informed care (TIC). PFCC is care that emphasizes respect for patient and family perspectives and encourages patient and family participation in care and decision making.[10] Related to family presence, this may include parents communicating with the patient verbally about their care; touching the patient; and/or communicating with, or observing, the care team.[11] TIC, a closely related concept, refers to providing health care in a way that minimizes the potential for current or ongoing psychological trauma or posttraumatic stress related to illness, injury, or treatment experiences.[12] PFCC and TIC are complementary concepts ([Figure]); each is associated with improved health outcomes and better patient and family experience.

Without clearly defined practices or assessment metrics, it is difficult to train teams to provide optimal PFCC and TIC, and there is a high likelihood of significant interprovider variability in clinical practice. Developing granular, evidence-based practices with clinical tools related to PFCC and TIC will improve psychological outcomes for patients, their families, and their providers after pediatric resuscitations. The current American Academy of Pediatrics/American College of Emergency Physicians/Emergency Nurses Association guidelines recommend family presence during pediatric resuscitation and procedures and highlight the “development of a compendium of best practices” as a needed area of research.[13] Two recent international surveys demonstrated that ED physicians, nurses, emergency medical technicians, paramedics, and other health staff commonly expressed interest in education and training on this topic, but few providers had received any formal education in specific skills.[14,15] In the current climate of growing awareness and provider acceptance, it is important to move beyond general policies and mere family presence; it is time to assess and improve specific family presence as well as PFCC and TIC practices within pediatric resuscitations in all emergency departments.

Our team has created a comprehensive set of resources and an online training module to support general emergency departments in implementing family presence, PFCC, and TIC. This work was funded by an Emergency Medical Services for Children Targeted Issues grant.[16] We developed a framework describing specific provider PFCC/TIC behaviors/best practices that are practical and feasible during pediatric resuscitations in all emergency departments (Family-Centered and Trauma-Informed Support [FACETS] of pediatric resuscitation). FACETS breaks down these behaviors into 6 domains that can be leveraged into individual core competency categories for training. The domains include (1) sharing information with the patient and family, (2) promoting family involvement in care/decisions, (3) addressing family needs/family distress, (4) addressing the child's distress (pain and emotional distress), (5) promoting effective emotional support for the child, and (6) establishing developmental and cultural competence.

An observational checklist for pediatric resuscitation based on FACETS was developed in a 3-step process:

1. A literature review demonstrated a paucity of specific instructions for providers regarding effective practices (eg, an evidence-based clinical guideline was published by Farah et al[17]) and limited existing instruments designed to analyze providers’ family presence/PFCC/TIC behaviors.

2. An expert panel comprising specialists in pediatric emergency medicine, nursing, critical care, behavioral science, traumatic stress, and pediatric psychology identified 33 discrete provider behaviors across the aforementioned 6

comprehensive domains of PFCC/TIC.

3. A review of 26 pediatric resuscitation videos identified 38 additional discrete provider behaviors. These behaviors were distilled and organized to create an observational checklist that can be used in quality improvement efforts and can be freely downloaded by clicking on the internet link in the corresponding reference.[18]

The culmination of our work was the development of a 1-hour online FACETS training module for training staff of general emergency departments. We are currently analyzing data from a randomized clinical trial (NCT03640520) evaluating the efficacy of this online training module in improving individual providers' knowledge and confidence in the practice of FACETS, assessed through questionnaires and assessment of the teams' clinical performance during a set of simulated pediatric resuscitations. The FACETS training will be available on our website for public use at the corresponding internet address in the reference list[19] in the fall of 2021.

In future research we hope to engage patients/survivors and family members with lived experiences in our efforts to continue to develop and implement FACETS. Another article in this issue by Douma et al[20] describes a survivor- and family-led scoping review protocol to inform our understanding of the care needs of families experiencing cardiac arrest care. With the publication of 2 articles on family presence in this issue of the journal, we are excited to shift this field of research from "if" family presence should be implemented in emergency departments during pediatric resuscitations to "how" to implement family presence through robust training and quality improvement programs.

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Author Disclosures

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DETAILS

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The Effect of Family Presence During Resuscitation and Invasive Procedures on Patients and Families:

An Umbrella Review: JEN

ABSTRACT (ENGLISH)

Introduction

The concept of family presence during resuscitation and invasive procedures is a controversial issue and has not been universally adopted by health care providers. Owing to the sheer number of studies in this field, we conducted this umbrella study to provide an overview of this concept with the aim of investigating the impact of family presence on patients, families, and resuscitation and invasive procedures.

Methods

In this review, using the Joanna Briggs Institute levels of evidence umbrella methodology guidelines, the authors searched PubMed, Google Scholar, Embase, MEDLINE, Web of Science, Scopus, and the Cochrane database for systematic review and meta-analysis studies that evaluated the presence of family during resuscitation and invasive procedures without time limit until July 2020. The following key words were used for the search: family presence; family witness; parent presence; parent witness; and resuscitation.

Results

A total of 254 articles published between January 1967 and July 2020 were screened. Five articles (1 meta-analysis and 4 systematic reviews) met the inclusion criteria. The review showed that family presence during resuscitation or invasive procedures does not have negative effects on family members, patients, or the resuscitation or invasive intervention process. Family members focus on the patients, not the ongoing treatment. The presence of family members is beneficial for both family members and health care staff. None of the reviewed studies reported a negative effect on family members.

Discussion

The presence of parents and other immediate family members during resuscitation and invasive procedures has positive impacts on patients, families, and health care staff.

FULL TEXT

Contribution to Emergency Nursing Practice

• What is already known: the concept of family presence during resuscitation and invasive procedures is a controversial issue and it has not been universally adopted by health care providers.

• The main finding of this paper is that the presence of parents and other immediate family members during resuscitation and invasive procedures has positive impacts on patients, families, and health care medical staff.

• Recommendations for translating the findings of this paper into emergency clinical practice include: A vital step toward implementing family presence during resuscitation is the provision of appropriate training for nurses and medical staff on family presence during resuscitation. Medical centers should provide the necessary training and support to implement this practice. Education and training are important for health care providers to learn essential communication skills, building practice confidence.

Introduction

Historically, there has been a reluctance to allow family presence during resuscitation (FPDR) or invasive procedures.[1] Doyle et al[2] introduced the concept of FPDR in 1987. More than a decade later, Hanson and Strawser[3] introduced this concept in nursing textbooks. They showed that 94% of the families who had experienced this presence stated that, in similar circumstances, they would want to be present again during resuscitation and suggested that this be offered to other families as well. The American Heart Association and the European Resuscitation Council recommend providing the necessary facilities and support for family members to be present during resuscitation, stating that cultural and social factors should also be taken into account.[4,5] The European

Rehabilitation Council considers FPDR to be a concept that places high value on the independence of patients and their families. This council has not outlined any concerns with regard to emotional harm to family members or interference during resuscitation. Despite these clinical guidelines on the importance of family presence, it remains a controversial issue. Many nursing leaders are reluctant to implement FPDR.[6,7] This is a result of negative perceptions of nurse managers about the potential dangers of FPDR, limited experience of implementing this program in the clinical setting, and lack of clinical policy guidelines.[5,8] In this regard, the concerns included lack of staff resulting in the inability to provide designated family support personnel at the bedside, lack of space in the resuscitation room to accommodate the family, and perception of a negative effect on the training of learners.[8] Unlike nurses and providers, patients and their families support FPDR.[9,10] Observing the resuscitation procedure reduces family members' feelings of helplessness and helps them through the grieving process by providing them the opportunity to witness the resuscitation efforts.[11,12] Since the publication by Hanson and Strawser[3] of their nursing textbook, many researchers in different parts of the world have studied FPDR. The number of systematic reviews, integrated reviews, and meta-analyses[8,13-20] is numerous and thus required an umbrella study. An umbrella review, also called review of reviews, is a systematic review of other systematic reviews that highlights their results and procedures, provides an overview of existing knowledge, gives quick access to a set of information, and provides a basis for comparing studies conducted on a particular topic.[21,22] We designed and conducted an umbrella review to determine, evaluate, and review the available evidence on the presence of family members during cardiopulmonary resuscitation and invasive procedures.

Methods

To conduct this review study, the umbrella methodology protocol of the Joanna Briggs Institute levels of evidence was used to identify search strategies and inclusion/exclusion criteria and then determine the research question, population, intervention, comparison group, and results.[23] In cases where several systematic reviews have addressed the same question, the umbrella review can provide a broader view by aggregating the results of these studies.[24]

SEARCH STRATEGY

Three researchers independently searched PubMed, Google Scholar, Embase, MEDLINE, Web of Science, Scopus, and the Cochrane database. The research was conducted in all the databases from inception of the study to July 2020 with no language restriction for publication using the following key words: family; witness; presence; resuscitation; invasive procedure; review; and meta-analysis. The exact query options included "family presence resuscitation" OR "family witnessed resuscitation" OR "family presence during resuscitation" OR "family presence during invasive procedures" AND review OR meta-analysis. In addition, "parents presence resuscitation" OR "parents witnessed resuscitation" OR "parents' presence during resuscitation" OR "parents' presence during invasive procedures" AND review OR meta-analysis were used. The authors selected and included those studies that qualitatively or quantitatively examined the presence of family members during resuscitation and invasive procedures. Studies that examined the perspective of the resuscitation team members (nurses and physicians) regarding the presence of family members during cardiopulmonary resuscitation and invasive procedures were excluded from the study because they did not match the research question.

CRITERIA ACCORDING TO POPULATION, INTERVENTION, COMPARISON, AND OUTCOME

Population: adult and pediatric family members and patients undergoing resuscitation or invasive procedures.

Intervention: FPDR or family presence during invasive procedures.

Comparison: family absence during resuscitation or invasive procedures.

Outcome 1: family psychological outcomes: depression, anxiety, satisfaction with care. Family ability to cope. Family perspectives and experiences.

Outcome 2: patient outcome: patient mortality, resuscitation quality, the perspectives of patients about FPDR.

EVALUATING QUALITY AND SYNTHESIS

The Joanna Briggs Institute levels of evidence checklist was used to evaluate quality.[22] This checklist consists of 11 questions and has no scales and therefore lacks a defined standard score. The 11 questions guide the appraisal of

systematic reviews or meta-analyses. Each question should be answered as “yes,” “no,” or “unclear.” “Not applicable” is also provided as an option and may be appropriate in rare instances. We considered the minimum score for this questionnaire as zero and the maximum as 11 (ie, a score of 1 for each question)[25]. If the answer was yes, a score of 1 was assigned, and if the answer was either no, vague, or inapplicable, a score of zero was assigned. The final score was expressed as a percentage. Thus, if the score obtained by a study was 11, it was reported as 100%. Considering the score obtained by using the checklist in our study (8 out of 11), the corresponding percentage (72.7%) would be expressed. Selected reviews were synthesized in a table and by three key questions: 1) does the presence of family members during resuscitation and invasive procedures have a negative impact on them, 2) does FPDR affect resuscication and invasive procedures? and 3) what is the effect of FPDR on patients?

Results

Overall, 713 articles were found in the initial database search (130 articles in Web of Science, 228 articles in Scopus, 101 articles in PubMed, and 254 articles in Google Scholar). After removing duplicate articles using EndNote software (Clarivate), 254 articles remained. Subsequently, 212 articles were excluded because they were not review studies. Of the 42 remaining review articles, 12 were systematic reviews or meta-analyses. Seven of these 12 articles were excluded because they examined the opinions of nurses and physicians regarding the presence of family members during cardiopulmonary resuscitation or invasive procedures. Ultimately, 5 articles were included in the study (Figure). These 5 systematic and meta-analysis studies scored more than 70% using the checklist proposed by the Joanna Briggs Institute levels of evidence.[22] Overall, five systematic reviews and meta-analyses that were conducted between 2005 and 2015 were included in this study. Of these 5 articles, 3 were specific to pediatric patients, 1 addressed adults, and the fifth included both. One of the articles evaluated the presence of family members during routine and invasive procedures, and the other 4 evaluated the presence of family during resuscitation and invasive procedures. Of these 5 articles, 4 were systematic reviews, and 1 was a meta-analysis ([Table]). In 2014, a systematic review by McAlvin and Carew-Lyons[16] revealed that parents who witnessed the resuscitation procedures performed on their child had a better acceptance of the death of their child and advised other parents in similar conditions to do the same too. Oczkowski et al[18] showed that the anxiety and depression scores of family members who had witnessed the resuscitation procedures performed on their loved ones were lower than those of the family members who were not present. Toronto and LaRocco[20] concluded that hospitals should adopt FPDR. The results of the systematic review by Powers[19] showed that education could be an effective factor in improving nursing leaders’ understanding of FPDR and increasing their comfort and confidence in its implementation. In 2012, Salmond et al[26] published an international comprehensive systematic review examining FPDR. The results of this study showed that in every country studied, family members strongly preferred to be present during resuscitation and considered this presence to be their right.[26]

The results of these studies revealed that the presence of family members during resuscitation or invasive procedures did not have negative effects on family members, patients, or the care provided. FPDR did not interfere with the procedures and did not affect the mortality rate or the quality of resuscitation (duration, repetition, time interval between request and initiation) because family members focused more on their loved ones than on the ongoing procedures. The presence of family members was beneficial for both family members and patients.

QUESTION 1: DOES THE PRESENCE OF FAMILY MEMBERS DURING RESUSCITATION AND INVASIVE PROCEDURES HAVE A NEGATIVE IMPACT ON THEM?

FPDR did not cause psychological trauma to families and reduced the depression, fear, and anxiety caused by the treatment while increasing their sense of control over, and satisfaction with, the medical care.[27,28] Family presence provided information about the patient's condition for families.[27] Physical contact between the family and the patient made family members feel comfortable, accelerated the healing process, and increased the family's ability to adapt to the death of a loved one.[27] The presence of families often relieved the feelings of fear and suspicion by giving them peace of mind. Furthermore, most parents believed that their presence was beneficial to their child. Families considered this presence to be their right. Given the strong emotional bond among family members, the opportunity

to be present during resuscitation or invasive procedures was comforting for all parties. Most families who have had this experience in the past requested this option for future interventions.

QUESTION 2: DOES FPDR AFFECT RESUSCITATION AND INVASIVE PROCEDURES?

The studies reviewed revealed that the presence of family members did not cause disruption in the resuscitation or procedural process.[28] In addition, it did not worsen the mortality rate or the quality of resuscitation (duration, repetition, and time interval between request and initiation)[18] because family members focused on their loved ones, not on the details of the ongoing medical procedures.[16]

QUESTION 3: WHAT IS THE EFFECT OF FPDR ON PATIENTS?

The presence of family was beneficial to patients, reduced the stress and anxiety caused by the treatment, and increased their satisfaction.[16,29] Furthermore, physical contact between family members was shown to accelerate the healing process.[16] In the Piira et al[29] review, 9 studies examined the behaviors of children after hospital discharge. Eight of these 9 studies did not show a significant difference between 1 group of children whose parents were present during medical procedures (invasive and noninvasive) and another group of children whose parents were not present. One study revealed that a group of children whose parents accompanied them during medical procedures had fewer behavioral difficulties when discharged from the hospital.[29] The result of this study is not in line with the result of our study. According to the result of their study, the presence of parents may not have a direct and clear effect on the child's anxiety and behavioral outcomes, but there are potential benefits for parents. It seems appropriate for physicians to provide an opportunity for parents to be present during the invasive procedures performed on their child.

Limitations

Although the concepts of family- and patient-centered care and existing guidelines recommend the presence of family members during resuscitation and invasive procedures, it is not universally adopted.[1,30,31] This may be due to a lack of support, comfort, and cooperation among medical staff. Arguments against family presence have focused on concerns with impedance to patient care, delayed initiation of resuscitation, distraction of resuscitation team members, and increased stress on medical providers owing to pressure from family members.[31]

Implications for Emergency Clinicians

Emergency nurses should be on the frontline of providing adequate information and guidance to families who wish to witness the resuscitation of their loved ones. The presence of family members during resuscitation and invasive procedures should be routinely presented as an option, while stressing both the advantages and disadvantages of such practice and eventually supporting the chosen actions. For this practice to be fully realized, ED managers and educators are encouraged to include family-centered care in the training modules of nurses to promote staff readiness in handling actual scenarios in which family presence would be warranted. Additionally, determining the availability of resources and the level of readiness of an institution to instigate family presence is imperative for the successful implementation of the practice. Moreover, utilizing the validated tool in this study, hospital administrators could be better assisted in accurately assessing family perception toward FPDR in their respective institutions and thus develop and implement policies regarding such practice, which could benefit both health care providers and recipients.

The first step for implementing the FPDR program is to define its guidelines and policies at medical centers. Next, an interdisciplinary team should be assigned to develop and expand the FPDR program. Education should be expanded, and the focus should be on the potential benefits for patients, families, and even health care professionals. The guidelines should outline the criteria for assessing family coping mechanisms to ensure uninterrupted patient care, including contraindications to the presence of family (eg, family members who exhibit violent behavior or distracting emotional outbursts or who are suspected abusers) and means to support families who are not present. A designated family member should be appointed to consult with the health care team during the resuscitation, whether families are present or not. It is imperative that standards be developed for all staff involved in FPDR to ensure the safety of patients, their families, and staff. Formal hospital policies regarding the presence of the family during resuscitation and invasive procedures should be prepared.[5]

Discussion

We investigated the effect of FPDR on the involved family members, patients, and members of the care team. The results of our umbrella review showed that FPDR has positive effects on family members and patients, while not affecting the mortality rate or the quality of resuscitation because family members focus on their loved one rather than the ongoing treatment. Similarly, Salmond et al[17] listed the benefits of FPDR as twofold: giving accurate and concise information regarding previous medical history to the resuscitation team members and improving the family's understanding of the patient's critical condition. During a resuscitation procedure, family presence provides the opportunity for family members to recognize the extent of the measures that were taken to attempt to save the patient's life. Family presence creates a situation for family members to be comforted beside their loved ones. FPDR can meet the emotional and spiritual needs of participants, facilitate the grieving process, and provide an opportunity for family members to bid their loved one farewell. In addition, in situations where resuscitative efforts may be terminated, families have the opportunity to participate in this important decision-making process.[17]

This review demonstrates that families and parents consider it their right to accompany their loved one during resuscitation and invasive procedures. Their presence is beneficial to themselves, the patient, and the health care providers. Families have asked policy makers to provide the necessary basis for this rule.[1,16] One key barrier to implementing FPDR from a personnel perspective is the lack of written instructions.[1] A vital step toward implementing FPDR is the provision of appropriate training for nurses and medical staff. It has been shown that training improves nurses' support for family presence, as well as increases family invitations during resuscitation.[9] In addition to nurse training, interprofessional training for all medical team members is critical because resuscitation is an interdisciplinary task involving various levels of providers. Furthermore, including FPDR in the bedside teaching of resuscitation promotes its implementation.[1]

Considering the positive effects of FPDR, Salmond et al[17] assert that it is time to end previous paternalistic practices. This can be accomplished by allowing parents to make key decisions regarding the best therapeutic options for their child and if they would like to be present during these procedures. As such, clinical centers should prepare their staff and specialists for the presence of families during resuscitation and invasive procedures.[17] These studies have revealed that, over the years, the rate and willingness of families to accompany their loved ones during resuscitation and invasive procedures have increased. When presented with the option, more parents choose to be with their child during procedures and resuscitations.[1] Salmond et al[17] argue that families of patients should receive the necessary information about the anticipated procedure and required interventions. Then, involved families should be emotionally assessed and asked if they are interested in accompanying the patients. If the family chooses to accompany their loved one, they should be supported emotionally and continually throughout the resuscitation or procedure. The best practices regarding FPDR are clear: implementation requires informed and courageous health care professionals to accept responsibility for its success.[17]

Conclusions

The presence of parents and families during cardiopulmonary resuscitation and invasive procedures is safe and benefits patients, families, and medical professionals. Family presence provides the opportunity to witness the measures taken during the resuscitation, helps meet emotional and spiritual needs, and facilitates the grieving process. Medical centers should provide the necessary training and support to implement this practice.

Author Disclosures

Conflicts of interest: none to report.

	Author/ year	Review design	Aim and purpose	Study sample/inclusion period	Findings and results	PICO

1	Oczkowski et al,[18] 2015	Systematic review and meta-analysis	Whether offering family presence during resuscitation affected patient mortality, resuscitation quality, and family members' psychological outcomes	4 studies (3 in adults and 1 in pediatric patients) up to 2015	FPDR does not affect adult resuscitation outcomes and may improve family members' psychological outcomes. FPDR does not affect pediatric resuscitation outcomes.	P: patients undergoing resuscitation I: FPDR C: FPDR compared with usual care O: patient mortality, resuscitation quality, family members' psychological outcomes (depression, anxiety, satisfaction with care)

2	McAlvin and Carew-Lyons,[16] 2014	Systematic review	Evaluated the experiences of patients' family members when present during resuscitation and invasive procedures in pediatric critical care settings, specifically looking at satisfaction with care and ability to cope	6 articles 1995-2012	FPDR: parents desired to be present or at least be given the option; helpful to the child, parent, and medical staff; decreased parents' anxiety related to the procedure; no additional trauma was incurred; focus was on the child, not the resuscitation; no long-lasting memories of resuscitation. Satisfaction: want to be present again; would recommend being present to others; eased parents' fears; would not change anything about the situation when present compared with those not present; gained information about the child's condition; felt a sense of control. Coping: parents who were not present displayed more distress and were more disturbed; coping was more effective when parents could leave the room and return; better coping and better adjustment to death of child if present; gave parents peace of mind, dispelled doubts, and provided closure.	P: parents of children undergoing resuscitation and/or invasive procedures in the critical care setting I: FPDR C: family absence during resuscitation O: family satisfaction with care and family ability to cope

3	Salmond et al,[26] 2012	Systematic review	Examined the evidence on FPDR in adults from the perspectives of patients and relatives	17 articles (7 on patients' perspectives and 10 on family members' perspectives) 1985-2010	Among family members and patients, there exists strong support/preference for FPDR across all countries, and generally the belief is that it is their right. Health care organizations should provide family members the option of FPDR on an "as needed" basis.	P: family members and patients I: studies were descriptive cross-sectional studies C: family absence during resuscitation or invasive procedures O: the perspectives of patients and relatives about FPDR
4	Dingeman et al,[28] 2007	Systematic review	Evaluated the current practice of parent presence; parent behavior during resuscitation; benefits and risks to children, parents, and clinicians	15 studies 1980-2006	Parents prefer to have the choice to remain at their child's side during complex invasive procedures and resuscitation.	P: pediatric patients undergoing resuscitation and/or invasive procedures I: FPDR C: — O: parents prefer to have the choice to remain at their child's side
5	Piira et al,[29] 2005	Systematic review	Assessed the effects of parental presence on children and parents	28 studies 1967-2004	No significant difference between the 2 groups. Children whose parents accompanied them during medical procedures showed fewer behavioral difficulties after discharge.	P: pediatric patients undergoing resuscitation and/or invasive procedures I: parent presence during medical experiences C: parent absence during medical experiences O: child's outcomes, parents' outcomes

DETAILS

Subject: Parents &parenting; Patients; Emergency medical care; Health care; Databases; Systematic review; Councils; Relatives; Mortality; Families &family life; Cardiopulmonary resuscitation--CPR; Medical personnel; Standard scores; Nursing; Resuscitation; Pediatrics; Nurses; Meta-analysis; Invasive

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Situational Analysis: JEN

ABSTRACT (ENGLISH)

Situational analysis is not commonly used in nursing research; however, its usefulness in examining complicated phenomena that are locally situated makes it an effective approach to emergency nursing problems. This paper describes the situational analysis approach as an extension of the grounded theory method and uses 3 studies to demonstrate the effectiveness of this qualitative approach.

FULL TEXT

Situational analysis is a qualitative approach that can be used in a wide variety of research types that draw on ethnography, interview, and historical discursive materials.[1] It is used in educational research,[2] sociology,[3] and anthropology.[4] It is especially useful in complicated environments such as the emergency department and in settings with multiple layers of involvement, such as the pediatric intensive care unit.[5] This paper seeks to describe the method as one uniquely suited to understand phenomena of interest in the emergency care setting by giving examples of successful theory construction and the description of complicated phenomena.

An understanding of grounded theory is important to describe situational analysis. Grounded theory is a qualitative method, whose purpose is to construct a theoretical understanding of 1 or more phenomena in the studied world.[6] Critical to this process is simultaneous data collection and analysis, which allows the researcher to hone in on the most important and central aspects of a phenomenon. It is a way to see patterns and relationships using a qualitative approach and ultimately results in a coherent and predictable understanding of a phenomenon. This understanding can then be used to derive interventions to address the identified problem or situation.

The process of grounded theory is pretty straightforward and simple.[7] Start with a general idea or question about process, such as “What is the process of emergency nursing triage?” Or “What are the elements of workplace bullying in emergency settings?” Then, the researcher can do the following:

1. Interview people individually or in groups to produce transcripts.
2. Read over the transcripts (several times, to really get a feel for the text).
3. Identify categories that arise from the data (ie, are there things that different people are all focusing on?).
4. Think about how these categories are related to each other in an explanatory way.
5. Use the understanding of these relationships to build a theoretical model by checking the model against the rest of your data.
6. Present the results of the analysis using quotes from the transcripts to support the categories and overarching themes.[8]

As a method of both data collection and data analysis, situational analysis extends traditional grounded theory as described by Strauss and Corbin[7] and by Glaser and Strauss.[6] It applies a postmodernist understanding of issues of concern as marked by positionalism, fragmentation, complexity, contradiction, and situatedness.[1] It allows for the understanding of a problem in the context in which it occurs, which is valuable to understanding the preexisting conditions of the problem. Specifically, situational analysis can be a useful tool for fostering research that is socially

responsive and engaged with the community concerns of occupation and workplace,[3] which translates well to nursing research. It can be used not only to derive theory, but also as a descriptive explanatory method.

Situational analysis as a method uses a cartographic (mapping) system in 3 main approaches: situational maps that lay out the human, nonhuman, and discursive elements of a phenomenon and seek to examine the relationships among them; social worlds maps that circumscribe the elements of the phenomenon and situate them in the arena in which the phenomenon occurs; and positional maps that lay out positions taken and not taken around the circumstances of the phenomenon and identify sites of silence.[1] As Clarke[1] described it, situational analysis uses the same traditional grounded theory analysis techniques of open coding, selective coding, and theoretical coding; the analysis seeks to explicitly map and include the ways in which environmental settings, multiple discourses, social structures, policies, and cultures influence actions. It offers a visual analytic approach that can be helpful to see the connections among categories.[3] Our research group has used situational analysis in 3 significant studies, one of which generated a validated theory of workplace bullying,[9,10] one that described the situation of assessment for firearms risk in ED patients[11] and finally one that examined the impact of legalized cannabis on ED workload.[12] Each of these problems was intimately connected to the social situation in which it occurred; therefore, this method was extremely useful in uncovering elements that had not yet been described as contributing factors.

Theory of Bullying in Emergency Settings

In this study,[9] the participants identified a variety of human elements that affect the quality and quantity of bullying incidents in the ED workplace, including nurses and other ED staff, charge nurses, ED managers, and patients. In situational mapping, the charge nurse role was identified as a primary driver for bullying in the presence of a cultural narrative that is permissive of workplace bullying. Also included in this category were administrators and human resources personnel who either addressed or ignored bullying behaviors.

Nonhuman elements of the ED practice environment that contributed to bullying included nurses' emotional burden; a high-stress, chaotic workplace; and violent, aggressive, and entitled behavior from patients toward staff. The social worlds maps of this phenomenon described both the situational circumstances and the social dynamics that encouraged or discouraged bullying. Areas of commitment and engagement were identified by separating the focus group participants into staff nurses and managers, directors, and educators and allowing these different groups to discuss their perspectives freely.

From these data, we were able to uncover bullying dynamics of aggression and exclusion, including selective reporting—relaying information to managers and administrators highlighting negative nursing behavior and omitting context—breeding a culture of failure that leads to deficiencies in nursing practice and patient care. We were also able to situate behaviors that were identified or ignored specifically owing to the socioclinical environment and the power gradient between administration and staff that can cause fear of retaliation, discourage reporting, perpetuate bullying behaviors, and stymie managers who seek solutions.

The last type of mapping, positional maps (actor response), described the positions taken (and not taken) by each group. These data yielded understanding of responses to bullying in 3 primary manifestations: acting as the guilty bystander, maintaining the status quo, and calling it out.

This grounded theory, derived through qualitative situational analysis, was validated using a quantitative method in a subsequent study[10] and found to be an accurate representation of relationships among the elements identified in the theory as intermediate outcomes of bullying in emergency nursing.

Emergency Nurse Assessment for Risk of Injury due to Firearms

Our exploration of this situation[11] was conducted using a mixed-methods approach, with survey data triangulated by qualitative data. Situational mapping showed that the human elements that contributed to assessment of firearm-

injury risk included emergency nurses, their patients, and visitors, some of whom may have a history of firearm violence (e.g., gang members, visitors who bring weapons into the emergency department in states with concealed carry laws). Nonhuman elements included “the government” and the perception that asking about in-home access to firearms jeopardizes a patient's Second Amendment rights.

Social worlds mapping uncovered the importance of regional and local differences in the focus group participants’ understanding of firearms-risk assessment. Some nurses viewed firearm prevention as a public health issue rather than an intrusive, confrontational question. In addition, in contrast to the survey findings, the focus group participants reported that local attitudes about firearm ownership and the pervasiveness of ownership affected the willingness of the nurse to ask about access to firearms, especially in rural communities where patients are likely to be known to health care providers.

Positional maps note the site of silence, which is ignored but is nevertheless obviously and painfully present. In this study, a critical finding was a fear of patients vs fear for patients. The focus group participants repeatedly discussed reluctance to ask patients about access to firearms and risk of injury, specifically because they worried that the patients had weapons on their person or readily available; if the patient became offended by the question, they feared that the patient would use the gun on the ED staff. This finding was important because it describes a barrier to assessment that had not heretofore been acknowledged in the literature and may not have been uncovered using another method of inquiry.

Impact of Emergency Nursing Workload After Cannabis Legalization

This study[12] benefited from the use of situational analysis because ED patient presentations due to or complicated by cannabis use are a phenomenon involving personal, clinical, and societal understanding of cannabis use and its effects. The nonhuman elements included postlegalization effects such as wider availability of cannabis, stronger potency of hybrid varieties, inconsistencies in dosing and labeling, and lack of provider and patient knowledge regarding the plethora of cannabis products and related symptomology. The identified human elements comprised patients, their family members, and emergency nurses with social concerns about legalization and subsequent wider use of cannabis resulting in specific populations presenting in greater numbers with symptoms that lead emergency providers to suspect high patient illness acuity. The emergency department itself is a factor in the perception, creating a “problem of geography”[13] and leading nurses to perceive presentations involving changes in cognition as emergent. Importantly, we were able to identify a site of silence around the beneficial effects of cannabis use. The findings from this study yielded a deep understanding of educational and process deficits affecting emergency nurses and their ability to care for patients with cannabis-related symptoms.

Conclusion

Situational analysis is not commonly used in nursing research; yet, it is a valuable approach to examine complex situated phenomena such as those we encounter in the emergency setting. Research that leads to intervention should have a deep and rich understanding of the elements of a problem, including facilitators, barriers, and other situational and positional factors that affect nursing and patient outcomes. These 3 studies provide examples of complex phenomena and how using situational analysis as a qualitative approach uncovers elements that are not necessarily discoverable using other qualitative approaches.

DETAILS

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Development, Validation, and Implementation of a Guideline to Improve Clinical Event Debriefing at a Level-I Adult and Level-II Pediatric Trauma Center: JEN

ABSTRACT (ENGLISH)

Objective

Clinical event debriefing is recommended by the American Heart Association and the European Resuscitation Council, because debriefings improve team performance. The purpose here was to develop and validate tools needed to overcome barriers to debriefing in the emergency department.

Method

This quality improvement project was conducted in 4 phases. Phase 1: Current evidence related to debriefing in the emergency department was reviewed and synthesized to inform an iterative process for drafting the debriefing guideline and instrument for documentation. Phase 2: Content Validity Index of the tools was evaluated by obtaining ratings of items' clarity and relevance from 5 national experts in 2 rounds of review. On the basis of experts' feedback, tools were revised, and a Facilitators' Guide was created. Phase 3: The validated debriefing tools were implemented. Phase 4: Debriefing facilitators completed a survey about their experience with using the new tools.

Results

The Content Validity Index of 71 debriefing tool items (guideline, instrument, Facilitators' Guide) was 0.93 and 0.96 for clarity and relevance, respectively. Of the 32 debriefings conducted during the first 8 weeks of implementation, 53% described patient safety concerns, and 97% described recommendations to improve performance. Most (94%) facilitators agreed that the guideline clarified debriefing requirements.

Conclusion

The use of debriefing tools validated by computation of the Content Validity Index led to the identification of safety threats and recommendations to improve care processes. These tools can be used in ED settings to promote team learning and aid in identifying and resolving safety concerns.

FULL TEXT

Contribution to Emergency Nursing Practice

••Current literature indicates that clinical event debriefings improve ED team performance by affording clinicians a forum to reflect and develop strategies for future high-quality patient care. However, most team members do not consistently engage in clinical event debriefings partially because of lack of guidelines or protocol for doing so.

••This article describes the first expert-validated clinical event debriefing tool in the ED setting that was implemented in a busy, level-I adult emergency department. Most participants found that the tool clarified ED debriefing requirements and was helpful to use.

••The key implication for emergency nursing practice is that implementing clinical event debriefing tools may be helpful to increase the frequency and consistency of clinical event debriefings in emergency departments and/or acute care settings.

Medical errors are the third-leading cause of hospital deaths in the United States, after heart disease and cancer, with approximately 250 000 deaths attributed to medical errors in 2013.[1] Approximately 37%[2] to 70%[3] of patient harm is preventable within hospitals in the US. Errors in communication occur in more than 50% of trauma resuscitations in developed, resource-intensive countries.[4,5] Approximately 51% of preventable errors in admitted trauma patients occur during the initial phase of their treatment in the emergency department.[6]

Contemporary models of preventing errors focus on improving system processes and team dynamics. To improve safety, health care organizations can use high reliability organization (HRO) principles to establish a positive safety philosophy and operationalize a process-improvement culture.[7] Debriefings have been used by HROs such as aviation[8] and the military[9,10] to learn from events to mitigate future risk. Clinical event debriefing (CED) provides opportunities for teams to review a clinical event,[11-14] reflect on performance,[11-15] identify safety concerns,[11-14] and develop performance improvement strategies.[11,12,14] Debriefing has been associated with a 20% to 25% improvement in individual and team performance.[9] Accordingly, the American Heart Association[16] and the European Resuscitation Council[17] strongly recommend implementing a postevent debriefing process.

Despite the stated benefits of CEDs, most team members of clinical settings do not debrief frequently.[10,14,15,18] Approximately 50% of surveyed pediatric emergency nurses and physicians estimated that debriefing after resuscitations occurred less than 25% of the time.[14] One of the main barriers to consistent debriefing is the lack of debriefing guidelines and tools.[12,14,15,18-21] The resources available to guide this essential practice include an acronym framework,[22] an ED postresuscitation debriefing tool,[15] and debriefing scripts focused on general concepts,[18] simulation scenarios,[23] or trauma resuscitations.[13] Through the researchers' review of the literature, we found no ED-specific debriefing guidelines that have undergone a formalized validation process.

The aim of this project was to help overcome barriers to consistent debriefing in the emergency department through developing and validating standardized tools by computation of Content Validity Index. We describe the methods used to develop, validate, and implement a CED guideline and CED instrument (CEDI) that promotes ED team learning, fosters a positive safety culture, and aids in the identification of safety concerns.

Local Problem

In November 2016, emergency leaders sponsored a CED initiative with a complementary full-day course that trained 89 emergency nurses and physicians to become CED facilitators through experiential learning with simulation scenarios guided by an ED CEDI. Ongoing CED facilitator training was provided as a half-day course for newly hired clinical leaders. A dedicated interdisciplinary CED operations team reviewed completed CEDIs during bimonthly meetings to identify best practices to be disseminated to the ED staff, determine improvement opportunities, and formulate improvement plans. A CED was considered to have occurred based on the submission of a CEDI. Despite this training and the established follow-up system, the emergency department averaged 5.8 CEDs per month between November 2016 and December 2019.

Methods

This quality improvement project met the regulatory guidelines for exemption from institutional review board (IRB) review, determined by the Mamimonides Medical Center IRB Chair (2018-01-06 - "Clinical Event Debriefing").

CONTEXT

The setting for this project was Maimonides Medical Center (MMC), a 711-bed urban, academic medical center with a level-I adult and level-II pediatric trauma "?>emergency "?>department. Approximately 120000 patients visit the emergency department"?> annually, which is staffed by 56 general emergency medicine (EM) and/or pediatric EM (PEM) attending physicians, 6 PEM fellows, 48 EM residents, and 200 emergency nurses.

INTERVENTIONS

This 4-phase project was designed to develop and validate standardized tools for conducting debriefing after any clinical event for which the team felt that it would be beneficial. We defined a clinical event as any patient care encounter, which encompasses a wide range of ED care (eg, trauma resuscitations, septic shock, or mental health emergencies).

Phase 1: Developing the ED CED Guideline and Revising existing CEDI

An appraisal and synthesis of available evidence related to CEDs in the ED setting led to the identification of 8 essential concepts of successful CED programs (Table 1). The concepts included the following: (1) debriefing protocols [12-15,18-21,24]; (2) positive perception of value[14,20,24,25]; (3) realistic time expectations[10-12,15,18,19,24,26]; (4) adequate facilitator education[18,19,24,25]; (5) post-debrief process[11,13,15,18,24]; (6) just culture[11-13,15,18,24]; (7) psychologically safe environment[11, 12,15,18,27] and (8) private debriefing setting.[10-12,18] We used an iterative process to incorporate these essential concepts into a CED guideline draft. The existing CEDI was then modified to reflect the requirements outlined in the guideline to serve 2 purposes—inclusion of cues to guide facilitators through the debriefing process and discrete fields to document the debriefing. Notably, the revised CEDI included an area to affix a patient identifier and other fields for documentation of essential information.

Phase 2: Validating the CED Tools by an Expert Panel

Through our literature review, we first identified North American authors who were most frequently cited and had email addresses as corresponding authors. The authors met the following selection criteria: (1) health care professional with a graduate degree and (2) 1 or more peer-reviewed publications on debriefing implementation. We contacted them by email. All 5 authors accepted the invitation to serve as expert panelists. The reviewers used a Content Expert Rater Form (Supplementary Material 1) with 68 key-component items. The form instructed the experts to rate each item for clarity (yes/no) and relevance (high/low). The form also included a space for reviewers to comment qualitatively on each item.

Validation Measures and Analysis

We evaluated the expert ratings using the system for calculating the Content Validity Index (CVI) for items (I-CVI) and for an entire scale (S-CVI), adapted by application to a binary scale, rather than a scale with 4 levels.[28] An item was content validated if the proportion of affirmative agreements by experts (ie, I-CVI) regarding relevance or clarity was 0.78 or more.[28] Alternatively, the item was either omitted or revised (for a subsequent rating round) if the item had low agreement (28

The project committee conducted several meetings for iterative reviews of the expert feedback to revise all tool elements. Expert recommendations suggested incorporation of standardized scripting rather than the existing CEDI facilitator cues. We modified the CEDI accordingly and developed a third document, a CED Facilitators' Guide. In addition, on the basis of suggestions from the experts, we revised the documentation field from identifying and classifying only major patient safety issues to instead include all patient safety concerns.[29]

Experts then used the second version of the Content Expert Rater Form (Supplementary Material 2). An item was content validated if the proportion of affirmative agreements by experts (ie, I-CVI) regarding relevance or clarity was 0.78 or more.[28] The tool was content validated if the mean proportion of agreement across items (ie, S-CVI) was 0.90 or more.[28] Items that met the validation criteria were included in the final CED tools: (1) CED guideline (Supplementary Material 3), (2) CED Facilitators' Guide (Figure 1), and (3) CEDI (Figure 2).

Phase 3: Implementing the CED Tools

In November 2019, we implemented the CED tools. Initially, we introduced the CED process updates by emailing the CED guideline to all ED staff and emailing the CEDI and CED Facilitator's Guide to the 89 previously trained

CED facilitators. Project leaders (S.T., A.A.) provided facilitators with brief in-service trainings to supplement the email content. Emergency nurse leaders discussed the CED guideline during interdisciplinary huddles daily for the first 2 weeks of the implementation. To increase clinicians' CED engagement, project leaders monitored clinical events in real time for CED opportunities and offered real-time informal coaching of any clinician engaged in facilitating a CED.

Although any clinical event could be debriefed, given the institutional and departmental focus on trauma care, facilitators were specifically encouraged to perform a CED after the initial care and stabilization of level-I trauma patients. Therefore, project leaders contacted clinicians approximately 20 minutes after level-I trauma activations to recommend a CED if time permitted. The proportion of level-I trauma activations with CEDs performed was tracked using our trauma registry. Facilitators placed completed CEDIs into secure drop boxes.

Evaluation of CEDI Data

CED operations meetings with ED medicine, nursing, and quality leadership reviewed CEDIs to establish a formalized process that promoted quality improvement with a focus on addressing patient safety concerns and recommendations for systems-based solutions. If necessary, project leaders would email CED facilitators for clarification or review the medical record for additional information to understand the need for improvements. The safety culture around CEDs was promoted by emails to all ED staff to recognize CED facilitators for their participation and reiterate that the CEDIs are regularly reviewed for improvement opportunities during ED leadership meetings. Project leaders sent out bimonthly emails to all ED staff about lessons learned and systems-based solutions to issues discussed during CEDs. Similarly, best practices to support high-quality team performance learned from the CEDs were shared with staff.

Descriptive statistics were used to summarize data elements of the CEDIs. Review of the electronic health record added additional demographic data. S.T. and A.A. completed a thematic analysis to describe the CEDI free-text response fields for "Patient Safety Concerns," "What Went Well," and "Recommendations."

Phase 4: Postimplementation Survey

We created an 11-item survey with a 5-point Likert Scale response related to CED facilitator experience with using the new CED materials (Supplementary Material 4). Three individuals completed a 6-question clinical sensibility test[30] of the survey. We invited clinicians who facilitated a CED during the 8-week implementation phase to complete the anonymous survey over a 2-week period using Qualtrics software (https://www.qualtrics.com). Project leaders (S.T., A.A.) did not participate in the survey. Descriptive statistics (frequencies and percentages) summarized the survey responses.

Results VALIDATION OF CED TOOLS BY EXPERT PANEL

The experts completed their first review of the CED tools using a 68-item Content Expert Rater Form. Of these 68 items, 33 items met the validation criteria with proportion of affirmative response (I-CVI) ≥0.78. These 33 items had no substantive expert suggestions that required further modification. The remaining 35 items either did not meet the validation standard or included experts' comments that suggested the need for further refinement.

The second iteration of the Content Expert Rater Form included 39 new or revised items (based on expert opinion). Of these 39 items, 38 items had a proportion of affirmative response (I-CVI) ≥0.78. One item did not meet this proportion for relevance and was omitted. At the completion of the second round of expert review, the CED tools met the validation standard of 0.90 for mean proportion of affirmative responses across all items, with S-CVI values of 0.93 and 0.96 for clarity and relevance, respectively.

CEDI IMPLEMENTATION DATA

During the initial 8-week implementation phase, 32 CEDIs were completed (Table 2). Of the 15 patients classified as

having level-I traumatic injuries, 10 (66.7%) had CEDI documentation. [Supplementary Material 5] displays the clinical and demographic information of all patients with level-I traumatic injuries during this time period and the presence of a corresponding CEDI.

CEDI documentation rates varied among the required fields. Of the 26 (81%) CEDIs with completed CED “start” and “end” times, the CEDs lasted a median of 8 minutes (IQR, 7-10). Of the 28 (88%) CEDIs with a documented response for “facilitator involved in care during clinical event,” the facilitator was not involved in the clinical event 60% of the time. Only 1 CEDI documented that emotional support for staff might be needed. Most (94%, n = 30) of the CEDIs included documentation of patient identifiers (patient sticker or medical record number), clinical event descriptors, and whether the patient expired in the emergency department.

All of the CEDIs included documentation of the facilitator's name. Of the 89 trained facilitators (13 senior residents, 20 nursing leaders, 56 attending physicians), 19 (21%) individuals led 1 or more CEDs, including 7 (54%) senior resident physicians, 6 (30%) nursing leaders (charge nurses or nursing administrators), and 6 (11%) attending physicians. Of the 31 (97%) CEDIs with documented team members, participation rates were highest for ED attending physicians (100%), followed by resident physicians (ED or rotating) (84%), emergency nurses (84%), ED nurse administrators (42%), consulting physicians (13%), ED patient care technicians (10%), students (10%), and respiratory therapists (3%).

CEDIs included documentation of a wide array of critical patient care interventions during the clinical event, including chest compressions (25%), intubations or cricothyrotomy procedures (19%), vasopressors (16%), central lines (9%), cardioversion (6%), chest tubes (6%), intraosseous infusions (6%), massive transfusion protocol (6%), noninvasive ventilation (6%), active rewarming (3%), blood transfusions (3%), defibrillation (3%), and suturing (3%).

Overall, 53% (n = 17) of the CEDIs included documented descriptions of actual patient safety concerns, of which 59% (n=10) were incidents (events reached the patient), and 41% (n = 7) were unsafe conditions. Most of the CEDIs (91%, n = 29) had the patient safety concern field completed, of which 31% (n = 9) checked “yes” for an identified patient safety concern with a subsequent description. Although 69% (n = 20) of the CEDIs had “no” checked in the patient safety concern field, 30% of these (n = 6) had a written description of an actual patient safety concern. Additionally, of the 9% (n = 3) of the CEDIs that did not have the patient safety concern field completed, 2 of these had a written description of an actual patient safety concern.

In a thematic analysis of the patient safety concerns, the researchers identified 5 overarching themes: (1) broken and missing equipment, (2) environmental issues, (3) lack of knowledge and poor clinical decision-making, (4) negative team dynamics (eg, communication, mutual support, situational awareness), and (5) lack of staff adherence to hospital policy ([Table 3]).

Descriptions of “what went well” were documented within all of the CEDIs. The thematic analysis identified 3 themes: (1) positive team dynamics (eg, communication, leadership, mutual support, situational awareness), (2) staff adherence to hospital policy, (3) strong clinicians’ knowledge and decision-making ([Table 3]).

Descriptions of recommendations were documented in all but 1 of the CEDIs. In the thematic analysis, the researchers identified 4 themes: (1) fostering team dynamics (eg, encouraging proactive and closed-loop communication, engaging all disciplines in patient care, promoting leadership skills), (2) improving resource availability and functionality (eg, fixing broken equipment, locating missing equipment, designating locations for specific equipment and supplies, stocking supplies), (3) providing staff education (eg, clinical decision-making, hospital policies, location of equipment and supplies), and (4) leadership review and revision of hospital policy ([Table 3]).

ED PRACTICE ENVIRONMENT CHANGES

Leadership review and follow-up of completed CEDIs contributed to multiple ED practice modifications. These changes included equipment enhancements (eg, new manual blood pressure cuffs, an improved resuscitation suction set-up, repaired neonatal warmer), environmental improvements (eg, increased audibility of clinical alarms, increased patient visibility in vulnerable isolation room by adding large window to door, new charge nurse shift environment checklist), and additional staff education (eg, reinforced communication strategies during patient care, introduced smartphone application for language translation, promoted coordination with hospital security for patients brought in accompanied by police).

POSTIMPLEMENTATION SURVEY

The postimplementation anonymous survey was completed by 94% (n = 17) of the 18 eligible facilitators who led a debrief using the new CED tools (Supplementary Material 4). Of the survey respondents, 59% *strongly agreed* and 35% *agreed* that the debriefing guideline clarified the requirements for debriefing in the emergency department.

Discussion

Implementation of a validated CED guideline and instrument resulted in a significant increase in the performance of CEDs, increasing by 175% from a baseline of 5.8 CEDs per month to a postimplementation rate of 16 CEDs per month. This finding is in agreement with current recommendations that debriefing can be more regularly applied in practice by implementing guidelines that address known barriers and promote a safety culture.[18,24] Although implementation focused on a specific debriefing trigger of level-I trauma activations, more than half of CEDs were ultimately unrelated to trauma, implying that the CEDs had value to the ED team and were feasible to complete in the busy ED setting. In addition, the purpose of our CED program was not to address psychosocial stressors; however, there was a referral program in place for any team member who may require emotional support.

Another factor contributing to the completion of CEDs in our clinical setting was a dyad model of leadership with emergency nursing and EM physicians that promoted global staff engagement in the CED program. Existing literature indicates that leadership support can encourage staff to participate in debriefings[11] and drive process improvements.[13] Survey responses revealed that our leadership team effectively closed the feedback loop on how safety concerns that had been identified during the debrief were being addressed. A common barrier to safety report submissions in many health care organizations is the staff perception of inadequate feedback from leadership.[31,32] Our CED review process incorporated a system to ensure consistent closed-loop communication between leadership and frontline staff to avoid this issue. This could have contributed to a sense by ED teams that CEDs were making a positive impact and might have influenced some facilitators to decide to engage in leading CEDs. Furthermore, survey findings indicated that most facilitators were not concerned about disciplinary consequences to ED team members related to the content discussed during the CED. These results are consistent with HRO principles in which there is a preoccupation with addressing failures by encouraging the reporting of unsafe conditions or safety concerns.[26]

The use of these new tools was associated with the identification of many patient safety concerns and teamwork best practices. The issues identified during the CEDs led to multiple modifications that contributed to improved quality and safety in the emergency department. These changes included equipment enhancements, environmental improvements, and additional staff education. These improvements in delivering care can be a powerful driver to maintain the sustainability for a CED process. In addition, ED leadership support of the program has helped to sustain the commitment necessary to continue this debriefing program which takes continuous effort given the high staff turnover often seen in the ED environment and the competing priorities for managing other quality improvement projects.

A common barrier to debriefing is a perceived lack of time.[10,11,14,15,18,19,25] Anticipating this barrier, our aim was to

create flexible facilitator expectations, and our CED guideline outlined that the CED facilitator did not need to be involved in the direct care of the patient. During the initial 8 weeks after implementation, many CEDs were facilitated by EM attending physicians, senior residents, or emergency nursing leaders who were not directly involved in patient care during the clinical event. Although current evidence lacks consensus about which discipline should be responsible for facilitating CEDs, our findings are consistent with several other reports indicating that nurses,[12,13,24] physicians,[13,15,24] or clinicians not directly involved in ED care can effectively serve as debriefing facilitators.[24] Survey responses related to the time needed to perform a CED adversely affecting ED flow were variable. Emergency departments are an unpredictable and complex setting. This can place a significant cognitive load on bedside providers. Practically speaking, although CEDs during this 8-week period averaged only 8 minutes, there is a time burden to coordinate those involved in the event to participate in the CED. This was not discretely determinable from this data set; however, our practical experience performing CEDs dictate anywhere from a 5- to 15-minute time investment to congregate providers for the CED. In future iterations of best practices, it may be preferable to further operationalize a process so that those less involved in active bedside patient care responsibilities can organize and facilitate CEDs in a timelier fashion. The facilitator survey did not reveal a clear advantage of paper versus electronic documentation. The CEDI itself was well received, likely attributable to the validation process to streamline inputs to the most essential elements.

Limitations

This project had several limitations. Variation in the facilitation of debriefing was possible. Project leaders (S.T., A.A.) provided consistent training to facilitators, but the quality of facilitation was not formally assessed and evaluated. Although the rate of CEDs for trauma activations was higher than the rate of debriefing cited in other studies,[19] a substantial minority (33%) of trauma activations were not debriefed. Project leaders have followed up with individual teams to identify perceived barriers to performing CEDs, which will be addressed in continued phases of this project. On the basis of our data, the researchers would recommend future change cycles to focus on identifying barriers to CED facilitation by clinicians providing direct patient care and testing interventions to eliminate these barriers. Another limitation is that the 11-item postimplementation survey, which the research team developed, was not formally validated. However, we did have 3 individuals complete a sensitivity test to support the content and response process validity. The survey is intended to go beyond assessment of usability of the new CED tools, to also illuminate the facilitators' experiences with the updated CED process. Another limitation is that data for our analysis were taken from the documentation on the form. Given that the CEDIs were filled out by various team members, it is possible that documentation variability or omissions could have affected our data findings. To limit documentation issues, we attempted to standardize the design of the form with checkbox areas to make it simpler to use, and we pilot tested it with potential end users for their feedback. Because some of the debriefing facilitators might have been simultaneously facilitating and documenting, it is possible that they might have omitted some issues discussed in the open-ended questions on the CEDI. Lastly, this was a single-center project, and the conditions under which CEDs occurred in our setting might not generalize to other settings.

Implications for Emergency Clinical Practice

We used a rigorous process to develop, validate, and implement tools to standardize CEDs conducted by the ED interdisciplinary teams. Clinicians practicing in emergency departments and other health care settings may find our CED tools and processes helpful in promoting a culture of patient safety. This may be particularly true in settings where clinicians are focused on the provision of consistent debriefings or have a need to operationalize a standardized approach to CED practices among their clinical staff.

Conclusion

A validated CED guideline, CEDI, and CED Facilitators' Guide was developed and used by ED teams. CEDs frequently identified safety threats and provided opportunities to realize improvements in care processes. The CED facilitators perceived the guideline as clarifying regarding the CED requirements, the CED Facilitators' Guide as helpful, and the CEDI documentation as easy to complete. These CED tools could potentially be used or adapted in other emergency departments and clinical settings to promote team learning, foster a positive safety culture, and aid in the identification and resolution of safety concerns.

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4. Mary Salisbury, MSN, RN
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Author Disclosures

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Permission to Use: For tool use requests for teams interested in replicating this work or adopting the tools to their clinical site, please direct all correspondence to the first author.

Supplementary materials

Supplementary material associated with this article can be found in the online version at doi: https://doi.org/10.1016/j.jen.2021.04.013.

Appendix D Supplementary materials

Supplementary Material 1 This is the *Content Expert Rater Form* that was created and used during the first round of review of the CED tools by the expert panel.Image, application 1SUPPLEMENTARY MATERIAL 2 This is the *Content Expert Rater Form* that was created and used during the second round of review of the CED tools by the expert panel.Image, application 2Image, application 2Image, application 2Image, application 2

Concept	Statements of evidence	CED guideline recommendations	Reference(s)

1. Debriefing protocols	The lack of debriefing guidelines and tools hinders consistent debriefing	Our CED guideline and tools provide debriefing structure. Facilitators use this guideline to lead debriefing and ensure completion of CEDI documentation.	12,14,15,18-21
Assign someone to serve in the facilitator role if debriefing is not routinely practiced	Our facilitators are ED clinicians trained to serve in this role and are encouraged to lead the CED for the ED team involved in the clinical event. The assistant nurse managers or charge nurse address staffing needs to enable team members' CED participation.	12,18	Nurses, physicians, or other clinicians not directly involved in ED care may be facilitators
Our facilitators are emergency medicine and nursing leaders, physicians, or registered nurses and may or may not have been involved in the care of the patient during the clinical event.	12,13,15,24	2. Positive perception of value	Clinicians perceive debriefing as a valuable component of practice
Our ED recommends CEDs for the team involved in caring for patients with level-I traumatic injuries and other events regardless of outcome—when everything goes well or when things do not go well.	14,20,24,25	3. Realistic time expectations	Complete debriefing as soon as possible after the event

Our CED guideline recommends initiating CEDs as soon as feasible after a clinical event and recognizes that debriefing after every clinical event is not practical.	10-12,15,18-19,24,26	Limit debriefing to less than 10 min	Our guideline recommends dedicating 7 to 10 min for the CED to take place.
15,18,19	Immediate debriefing facilitates staff's recall of details and may enhance retention of feedback given during the debrief	Our guideline recommends facilitating timely CEDs to help team members recall specific details regarding their experiences and to assist with applying lessons learned to future patient care.	11,12,15
4. Adequate facilitator education	Insufficient facilitator training causes staff's discomfort in leading debriefs and a possible neglect of initiating debriefs	Champions of our CED program offer a course that combines lecture, simulation scenarios, and discussions to prepare clinicians to facilitate structured CEDs.	18,19,24,25
5. Post-debrief process	Hospital leaders are responsible for the analysis of debriefing findings, facilitating necessary systems solutions, and disseminating information to staff	Our CED guideline requires the facilitator to escalate identified patient safety concerns in real-time to ED leaders, allowing for an immediate response that may involve systems solutions or staff education. Our ED leaders participate in bimonthly CED operations meetings to review CEDIs for performance improvement opportunities. Essential de-identified “lessons learned” are communicated to staff.	11,13,15,18,24

6. Just culture	Foster an environment where staff feel comfortable to discuss all aspects of care without fear of reproach	Our CED Facilitators' Guide includes scripting that defines the purpose of a CED. Our emergency department recommends that the facilitator encourage team members to reflect and discuss the clinical event by focusing on the clinical management of patients, technical skills of clinicians, teamwork, and behavior concerns.	11-13,15,18,24
7. Psychologically safe environment	All participants must have an equal voice during debriefing	Our facilitators foster an atmosphere of inclusiveness, as all team members' participation is welcome and encouraged regardless of their role on the clinical team. Any team member involved in the care of the patient may request and participate in a CED.	11
The environment must be nonjudgmental and safe	Our guideline recommends the CED process will occur in a nonjudgmental, safe environment, in which team members feel free to offer their opinions and ideas.	11,12,15,18,27	8. Private debriefing setting
Conduct debriefing in a private setting	Our emergency department recommends CEDs to take place in a setting within the unit that is absent of both patients and their visitors.	10-12,18	Avoid the threat of litigation by debriefing in a safe setting

Characteristic	Total CEDIs	Level-Itrauma with CEDI	Other clinical events with CEDI
Total n	32	10	22

Patient age, n		Pediatric (0-14 y)	2
0	2	Adult (≥15 y)	30
10	20	Clinical event description, n	
Cardiac arrest	9	-	9
Cardiac arrest and sepsis	1	-	1
Level-I trauma	10	10	-
Level-II trauma	5	-	5
Respiratory distress	2	-	2
Sepsis and unstable vital signs	1	-	1
Unstable vital signs	3	-	3
Other: seizure	1	-	1
Patient disposition, n		Total admitted	17
6	11	Behavioral medicine	1
1	0	Medical floor	2
0	2	Medical ICU	3
0	3	OR, surgical floor	2
1	1	OR, surgical ICU	4
2	2	Pediatric ICU	2
0	2	Surgical ICU	3
2	1	Total discharged	7
4	3	Total expired in ED	8

Field 1: “Patient Safety Concerns”	Theme
Direct quote	Broken and/or missing equipment
•“TVP connectors were not there. Patient was peri-arrest requiring pacing and had to send MD to CCU to get connector (TVP wire).”•“EKG machine not working in a [neonate] after pushing adenosine”.	Environmental issues
•“Clutter in Resus. Dialysis tubing crossing between rooms. Unable to get Zoll into Resus”•“Ambient temperature needs to increase in Pediatric ED”	Lack of knowledge and/or poor clinical decision-making
•“Inappropriate BP Cuff location placement due to Stab Wound, holding pressure arterial wound”•“Suction wasn't properly connected. Respiratory didn't want to call for help”	Negative team dynamics
•“Difficult Interaction with Anesthesia Team - This made it difficult to hear EMS”•“Delay in getting medications for actively seizing patient. Delay in putting patient on a monitor, delay in getting IV access, Took a while to get team to respond”	Poor staff adherence to hospital policy

DETAILS

Subject:	Agreements; Emergency medical care; Quality management; Experts; Facilitators; Validity; Interdisciplinary aspects; Physicians; Leadership; Emergency services; Teams; Pediatrics; Nurses; Medical errors; Patient safety; Learning; Group performance; Meetings; Nursing; Resuscitation; Debriefing; Industrial safety
Business indexing term:	Subject: Leadership Industrial safety
Location:	United States--US
Identifier / keyword:	Debriefing; Communication; Safety; Patient care teams; Emergency services; Content validity
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Operationalizing a Pandemic-Ready, Telemedicine-Enabled Drive-Through and Walk-In Coronavirus Disease Garage Care System as an Alternative Care Area: A Novel Approach in Pandemic Management: JEN

ABSTRACT (ENGLISH)

Objective

Emergency departments face unforeseen surges in patients classified as low acuity during pandemics such as the coronavirus disease pandemic. Streamlining patient flow using telemedicine in an alternative care area can reduce crowding and promote physical distancing between patients and clinicians, thus limiting personal protective equipment use. This quality improvement project describes critical elements and processes in the operationalization of a telemedicine-enabled drive-through and walk-in garage care system to improve ED throughput and conserve personal protective equipment during 3 coronavirus disease surges in 2020.

Methods

Standardized workflows were established for the operationalization of the telemedicine-enabled drive-through and walk-in garage care system for patients presenting with respiratory illness as quality improvement during disaster. Statistical control charts present interrupted time series data on the ED length of stay and personal protective equipment use in the week before and after deployment in March, July, and November 2020.

Results

Physical space, technology infrastructure, equipment, and staff workflows were critical to the operationalization of the telemedicine-enabled drive-through and walk-in garage care system. On average, the ED length of stay decreased 17%, from 4.24 hours during the week before opening to 3.54 hours during the telemedicine-enabled drive-through and walk-in garage care system operation. There was an estimated 25% to 41% reduction in personal protective equipment use during this time.

Conclusion

Lessons learned from this telemedicine-enabled alternative care area implementation can be used for disaster preparedness and management in the ED setting to reduce crowding, improve throughput, and conserve personal protective equipment during a pandemic.

FULL TEXT

DETAILS

Subject:	Quality management; Personal protective equipment; Emergency preparedness; Alternatives; Crowding; Averages; Time series; Pandemics; Equipment; Respiratory diseases; Deployment; Length of stay; Technology; Coronaviruses; Telemedicine; COVID-19; Infrastructure
Location:	United States--US
Identifier / keyword:	Pandemic; Coronavirus disease; Disaster management; Telemedicine; Alternative care area; Emergency department
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ProQuest document ID:	2572872598
Document URL:	https://www.proquest.com/scholarly-journals/operationalizing-pandemic-ready-telemedicine/docview/2572872598/se-2?accountid=211160
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Database:	Public Health Database

System Level Informatics to Improve Triage Practices for Sickle Cell Disease Vaso-Occlusive Crisis: A Cluster Randomized Controlled Trial: JEN

ABSTRACT (ENGLISH)

Background

National Heart Lung and Blood Institute guidelines for the treatment of vaso-occlusive crisis among people with

sickle cell disease in the emergency department recommend assigning an emergency severity index of 2 at triage. However, patients with sickle cell disease often do not receive guideline-concordant care at triage. To address this gap, a decision support tool was developed, in the form of a text banner on the triage page in the electronic health record system, visible to triage nurses.

Methods

A prospective quality improvement initiative was designed where the emergency severity index clinical decision support tool was deployed to a stratified random sample of emergency department triage nurses to receive the banner (n = 24) or not to receive the banner (n = 27), reminding them to assign the patient to emergency severity index category 2. The acceptability of the emergency severity index clinical decision support tool was evaluated with the Ottawa Acceptability of Decision Rules Instrument. Descriptive and bivariate (chi-square test) statistics were used to characterize the study's primary outcome, proportion of visits assigned an emergency severity index of 2 or higher. A generalized linear mixed model with clustering at the level of the triage nurse was performed to test the association between the banner intervention and triage practices.

Results

A total of 384 ED visits were included for analysis. Before study initiation, the percentage of sickle cell disease patients' visits with the proper emergency severity index assignment at triage was 37.04%. After initiation, the proportion of sickle cell disease patients' visits with an emergency severity index of 2 or higher triaged by nurses in the intervention group was markedly higher in the intervention group than in the control group (64.95% vs 35.05%; $\chi 2 = 8.79$, $P \leq .003$). Accounting for clustering by nurse, the odds ratio for proper triage emergency severity index assignment was 3.22 (95% confidence interval 1.17–8.85; $P \leq .02$) for the intervention versus control. Surveyed triage nurses reported the emergency severity index clinical decision support tool to be moderately acceptable (nurses' mean Ottawa Acceptability of Decision Rules Instrument scores ranged from 4.13 to 4.90 on the 6-point scale; n = 11). There were no differences in ED experience outcomes including time to first analgesic or length of stay between the control and intervention groups.

Conclusion

Substantial improvements in triage guideline concordance were achieved and sustained without direct nursing education.

FULL TEXT

DETAILS

Subject:	Research; Emergency medical care; Quality management; Intervention; Visits; Sickle cell disease; Severity; Nurses; Emergency services; Acceptability; Length of stay; Medical education; Patients; Electronic health records; Clinical decision making; Decision making; Triage; Clinical trials; Initiation; Clustering; Nursing; Analgesics; Assignment; Decision support systems; Chi-square test
Location:	United States--US
Identifier / keyword:	Sickle cell disease; Triage; Emergency nursing; Pain; Guidelines; Clinical decision support; EHR alert
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Accuracy and Acceptance of a Self-Collection Model for Respiratory Tract Infection Diagnostics: A Concise Clinical Literature Review: JEN

ABSTRACT (ENGLISH)

Background

Nurses are the primary clinicians who collect specimens for respiratory tract infection testing. The specimen collection procedure is time and resource-consuming, but more importantly, it places nurses at risk for potential infection. The practice of allowing patients to self-collect their diagnostic specimens may provide an alternative testing model for the current COVID-19 outbreaks. The objective of this paper was to evaluate the accuracy and patient perception of self-collected specimens for respiratory tract infection diagnostics.

Methods

A concise clinical review of the recently published literature was conducted.

Results

A total of 11 articles were included the review synthesis. The concept of self-collected specimens has a high patient acceptance rate of 83-99%. Self-collected nasal-swab specimens demonstrated strong diagnostic fidelity for respiratory tract infections with a sensitivity between 80-100%, this is higher than the 76% sensitivity observed with self-collected throat specimens. In a comparative study evaluating a professionally collected to a self-collected specimen for COVID-19 testing, a high degree of agreement (k = 0.89) was observed between the two methods.

Conclusion

As we continue to explore for testing models to combat the COVID-19 pandemic, self-collected specimens is a practical alternative to nurse specimen collection.

FULL TEXT

Introduction

Respiratory tract infections (RTIs) are prevalent communicable diseases and are the third leading cause of death worldwide.[1,2] It is estimated that a new infectious disease emerges at a rate of one per year,[3] making early disease detection critically important. As witnessed during the 2009 H1N1 outbreak and the 2020-2021 coronavirus disease 2019 (COVID-19) pandemic, emergency departments across the United States experienced surges in RTI presentations.[4] Unanticipated swells in the patient census often result in downstream adverse effects on clinical operations, particularly to the nursing workforce.[5] As the patient census increased so did the need for additional nursing coverage. Early diagnosis of RTIs is essential to the management of these patients as it can expedite decision points such as treatment, disposition, and containment. Furthermore, early diagnosis may aid patients with selecting the proper health care channel for their illness, potentially alleviating the problem of ED crowding. In this study, we explored the accuracy of self-collected specimens for RTI testing, the patient's perception of a self-collection model, and its potential role in the emergency department's clinical operations. For this article, the term COVID-19 was used to refer to both the virus (severe acute respiratory syndrome coronavirus 2 [SARS-CoV-2]) and the disease state (COVID-19).

Background

On March 11, 2020, just more than 2 months after the first confirmed case in China, the World Health Organization declared the COVID-19 outbreak a global pandemic. Delays in containment efforts, fueled by personnel and supply shortages, allowed millions to become infected with COVID-19.[6-10] Nurses have been essential in the efforts to minimize the spread of COVID-19. In 2 studies evaluating nurse staffing models during the pandemic, facilities with higher staffing allocations for nurses experienced lower rates of COVID-19 infections and deaths.[11,12] For this reason, it is important to develop strategies to safeguard the nursing workforce against the risk of infection, and one such strategy may be the implementation of a self-collection model for respiratory pathogens. In a self-collection model, patients swab themselves to procure the needed specimens for testing.

The emergency department has traditionally served as an access point for patients with acute RTIs, many of whom are likely to receive testing by means of a nasopharyngeal swab administered by a nurse. The Centers for Disease Control and Prevention endorsed in 2020 the nasopharyngeal swab as the preferred specimen collection method for COVID-19, with preliminary data suggesting higher viral concentration in the nasal and nasopharyngeal cavities.[13,14] The nasopharyngeal swab procedure presents a considerable infection risk to the nurse owing to their proximity to

the patient and the swab's propensity to induce sneezing or coughing.[15,16]

To further exacerbate the problem, mass testing initiatives for COVID-19 have been hampered by supply shortages such as the personal protective equipment needed to keep nurses safe.[7,17] More importantly, an ease of community access to test sites has proven difficult[16] as patients' ability to use testing sites may be limited by a lack of transportation or the site's hours of operation. A potential solution to this problem is to offer an alternative testing option such as a self-collection model. In a community-based survey study by Hall et al,[8] as many as 88% of participants reported a willingness to self-collect specimens. Self-collection diagnostic research has proven promising in the area of self-collected specimens for sexually transmitted infections. The implementation of a self-collection model for RTIs may alleviate unnecessary pressure on critical resource chains while improving community access to testing.[18] In general, it is also felt that self-collection diagnostics have the potential for economic savings, with a self-collection model projected to be 5 times more cost-efficient than a professionally collected model.[19]

Before implementing a self-collection model for RTIs, it is important to determine the diagnostic accuracy of self-collected specimens. Misdiagnosis of COVID-19 could lead to the reintroduction of infected individuals back into the general population as seen in transmission cases in long-term care facilities.[20] False-negative results could also lead to complacency when caring for patients with COVID-19 symptoms, and additional confirmatory testing such as chest computed tomography imaging[21] can significantly increase the patient's ED length of stay and health care cost.

Although the self-collection research for respiratory viruses has been somewhat inconsistent,[22,23] the results are promising, nonetheless. Studies evaluating alternative collection techniques such as the nasal or oropharyngeal swab methods demonstrated similar diagnostic outcomes to the nasopharyngeal swab but with stronger patient acceptance.[7,19] Furthermore, in their recent update, the Centers for Disease Control and Prevention endorsed in 2020 both the nasal and oropharyngeal swab methods as acceptable sources for COVID-19 polymerase chain reaction (PCR) testing. Providing patients with alternative testing options should result in higher testing rates.

The objective of this article was to conduct a concise clinical review of the recently published literature to evaluate the accuracy and acceptance of self-collected specimens for RTI diagnosis. A meta-analysis of self-collected specimens for influenza diagnosis was published by Seaman et al[19] as a comprehensive review of articles published between 2009 and 2017. Given the current COVID-19 pandemic, we reviewed more recent literature to explore the potential of a self-collection model for COVID-19 testing.

Methods

A literature search on the topic of self-collected specimens for RTI diagnostics was conducted, including articles from 2017 to September 1, 2020. Although our project was intended as a rapid, concise clinical review to inform practice and not meant to function as a full systematic review or meta-analysis of the literature, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2009 guidelines[24] were used to provide overall structure to the review process.

SEARCH PARAMETERS

The following search parameters were used to search PubMed/Medline, Scopus, and Embase databases: *(influenza* OR *virus* OR *COVID-19* OR *SARS-CoV-2)* AND *self-collect; (influenza* OR *virus* OR *COVID-19* OR *SARS-CoV-2)* AND *self-collected; (influenza* OR *virus* OR *COVID-19* OR *SARS-CoV-2)* AND *self-collection; (influenza* OR *virus* OR *COVID-19* OR *SARS-CoV-2)* AND *patient-collected*; and *(influenza* OR *virus* OR *COVID-19* OR *SARS-CoV-2)* AND *self-swab.*

ELIGIBILITY CRITERIA

Search results were filtered to include only clinical trials, meta-analyses, randomized controlled trials, reviews, and systematic review–type articles. Results were also filtered to include only articles published between 2017 and September 1, 2020. All article titles were reviewed using a key word search to determine topic relevance. The key words included: respiratory tract infection, virus, influenza, COVID-19, SARS-CoV-2, self-collect, and self-swab. Articles with one or more of these words in their title progressed to a secondary screening in which the article titles and abstracts were reviewed for topic relevance.

SYNTHESIS

The level of evidence was assigned to each manuscript using the Johns Hopkins Nursing Evidence-Based Practice criteria.[25] A concise summary of the findings of each study was synthesized in a table and a narrative.

Results

The literature search yielded a total of 22 955 articles across all databases (Scopus: 8465; PubMed: 9006; Embase: 5484). Using a key word search, it was determined 4782 had one or more key words related to the topic of interest. After reviewing each article's title alone or title and abstract, along with the removal of duplicated results, 13 articles were determined relevant to the topic of RTI self-collection research. Note that one of these articles was added during manuscript review and was originally missed using our methods owing to corrupted text in the title field in the downloaded file. Two additional articles were also removed after determining that they were protocol proposals and did not include any diagnostic or comparative data, resulting in 11 reviewable articles (Figure). Each article's level of evidence is presented in the evidence summary table (Table).[25] Of the articles included in this review, 1 was a meta-analysis, 2 studied the acceptance of self-collection by patients, and 8 articles evaluated the diagnostic accuracy of self-collected specimens either as a sole variable or in comparison with professionally collected specimens.

PATIENT PERCEPTION OF A SELF-COLLECTION MODEL

The acceptance of a self-collection model is important to pragmatic implementation in clinical practice. Research by teams Hall et al[8] and Valentine-Graves et al[9] provided some insight on patients' perception of various self-collection methods for respiratory pathogens. According to data from Hall et al,[8] 1435 participants were surveyed with most (88%) rating in favor (agree or strongly agree) of a self-collected saliva specimen and an 83% acceptance rate for self-collected throat specimens. In a similar study conducted by Valentine-Graves et al,[9] 148 participants were surveyed regarding their perception of 3 mail-in self-collection methods (saliva, oropharyngeal swab, and dried blood spot card) with 84% of the participants reporting high acceptance of all 3 methods. Similar acceptance was seen in another study of adults and children with both cohorts, respectively, reporting 99% and 96% acceptance of a self-collection model.[26] Valentine-Graves et al[8] also asked the study participants to rate their confidence level regarding the integrity of their collected specimen with 87% reporting "confident" or "very confident." Data from these studies provide a better understanding of the patient's willingness to not only self-collect for respiratory pathogens but also their acceptance of a distance testing model.

Critics of the self-collection model have cited collection errors by the patient as a potential barrier to a successful implementation. As reported in 1 study, approximately 24% of mail-in specimens had one or more errors related to packaging and shipping.[27] In the same study, only 37 of 124 (30%) participants reported reviewing the instructional material before proceeding with the self-collection procedure. In a qualitative survey study assessing patients' perception of a self-collection model, most of the dissatisfied comments pertained to unclear collection instructions or overly complicated collection kits.[9] Despite the collection errors, the submitted specimens were still adequate for PCR testing. Nevertheless, these studies demonstrated the potential for patient errors that could translate to lower compliance rates or errors in the downstream diagnostic results.

SELF-COLLECTION DIAGNOSTIC ACCURACY

In the meta-analysis conducted by Seaman et al,[19] 13 articles on self-collected respiratory pathogens were reviewed to evaluate the diagnostic accuracy of self-collected specimens. When compared with a professionally collected nasal swab, self-collected nasal swabs had a pooled diagnostic sensitivity of 87% (95% CI, 80%-92%) and a specificity of 99% (95% CI, 98%-100%). Seaman et al[19] also reported high acceptance of self-collected nasal swabs by patients.

In a study conducted by Fisher et al,[28] self-collected nasal swabs and self-collected throat swabs by individuals with RTI symptoms showed a sensitivity of 96% (95% CI, 88%-99%) and 76% (95% CI, 65%-85%), respectively. These data are consistent with findings from a 3-arm (self-collected nasal swab vs professionally collected nasal swab and professionally collected oropharyngeal swab) study that evaluated self-collected nasal swab for COVID-19 testing, with a sensitivity of 100% (95% CI, 72%-100%) and specificity of 95% (95% CI, 74%-100%).[23]

In a comparative study conducted by Goyal et al,[29] the acceptance rate and diagnostic accuracy of self-collected

versus professionally collected specimens were evaluated in geriatric patients with RTI symptoms. Participants in the first cohort were asked to provide a self-collected nasal swab specimen at the onset of their symptoms, whereas the second cohort had 3 swabs (self-collected nasal swab, professionally collected nasal swab, and professionally collected nasopharyngeal swab) collected at the presentation to a geriatric clinic for their symptoms. All subjects were asked to rate their acceptance of the self-collected and professionally collected methods. Of the 235 participants, 99% reported that the self-collection method was acceptable and easy to perform. In the community cohort, 92% of the self-collected specimens tested positive for ribonuclease P, indicating it was an adequate specimen, whereas 99% of the clinic-based specimens were positive for ribonuclease P. The sensitivity of self-collected nasal swabs, when compared with professionally collected nasal swabs, was 88% (95% CI, 40%-100%), whereas self-collected nasal swabs versus professionally collected nasopharyngeal swabs had a sensitivity of 78% (95% CI, 40%-97%).[29] Despite demonstrating a consistently higher sensitivity for respiratory pathogens, there were no significant differences between a nasopharyngeal swab (94%) and a nasal swab (89%).[16,29] The sensitivity rate between a self-collected nasal swab and a professionally collected nasal swab was also not statistically significant.[16,29] These data are consistent with another comparative study (self-collected vs professionally collected) by McCulloch et al[30] in which the sensitivity and specificity of a self-collected nasal specimen were 80% (95% CI, 63%-91%) and 98% (95% CI, 94%-100%), respectively.

The 2 remaining comparative studies evaluated the diagnostic accuracy of self-collected specimens but implemented descriptive and Cohen's kappa statistics to report their findings. Haussig et al[26] enrolled participants in a longitudinal study looking at self-collected respiratory specimens collected at the onset of symptoms. Participants were asked to self-collect nasal swab specimens and mail them in for testing. Of the 225 swabs received, 151 participants reported symptoms consistent with an RTI and had an overall 71% positive rate for 1 or more respiratory pathogen. By contrast, the asymptomatic cohort (58) only had a 14% positive rate for respiratory pathogens.[26] In the Wehrhahn et al[18] article, the diagnostic accuracy of self-collected specimens for COVID-19 testing was compared with professionally collected specimens. Using Cohen's kappa statistics, the authors found that self-collected specimens had a high agreement ($\kappa = 0.89$) with professionally collected specimens.[18] In another study comparing self-collected with professionally collected specimens, there was also high agreement (95%) between the 2 collection methods when testing for influenza.[27]

To quantify specimen quality, cycle threshold (CT) values were collected in some of the reviewed studies. The CT value is the threshold in which the fluorescent signal used in PCR testing is able to detect the target gene of interest. In general, lower CT values (≤29) equate to higher concentrations of nucleic acid in the test specimen. The CT values from 2 studies showed consistent readings for self-collected specimens and professionally collected specimens,[18] with a correlation coefficient of 0.81, *P* 30 Another study showed the median CT values for self-collected nasal swabs (25) being consistently lower than self-collected throat swabs (32) when the data were aggregated from 8 different viral tests, suggesting a higher viral concentration with nasal swabs.[28]

Discussion

The diagnostic accuracy of self-collected respiratory specimens has received a lot of attention within the past decade of research, but the recent global pandemic has made it a priority to reevaluate self-collection as a viable alternative testing model. Self-collected specimens have shown similar diagnostic accuracy to professionally collected specimens while garnering higher patient acceptance.

The COVID-19 pandemic has become a world-changing event and has highlighted a grave need for a global reevaluation of our approach to managing epidemic or pandemic scale outbreaks. Delays in our testing initiatives allowed the disease to spread rapidly across borders, infecting millions, and resulting in global economic hardship.[31] Despite efforts to contain the disease, infection and death rates continue to rise. Many health facilities are forced to operate at critical mass despite personnel and supply shortages.

A self-collection model is a logical shift in the testing paradigm. As demonstrated, patients are very accepting of the self-collection concept[8,9,19,32] and have shown that they can collect reliable specimens.[18,28] The diagnostic sensitivity and specificity for self-collected specimens have been largely consistent with professionally collected specimens

when testing for RTIs,[16,19,23,28,29] with similar results observed for COVID-19 testing.[18,23]

Limitations

We must acknowledge the limitations in our review findings and the potential barriers to a successful implementation of a self-collection model. Patients have openly admitted to not reviewing the instructional material included in the self-collection kits, potentially resulting in collection or packaging errors.[27] In addition, reliance on a courier service to collect specimens may not be a cost-effective means of gathering specimens, particularly if an ad hoc approach is implemented.

The research team followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines when developing our search parameters. However, our search parameters were not registered on a prospective register such as Prospero, limiting the repeatability of our study design. We recognize the potential for missed literature as our search yielded a small collection of articles. Most of the studies in this literature review were pilots or feasibility studies with small sample sizes, resulting in generally wider CIs. An additional limitation of findings reported in this review is the lack of a gold standard when comparing the sensitivities of self- and professionally collected specimens. Therefore, this could result in a compounding effect leading to an overestimate of the true sensitivity of the test for the disease. Each study implemented varied collection methods, specimen sites, and onset of symptom windows—all critical factors in determining specimen quality and diagnostic outcomes.[29] The articles reviewed included a wide distribution of studies across multiple nations with differing cultural preferences and resource systems. It is important to consider these variables when trying to generalize the findings.

Implications for Emergency Nursing Practice

Emergency departments have experienced significant surges in their patient census since the COVID-19 pandemic began, and these fluctuations have proven taxing to the nursing discipline, including nurses who are working additional and longer shifts.[33,34] The implementation of a self-collection model for RTIs can offset the burden of specimen procurement from the nursing staff while mitigating their infection risk. By allowing patients to collect their own specimens, whether for home testing or in an emergency department, nurses are freed to prioritize their efforts to other tasks, such as caring for the critically ill. Furthermore, providing patients with the means to confirm their diagnosis before engaging with the health care system could significantly improve their length of stay in the emergency department. Alternatively, a prehospital diagnosis could prove valuable for emergency departments with an established telemedicine infrastructure to care for patients with lower acuity symptoms. More importantly, patients who were previously unable or unwilling to access conventional testing sites now have an alternative testing option. Information from a home test kit could also aid patients in making better-informed decisions regarding the proper use of health care channels. The benefits of a self-collection model also include potential economic savings as it reduces our reliance on costly personal protective equipment and the personnel needed to staff testing sites. These are all important variables for future pandemic planning.

Conclusion

Nurses are the primary clinicians who collect respiratory specimens, potentially placing nurses at risk for infection. Nurses have also been extracted from their home departments to staff testing facilities during the pandemic, further exacerbating the nursing shortage. As we continue to explore for alternative testing models to combat the COVID-19 pandemic, a self-collection model is a practical option. The reallocation of this task to the patient has the potential for cost savings but more importantly, improved patient and nursing satisfaction.

Author Disclosures

Conflicts of interest: none to report.

This project was funded by the University of Nebraska Medical Center – COVID Rapid Response Grant.

Authors	Level of Evidence	Results Summary	Study Location
Hall et al[8]	IIIb	1435 participants surveyed regarding self-collection of specimens for COVID-19 research. 88% reported high acceptance of saliva self-swab, while 83% reported high acceptance of a self-collected throat swab. Home self-collection was preferred over drive-through or clinic-based collection.	United States of America
Valentine-Graves et al[9]	IIb	148 participants surveyed regarding willingness to self-collect for COVID-19 testing, 84% reported high acceptance of a self-collection mail in testing model. 87% reported "confident" to "very confident" in their ability to collect an adequate specimen for testing.	United States of America
Adeniji[17]	IIIc	Data from this literature review demonstrated self-collected specimens are equally as adequate as professionally collected specimens for respiratory tract infection testing.	South Africa
Tenover et al[27]	IIIc	135 self-collected specimens were mailed in for testing, 23% of these specimens had one or more packing or shipping errors. A comparative study evaluating the results of self-collected and professionally collected specimens demonstrated 95% agreement between the two collection methods with 53% of participants preferring the self-collection method.	United States of America
Wehrhahn et al[18]	IIb	236 participants, each with specimens collected by self-collection and professional collection. Both samples were evaluated for SARS-CoV-2 and other respiratory pathogens. The self-collected and professionally collected specimens demonstrated a high degree of agreement with a k = 0.89.	Australia
Seaman et al[19]	IIa	A meta-analysis of 14 studies comparing self-collected with professionally collected specimens when testing for influenza. When compared to professionally collected specimens, self-collection had a pooled sensitivity of 87% and a specificity of 99%.	Australia
Altamirano et al[23]	IIb	30 participants, each providing 3 specimens (self-collected nasal swab, professionally collected nasal swab, and professionally collected oropharyngeal swab) for SARS-CoV-2 testing. The sensitivity and specificity of the self-collected specimens were 100% and 95%, respectively.	United States of America

Haussig et al[26]	IIb	102 participants provided 225 self-collected swabs. 100% of the swabs tested positive for c-myc DNA, suggesting specimen adequacy. 53% of the specimens tested positive for one or more viral pathogen(s).	Germany
Goyal et al[29]	IIb	235 participants enrolled into a two-arm comparison study (community-108 or clinic-based-127). Self-collected nasal swabs had a sensitivity of 88% when compared with a professionally collected nasal swab. When compared with a professionally collected nasopharyngeal swab, self-collected nasal swabs had a sensitivity of 78%. The specificity was 100% for both methods. 99% of participants reported acceptance of the self-collected nasal swab method.	Thailand
Fisher et al[28]	IIb	63 participants provided 115 paired self-collected nasal and throat swabs. The sensitivity of the self-collected nasal swab was 96%, while the self-collected throat swab was 76%. Self-collected nasal swabs also had a lower median CT value when compared to self-collected throat swabs (25 vs 32).	United States of America
McCulloch et al[30]	IIb	185 participants each provided a self-collected nasal swab and professionally collected nasopharyngeal swab for SARS-CoV-2 testing. When compared with a professionally collected nasopharyngeal swab, the self-collected nasal swab had a sensitivity of 80% and a specificity of 98%. A high degree of agreement was observed with a k = 0.81.	United States of America

DETAILS

Subject:	Infections; Infectious diseases; Comparative studies; Workforce planning; Pathogens; Accuracy; Severe acute respiratory syndrome coronavirus 2; Respiratory tract infection; Influenza; Nurses; Fidelity; Collection; COVID-19 diagnostic tests; COVID-19; Patients; Pandemics; Nursing care; Evidence-based nursing; Respiratory diseases; Viruses; Cost control; Coronaviruses; Literature reviews; Clinical nursing; Systematic review; Disease control; Acceptance; Disease transmission; Medical diagnosis
Business indexing term:	Subject: Workforce planning Cost control
Company / organization:	Name: Centers for Disease Control &Prevention--CDC; NAICS: 923120
Identifier / keyword:	Respiratory tract infection/testing; Respiratory tract infection/diagnostic; Respiratory tract infection/self-collect; COVID-19; Emergency department

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A Systematic Review of Primary Care and Payment Models on Emergency Department Use in Patients Classified as High Need, High Cost: JEN

ABSTRACT (ENGLISH)

Introduction

Reducing costly and harmful ED use by patients classified as high need, high cost is a priority across health care systems. The purpose of this systematic review was to evaluate the impact of various primary care and payment models on ED use and overall costs in patients classified as high need, high cost.

Methods

Using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines, a search was performed from January 2000 to March 2020 in 3 databases. Two reviewers independently appraised articles for quality. Studies were eligible if they evaluated models implemented in the primary care setting and in patients classified as high need, high cost in the United States. Outcomes included all-cause and preventable ED use and overall health care costs.

Results

In the 21 articles included, 4 models were evaluated: care coordination (n = 8), care management (n = 7), intensive primary care (n = 4), and alternative payment models (n = 2). Statistically significant reductions in all-cause ED use were reported in 10 studies through care coordination, alternative payment models, and intensive primary care. Significant reductions in overall costs were reported in 5 studies, and 1 reported a significant increase. Care management and care coordination models had mixed effects on ED use and overall costs.

Discussion

Studies that significantly reduced ED use had shared features, including frequent follow-up, multidisciplinary team-based care, enhanced access, and care coordination. Identifying primary care models that effectively enhance access to care and improve ongoing chronic disease management is imperative to reduce costly and harmful ED use in patients classified as high need, high cost.

FULL TEXT

DETAILS

Subject:	Emergency medical care; Population; Databases; Health care policy; Health care expenditures; Avoidable; Chronic illnesses; Disease management; Subject heading schemes; Emergency services; Primary care; Access; Medicare; Patients; Clinical outcomes; Systematic review; Journals; Costs; Multidisciplinary teams; Adults; Coordination; Health care management; Continuity of care
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Emergency Nursing Review Questions: September 2021: JEN

ABSTRACT (ENGLISH)

The priority groups for administration of KI are infants, children, and pregnant women (A). Children with frontal hematomas are less likely to have an underlying CHI than children with an injury to the temporal-parietal region, which has a higher risk for intracranial bleeding because the middle meningeal artery is located in this area (A). Systemic absorption is more likely with concentrations more than 20% and the involvement of more than 2.5% of body surface area. [...]this patient should have labs drawn and any electrolyte imbalances, such as hypocalcemia and hypomagnesemia, corrected (D).

FULL TEXT

These review questions are based on the Emergency Nursing Core Curriculum and other pertinent resources to emergency nursing practice. They offer emergency nurses an opportunity to test their knowledge about their practice.

QUESTIONS

1. A child is brought to the emergency department by a parent because the child suddenly began to exhibit obsessive-compulsive behaviors. The child is alert and oriented and has normal vital signs. Which of the following history, obtained in triage, is most important to report to the health care provider?

•**A.**Recent sore throat

•**B.**Recent camping trip

•**C.**Recent travel to South America

•**D.**Recent tick exposure

2. Several patients were brought to the emergency department after exposure to radiation after a nuclear incident. In addition to decontamination, based on the type of exposure, potassium iodide (KI) was ordered. When administering KI, which of the following is important to consider?

•**A.**The priority group for administration is young adults aged 18 to 30 years.

•**B.**It protects the lungs after inhalation of radioactive dust.

•**C.**A single dose given 4 hours after exposure will protect the patient.

•**D.**Patients may complain of a metallic taste or burning in the mouth and the throat.

3. All of the following pediatric patients present to the emergency department after a fall in which they struck their heads. Which of the following patients is at the highest risk for a closed head injury (CHI)?

•**A.**A 12-month-old who fell off a sofa and has a small frontal hematoma

•**B.**An 18-month-old who fell against a coffee table and has a small cut on the eyebrow

•**C.**A 3-month-old who fell off of a changing table and sustained a temporal hematoma

•**D.**A 20-month-old who fell 2 ft from a swing and vomited once

4. A patient with a diagnosis of substance use disorder (SUD) presents to the emergency department with acute pain from a fractured femur. The patient is currently on medication for opiate use disorder (MOUD). Which of the following should the nurse anticipate in managing this patient?

•**A.**Administration of SUD medications

•**B.**No administration of opioids

•**C.**Discontinuation of patient's MOUD

•**D.**Administration of intravenous opioid

5. A patient presents to the emergency department after accidently spilling a 25% solution of hydrofluoric acid on his foot. The patient drove immediately from his worksite to the hospital. After removing the shoe, which of the following is the priority?

•**A.**Flush with water or saline.

•**B.**Apply calcium gluconate gel.

•**C.**Medicate for pain.

•**D.**Draw labs for calcium, magnesium, and potassium.

ANSWERS

1. Correct answer: A

This child may be exhibiting signs of a pediatric autoimmune neuropsychiatric disorder associated with streptococcal infection, abbreviated as PANDAS. Unlike the symptoms of obsessive-compulsive disorder, which usually develop over months to years, symptoms of pediatric autoimmune neuropsychiatric disorder associated with streptococcal infection appear rapidly either simultaneously with symptoms of group A streptococcal infection or shortly after symptoms of infection subside. It is thought that in some children streptococcal infection causes an autoimmune response in the basal ganglia. The incidence is more common in boys and before the age of 12 years. Interventions include antimicrobials to treat the infection, and in some cases, additional treatment may be required to treat neuropsychiatric symptoms.[1]

2. Correct answer: D

Radioactive incidents can result in the release of radioactive iodine. The thyroid gland cannot tell the difference between radioactive iodine and regular iodine. Absorption of radioactive iodine increases the risk of thyroid cancer (B). KI is a supplementary measure used to protect the thyroid by preventing the uptake of radioactive iodine. The priority groups for administration of KI are infants, children, and pregnant women (A). The first dose is given as soon as possible after exposure, and the dose needs to be repeated daily until the exposure risk has been eliminated (C). Some patients may complain of a metallic taste or a sensation of burning in the mouth and the throat (D).[2]

3. Correct answer: C

In children younger than 2 years, 70% to 80% of CHIs are the result of falls. Those at highest risk are infants younger than 12 months and those that fall from more than 3 ft, such as from changing tables, countertops, shopping carts, and caregiver arms (C). Children with frontal hematomas are less likely to have an underlying CHI than children with an injury to the temporal-parietal region, which has a higher risk for intracranial bleeding because the middle meningeal artery is located in this area (A). In children younger than 2 years, a single episode of vomiting has not been identified as a predictor of CHI (D).[3]

4. Correct answer: D

This patient should receive an appropriate dose of intravenous opiate to treat severe pain (D). Relapse rates are not

associated with the short-term use of opiates. Medication-assisted therapies for SUD are not intended to treat pain (A). They are intended to manage the SUD. Additional measures, such as traction in this case, may be used to manage the injury and pain, but an opiate may still be needed (B). The patient's MOUD therapy does not need to be discontinued and can be a key to relapse prevention (C).[4]

5. Correct answer: A

Treatment for this patient includes decontamination, neutralization of the toxin, and correction of electrolyte imbalance to avoid systemic toxicity. The first priority is to flush with water or saline (A). After proper decontamination, the toxin should be neutralized, which in this case involves the topical application of a calcium gel. Calcium gluconate is preferred, but calcium carbonate may also be used (B). Systemic absorption is more likely with concentrations more than 20% and the involvement of more than 2.5% of body surface area. Thus, this patient should have labs drawn and any electrolyte imbalances, such as hypocalcemia and hypomagnesemia, corrected (D). As the gel neutralizes the fluoride, the gel will turn white, and the pain should subside. Use pain medication cautiously because pain is a guide to the effectiveness of the topical therapy (C).[5]

DETAILS

Subject:	Infections; Patients; Emergency medical care; Iodine; Electrolytes; Hematoma; Infants; Pain; Bleeding; Emergency services; Thyroid gland; Children &youth; Potassium; Core curriculum; Nursing; Mothers; Injuries; Pediatrics; Narcotics; Children; Absorption; Pregnancy
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Development and Implementation of an Emergent Documentation Aggression Rating Tool: Quality Improvement: JEN

ProQuest document link

ABSTRACT (ENGLISH)

Introduction

Workplace violence is prevalent in the emergency department, putting patients and staff at risk for harm. An ED-specific standardized tool is needed to promote a consistent assessment process to strengthen documentation of escalating patient behaviors, give justification for de-escalating interventions, and reduce restraints. The purpose of this project was to design, implement, and evaluate feasibility of an ED-specific tool to help nurses proactively identify and intervene with patients' escalating behaviors, capture better documentation of aggressive/violent patient events, and reduce restraint usage.

Methods

A quality improvement design was used. The Emergent Documentation Aggression Rating Tool was constructed by combining evidence-based behavioral cues for potential aggression/violence with observed behaviors and successfully implemented interventions in patients. Nurses were trained on how to use the tool to rate patients' behaviors and take necessary action. Chart data were collected from August 2018 to December 2019 at a Midwestern suburban hospital emergency department. Chart audits and just-in-time education were conducted after implementation. Survey data were collected to evaluate nurses' perception of the tool's usefulness.

Results

Use of the novel Emergent Documentation Aggression Rating Tool increased over time (67.36% in Quarter 3 2018 to 97.55% in Quarter 4 2019). After Emergent Documentation Aggression Rating Tool implementation, visual inspection of the time series indicated a decrease in percent restraints, and there was an overall increase in documented escalations de-escalations over time. The patients that escalated most frequently had diagnoses of

alcohol use, suicidal ideations, pain-related complaints, or mental health issues.

Conclusion

The Emergent Documentation Aggression Rating Tool was feasible for emergency nurses to proactively identify and intervene with patients at risk for aggression/violence.

FULL TEXT

DETAILS

Subject:	Emergency medical care; Quality management; Intervention; Pain; Feasibility; Workplace violence; Alcohol use; Justification; Time series; Complaints; Implementation; Workplaces; Violence; Nurses; Emergency services; Cues; Behavior; Medical records; Physical restraints; Usefulness; Aggressiveness; Mental health; Quality control; Quality improvement; Documentation; Suicide; Suicidal behavior; Ratings &rankings
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A time and motion analysis of nursing workload and electronic health record use in the emergency department: JEN. (2021). Journal of Emergency Nursing, 47(5), 733-741. doi:https://doi.org/10.1016/j.jen.2021.03.007

IntroductionThe use of an electronic health record may create unanticipated consequences for emergency care delivery. We sought to describe emergency department nursing task distribution and the use of the electronic health record.MethodsThis was a prospective observational study of nurses in the emergency department using a time-and-motion methodology. Three trained research assistants conducted 1:1 observations between March and September 2019. Nurse tasks were classified into 6 established categories: electronic health record, direct/indirect patient care, communication, personal time, and other. Nurses' perceived workload was assessed using the National Aeronautics and Space Administration (NASA) Task Load Index.ResultsTwenty-three observations were conducted over 46 hours. Overall, nurses spent 27% of their time on electronic health record tasks, 25% on direct patient care, 17% on personal time, 15% on indirect patient care, and 6% on communication. During morning (7 am-12 pm) and afternoon shifts (12 pm-3 pm), the use of the health record was the most commonly performed task, whereas indirect patient care was the task most performed during evening shifts (3 pm-12 pm). Using the National Aeronautics and Space Administration (NASA) Task Load Index, nurses reported an increase in mental demand and effort during afternoon shifts compared with morning shifts.DiscussionWe observed that emergency nurses spent more time using the electronic health record as compared to other tasks. Increased usability of the electronic health record, particularly during high occupancy periods, may be a target for improvement.

The needs of families during cardiac arrest care: A survivor- and family-led scoping review protocol: JEN. (2021). Journal of Emergency Nursing, 47(5), 778-788. doi:https://doi.org/10.1016/j.jen.2021.02.006

IntroductionSudden cardiac arrest is a leading cause of death. Family members often witness the event and attempt resuscitation. The physiological and psychological impact of a loved one's death, witnessed or unwitnessed, can be significant and long-lasting. However, little is known about the care needs of families during the cardiac arrest care of a loved one. This scoping review protocol was designed with, and will be performed in partnership with, persons with lived experience of sudden cardiac arrest (survivors and family members of survivors and nonsurvivors alike).MethodsThe review will be performed in accordance with accepted methods such as the Arksey and O'Malley methodology framework and the Levac extension. We will search multiple databases, and Google Scholar for both qualitative and quantitative scientific literature. Articles will be screened, extracted, and analyzed by a team with lived experience of cardiac arrest. Two reviewers will conduct all screening and data extraction independently. A descriptive overview, tabular and/or graphical summaries, and a directed content analysis will be carried out on extracted data.DiscussionThis protocol outlines a planned literature review to systematically examine the nature of existing evidence to describe what the care needs of families experiencing the cardiac arrest of a loved one are. Such evidence will contribute to the development of strategies to meet identified care needs. Persons with lived experience participated in the creation of this protocol, and they will also participate in the execution of this review as partners and coinvestigators, not as research subjects or participants.The results of the scoping review will be disseminated upon completion of the work described in this protocol.

Cesarean scar ectopic pregnancy: A case report: JEN. (2021). Journal of Emergency Nursing, 47(5), 693-695. doi:https://doi.org/10.1016/j.jen.2021.05.008

BackgroundA cesarean scar pregnancy is a rare, life-threatening obstetric emergency. Early recognition and prompt treatment of cesarean scar pregnancy is essential because of the risk for long-term reproductive complications associated with this condition.Case PresentationA 33-year-old gravida 6 para 5 female presented to the emergency department with pain to the suprapubic area. Following assessment and diagnostic testing, she was diagnosed with a cesarean scar pregnancy. The patient was admitted to the women's services department where she received a multidose regimen of methotrexate. The patient was discharged home, and no further surgical interventions were necessary. Two months after her visit to the emergency department, the patient has not had any complications related to the cesarean scar pregnancy.ConclusionThis manuscript outlines the case of a patient presenting to the

emergency department with a cesarean scar pregnancy that was promptly recognized and treated. It is important for emergency nurses to quickly recognize the risk factors and clinical presentation of a cesarean scar pregnancy to reduce maternal morbidity and mortality.

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Changing behaviors: The behavior change wheel and emergency nursing: JEN. (2021). Journal of Emergency Nursing, 47(5), 678-683. doi:https://doi.org/10.1016/j.jen.2021.07.006

A major challenge in emergency nursing is to provide nonjudgmental and compassionate care to patients in the throes of their emergencies, regardless of their risk-taking behaviors of vaccination status, daredevil stunts, alcohol use, drug use, tobacco use, suicide attempt, self-injury, interpersonal violence, sexual activity, weapon use, hazardous vehicle or machine operation, or dangerous or extreme sports and contests. Best-practice emergency discharge procedures also include lifestyle behavior change coaching interventions such as smoking cessation and improving diet and physical activity habits. Nurse scholars often use the Theory of Planned Behavior5 or the Health Belief Model6 to plan and develop interventions that target behavior change.7-9 For example, McDonald et al7,8 developed an injury prevention program to reduce distracted driving for teen drivers that was based on the Theory of Planned Behavior model components of attitude, norms, and perceived control. Government, organization, and unit policies are necessary to support effective and successful interventions. ...]the third layer of the Behavior Change Wheel is composed of 7 policy categories: communication/marketing, guidelines, fiscal, regulation, legislation, environmental/social planning, and service provision.

Table of contents: JEN. (2021). Journal of Emergency Nursing, 47(5), A1-A4. doi:https://doi.org/10.1016/S0099-1767(21)00200-2

Board of directors: JEN. (2021). Journal of Emergency Nursing, 47(5) doi:https://doi.org/10.1016/S0099-1767(21)00202-6

Development and implementation of a pediatric telesimulation intervention for nurses in community emergency departments: JEN. (2021). Journal of Emergency Nursing, 47(5), 818-823.e1. doi:https://doi.org/10.1016/j.jen.2021.01.013

The need for virtual education for nursing staff has dramatically increased because of social distancing measures after the coronavirus disease pandemic. Emergency departments in particular need to educate staff on caring for patients with coronavirus disease while concurrently continuing to ensure education related to core topic areas such as pediatric assessment and stabilization. Unfortunately, many nurse educators are currently unable to provide traditional in-person education and training to their nursing staff. Our inter-professional team aimed to address this through the rapid development and implementation of an emergency nursing telesimulation curriculum. This curriculum focused on the nursing assessment and initial stabilization of a child presenting to the emergency department in status epilepticus. This article describes the rapid development and implementation of a pediatric emergency nursing telesimulation. Our objectives in this article are (1) to describe the rapid creation of this curriculum using Kern’s framework, (2) to describe the implementation of a fully online simulation-based pediatric emergency training intervention for nurse learners, and (3) to report learners’ satisfaction with and feedback on this intervention.

It's time to provide evidence-based care to individuals with sickle cell disease: A call to action: JEN. (2021). Journal of Emergency Nursing, 47(5), 684-688. doi:https://doi.org/10.1016/j.jen.2021.06.002

In the current issue of the Journal of Emergency Nursing, Linton et al1 report on their successful implementation of a clinical support tool (a banner to recommend emergency severity index ESI] triage level 2) to improve the care of sickle cell disease (SCD) for individuals presenting to the emergency department with severe pain referred to as vaso-occlusive crisis (VOC). The resolution provides background on SCD and aims to disseminate the National Heart, Lung, and Blood Institute (NHLBI) guidelines from the National Institutes of Health for the treatment of SCD, published in 2014, and includes recommendations for the treatment of VOC in the emergency department.2 Specifically, a comprehensive pain assessment and rapid aggressive pain control are recommended. In 2019, the American Society of Hematology (ASH) published similar guidelines that align with the NHLBI recommendations supporting rapid aggressive treatment of pain and the use of individualized or standard SCD protocols.4 The ASH guideline for treatment of VOC also recommends the use of subcutaneous and intranasal routes to facilitate rapid administration.4 In particular, intranasal fentaNYL in children has been found to reduce the time to first dose.5 The overarching goal of the recommendations is to facilitate rapid pain control and avoid hospitalizations by resolving the crisis in a timely fashion. Among health care providers, there is a long-standing perception that individuals with SCD are addicted to opioids; however, data to support this claim does not exist.11 A review of national data from the Centers for Disease Control and Prevention from 1999 to 2013 compared deaths from opioid overdose between those with SCD and all other diseases.

Reunite… reflect… recharge: JEN. (2021). Journal of Emergency Nursing, 47(5), 677. doi:https://doi.org/10.1016/j.jen.2021.07.005

EN21X will be a reunion of emergency nursing professionals who will be able to share the experiences of the pandemic over the last 18 months. Once the pandemic infection control precautions are lifted, I encourage you to take the time to go to that concert, go to that event you have always wanted to experience, call that friend, make that road trip, have that adventure… do it for yourself. When you take this step, slow down for the focus—take time and breathe, take it all in.

Delirium in emergency departments: Is it recognized?: JEN. (2021). Journal of Emergency Nursing, 47(5), 809-817. doi:https://doi.org/10.1016/j.jen.2021.01.009

BackgroundDelirium is a complex neurocognitive manifestation of an underlying medical or surgical abnormality such as substance abuse, infection, sepsis, or organ failure. A recognized risk factor for delirium is advanced age (age >65 years). The projected demographic changes over the next 2 decades suggest that the number of aging adults will grow dramatically, and emergency nurses will see an increasing number of older patients manifesting the wide range of neuropsychiatric symptoms associated with delirium.MethodAn examination of 5 commonly used delirium assessment tools was undertaken specific to clinical features, use, scoring, findings, advantages, and disadvantages.FindingsNumerous factors contribute to the lack of effective delirium recognition. However, emergency nurses, with educational support, can successfully use the delirium assessment tools to recognize delirium.ConclusionEmergency nurses face challenges in recognizing delirium. One key challenge for many of these nurses is the appropriate use of assessment tools suitable for the ED setting.

Evaluating empiric therapy for acute uncomplicated cystitis in the outpatient setting: A retrospective cohort study: JEN. (2021). Journal of Emergency Nursing, 47(5), 789-797. doi:https://doi.org/10.1016/j.jen.2021.03.005

ObjectivesTo evaluate the empiric therapy prescribed for acute uncomplicated cystitis in the outpatient setting (emergency department and ambulatory care clinics) and to characterize uropathogens for discordance between the therapy prescribed and susceptibility.MethodsA retrospective review was conducted at an inner-city emergency department and multiple clinics to evaluate the empiric therapy prescribed and the uropathogens isolated from culture for patients with acute uncomplicated cystitis.ResultsA total of 144 urine cultures were included. Among the patients, 53.4% were empirically prescribed cephalexin, 20.1% ciprofloxacin, 11% nitrofurantoin, and 8.3% trimethoprim/sulfamethoxazole. The most common uropathogen was Escherichia coli (72.4%), followed by Streptococcus agalactiae (7.6%) and Klebsiella pneumoniae (4.8%). Of the 107 E. coli isolates, 9 were extended spectrum beta-lactamase–producing. E. coli antimicrobial susceptibilities were as follows: ceFAZolin

(97%), nitrofurantoin (96%), cefTRIAXone (91%), ciprofloxacin (87%), and trimethoprim-sulfamethoxazole (59%). The concordance rates with the Infectious Diseases Society of America treatment guidelines for acute uncomplicated cystitis and local resistance patterns were as follows: empiric therapy prescribed (70%), dosing of empiric therapy (77%), and duration of empiric therapy (22%). For empiric therapy prescribed and susceptibility mismatch, 5.6% of the isolates were not susceptible to therapy, 76.4% were susceptible to therapy, 14% did not have susceptibilities, and 4.2% did not receive therapy.ConclusionsMost of the cases of acute uncomplicated cystitis at the subject institution can be managed safely and effectively with nitrofurantoin or first-generation cephalosporins. Institutions should use national guidelines in conjunction with local resistance and prescribing patterns to improve antibiotic prescribing in the outpatient setting.

Implementing family presence during pediatric resuscitations in the emergency department: Family-centered care and trauma-informed care best practices: JEN. (2021). Journal of Emergency Nursing, 47(5), 689-692. doi:https://doi.org/10.1016/j.jen.2021.07.003