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Interprofessional In Situ Simulation to Identify Latent Safety Threats for Quality Improvement: A Single-Center Protocol Report: JEN

ABSTRACT (ENGLISH)

In situ simulation has frequently been used to improve team performance and provide an opportunity for the practice of critical skills and identify latent safety threats, which are undetected risks that may lead to adverse outcomes. However, the use of known quality improvement tools to prioritize and mitigate these safety threats is an area requiring further study. Over the course of 9 in situ simulations of a pediatric shock case, postcase debriefs were held to identify latent safety threats in an emergency department and a mixed pediatric and adult inpatient unit. Latent safety threats identified included structure-related threats such as inability to locate critical equipment, knowledge-based threats relating to rapid intravenous fluid administration, and communication-based threats such as lack of role designation. Identification of latent safety threats in the health care environment may assist clinician leaders in mitigating risk of patient harm. The protocol described may be adopted and applied to other critical event simulations, with structured debriefing used as a tool to identify and mitigate threats before they affect the patient.

FULL TEXT

Introduction Background and Rationale

The use of in situ simulation to identify and mitigate latent safety threats (LSTs) is an engaging way to identify potential patient and staff safety issues before they occur. Available research has illustrated the capacity for in situ simulation and structured debriefs to assist in the identification of LSTs in the workplace that may have negative impacts on patient outcomes and staff safety.[1] LSTs or "latent errors," as they are referred to in the Institute of Medicine's "To Err is Human" report, are hidden defects that are often easily ignored by health care systems until they snowball or converge, potentially resulting in adverse outcomes.[2] Identifying LSTs can be a product of structured debriefs involving the interprofessional team.[3] In situ simulation has been found to improve clinical skills and teamwork[4] and has the added benefit of taking place in the environment where care occurs. LSTs can be identified using in situ simulation across numerous areas such as protocols, policies, and procedures, as well as structural elements including equipment arrangement of the clinical environment.[5] Oftentimes, LST themes emerge over the course of simulations, which can be unique to an institution or common with others.

In situ simulation has been used successfully to detect LSTs in pediatric acute care[6] and has further been used to detect and mitigate equipment-related, technical, and resource/system related threats in cardiac arrest scenarios.[7] Brazil et al[8] discuss the propensity for simulation to improve quality of care through the identification of barriers or enablers of quality. This facility further leveraged simulation for quality improvement (QI) by merging in situ simulation with known QI tools to improve safety surrounding coronavirus disease 2019 (COVID-19) critical airway scenarios.[9]

After structured debriefing to identify LSTs was performed in this protocol, the Survey Analysis for Evaluating Risk (SAFER) Matrix (The Joint Commission) was used to weigh LSTs. The SAFER Matrix, developed by The Joint Commission, provides a visual representation of the scope and likelihood of harm associated with a particular LST.[10] This amalgamation of in situ simulation, structured debriefing, and use of QI tools to longitudinally identify and mitigate LSTs is an area requiring further focus and investigation for its effectiveness in improving patient safety.

Objectives

This simulation protocol was designed in response to findings in a study performed by the Improving Pediatric Acute Care Through Simulation (ImPACTS) network. The ImPACTS network was formed as a national collaborative of pediatric Academic Medical Centers to improve pediatric readiness in both academic and general emergency departments.[11] The program involves an on-site assessment including the use of in situ simulation and recommendations for QI initiatives.[11] In our site evaluation, the ImPACTS network recommended training focused on pediatric emergencies related to shock, specifically the use of the push-pull method of fluid resuscitation.[11,12]

The primary aim of this program was to identify and weigh LSTs related to pediatric shock through in situ simulation, with the goals of incorporating them into structured QI tools to better understand underlying roots of the problem along with a structured plan for sustained mitigation. The program was planned to improve knowledge of pediatric sepsis and fluid resuscitation among an interprofessional resuscitation team while simultaneously evaluating and mitigating LSTs associated with actual pediatric critical events.

Methods

This study was reviewed and provided an exemption by our facility's institutional review board as a QI initiative (IRB# 2021-13138). The template for intervention description and replication checklist[13] and SPIRIT statement[14] were used in the construction of this protocol to increase readers' ability to replicate the simulation, debriefing, and identification of threats.

Study Setting

This simulation protocol was performed at a 292-bed community hospital in Westchester County, New York. The hospital has the highest ED volume in the county, with pediatric patients representing 10% to 20% of ED volume annually. The hospital contains a mixed adult and pediatric medical-surgical unit but does not have a pediatric intensive care unit; pediatric patients requiring critical care services are instead transferred to nearby tertiary care centers.

Structural elements in place in this facility before intervention include universal basic life support certification for nurses and unlicensed assistive personnel, requirement of advanced cardiac life support for registered nurses, and requirement of pediatric advanced life support certification for nurses in the emergency department and pediatric unit. In addition, daily checks of code carts are completed to ensure availability of necessary life support equipment, and education about code cart contents is performed upon hire and annually. Regarding communication, completion of Team Strategies and Tools to Enhance Performance and Patient Safety training is required for providers, nurses, and unlicensed assistive personnel upon hire. Finally, there is an existing sepsis task force who meet monthly to review compliance with treatment of septic shock standards of care and related events.

Interventions

• This program leveraged the Plan-Do-Study-Act (PDSA) cycle, developed by Dr W. Edward Demings and Walter Shewhart, and forms the core of the Model for Improvement by the Institute for Healthcare Improvement.[15,16] This report details the initial cycle and development of such a program, with supplementary content in the Supplementary Appendix for replication. The primary aim for this program was to identify and weigh LSTs, with the goal of incorporating them into existing QI tools to better understand underlying roots of the problem along with a structured plan for mitigation.

In the "Plan" stage, our team provided basic education for medical staff, both in the emergency department and inpatient unit, regarding pediatric shock management along with the push-pull method of intravenous fluid administration; this was performed at the department meetings and "just-in-time" training on the individual units. The goal of this session was to use our traditional educational methods to try to reach as many medical staff as possible regarding pediatric shock identification and treatment, while also training the "push-pull" method that would later be stress-tested through the in situ protocol. Although the ImPACTS program highlighted the need to review the usage of the "push-pull" method for fluid resuscitation, our simulation team felt the need to advance this by testing its use in

the actual clinical environment while also evaluating LSTs that are associated with pediatric resuscitation for shock. In addition, debriefers were trained in a systems-based debriefing program via a 3-hour virtual seminar. The seminar described the aim of the simulation program and strategies for debriefing. Videos of structured debriefs and participation in debriefing practices with real-time feedback were elements of the training program. This training program was 1 element of a larger systems-based debriefing project by Dr Farrukh Jafri who participated in debriefing in situ simulations during the "Do" stage had all completed the debriefing training program.

In the "Do" stage, an in situ simulation was performed to understand LSTs related to pediatric shock and to test the workflows for staff trained through conventional methods on pediatric shock. The Pearls for System Integration, a standardized tool for systems-based debriefing, was used to maximize the identification of LSTs during the pediatric shock simulation.[17] This framework incorporates (1) participant assessment of predetermined objectives, (2) facilitated discussion on systems issues identification, and (3) obtaining information and background through direct feedback.[17] Simulations began with a description phase to reinforce a shared mental model among the participants and facilitator, as well as a statement of purpose for identifying LSTs to improve pediatric resuscitation care. After the simulation, during the analysis phase, the debriefer used the plus/delta model to cover each predetermined opportunity. Finally, in the summary phase, the data elements captured during the debrief were summarized aloud and cross-checked by the team, providing an opportunity to cross-validate participant contributions. The transcripts from the debriefing sessions were organized into 3 categories: (1) shock management knowledge, (2) equipment availability, and (3) communication.

The simulation scenario was that of a 9-month-old infant with urinary tract infection not tolerating oral fluids, later decompensating into septic shock. Effective management of the scenario was determined to include recognition of shock state, need for glucose check, delivery of antipyretic agent, and administration of broad-spectrum antibiotic agents and rapid fluid bolus. Interventions in effective management included several steps including positioning of airway, use of monitoring equipment, administration of fluid bolus using push-pull or pressure bag method, and administration of medications. The simulations were not video recorded and instead leveraged cross-validation through the Pearls for System Integration framework for an accurate assessment of topics discussed during the debrief.

Participants in the scenario included a clinical team leader (physician, nurse practitioner, or physician assistant), registered nurses, respiratory therapists, and unlicensed assistive personnel. The mixture of staff included in simulation mirrored the interprofessional team who would be present during a critical event in our health care facility. The [Supplementary Appendix] includes the full pediatric simulation case progression.

Data Collection

In the "Study" stage of the PDSA cycle, the qualitative data from the debriefs were reviewed by a QI group made up of physician leaders, QI registered nurses, and advanced practice providers to identify LSTs. After each simulation, the data were submitted in an online portal, organized into the following: (1) was Push-Pull performed? (2) delta for knowledge-based LSTs covering management of pediatric shock, (3) delta for equipment-based LSTs, (4) delta for communication-based LSTs. LST data were subsequently placed into subcategories for organization and tracking. These subcategories then were assigned a value in the SAFER Matrix through assignment as being of low, moderate, or high risk of harm to the patient. The debriefer had already organized the qualitative data belonging to the predetermined categories of interest, and therefore, the SAFER Matrix also was organized as such. Ratings for likelihood of harm were determined by the QI group: senior staff in the observed departments who filled out an anonymous online survey rating each LST as low risk, medium risk, or high risk. Finally, the number of times each safety threat occurred was recorded to determine the scope of the threat or likelihood that the same event would

occur in future events. For example, the inability to locate the pediatric crash cart was categorized as an equipment-related safety threat with a high likelihood of harm and a high scope. The goal of such weighted assignment based on impact of harm was to triage the threats to help organize the respective QI teams on where to focus their energy at onset.

Originally, the team planned to hold several PDSA cycles with the goal of reducing the identified safety threats and evaluating the impact of remediating interventions (the Act phase of PDSA). However, owing to competing priorities as the second wave of the COVID-19 pandemic impacted the region, only the first cycle of simulations was held. Instead, the safety threats identified were discussed with the leadership team of both units for abatement with the primary drivers incorporated (see ^{Supplementary Appendix} for driver diagram). After this, a similar protocol for identification of LSTs focused on the adult population was implemented in the emergency department for COVID-19 management.[18]

Outcomes

A total of 9 in situ simulations were run between July and September 2020, 4 of which were held in the emergency department and 5 on a mixed pediatric and adult medical-surgical unit. Upon review of the 9 completed simulations, several LSTs were identified as opportunities to improve practice surrounding pediatric shock.

A total of 25 LSTs were identified during simulations, with 14 occurring in the mixed pediatric and medical-surgical and 11 in the emergency department. These are noted in [Figures 1] and [2]. Most frequently observed were LSTs related to equipment; these were often rated highly likely to cause harm to the patient. Notable equipment-based LSTs included difficulty in locating intravenous infusion pumps ($n = 2$), pressure bags ($n = 3$), intraosseous needles and related equipment ($n = 5$), and crash carts ($n = 4$). Knowledge-based LSTs were related to a lack of knowledge surrounding rapid fluid resuscitation ($n = 5$) and push-pull technique ($n = 2$). Finally, communication-based LSTs included trouble with clear role designation ($n = 1$), closed loop communication ($n = 3$), and hand-off communication ($n = 1$).

Cause and effect and driver diagrams were subsequently developed to address the LSTs identified during the simulations. Primary drivers for the pediatric unit included (1) lack of knowledge on push-pull and (2) needing prompting to use push-pull. For the "Act," the following change concepts were incorporated: (1) repeat push-pull training for all inpatient units' staff, (2) crash-cart training for location of equipment, (3) reviewing signs of pediatric shock at training sessions, and (4) building in an order set for push-pull into the fluids administration for pediatric shock.

For the emergency department, primary drivers included (1) difficulty to locate items and (2) difficulty to read labels for equipment. Change concepts put into place included (1) designated location for pediatric shock items (push-pull), (2) clear floor signage through decals for pediatric resuscitation equipment and crash carts, (3) a trimmed cart checklist for ease of access for equipment, (4) restocking system put into place for expired items, (5) simplified equipment stocking and design, and (6) improved signage in the pediatric carts.

As previously mentioned, re-evaluation via a new PDSA cycle was not performed owing to competing priorities.

Discussion

In this QI-based in situ program, we demonstrated a technique that can be used to identify, weigh, and track LSTs over time for a QI initiative. Although they were designed for pediatric shock, we immediately found LSTs that went beyond shock into broader areas of opportunity, including ease of access of the pediatric crash carts along with reorganization of supply closets and improvements in communication for team-based resuscitation.

A strength of this protocol was that it was implemented across 2 different settings—the emergency department and the pediatric inpatient unit—as a means of identifying different LSTs in different arenas that could have been related to level of care, structural differences, team dynamics, etc. Although this program was cut short secondary to the

pandemic, the same technique was leveraged to assist in managing the initial stages of the COVID-19 pandemic in the emergency department[18] and has since been used for cardiac arrest in the cardiac catheterization laboratory, pediatric seizure management in the emergency department and inpatient units, and a behavioral health simulation. This technique has expanded into 5 different hospitals in a short period of time through the Merging In Situ Simulation and Quality collaborative; publication of this multisite initiative is in development. Owing to competing needs in pediatrics at our facility, a decision was made to focus the in situ simulation/QI program from pediatric shock to pediatric seizure, a program that is ongoing and currently in its third PDSA cycle.

The quality findings were important for mitigation of risk through nursing education and structural changes to make equipment more visible and accessible. Our protocol demonstrates that threats can be weighed and prioritized upon recognition and used in cause and effect and driver diagrams to identify opportunities for mitigation of risks (see Supplementary Appendix).

For example, upon recognition of LSTs identified in this study, in-services were held to educate about the push-pull method and footprint signage was implemented on each unit to mark the location of the pediatric code cart. Upon identifying LSTs, prompt initiation of targeted education was instrumental in improving care delivery at every link in the resuscitation chain. Placing a value of likelihood to cause harm to the patient, educators could focus their efforts appropriately on the highest-risk LSTs and gain perspective regarding where the units were lacking.

A limitation of this study was that only one phase was completed. There was a desire to complete more phases as a means of comparison, but the advent of the COVID-19 virus took precedence and our facility's inpatient pediatric unit was closed at that time. However, as discussed, this program allowed a blueprint to allow for further in situ simulation-based QI programs to develop rapidly, including expansion to other hospital sites.

We uncovered numerous LSTs after staff received initial training in the push-pull method of pediatric fluid administration. LSTs were detected in the areas of both structure and process. This research may serve as a template on how to build an in situ simulation program and debrief scenarios to identify LSTs in a variety of settings, among any patient population.

Acknowledgments

Author Disclosures

Conflicts of interest: none to report.

Supplementary Data

Supplementary Appendix 1Supplementary Appendix 2Supplementary Appendix 3Supplementary Appendix 4

Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2022.09.007.

DETAILS

Subject:	Emergency medical care; Quality management; Simulation; Patient safety; Clinical outcomes; Safety; Threats; Training; Identification; Sepsis; Health problems; Group performance; Equipment; Quality improvement; Hospitals; Emergency services; Interdisciplinary aspects; Teams; Coronaviruses; Debriefing; Pediatrics; Nurses; Inpatient care; COVID-19

The Emergency Nurses Association Family Today: JEN

ABSTRACT (ENGLISH)

The more experienced Emergency Nurses Association (ENA) members probably remember nursing before the AIDS epidemic. Throwing them to the wolves—that "way it was" is not a recipe for success in these modern times. Show them they belong to this family and are wanted in the emergency department.

FULL TEXT

The interesting thing about the "way it was" is how nothing ever goes back to the "way it was" when the world goes through something as dramatic as we've seen since the pandemic hit us in early 2020. Most of us remember what air travel was like before September 11, yet we've learned to coexist with what it takes to get on a plane in the past 21 years.

The more experienced Emergency Nurses Association (ENA) members probably remember nursing before the AIDS epidemic. The "way it was" then involved no gloves, no goggles, and very little thought to how we might be endangered while caring for our patients. Gloves were only for the physicians and not the nurses!

The "way it was" for me when I started in nursing: If a patient didn't like the "emergency room" at our hospital, they were encouraged to go find another one. The emergency room chart was one piece of paper and one clipboard. If a physician got angry, they might throw that clipboard across the room like a frisbee—sometimes at a nurse! And, finally, with only 1 or 2 cardiac monitors, we "eyeballed" intravenous drips for Isuprel, Aramine, and Bretylium!

It's only natural for us to think back about the "way it was" personally and professionally, but know all we really can do is live and work for today. As emergency nurses, we certainly know that every day is a gift, with a focus on building a better future for ourselves, our coworkers, our patients, and the people and things that matter most to us.

I wouldn't be here, becoming ENA's president, without understanding how to adapt and evolve to the changes in life and at work. Believing only in the "way it was" would have left me behind if I didn't focus on what is happening today. My entire nursing life, I have been blessed to work with a tremendously talented group of emergency nurses and physicians at St. Elizabeth in northern Kentucky who I lean on to learn from as much, I hope, as they look to me for experience and guidance.

Our new emergency nurses are not a threat; they are an asset in every emergency department. Those of us with more than a few years of experience in our scrubs should embrace the youth and fresh perspectives that arrive with each new face who joins our team.

Show them the ropes; tell them what you know. Explain to them how to spot an ectopic pregnancy, a "triple A," or a renal calculi "from across the lobby." (You just visualized the clinical picture of all three, didn't you?) In many cases, they're not learning those clinical assessment skills in nursing school. Hold their hand through the process. Throwing them to the wolves—that "way it was" is not a recipe for success in these modern times. Sharing your wealth of experience, intuition, and expertise takes so little, but can mean so much as the years go by. One day, the hand of a new nurse you hold today might be the very hand holding yours when you or your loved one desperately need it most.

Fortunately, ENA provides us so many opportunities to help bridge the gap between the generations because we truly have so much in common. ENA was so important in my career, helping me grow and develop as a clinician, but

also giving me a network—no, really, a family—that I could always turn to. We've been through tremendous highs and lows, marriages, births, and deaths—both in our ENA family and our own. I don't think I could have made it through my own loss and struggles without the love and support of my ENA family so many years ago.

Let's remember, though, ENA represents all emergency nurses, regardless of age, experience, or their backgrounds. ENA must be a leader for everyone, novice to expert, first day on the job to chief nursing officer, young and old. I want to ensure that all of us—no matter where we are in our careers—do all we can to leave the specialty and ENA better than where we found it. At ENA general assemblies and conferences, we have a habit of really welcoming new delegates or new attendees. Let's start doing the very same thing at work.

You can also support your emergency nurse friends and peers—and ENA—by volunteering for a committee, offering a quick tip in the CONNECT Community, and building a community of your own within your nursing network and through mentoring opportunities, such as the program ENA has available.

Engaging our new members is part of this. Show them that the ENA way is about supporting them today and into the future. Show them they belong to this family and are wanted in the emergency department. Show them what will be, so no one ever mistakes the "way it was" for the best things ever were.

Author Disclosures

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Leadership Practices as Perceived by Emergency Nurses During the COVID-19 Pandemic: The Role of Structural and Psychological Empowerment: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

Introduction
To our knowledge, no studies have explored leadership practices in relation to structural and psychological empowerment among nurses during COVID-19. Therefore, the purpose of this study was to examine those relationships in Jordanian nurses working in emergency departments during the COVID-19 pandemic.

Methods
A descriptive, correlational cross-sectional design was used in this study. The participants were emergency nurses working at 3 large hospitals in Jordan. The participants were surveyed via an online questionnaire between September 2021 and January 2022. A total of 3 valid scales were included in the questionnaire to assess the nurses' clinical leadership practices in relation to perceived structural and psychological empowerment.

Results
A total of 193 emergency nurses were surveyed, of which 116 participants (60.1%) were male, and their average age was 29.64 (SD 4.74) years. Nurses had a moderate level of clinical leadership practices 12.50 (SD 1.65), moderate level of perceived structural empowerment 3.67 (SD 0.44), and a high-moderate level of perceived psychological empowerment 5.96 (SD 0.65). Clinical leadership practices were shown to have a significant positive relationship with structural ($r = 0.65$; $P < .01$) and psychological ($r = 0.74$; $P < .01$) empowerment. Predictors of clinical leadership practices of the Jordanian emergency nurses during COVID-19 were ranked in order of significance; structural and psychological empowerments were the highest significant predictors. However, patient to nurse ratio (>6 patients/nurse) was the lowest significant predictor.

Discussion

Although structural and psychological empowerments play a pivotal role in predicting the leadership practices of the emergency nurses in Jordan, the nurses should enhance their leadership style for better management and effective communication during critical situations such as pandemics.

FULL TEXT

DETAILS

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Closing the Gap: The Role of Discharge Nurses in an Emergency Department: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

Introduction

Patients discharged from the emergency department may require a follow-up appointment with an outpatient specialty clinic. Referral processes vary by clinic, some requiring faxed referrals, some providing appointments immediately, and others contacting the patients directly. The frequency with which patients are successfully connected with outpatient follow-up services is largely unknown.

Methods

The ED discharge nurse role was developed to facilitate the navigation of patient follow-up and confirm that patients successfully connect with specialty outpatient clinics. Eight emergency nurses were recruited into this position to study the problem using a quality improvement approach. The ED discharge nurses reviewed referrals, contacted clinics and patients discharged from the emergency department, and intervened when barriers to transition occurred.

Results

The ED discharge nurses were able to determine specific causes and themes of missed appointments experienced by patients. Systemic problems identified include lost faxes, illegible contact information, incomplete referrals, and referral refusals by the clinics without patient notification. Considering the variability of clinic processes outside the emergency department's control, the ED discharge nurse role became crucial in minimizing the risk of lost/unsuccessful follow-up for patients discharged from the emergency department.

Discussion

Implementing the ED discharge nurse role created a contact for outpatient clinic referrals, patient inquiry, and a process to track errors and data to better understand the frequency of missed follow-up. In this quality improvement initiative, the role of the ED discharge nurse addressed the risk of patients falling through the cracks of a complex system.

FULL TEXT

Introduction

The fragmented nature of health care systems has led to the variability of the quality, frequency, and effectiveness of cross-setting communication. As a result, patients and their families have served as integrators for these systems,

navigating between providers and settings.[1] Patients are frequently discharged from the emergency department with an outpatient referral but without a scheduled follow-up appointment. They are then expected to either navigate a complex health care system to schedule follow-up appointments or wait for a telephone call from an outpatient clinic. The lack of standardized referral processes between individual outpatient clinics and emergency departments and the potential for clinics to decline a referral without notifying the patient lead to gaps in care. The consequence of miscommunication among the health care system, clinician care teams, and the patient contribute to missed follow-up care and increased risk for adverse patient outcomes and return visits to the emergency department.[2]

The patient-practitioner relationship in the ED care setting is episodic, responding to the patient's immediate needs; however, given the increased complexity of health issues, patients may require 1 or more referrals for ongoing medical care and management outside the ED setting.[2] These care transitions can impart risk for patients when their follow-up is handed over from one setting to another.[3] The literature describes various risks associated with patients attempting to complete follow-up after an ED visit referral, including the mismanagement of the care transition journey when ED patients are discharged and referred to another practitioner or setting for follow-up.[3] Transitional care models have been used to combat various care transition challenges that patients experience while attempting to navigate the health care system. Transitional care models are usually time-limited, broad in range of services, and designed to ensure continuity of care, promoting the safe and timely transfer of care levels or settings and preventing poor patient outcomes.[3]

There is limited research on the frequency of scheduling and completed/successful outpatient follow-up appointments following patient discharge from the emergency department. Studies have identified contributing factors to patients revisiting the emergency department to include the following: not knowing whom to contact for follow-up care, failure to contact the provider leading to fragmented care, and difficulty scheduling follow-up with specialty clinics due to high volumes.[4-6] Missed follow-up rates create premature discontinuation of treatment, lack of diagnosis or misdiagnosis, and disjointed long-term management of chronic issues.[6]

Problem

In the emergency department where this quality improvement initiative took place, indications that identified lost outpatient follow-up care after ED discharge included repeat ED visits following unsuccessful patient follow-up, patients not receiving follow-up appointments from clinics, and clinics reporting that they did not receive ED referrals. Before this initiative, most errors went undetected, and the outcomes of discharged ED patients and their outpatient follow-up appointments were unknown. Some patients who continued to wait for follow-up appointments contacted the hospital's patient relations department or the emergency department directly to inquire about the status of their pending follow-up appointment. In these instances, it was often the ED charge nurse who would troubleshoot the lost follow-up appointment. Attempting to coordinate and transition care to outpatient clinics was time consuming and resulted in additional workload for the charge nurse on duty.

Another trigger for action was inspired after a screening of the film, "Falling Through the Cracks: Greg's Story," which recounted how multiple cracks in the health system ultimately led to the death of a young man.[7] Recognizing that gaps in ED patient care follow-up to outpatient clinics lead to risks for patients inspired the implementation of the ED discharge nurse role trial. This intervention aimed to create and trial an ED discharge nurse role to support, facilitate, and examine barriers to ED patient follow-up with outpatient clinics. In creating this role, we hoped to improve discharged ED patients' care journey by increasing the frequency of the patient connecting with outpatient providers.

Methods

This quality improvement initiative was implemented in a community hospital in Canada. The emergency department here sees an average of 120,000 patients annually.[6] Between 2014 and 2019, the emergency department reported a 14% increase in patient visits and a 7% increase in patients who require outpatient services.[8] Approximately 60% of total ED visits are patients who live with 1 or more chronic diseases and are over 65 years old. These patients often require ongoing care and support from multiple care providers across various care settings.[8]

Intervention

Approval from the ED Program Director was obtained to trial the new role. There was no additional funding available to implement the role but rather a redistribution and reassignment of the current ED nurse staffing. A daily 12-hour "float" position was redistributed to create the ED discharge nurse role to staff it within staffing allowances. A Plan-Do-Study-Act methodology was used to guide this quality improvement (QI) project. Squire guidelines were used as a template for this quality improvement intervention.[9] Retrospective ethics approval for this initiative was obtained from the hospital's research ethics board.

The ED discharge nurse role was established as a transition care coordinator role to facilitate, troubleshoot, and drive transitional care for discharged ED patients with pending follow-up outpatient clinic appointments. The priority in this role was to provide transition support by ensuring that discharged ED patients were connected to specialty care outpatient clinics directly. This role also included connecting with outpatient clinics to ensure that referrals were received, obtaining referral statuses, and connecting with discharged ED patients to ensure that they were aware of their appointments and knew whom to contact if they had questions. Once confirmed, appointments were documented in the patient electronic health record for closed-loop communication. The emergency nurses recruited to this role were provided with a computer station in the emergency department, a direct phone line, business cards, and a direct ED discharge nurse email address to enhance communication between patients and health care providers via call, text, or email with any postdischarge concerns. The email also provided a venue for the ED discharge nurses to communicate, collaborate, and strategize with each other.

In the "Plan" phase, experienced emergency nurses were recruited by the clinical manager through an email to all ED staff nurses. Experienced emergency nurses were defined as having at least 5 years' experience in the ED care setting and being able to practice at full scope (cycling areas, acute, resus, and triage roles). By having emergency nurses in this role with comprehensive knowledge and expertise in providing ED clinical care, the ED discharge nurses were able to expertly assess, ask appropriate clarifying questions, and effectively advocate for and provide clinical guidance to patients with questions about their follow-up. A team of 8 emergency nurses were recruited to this role. The shift hours of work were 1 nurse per 09:00 am to 9:00 pm shift, 7 days a week, to meet the demands of 24/7 hour ED services.

During the "Do" phase, ED discharge nurses collected data (described below) regarding the frequency of referrals that would have been missed and trended specific barriers related to receiving a clinic appointment. This facilitated informed follow-up directly with discharged ED patients and clinics. The process began with reviewing the charts of discharged ED patients who had a referral for an appointment with an outpatient clinic. Patient populations that were tracked and followed by the ED discharge nurse were discharged ED patients with a follow-up appointment request for an outpatient clinic or specialist, with a specific focus on clinics not booked through the internal computer system. The outpatient clinics/specialties that relied on faxed forms outside of the computer system were prioritized--for example, ear-nose-throat, gynecology, surgery, cardiac diagnostics, and consultations. Excluded from the QI project were patients who were seen by a consultant in the emergency department, admitted to the hospital, discharged from the emergency department with a clinic appointment booked on the internal hospital computer system, asked to follow up directly with their primary provider, and those who did not require follow-up.

In the "Study" phase of the QI analysis, charts of all patients discharged home to wait for outpatient clinic appointments were collected for the ED discharge nurse to review and follow up with the discharged ED patients and clinics the next day. The charts were assessed and evaluated to understand the post-ED care for patients and gather baseline data on the volume of patients requiring follow-up. Chart evaluations resulted in the development of a manual tracking tool by the ED discharge nurses to track appointments that did not reach the intended clinics, discharged ED patients with incorrect contact information, and lost consults. The ED discharge nurse then completed an incident report in the corporate electronic incident reporting system to document how many follow-up appointments would have been missed without their intervention and transitional coordination. This is how we tracked the number of patients who may never have been contacted by a clinic owing to referral errors and missed and/or lost appointments.

During the "Act" phase of the QI project, ED discharge nurses developed a document to streamline the clinic referral

process (^{Figure 1}). In continuous engagement with the most common referred clinics, 35 in total, the ED discharge nurses kept a running document of each clinic's specific preference and process and provided it to the ED unit clerks to promote awareness and proper completion of correct referral forms, sending referrals and follow-up connections with patients. Unit clerks also verified patient contact numbers before discharge from the emergency department. Specific information provided to unit clerks to streamline the referral process for select specialty clinics is shown in ^{Figure 1}.

ED discharge nurses collaborated with the interprofessional team of unit clerks, providers, and other ED discharge nurses to correct unintentional errors such as clerical errors, ordering additional testing as requested before a clinic appointment, re-faxing lost referrals, and/or referring to a more appropriate clinic if a patient referral was declined.

Results

This intervention aimed to create and trial an ED discharge nurse role to support, facilitate and examine barriers to ED patient follow-up with outpatient clinics and increase the frequency of the patients connecting with outpatient clinics/providers. The corporate electronic incident reporting system proved helpful to keep track of the number of outpatient clinic appointments that would have been missed without the intervention of the ED discharge nurse (^{Figure 2}).

Data collection from November 20, 2019 to December 4, 2019 demonstrated that over 290 patients of interest were tracked by the ED discharge nurse during the "Do" and "Study" phases of the QI project. During this time, the emergency department of study averaged 300 patient visits per day. The data collection revealed that approximately 7% of daily ED visits were referred to a follow-up specialty clinic of interest. Of those patients of interest, 130 patients (44%) would have likely experienced unsuccessful outpatient clinic follow-up because of the barriers listed below and required ED discharge nurse intervention or transitional coordination to facilitate their follow-up appointment. The ED discharge nurse team discovered specific barriers affecting successful follow-up, including need to confirm appointment date and time, and missing patient and/or clinic contact information, specifically fax numbers. The ED discharge nurse connected outpatient clinics and discharged ED patients for further clarification and guided patients with additional instructions to ensure that the patients were able to attend their follow-up care. In October of 2020, after the corporate electronic health record implementation, the ED discharge nurses also began to follow up with the appropriate practitioner for abnormal results of microbiology and radiology rereads after ED discharge for further patient intervention and treatment, alleviating this workload from the ED charge nurse. ^{Figure 3} is the process map that demonstrates the flow of the ED discharge nurse role.

It was not possible to electronically keep track of the specific reasons each appointment would have been missed, as discrete data fields were not available in the incident reporting system. Descriptive data were collected to determine whether ED discharge nurse interventions reduced the frequency of lost follow-up appointment incidents, specifically since the implementation of the clinic specific ordering information document in the "Act" phase of this project (implementation start date). Data collected over the same 2-week time period in November to December 2020 demonstrated a total of 38 incidents compared with 130 incidents 1 year earlier. Of the 38 incidents, 30 incidents (79%) were related to clinics not receiving the faxed referral, and 4 incidents (11%) resulted from incorrect/absent information on the referral form. Two incidents (5%) were related to language barriers and patients who did not fully understand appointment information when the clinic called them. The family members of the aforementioned 2 patients who experienced language barriers contacted the ED discharge nurse for navigation assistance. The remaining 2 incidents resulted from a misspelling of the name by the clinic and an incorrect selection of clinic by the ED team (5%). Over the same time period in November to December of 2021, the number of incidents was reduced to 7: 6 incidents (86%) of which were related to faxed referrals not being received by the clinic, and 1 incident (14%) related to a referral being faxed with incorrect patient information.

Data also were collected over a 4-month period (January to April 2022) to determine whether the implementation of the ED discharge nurse role decreased the frequency of discharged ED patients unsuccessfully connecting with outpatient providers. This evaluation demonstrated 123 incidents of missed follow-up over 4 months (compared with the initial data of 130 incidents over 2 weeks: November 20, 2019, to December 4, 2019), which also were analyzed

manually. Of those, 84 incidents (68%) of lost referrals were related to faxing problems including illegible faxes and faxes not received (despite electronic fax confirmation from the emergency department). Twenty-eight incidents (23%) were sent back to emergency department by the clinic as more referral information was requested from the ordering provider, including additional diagnostics tests before the appointment. Seven incidents (6%) were referrals that were rejected outright by the clinic, and a new clinic or follow-up destination was made. The remaining 4 incidents (3%) represent errors in ED booking processes; for example, appointments were booked incorrectly in the electronic system.

Discussion

The ED discharge nurse QI project shared similarities to other findings reported in the literature where fragmented care resulted from cross-setting communication failure.[9] ED discharge nurses found that most of the challenges existed with faxes, including incorrect fax numbers, legibility on the receiving end, and clinics reporting that they could not contact patients to provide their appointment. The QI project also supported and demonstrated the need to use the transitional care model to ensure continuity of care and promote the safe and timely transfer of care as identified the in literature.[3]

The ED discharge nurse has become the point of contact for discharged ED patients. Implementation of the ED discharge nurse began in September 2019 and revealed several system barriers contributing to the risk of missed follow-up care. In pursuing this project, in-depth knowledge of challenges to the discharged ED patient experience and system barriers during their journey after discharge from the emergency department to outpatient clinics was gained. Collectively, the ED discharge nurse group was able to uncover specific themes to the barriers that exist when transitioning follow-up from the emergency department of study to an outpatient clinic. Specific interventions developed by the ED discharge nurses included clarifying the contact list and fax numbers of clinics, obtaining the correct referral forms specific to each clinic, creating a clinical ordering information ([Figure 2]) document to communicate the process to all care providers, and having unit clerks on duty at the time of referral confirm patient contact information, specifically phone numbers.

In the 2 years since implementation, patients who would have missed follow-up before the interventions of the ED discharge nurses decreased from an initial 130 patients over a 2-week time span to 123 in a 4-month time span, demonstrating a decreased frequency of missed outpatient referrals since the interventions of the ED discharge nurses began. Importantly, the ED discharge nurses are able to contact those patients who would have lost their discharge follow-up, connect them with the appropriate clinic, and transition their care from the emergency department to outpatient services.

Limitations

The QI project was instrumental in understanding the challenges of outpatient clinic referrals for patients discharged from the emergency department and developing tools and processes to reduce lost referrals that affect ED patient follow-up care. The project includes ongoing data collection to track referral errors and monitor how often this affects the patients. However, there are no previous data for comparison, limiting the ability to assess improvement prior to the initiative. The COVID-19 pandemic in 2020 to 2022 also confounded data because of altered average ED visits and the closures and reduced hours of outpatient clinics during the ongoing waves of the virus. Incident report analysis was useful in identifying the presence and frequency of transition issues between the emergency department and outpatient clinics; however, data entry fields did not allow subcategory distinctions, requiring manual analysis to identify the frequency of specific trends. Future studies may wish to measure the number of ED return visits before and after implementation.[10]

Implications for Emergency Nurses

In transitional care from the emergency department to outpatient clinics, the ED discharge nurse assists transitions by mitigating challenges in the discharged ED patient's journey. They facilitate continued communication and collaboration among the interprofessional team, engage with the clinics, and provide additional support and reassurance for patients as they wait for their appointments. This also improves patient experience and satisfaction. The ED discharge nurse has alleviated team members' workload, specifically the ED charge nurse. This role

facilitated transitional care between the emergency department and a variety of outpatient clinics, all of whom have unique forms and referral processes and requirements outside of ED control and change. The reduction in lost follow-up may be extrapolated to general increased safety for patients requiring ongoing care and also to possible reduced ED return visits,[10] which were not measured in this project.

Although re-allocation of staff was required to fill the ED discharge nurse role at the expense of losing the "ED float nurse" position, establishing a transitional care process for outpatient follow-up was a priority. As the ED float role was primary for break relief, a new break relief schedule was implemented for nurses to cover one another. Additional research is required to understand the impact of this change.

Conclusion

The ED discharge nurse was a trial role in the emergency department of study supported by the ED manager and endorsed by the ED director. This support was crucial in developing the ED discharge nurse role. Recognizing the potential risk to discharged ED patients and assigning an emergency nurse to investigate, communicate, order additional tests, and book various appointments enabled ED discharge nurses to uncover many system barriers to lost follow-up with outpatient clinics. The ED discharge nurse team has remained engaged with outpatient clinics through continuous communication and assessment of referral statuses for discharged ED patients. This role also fostered relationship building between the emergency department and the outpatient clinics, which has facilitated collaboration focused on patient centered care as related to care transitions.

Author Disclosures

Barb McGovern has provided reviewer services to the *Journal of Emergency Nursing.*

DETAILS

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Erratum to Emergency Nurse Consensus on Most Effective and Accessible Support Strategies During COVID-19: A Delphi Study [Journal of Emergency Nursing , Volume 48, Issue 5, September 2022, Pages 538-546] Anna C. Quon, MBA HM, BSN, RN, AMB-BC, Wendy Vanderburgh, MSN, RN, NREMT-P, FP-C, and Andi Foley, DNP, RN, APRN-CNS, EMT, CEN, FAEN, St. Luke's Health System, Boise, ID: JEN

FULL TEXT

We regret that Table 2 was not displayed correctly in the above article. The corrected Table 2 is shown below. We would like to apologize for any inconvenience caused.

Topic	Employee-led strategy	Employer-led strategy
Perceived effectiveness	Self-care activities that enhance social well-being, such as establishing new and enhancing existing relationships with peers, friends, and family	None
Perceived accessibility	None	None
Likelihood of participation	Self-care activities that enhance your social well-being, such as establishing new and enhancing existing relationships with peers, friends, and family Self-care activities that enhance your emotional well-being, such as practicing stress management, relaxation, mindfulness, reflective writing/journaling	None

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Effectiveness of Procedural Sedation and Analgesia in Pediatric Emergencies. A Cross-Sectional Study: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

Introduction

Pain is defined as an unpleasant emotional and sensory experience associated with bodily harm or with situations that cause fear and anxiety. However, it is often undertreated in pediatric emergency departments. This study aims to assess the effectiveness of sedation-analgesia techniques, level of satisfaction among health care professionals and relatives, and agreement between the satisfaction of health care professionals and relatives.

Methods

A cross-sectional design was conducted. Sociodemographic and clinical variables were recorded, together with those for effectiveness using the Face, Legs, Activity, Cry, and Consolability scale and the Wong-Baker FACES scale, and the satisfaction using the 10-point Likert scale. Stata 16.1 was used for data analysis.

Results

A total of 94 procedures were registered. The results suggested that these techniques were effective or mildly effective in only half of the cases. Satisfaction was considered good across the board, and the agreement between health care professionals (ie, pediatric nurses and pediatricians) was considered substantial. However, the agreement between health care professionals and relatives was moderate.

Discussion

Our results suggested that the adequate management of pain in pediatric emergency departments is still a challenge, despite the availability of international guidelines. Future research lines should be focused on analyzing possible causes of the inefficacy of some sedation-analgesia techniques and the causes of the differences between the perspectives of health care professionals and relatives. These research lines may be useful to improve quality of care and pediatric patient comfort.

FULL TEXT

Contribution to Emergency Nursing Practice

••What is already known about this topic? Pain is defined as an unpleasant emotional and sensory experience associated with bodily harm or with situations that cause fear and anxiety.

••What does this paper add to the currently published literature? There was high interrater agreement for the satisfaction between healthcare professionals and patients' families for effectiveness of all techniques used.

••What is the most important implication for clinical practice? Findings suggest that the efficacy of sedation-analgesia techniques can be improved to improve quality of care and patient comfort.

Introduction

Pain is defined as "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage" according to the International Association for the Study of Pain Subcommittee on Taxonomy. This definition has become globally accepted by professionals, including the World Health Organization.[1] This definition may not be sufficient when dealing with pediatric patients or individuals incapable of verbalizing their pain. Thus, one of the definitions that may be better adapted to this population is that "pain is a multifactorial personal experience with physiological, behavioral, emotional, developmental, and sociocultural components that can all lead to a different perception of pain."[2] According to the American Academy of Pediatrics,[3,4] proper pain management under sedation is crucial to promote patient welfare, control patient behavior, and ensure a positive psychological response to treatment.

Children in emergency departments usually undergo uncomfortable or stressful procedures, such as the establishment of venous access, wound suturing, or fracture reduction. Thus, the administration of sedation-analgesia and local anesthesia techniques to diminish pain, fear, and discomfort in infants is a frequent practice. Using sedation-analgesia in other settings different from the surgical setting is usually referred to as procedural sedation and analgesia (PSA).[5-8] However, despite the availability of international guidelines, pain experienced by pediatric patients in the emergency department is often inadequately managed.[7,9,10]

The Research in European Pediatric Emergency Medicine group conducted a multicenter study and recorded the most commonly used pharmacological techniques, professionals administering sedation-analgesia techniques, protocols used, facilitators and barriers, and degree of satisfaction of professionals.[7] The results evidenced that the most used drugs were midazolam and ketamine, followed by others such as intranasal (IN) fentaNYL and inhaled (inh) nitrous oxide. Pediatricians were the main professionals administering sedation-analgesia in an emergency setting and described certain issues that might limit proper pain management, including lack of training and an adequate place in the emergency department.[7] Along similar lines, Whitley et al[11] found different barriers to the

management of pediatric pain in the emergency department, such as lack of experience, insufficient support from colleagues, difficulty assessing pain in children, and fear of adverse effects. In a pediatric ED context, Rybojad et al[9] compared evaluations of pain made by children, relatives, and professionals and their results indicated that children scored higher than the other groups did, suggesting that professionals in the emergency department may need more training in assessing pain in children.

In our context, the Sociedad Española de Urgencias en Pediatria (SEUP) considered effective pain control to be a quality-of-care indicator and hence recommended a series of core competences that health care professionals need to successfully manage pain in the emergency department.[12-15] Relevant studies on this matter include those published by Míguez-Navarro et al[16] and Míguez-Navarro et al.[17] The former assessed factors related to the effectiveness of sedation-analgesia and the adverse effects of drugs. Their findings suggest that PSA is a common practice in the pediatric emergency department, and a safe one as a low rate of adverse effects was found. However, the results also demonstrate that PSA is only partially effective. The latter assessed the prevalence of pain in the pediatric emergency department and the interrater agreement between health care professionals and families regarding pain level. More than half of the sampled pediatric patients in the emergency department experienced pain, thus highlighting the importance of correct, effective pain management.

Finally, the safety of these techniques also has been analyzed, examples being the recent research conducted by Lucich et al,[18] Schlegelmilch et al,[19] and Sirimontakan et al,[8] which observed a low incidence of adverse effects, even in children aged 8[,18,20] the low incidence of adverse events suggests that they could be safe in an pediatric emergency department.

Despite literature and evidence provided, the effective management of pain in children still seems to be a challenge in the emergency department. Therefore, we decided to conduct this study to describe the sedation-analgesia techniques used in our pediatric emergency department, the focus being on assessing the effectiveness of sedation-analgesia and local anesthesia techniques, the degree of satisfaction among health care professionals (pediatric nurses and pediatricians) and relatives, and the interrater agreement between the satisfaction of health care professionals and relatives.

Methods Design, Setting, and Participants

This cross-sectional study is reported in accordance with Strengthening the Reporting of Observational Studies in Epidemiology guidelines.[21] This study was conducted in an urban Spanish pediatric emergency department of a secondary care hospital, with an annual attendance of 28,000 patients and an average of 18 sedations per month. Inclusion criteria were children aged 0 to 18 years who required sedation-analgesia or local anesthesia techniques for painful or uncomfortable procedures, from October 2020 to July 2021. This age range was selected, because in our hospital patients up to 18 years of age are cared for by pediatricians. Parents and patients aged 12 years or older (considered mature) signed informed consent forms. Patients whose parents did not issue their consent, patients who were hemodynamically unstable, and patients with major language barriers were excluded from the study.

Sample Size

Calculation sample size was a priori, with a confidence level of 95%, precision of 10%, and prevalence of sedation-analgesia techniques of 50% (maximizing the sample size), with a total of 96 participants.[22]

Study Variables

Sociodemographic variables of age, sex, and weight were recorded. Variables related to procedures, sedation-analgesia techniques, drug dosage and administration, adverse effects, and vital signs (oxygen saturation, heart, and respiratory rate) also were recorded. The effectiveness of pharmacological techniques was assessed using the

Face, Legs, Activity, Cry, and Consolability scale (FLACC)[23,24] and the Wong-Baker FACES scale when infants were older than 4 years, conscious, and/or undergoing local anesthesia only. The satisfaction of health care professionals and relatives was evaluated by only one question, assessed on a 10-point Likert scale.[25]

Instruments FLACC Scale

The FLACC is a validated behavioral scale for the assessment of procedural pain in children younger than 4 years undergoing mild, moderate, or severe sedation-analgesia in intensive care, emergency, oncology, surgery, and traumatology. An observer recorded the scores as (0) "no pain," (1-3) "mild pain," (4-6) "moderate pain," and (7-10) "severe pain," assessing items related to facial expression, limb position, crying, and comforting ability. The literature describes high interrater reliability, intra-class correlation coefficient = 0.87 (95% CI 0.84-0.89).[24]

Wong-Baker FACES Face Scale

The Wong-Baker FACES[26] is a validated self-assessment scale for the evaluation of pain in children older than 3 years. It scores the degree of pain based on 6 different images of visual expressions that depict (0) "no pain," (2) "hurts a little," (4) "hurts a little more," (6) "hurts a lot," (8) "hurts a lot more," and (10) "hurts the most." The meaning of each face is explained to the children, who are asked to point to the one that best expresses their pain. This scale has been validated for the assessment of procedural pain, showing high correlation with the visual analog scale (r = 0.90; 95% CI 0.08-0.93).[27]

Likert Scale to Evaluate Satisfaction

A 10-point Likert scale[25] was used to evaluate the satisfaction of health care professionals and relatives. The question was "What is your level of satisfaction regarding the effectiveness of sedation technique used during the procedure?" Answer ranged between 1 (not at all satisfied) and 10 (totally satisfied).

Procedure

Our emergency department exclusively attends pediatric patients with different pathologies. The care of pediatric patients undergoing sedation-analgesia and local anesthesia techniques is multidisciplinary, that is, auxiliary nurses, pediatric nurses, and pediatricians.[28] The pharmacological strategy is usually performed according to our protocol (Table 1), based on recommendations of the SEUP.[14] This protocol is flexible and offers a wide variety of pharmacological strategies to be adapted to the procedure, intensity of pain, and patient. The sedation strategy is always the responsibility of the senior pediatrician, although other professionals may collaborate (eg, traumatologist).

Pediatric nurses, together with auxiliary nurses and pediatricians, are responsible for patient monitoring, establishing peripheral venous access for drug administration, and controlling possible adverse reactions, as well as enhancing patient and family comfort. Pediatric nurses assisted this study by informing parents, obtaining a written consent, administering different drug combinations, evaluating the effectiveness of sedation-analgesia and local anesthesia techniques using the FLACC scale or the Wong-Baker FACES scale, respectively, and recording the satisfaction of health professionals and relatives. An ad hoc form was designed for data collection, where each sheet was identified with a number only to respect confidentiality and anonymity.

Data Analysis

Data analysis was performed using Stata 16.1 (StataCorp LLC) and the results were reported in accordance with the "Statistical Analyses and Methods in the Published Literature"[29] guidelines. Normality of data distribution was analyzed using the Shapiro-Wilk test. The descriptive analysis reported the means, standard deviation, medians, interquartile range, frequencies, and percentages. Differences between groups were analyzed using the Mann-Whitney test for quantitative non-normal data and chi-square for categorical variables.

The effectiveness of the most used pharmacologic techniques was evaluated by analysis of variance, with multiple

comparisons counteracted by Bonferroni correction. Levene's test showed homogeneity of variances ($P = .06$). Interrater agreement with regard to satisfaction was evaluated using Krippendorff's alpha coefficient for ordinal scales, using Landis and Koch (1977) scale criteria for interpretation.[30,31] Significance was P **Ethical Aspects**

This study was approved by the Ethics and Medicines Research Committee of the Consorci Sanitari de Terrassa, Barcelona, Spain (CEIM Ref. 01-20-103-067). It was conducted in accordance with the principles of the Helsinki Declaration of 1975 and subsequent revisions and in consideration of Spanish Organic Law 3/2018, of December 5, on the Protection of Personal Data and Guarantee of Digital Rights, and Regulation (European Union) 2016/679 on the protection of natural persons regarding processing of personal data and on the free movement of such data. Parents and patients aged 12 years and older (considered mature) signed the informed consent form.

Results

The sample characteristics and procedures performed are presented in [Table 2]. The total number of sedation procedures was 162, and the sample was composed of 95 of 162 participants (58.6%), but one subject was removed owing to missing data. No refusals were recorded.

In the final sample of 94 of 162 participants (58.0%), 48 were boys (52.1%), with mean age of 8.5 years (SD = 5.3), and 46 (48.8%) were girls, with mean age of 8.4 years (SD = 5.1). We observed no differences between boys and girls with respect to age. A total of 80 procedures (85.1%) were performed involving mild, moderate, or severe sedation-analgesia, and 14 procedures (14.9%) were performed involving local anesthesia only. The most frequent procedures were wound suturing ($n = 30$ [31.9%]) and fracture reduction ($n = 26$ [27.7%]). A total of $n = 91$ participants (96.8%) were monitored with a pulse oximeter, recording oxygen saturation, heart rate, and respiratory rate. In addition, all children were accompanied by their relatives, with the exception of 1 mother who reported that she was sick.

The most commonly used drugs are presented in [Table 3]. The most frequent drug combination was midazolam (intravenous [IV]) + ketamine (IV) ($n = 26$ [28.6%]). In 15 of 94 cases (16.0%), anti-inflammatory drugs also were administered (eg, metamizole, IV). Common adverse reactions were digestive reactions, vomiting and nausea ($n = 1$ [1.1%]), and respiratory and desaturation difficulties ($n = 2$ [2.2%]). Digestive reactions were self-limited and did not require intervention. Desaturation episodes required oxygen therapy support. Adverse events were associated to the combination of ketamine IV + midazolam IV only.

The scores for the FLACC and Wong-Baker FACES scales are presented in [Table 4]. The mean for the FLACC scale was 2.1 (SD = 2.7), and the mean for the Wong-Baker FACES scale was 5.9 (SD = 3.3). A total of 36 procedures (38.3%) was scored as zero, that is, no pain, and 21 (22.3%) were scored as mild pain, whereas the remaining procedures were scored as moderate or severe pain. Moreover, in 16 of 94 cases (17.0%), signs of pain, such as tachycardia, facial grimacing, moaning, and crying, were annotated by pediatric nurses. In all cases, drugs were administered according to the established protocol, with doses adjusted by weight; mean dose of midazolam was 0.14 mg/kg (SD = 0.1), mean dose of ketamine was 1.1 mg/kg (SD = 0.5), and mean dose of fentaNYL was 1.3 micrograms/kg (SD = 0.4). Drug administration was intravenous (IV), intranasal (IN), subcutaneous, (SC), or inhaled (inh), depending on the case.

The FLACC scores for sedation techniques, together with the analysis of variance to evaluate their effectiveness, are presented in [Table 5]. Owing to the wide variety of pharmacological techniques and the small sample, this analysis was conducted for the most used sedation techniques only, that is, midazolam (IV) + ketamine (IV), midazolam (IN), fentaNYL (IN), and nitrous oxide (inh). Multiple comparisons showed statistically significant differences between techniques. Midazolam (IN) alone was not as effective as either the combination of ketamine (IV) + midazolam (IV) ($P = .008$) or the use of nitrous oxide (inh) ($P = .033$). It is noted that the combination of ketamine (IV) + midazolam

(IV) was generally used for major procedures, such as fracture reduction or complicated wound sutures, whereas nitrous oxide (inh) or midazolam (IN) was generally used for minor procedures, such as peripheral access or wound sutures. No further differences between techniques were found.

The satisfaction of health professionals and relatives and interrater agreement are presented in ^{Table 6}. Satisfaction was assessed using the Likert scale and the agreement using Krippendorff's alpha coefficient for ordinal scales. Satisfaction with all techniques was good: nurses (mean [m] = 7.9; 95% CI 7.4-8.4), pediatricians (m = 8.0; 95% CI 7.5-8.5), and family (m = 8.1; 95% CI 7.6-8.6). Satisfaction with sedation-analgesia techniques also was good: nurses (m = 8.1; 95% CI 7.6-8.7), pediatricians (m = 8.3; 95% CI 7.8-8.8), and relatives (m = 8.4; 95% CI 7.9-8.8). However, satisfaction with local anesthesia techniques was only acceptable: nurses (m = 6.4; 95% CI 4.6-8.4), pediatricians (m = 6.0; 95% CI 3.9-8.1), and relatives (m = 6.3; 95% 4.3-8.4). Interrater agreement among pediatric nurses, pediatricians, and relatives was substantial for all techniques according to the established criteria (alpha = 0.79; 95% CI 0.71-0.87). However, agreement per pair of raters was slightly lower when sedation-analgesia techniques were evaluated; agreement among pediatric nurses and relatives was alpha = 0.68 (95% CI 0.51-0.83), and between pediatricians and relatives, it was alpha = 0.63 (95% CI 0.46-0.80). Although the alpha values suggested substantial agreement, the 95% CI suggested that this agreement might be moderate.

Discussion

To the best of our knowledge, this is the first study to have assessed the effectiveness of sedation-analgesia and local anesthesia techniques together with satisfaction and interrater agreement between health care professionals and relatives. Our results showed that we usually use pharmacological techniques to manage pain in our pediatric emergency department, to promote patient comfort and well-being during painful procedures, in accordance with the recommendations of the American Academy of Pediatrics[3,4] and the SEUP.[12,13,32]

Our findings describe a wide variety of techniques, and in line with previous studies, midazolam together with ketamine was the most used drug combination.[7,16,33] In addition, and despite the small sample size, it is noteworthy that we observed a low incidence of adverse effects, which occurred in the combination of ketamine plus midazolam only. Our results also indicate that these techniques were effective or mildly effective in only half of the cases. Despite the different evaluation method, these results seem to be similar to those reported by Míguez et al[16] in which two-thirds of evaluated techniques were considered good (patient collaboration and lack of recall) or partially good (some degree of pain and anxiety), and one-third were classified as poor (no collaboration and poor recall). When effectiveness of the most used techniques was compared, our findings suggested that midazolam (IN) alone may be less effective than other regimes, despite it only being used in minor procedures, as recommended.[14]

In general, sedation-analgesia and local anesthesia techniques were not as effective as expected, supporting the notion that the experience of pain in children in the emergency department is often poorly treated, as Benini et al[10] and Rybojad et al[9] also noted. This may be associated to several factors. One of these could be the lack of professional training in the management of these techniques, as reported by Sahyoun et al[7] and Rybojad et al,[9] and another might be the fear of certain adverse effects, as reported by Márquez et al.[15] To this concern, it should be noted that although training courses of sedation are conducted in our emergency department, these are less frequent than is desirable. In this line, it is noteworthy that the proper management of pain may be related to expertise in PSA, which is considered a core competency in emergency medicine and pediatric emergency medicine in different countries, such as the United States, Canada, Australia, and Switzerland.[6] These countries formally recognize this specialty, so professionals are trained to have specific skills to provide adequate levels of sedation-analgesia and to manage the possible adverse effects.[6]

Finally, our results showed a generally acceptable degree of satisfaction. These findings were also in line with

previous research.[16] Interrater agreement between health professionals and relatives was moderate when general techniques were considered, whereas for local anesthesia it was substantial, almost perfect. The higher-than-expected scores for the Wong-Baker scale suggest that agreement was related to dissatisfaction rather than to satisfaction. Future research should conduct qualitative studies with a view to understanding the causes for the ineffectiveness of some techniques and the reasons for the differences between the health care professionals' and relatives' perspectives.

Limitations

Our findings should be interpreted in the light of certain limitations. First, there is possible bias derived from work overload in certain shifts, making difficult the register of all procedures realized during these 9 months. For this reason, most of these records were made in the morning, which limited the sample size and the type of procedures. Second, no record was made of nonpharmacological interventions, such as distraction and sucrose. Finally, because the data were collected in a regional hospital, generalization of our results may be limited. However, it is important to stress that our findings were very similar to those reported by some multicenter studies.

In contrast, this study has some strengths. First, it highlighted the importance of using sedation-analgesia and local anesthesia in the pediatric emergency department. Second, it has assessed and compared the effectiveness of the most used sedation techniques, noting the need to improve pain management. Third, it has assessed the satisfaction interrater agreement between health care professionals and relatives, which no similar studies were found to have done. The findings indicate different perspectives with regard to the effectiveness of the sedation-analgesia and local anesthesia techniques, noting the need for relatives to be involved in these procedures, and for their opinions and perspectives to be considered.

Implications for Emergency Nurses

The perspective, knowledge, and experience of nurses should be considered in this context, given that the enhancement of patient comfort is a core competency.[34,35] Comfort is a holistic construct, including ease and relief in physical, social, psychospiritual, and environmental contexts. Because patients need and want to be comforted, nurses require an efficient framework in which to facilitate this in the context of their emergency daily practice.[34,35] Actions such as meeting family needs and/or applying nonpharmacological techniques (eg, distraction) are crucial for improving both patient comfort and family satisfaction. The literature reported a wide variety of such nonpharmacological strategies for use either in isolation or together with sedation-analgesia techniques.[36] The inclusion of these strategies in daily practice may be beneficial for improving pain management in the pediatric emergency department.

Conclusions

Pain management is considered an indicator of quality of care. However, proper pain management is still a challenge in the pediatric emergency department. Based on findings, we recommend a review of sedation-analgesia and local anesthesia training programs to provide health care professionals with specific skills and competencies in pain management. Formal recognition of this specialty may be crucial to improve our quality of care in the emergency department. Moreover, we recommend routine assessment of the effectiveness of these techniques using validated scales, which will enable comparison of results among different pediatric emergency departments. We also recommend taking into account relatives' assessments of the effectiveness of sedation-analgesia and local anesthesia techniques. The role of pediatric nurses may be crucial during this process for ensuring that family needs are met and nonpharmacological techniques are properly used. Further research lines also should analyze possible interactions between pharmacological and nonpharmacological techniques. These strategies may improve the effectiveness of sedation-analgesia and local anesthesia techniques and the comfort of pediatric patients.

Protocol of sedation-analgesia in our pediatric emergency department			
Procedures	Not painful procedures Radiography (X-ray) Ultrasound scan	Moderate painful procedures Wound suture Lumbar punction	Substantial painful procedures Fracture reduction Burns care
Recommended drug combinations	Midazolam (IV, IN)	Midazolam (IV, IN) Nitrous oxide (inh) Propofol (IV) Anesthetic gel Anesthetic cream Lidocaine (SC)	Nitrous oxide + another drug (IV) Midazolam + fentaNYL Midazolam + ketamine Propofol + fentaNYL Propofol + ketamine Ketamine Midazolam (IN) + fentaNYL (SC, IM) Midazolam (IN) + Ketamine (IM)
Nonpharmacological techniques: distraction, sucrose			

Sample	N = 94					
		Boys		Girls		P value
Age		n	(%)	n	(%)	
	< 4 y	15	(31.3)	14	(30.4)	

	4-8 y	7	(14.6)	7	(15.2)	
	8-12 y	11	(22.9)	13	(14.9)	
	12-18 y	15	(21.3)	12	(26.1)	
	Total	48	(52.1)	46	(48.8)	.92[*]
Age		m(SD)	Md (P25-P75)	m (SD)	Md (P25-P75)	
		8.5 (5.3)	9.1 (3.4-13.1)	8.4 (5.1)	8.3 (3.3-13.0)	.86[†]
		Sedation-analgesia		Local anesthesia		Total
One procedure only		n	(%)	n	(%)	n (%)
	Total	80	(85.1)	14	(14.9)	94 (100)
	Fracture reduction	21	(26.3)			21 (27.7)
	Wounds suture	19	(23.8)	10	(71.4)	29 (30.1)
	Burns care	9	(11.3)	1	(7.1)	10 (10.6)
	Peripheral access	5	(6.3)			5 (12.3)
	Wounds care	2	(2.5)			2 (2.2)
	Lumbar puncture	1	(1.3)			1 (1.1)
	Abscesses care			2	(14.2)	2 (2.2)
One or more procedures						
	Peripheral access + fracture	5	(6.3)			5 (12.3)
	Burns + ophthalmic care	1	(1.3)			1 (1.1)

	Peripheral access + wounds	1	(1.3)			1(1.1)
	Peripheral access + suture	1	(1.3)			1(1.1)
	Other situations[‡]	15	(18.7)	2	(14.2)	16 (17.0)

One drug only			Drugs combinations		
	n	(%)	Two drugs	n	(%)
Midazolam IN	8	(8.8)	Ketamine IV + midazolam IV	26	(28.6)
FentaNYL IN	7	(7.7)	Midazolam IN + nitrous oxide inh	4	(4.4)
Nitrous oxide inh	6	(6.6)	FentaNYL IN + nitrous oxide inh	4	(4.4)
Anesthetic gel	6	(6.6)	Mepivacaine SC + anesthetic gel	3	(3.3)
Lidocaine SC	2	(2.2)	Midazolam IN + anesthetic gel	2	(2.2)
Mepivacaine SC	2	(2.2)	Propofol IN + morphine SC	1	(1.1)
Morphine SC	1	(1.1)	Three drugs		
			Midazolam IV + ketamine IV + fentaNYL IV	4	(4.4)
			Midazolam IN + ketamine IV + nitrous oxide	2	(2.2)
			Midazolam IN + ketamine IV + mepivacaine SC	2	(2.2)
			Other combinations less frequent (3 drugs)	14	(15.0)

Scales	FLACC			Wong-Baker FACES			Total	
	Scoring	n (%)	Cum (%)	Scoring	n (%)	Cum (%)	n	(%)

0	35 (43.8)	43.8	0	1 (7.1)	7.1	36	38.3
1-2	19 (23.8)	67.6	2	2 (14.3)	21.4	21	22.3
3-4	13 (16.3)	83.9	4	3 (21.4)	42.8	16	17.0
5-6	6 (7.5)	91.4	6	2 (14.3)	57.1	8	8.5
7-8	1 (1.3)	92.7	8	3 (21.4)	78.5	5	5.3
9-10	5 (6.3)	100	10	3 (21.4)	100	8	8.5
Total	80 (100%)	100	Total	14 (100)	100	94	100
	m (SD)	Md (P25-P75)		m (SD)	Md (P25-P75)		
	2.1 (2.7)	1 (0-3)		5.9 (3.3)	6 (4-8)		

Scales	FLACC	Ketamine IV + midazolam IV	Midazolam IN	FentaNYL IN	Nitrous oxide inh	ANOVA (F 4.60, df 3)		
n = 47						P value	R^2	R^2Adj
						.007	0.24	0.20
	n (%)	26 (55.3)	8 (17.0)	7 (14.9)	6 (12.8)			
	m (SD)	1.8 (2.3)	5.5 (3.7)	3.4 (3.1)	1.3 (1.6)			
	Md (P25-P75)	1 (0-3)	4.5 (2.5-9.5)	3 (1-4)	1 (0-2)			

General satisfaction: all techniques					
		m	95% CI	Md	P25-P75
	Nursing	7.9		7.4-8.4	8.5

7-10		Pediatricians	8.0		7.5-8.5
9.0	7-10			Relatives	8.1
7.6-8.6	9.0	7-10			Satisfaction with sedation-analgesia techniques only
	m	95% CI	Md		P25-P75
	Nursing	8.1	7.6-8.7		9.0
7-10		Pediatricians	8.3		7.8-8.8
9.0	7-10			Relatives	8.4
7.9-8.8	9.0	8-10			Satisfaction with local anesthesia techniques only
	m	95% CI	Md		P25-P75
	Nursing	6.4	4.6-8.4		6.5

4-10		Pediatricians	6.0	3.9-8.1			
6.0	4-9		Relatives	6.3			
4.3-8.4	6.5	4-10		Interrater agreement. All techniques			
	Nursing vs ped vs relatives		Nursing vs ped		Nursing vs relatives		
Ped vs relatives		Coefficient	95% CI		Coefficient		95% CI
Coefficient	95% CI	Coefficient	95% CI	Percent agreement	0.97	0.95-0.98	0.97
0.95 -1.00	0.95	0.94-0.98	0.95	0.93-0.98	Krippendorff's alpha*	0.79	0.71-0.87
0.88		0.82-0.94	0.75	0.63-0.86	0.72	0.60-0.85	Interrater agreement with sedation-analgesia techniques only
	Nursing vs ped vs relatives		Nursing vs ped		Nursing vs relatives		
Ped vs relatives		Coefficient	95% CI		Coefficient		95% CI

Coefficient	95% CI	Coefficient	95% CI	Percent agreement	0.96	0.95-0.97	0.98
0.97-0.99	0.95	0.94-0.97	0.95	0.93-0.97	Krippendorf's alpha*	0.72	0.61-0.84
0.87		0.79-0.94	0.68	0.51-0.83	0.63	0.46-0.80	Interrater Agreement with local anesthesia techniques only
	Nursing vs ped vs relatives		Nursing vs ped		Nursing vs relatives		
Ped vs relatives			Coefficient	95% CI	Coefficient	95% CI	
Coefficient	95% CI	Coefficient	95% CI	Percent agreement	0.97	0.95-0.99	0.96
0.80-1,00	0.97	0.95-0,99	0.97	0.80-1.00	Krippendorf's alpha*	0.91	0.83-0.99

DETAILS

Subject:	Patients; Emergency medical care; Analgesia; Health care; Pain; Pain management; Sedation; Cross-sectional studies; Patient satisfaction; Unpleasant; Agreements; Families &family life; Venous access; Medical personnel; Quality of care; Local anesthesia; Sociodemographics; Nurses; Clinical variables; Pediatric nursing; Pediatric nurses; Legs; Consent; Pediatrics
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The Feasibility of a Pediatric Distance Learning Curriculum for Emergency Nurses During the COVID-19 Pandemic: An Improving Pediatric Acute Care Through Simulation Collaboration: JEN

ABSTRACT (ENGLISH)

Introduction

To develop and evaluate the feasibility and effectiveness of a longitudinal pediatric distance learning curriculum for general emergency nurses, facilitated by nurse educators, with central support through the Improving Acute Care Through Simulation collaborative.

Methods

Kern's 6-step curriculum development framework was used with pediatric status epilepticus aimed at maintaining physical distancing, resulting in a 12-week curriculum bookended by 1-hour telesimulations, with weekly 30-minute online asynchronous distance learning. Recruited nurse educators recruited a minimum of 2 local nurses. Nurse educators facilitated the intervention, completed implementation surveys, and engaged with other educators with the Improving Pediatric Acute Care through Simulation project coordinator. Feasibility data included nurse educator project engagement and curriculum engagement by nurses with each activity. Efficacy data were collected through satisfaction surveys, pre-post knowledge surveys, and pre-post telesimulation performance checklists.

Results

Thirteen of 17 pediatric nurse educators recruited staff to complete both telesimulations, and 38 of 110 enrolled nurses completed pre-post knowledge surveys. Knowledge scores improved from a median of 70 of 100 (interquartile range: 66-78) to 88 (interquartile range: 79-94) (P = .018), and telesimulation performance improved from a median of 60 of 100 (interquartile range: 45-60) to 100 (interquartile range: 85-100) (P = .016). Feedback included a shortened intervention and including physician participants.

Discussion

A longitudinal pediatric distance learning curriculum for emergency nurses collaboratively developed and implemented by nurse educators and Improving Pediatric Acute Care through Simulation was feasible for nurse educators to implement, led to modest engagement in all activities by nurses, and resulted in improvement in nurses' knowledge and skills. Future directions include shortening intervention time and broadening interprofessional scope.

FULL TEXT

Contribution to Emergency Nursing Practice

••Pediatric emergency medicine education was challenging during the COVID-19 pandemic because of the need to focus educational efforts on COVID-19 in adults.

••The curriculum was feasible for nurse educators and demonstrated high satisfaction and improvement in knowledge and critical actions among nurses who completed it.

••A continuing education nursing curriculum including telesimulation and brief asynchronous weekly educational activities facilitated by nurse educators, with support from the Improving Pediatric Acute Care Through Simulation collaborative, can improve general emergency medicine nurses' knowledge on pediatric topics and performance during telesimulations while maintaining physical distancing.

Introduction

Most acutely ill and injured children are cared for in general emergency departments that concurrently care for children and adults.[1] Many general emergency departments have low pediatric patient volumes and are not well prepared to care for children, as noted by low weighted pediatric readiness scores (WPRSs) and in challenges with balancing pediatric and adult educational topics, resulting in variability in the quality of pediatric care.[2-5] Nurse

educators have 2 distinct audiences/learner groups for their pediatric education: experienced nurses requiring continuing education and initial training for new graduates starting in practice. Prepandemic pediatric education in general emergency departments typically involved nurses participating in high-quality, intensive 8- to 16-hour pediatric courses, through organizations such as the Emergency Nurses Association (ENA) (Emergency Nursing Pediatric Course, Emergency Severity Index Pediatric Triage Course, Certified Pediatric Emergency Nurse Course)[6] and the American Heart Association (Pediatric Advanced Life Support, Pediatric Emergency Assessment Recognition and Stabilization).[7] In addition, an increasing number of online asynchronous continuing education activities, such as those offered through ENA University, have been created for emergency nurses.[8] Emergency nurse educators often augmented these courses and asynchronous activities with in-person educational activities including bedside education, lectures, simulations, skills-training, competency fairs, and workshops.

The pandemic created many new challenges for nurse educators, including financial cuts, the need to prioritize COVID-19 related topics, limitations in staffing with an increase in travel nurses, increasing burnout among emergency nurses, and physical distancing rules limiting traditional in-person educational activities.[9-11] Additional challenges specific to pediatric education during the pandemic included limited or no access to the existing in-person courses (Emergency Nursing Pediatric Course, Pediatric Advanced Life Support) and further reductions in pediatric patient volumes.[12-15] As the pandemic persisted, nurse educators reached out to our Improving Pediatric Acute Care through Simulation (ImPACTS) collaborative with requests for ideas and resources to conduct pediatric education in the face of barriers created by the pandemic. ImPACTS is a national network of children's hospitals collaborating with general ED physician and nurse educators to improve the quality of pediatric care.[16,17] The ImPACTS network involves a hub-and-spoke model of continual collaboration including in situ simulation, education, and quality improvement initiatives among 36 children's hospitals (the ImPACTS regional "hubs") and over 200 local general emergency departments (the "spokes"). Prepandemic ImPACTS involved collaborations between nurse educators in general emergency departments with their regional hub ImPACTS teams to implement pediatric educational and improvement efforts. A cornerstone of the ImPACTS program is that the team aims to work collaboratively "with" the nurses in these emergency departments and not work "on" them. These ImPACTS projects involved hub sites physically traveling to regional spoke community emergency departments to collaborate on in situ pediatric simulation, pediatric acute care education, and pediatric quality improvement initiatives. Scholarship on ImPACTS projects has demonstrated improvements in pediatric emergency readiness and improved adherence to evidence-based guidelines during the care of simulated critically ill pediatric patients in participating general emergency departments.[18-21]

In response to requests from ImPACTS affiliated nurse educators, ImPACTS collaborated with our general emergency nursing colleagues to initiate a project with 3 main goals: (1) to collaborate with general emergency nurse educators on the development and implementation of a curriculum for pediatric nursing education that could be implemented during the pandemic, (2) to determine the feasibility of the curriculum for nurse educators to administer and learners to participate in during the pandemic, and (3) to describe the effectiveness of the curriculum on improving participants' comfort, knowledge, and skills. We believed that the curriculum would be feasible for educators to implement and for participants to engage with and improve participants' knowledge and skills.

Methods Curriculum Development

Kern's 6 step curriculum development framework was used for this project as described below:[22]

Generalized Needs Assessment

During COVID-19, pediatric acute care was identified as an educational gap for general emergency nurses by existing nurse educators or pediatric emergency care coordinators (PECCs) through the ImPACTS network. This

gap was attributed to the challenges articulated in the introduction section and supported by previous research.[2,23]

Targeted Needs Assessment

A targeted needs assessment was conducted via ImPACTS with a group of existing general emergency nurse educators or PECCs through phone calls, emails, and video-conferencing discussions with the central ImPACTS team. These discussions focused on specific nursing continuing educational needs and revealed a desire for targeted pediatrics topic areas as opposed to broad pediatrics content. The initial management of pediatric status epilepticus was specifically identified as a high priority topic, mirroring previous needs assessments.[23,24]

Goals and Objectives

Through the iterative process of the targeted needs assessment, specific learning objectives were identified related to the management of pediatric status epilepticus ([Table 1]).[25] These objectives align with the prior pediatric educational prioritization processes for emergency nurses including teamwork, clinical knowledge (triage, resuscitation protocols), and family-centered care.[25]

Educational Strategies

The selection of educational strategies centered on the need for physical distancing guidelines without in-person interactions. Educational strategies were selected based on existing guidelines that improve outcomes for resuscitation education.[26] These strategies included spaced practice (repetitive interactions over 12 weeks), contextual learning (working with local teams), feedback and debriefing (telesimulations), and innovative educational strategies (gamification, digital media). The distance learning approach with local collaboration by their nurse educator and colleagues enabled us to meet learners and nurse educators where they were, often at home and over video-conferencing. This educational strategy allowed for repeated learning opportunities over time, created a combination of active and passive learning, and provided space for both individual and group learning. Telesimulation was chosen to allow for an experiential simulation-based team-training while maintaining physical distancing in the setting of the pandemic.[24,27] Telesimulation has become a more readily available, safe, and cost-effective simulation platform as the pandemic has progressed as compared with in situ in-person simulation.[28-31] Distance learning also was chosen to allow for both synchronous and asynchronous learning. Participation was voluntary and limited to nurses, and recruitment was solicited by each site's nurse educator. Demographic data were collected, and pre/post knowledge tests were administered. Two telesimulation cases were created by content experts by adapting existing validated pediatric status epilepticus simulation scenarios via the American College of Emergency Physicians (ACEP)'s SimBox.[32] The cases' critical action checklists were adapted from existing pediatric seizure guidelines.[33,34] Cases were piloted by a group of interprofessional providers at 2 academic pediatric emergency medicine sites, as well as community emergency departments. The cases were intended for formative education with the goal of face, content/construct validity through prior use with ACEP SimBox and use of a pilot/feedback with iterative improvement. The telesimulations were conducted as the first and final elements of the intervention, with facilitation by a pediatric emergency nurse and another pediatric content expert (nurse or physician) as per guidelines from the International Nursing Association for Clinical Simulation and Learning,[35] the Promoting Excellence and Reflective Learning in Simulation blended framework,[36] and telesimulation debriefing best practices.[37] Author E.E.M, who served as the project coordinator, is a skilled and experienced debriefer, who trained each site's PECC before both the first and second telesimulations, was present for each telesimulation, and met with PECCs regularly. The telesimulations featured a prerecorded internet-based streamed video (see [Supplementary Appendices 1-3]) with an orientation, emergency medical services patch, actor with status epilepticus, and vital signs monitor, thus allowing facilitators to toggle the video stream back and forth as needed to respond to real-time interventions.[32,38] The telesimulation cases ran for a total of 30 minutes, including a prebriefing, simulation, and debriefing. Facilitators

were provided with the critical action checklists to ensure that participants met the goals of initial management of pediatric status epilepticus.

In between telesimulations, nurse educators were provided with weekly free open-access medical education components of the intervention for distribution to their sites' participating nurses. This content was selected and vetted by ImPACTS content experts in collaboration with participating nurse educators before the study. This process focused on the need for content to be consistent, of brief duration (Figure 1). Recognizing that the intervention was lengthy, we attempted to provide a break during weeks 8 or 9. In addition, some pediatric educators were supported in running their own telesimulation during either of those weeks.

Implementation Recruitment/enrollment

General emergency nurse educators from lower volume emergency departments that care for both children and adults were recruited via email to existing ImPACTS contacts and postings on ImPACTS social media channels during June and July 2020. Pediatric emergency departments and pediatric emergency nurse educators were not recruited for this project and were excluded from enrollment. A priori, we aimed to enroll general emergency nurse educators who recruited a minimum of 2 nurse participants for a total goal of 12 individual nurse participants across 6 sites. Interested general emergency nurse educators were provided details about the project as described in the intervention section above and through brief meetings with the ImPACTS project coordinator (author E.E.M). If the general emergency department had an existing nurse PECC, they served as the primary contact point. If the general emergency department did not have a PECC, they were asked to identify whether they or someone else on their team would serve as the primary contact point for the project.

Nurse Educator Role

Nurse educators were supported by the ImPACTS project coordinator who provided curricular content, training in simulation-based education, and biweekly discussion sessions. Educators facilitated but did not participate in telesimulations and did not complete evaluation metrics. Each educator recruited a minimum of 2 other volunteer nurse participants and participated in a train-the-trainer session facilitated by the study team.

Nurse educator train-the-trainer

A 1-hour-long virtual training was conducted before the start of the intervention at each site and was facilitated by the ImPACTS project coordinator with individual or groups of participating nurse educators. The session included (1) outlining the expectations of the educators during the intervention, (2) outlining the curriculum for their learners, including a thorough review of the telesimulation platform and the expectation to review each of the weekly distance learning activities, and (3) outlining information on pediatric readiness and the National Pediatric Readiness Project (NPRP) survey that the nurse educator at each site completed during the intervention. The NPRP is a multiphase national collaborative improvement initiative aiming to ensure pediatric readiness, as measured by an emergency department's adherence to the joint policy statement for the care of children in emergency departments endorsed by the American Academy of Pediatrics, ACEP, and ENA.[4,6,7] The project coordinator also highlighted that many emergency departments are not well prepared to care for children, as noted by their low weighted pediatric readiness score, resulting in variability in the quality and outcomes of pediatric care.[1-3] Finally, the group discussed the importance for the nurse educator to serve in the role of a nurse PECC or recruit a colleague for this position. A nurse PECC is a registered nurse who possesses special interest, knowledge, and skill in the emergency nursing care of children.[6] The nurse PECC can come from various backgrounds and may need additional support to develop and/or implement pediatric educational activities. The nurse PECC role includes facilitating pediatric-specific elements of orientation, continuing education, and competency evaluations. In addition to pediatric education and competency, nurse PECC responsibilities can include pediatric quality improvement in the emergency department,

collaborating with pediatric care committees both in hospital and out of hospital, promoting pediatric disaster preparedness, and working with ED leadership to ensure availability of pediatric equipment, resources, policies, and procedures. The PECC is designated by leadership and may have other clinical or administrative roles in the emergency department (such as an educator) and works collaboratively with the general nurse educator and physician PECC. The joint policy statement states that all emergency departments should designate both a physician and a nurse PECC.[5,6] Despite this recommendation for a designated PECC to improve pediatric readiness, only 59% of emergency departments have a nurse PECC, and 48% have a physician PECC.[5] After reviewing this, the project coordinator shared data on the association of designating a PECC with significant improvements in pediatric readiness.[5,6]

Nurse educator support/community of practice

In addition to the train-the-trainer session, educators met virtually biweekly with the project coordinator and other participating educators to address program barriers and note successes. This was used as central support for educators and as a medium for a community of practice. In this way, the study team aimed to collaborate with sites as opposed to solely providing resources.

Evaluation and Feedback

Demographic data were collected from nurse educators and each participating nurse at the start of the intervention. The nurse educator presurvey collected demographic data on the PECC role and ED characteristics and was completed with remote support from the project coordinator ([Table 2]). All sites had PECCs and had previously engaged with the ImPACTS collaborative with a median daily pediatric volume of 21. Whereas 11 of 13 or 85% of PECCs currently have ongoing pediatric competencies for emergency nursing staff, 5 of 13 or 39% coordinate with local credentialing processes and facilitate competency evaluations for staff that are pertinent to children of all ages. In addition, 9 of 13 or 69% of PECCs reported having access to resources needed to perform as a PECC, and only 4 of 13 or 31% reported having dedicated time for their PECC role and a written job description/responsibilities ([Table 2]). Data collected from nurse participants included years worked as a registered nurse, years worked as a registered nurse in the emergency department, approximate number of pediatric patients cared for per month, amount of pediatric education prior to this intervention, and whether the participant had ever worked in a pediatrics only role ([Supplementary Appendix 4]).

Feasibility measures

Feasibility was measured as (1) engagement and retention of ED educators and (2) the engagement and retention of nurse participants at each ED site. Additional data were collected on the time required of the educator for this work and rates of participants completing some or all interventions and/or evaluations. Educators engaged in biweekly check-ins, where feedback was solicited on implementation and opportunities for improvement. Educator postintervention surveys were collected to measure their activities and experiences ([Table 3]). Completion of individual educational activities by each learner was documented using a unique anonymous identifier. After each educational activity, learners reported their satisfaction, measured with a net promoter score for each activity, and had the opportunity to provide feedback on how to improve the intervention in free text. These site-specific data were provided to educators at each emergency department to track their learners' participation and support local implementation efforts. Overall site curriculum completion was defined as completion of pre/post telesimulations while educators remained engaged with central ImPACTS support via biweekly check-ins. Individual learner curriculum completion was defined as completion of the entire online curriculum with pre/post telesimulations as set forth in [Figure 1], demographic/comfort survey completion, and pre/post knowledge survey completion.

Effectiveness measures

Satisfaction, comfort, and knowledge were measured through pre- and postintervention surveys. We used Likert scales to measure comfort with the demographic survey ([Supplementary Appendix 4]) and multiple-choice questions to measure knowledge ([Supplementary Appendix 5]). Responses were tracked via anonymous identifiers. Skills were measured using a 5-item critical action checklist of performance during the initial and final telesimulations ([Supplementary Appendices 1] and [3]).

Analyses

All data were manually entered into Qualtrics (Qualtrics, LLC, Provo, UT) and transferred into SPSS (v. 27.0; IBM Corp, Armonk, NY), with which all statistical analyses were performed. Descriptive statistics (eg, frequencies, histograms, means, standard deviations, medians, interquartile ranges) were conducted for key demographics and variables. Additional bivariate analyses were conducted to examine differences in simulation performance and knowledge surveys pre- versus postintervention. These were conducted using Wilcoxon signed-rank tests. This study received institutional review board exemption by Riley Children's Hospital institutional review board.

Results

Thirty-two general ED sites were identified through recruitment efforts. Of these, 17 sites identified a nurse educator who connected with the ImPACTS project coordinator at least 1 time, and 13 sites completed the full intervention ([Figure 2]) via engaging in the pre and post telesimulation and maintaining central ImPACTS biweekly check-ins. Individuals from 7 of these sites completed the pre-post telesimulation and the pre-post knowledge surveys. These general emergency departments were geographically distributed across the United States and Canada. A total of 110 nurse learners started the curriculum, whereas 38 nurses (35%) completed the entire curriculum as defined by adherence to all elements of the entire curriculum including pre and post telesimulations and completing the pre and post knowledge survey with nurse learners per site (but did not complete week 10 educational activity). Twenty-two learners (20%) completed all the educational activities, including week 10.

Nurse Educator Activities

All 13 general emergency departments were included in the analysis for follow-up nurse educator, with self-reported nurse educator demographics described in [Table 2]. The postintervention nurse educator survey was completed by 10 of the 13 nurse educators who completed the curriculum ([Table 3]). Nine out of 10 of those respondents reported that over the intervention period, they had delivered more pediatric education than before, with 100% reporting that the ImPACTS distance intervention did not detract from other nursing education. Sixty percent reported that 12 weeks of intervention was just enough, and the remainder reported that it was too long, with many PECCs verbally reporting to the central ImPACTS team that 12 weeks was too long for sustained engagement. Ninety percent or 9 of 10 also reported that they had access to resources needed to perform as a PECC as compared with 69% or 9 of 13 before intervention ([Tables 2] and [3]). Most PECCs would recommend the ImPACTS telesimulation nursing intervention (median of 9 on scale of 1-10, interquartile range [IQR] 8-10) ([Table 3]).

During biweekly check-ins, many nurse educators verbally reported to the program coordinator that it was unrealistic to limit this educational platform to nurses as typically, a provider such as an advanced practice provider or a physician would be present for all pediatric resuscitations from the beginning, regardless of how busy the emergency department might be. In addition, verbal feedback was consistently provided that 12 weeks was too long for asynchronous education on one specific topic. Finally, no sites filled out a subsequent WPRS as they had not solicited any changes during the educational intervention, so it was primarily used as a demographic measure.

Learner Feasibility

Learner participation in weekly asynchronous learning activities waned over the course of the intervention from an initial 60% of participants completing weekly learning activities in weeks 2 and 3 to 20% of participants completing all

activities in week 10.

Learner Effectiveness Knowledge

Of the 110 learner nurse participants, 69 learner nurse participants (63%) filled out preintervention knowledge survey, and 38 learner nurse participants (35%) completed the post knowledge survey ([Figure 3]A). Intervention knowledge improved significantly (P = .018) from preintervention (median 70, IQR 66-78) to postintervention (median 88, IQR 79-94) ([Figure 3]B).

Seizure Telesimulation Skills

Thirteen sites completed the initial preintervention telesimulation, and 8 completed the postintervention telesimulation. Of these, telesimulation scenario critical actions team checklist performance demonstrated overall significant improvement (P = .016) in median score from 60 (IQR: 45-60) to 100 (IQR: 85-100) ([Figure 3]C, [Table 4]).

Discussion

A distance educational curriculum on pediatric status epilepticus collaboratively developed and implemented by pediatric nurse educators with ImPACTS, targeting general emergency nurses during the COVID-19 pandemic, was feasible for general emergency nurse educators to implement. At the level of the individual nurse participant, a 12-week curriculum was not feasible for most participants to complete. Nurses who completed the curriculum had improvements in knowledge and skills, aligned with our study learning objectives. Pediatric nurse educators or PECCs reported that 85% had ongoing pediatric competencies in their general emergency departments before COVID-19; however, nurse educators reported that although pediatric training was available, it was currently stalled secondary to the pandemic. Optimistically, after our study, nurse educators reported that they would facilitate more pediatric educational activities for nurses and would recommend the telesimulation and distance learning. This supports that the curriculum was well regarded and generated more interest in pediatric education among participating PECCs ([Table 3]). Nurse educators also reported that the intervention did not detract from already available education ([Table 3]); thus, it can be a useful asynchronous and cost-effective intervention to augment traditional in-person courses, simulations, and didactics as we emerge from the pandemic. The a priori goal of at least 6 sites completing the intervention was met, with a total of 13 sites initially enrolled and 8 completing the final telesimulation. Ideally, we would see 100% completion of the entire curriculum, but of the 110 nurses initially enrolled throughout the 13 sites, 38% completed most activities (except week 10), and 20% completed all interventions (including week 10). It is unclear why week 10 was not uniformly completed, perhaps secondary to it being the third "choose your own adventure" module during the 12-week intervention. Despite waning participation from 63% to 35% over the 12-week intervention, a statistically significant improvement was seen in postintervention knowledge of status epilepticus, as well as telesimulation critical action performance in those who completed these activities ([Figure 3]).

Limitations

We identified 5 major limitations to this work. First, recruitment and engagement of nurse educators and learners were likely confounded by provider burnout, financial strain, and provider turnover during the COVID-19 pandemic. Second, although our team engaged emergency nurse educators in the needs assessment, development, and implementation process of this work, the inter-team power dynamics may not have sufficiently empowered these educators, limiting their input. An example of these dynamics includes physician-nurse and academic-community interactions. This may have contributed to the low nurse participation, but this topic was not explicitly raised by nurse educators. Future efforts should work to enhance the authentic input from emergency nurse educators and nurses in every stage of the development, implementation, and iterative improvements. Third, this study involved nurse educators previously involved in ImPACTS work before the pandemic; thus, there was selection bias, and our

findings may not be generalizable to "new" collaborations between general emergency departments and regional hubs. As PECCs were solicited from previous ImPACTS work, they would have already filled out the WPRS during previous ImPACTS collaborations, which likely explains why changes were not made and the score not filled out again at the conclusion of the intervention. Fourth, participants served as their own pre- and postintervention controls. Ideally, in future iterations, we can consider comparing (1) nurse performance at institutions with and without a PECC, (2) nurse performance without going through the intervention at a "control" site, or (3) nurse performance within a traditional simulation setting versus telesimulation curriculum to test the effectiveness of our designed curriculum/intervention. Finally, there was a low completion rate with a complex set of reasons. Not all participants completed the pre- and postintervention knowledge surveys, with a large decrease in participation with the postintervention knowledge survey. Waning participation in the study may be attributable to the intervention itself (length, topic, content) and/or COVID-19–related events (surges in other patients, reassignment of staff, staffing turnover). In response, we hope that future interventions will iteratively improve curriculum and specifically query frontline nurses regarding barriers to completing activities (in addition to the length and heavy clinical loads reported to the study team as contributing factors by PECCs during check-ins). Limiting this intervention to nurses was reported by participants as unrealistic; thus, the next iteration will include a physician or advanced practice provider to ensure fidelity. Technology failure and participant inexperience with video-conferencing and telesimulation also could have impacted the team; therefore, for future iterations, we will incorporate a prebrief on how to best use video-conferencing platforms and to delineate the needed technology. This study also did not evaluate actual clinical outcomes of real pediatric patients who presented in status epilepticus at the sites; however, it could be an outcome to evaluate in future studies.

Future Directions and Lessons Learned

Collaboration between pediatric nurse educators such as PECCs and regional academic medical center hubs on pediatric curriculum development and implementation could be generalizable to other emergency constructs. In addition, this type of collaboration could serve as a virtual community of practice for nurse educators and nurses to share educational resources with each other. Our outcomes of engagement of nurse educators in this project are well aligned with the existing pediatric readiness joint policy statement role of a nurse PECC—specifically, nurse PECC roles involving supported provider competency and education in the readiness for care of the acutely ill pediatric patient and collaboration with regional academic medical centers with ImPACTS biweekly check-ins.[18] We hope that this maturation of the relationships between nurse educators across general emergency departments and between nurse educators and regional ImPACTS hubs can serve as a model for continued collaboration in this group in the future. General emergency departments with nurse educators were targeted in this intervention as the NPRP joint policy recommends the presence of a PECC. We recognize that many general emergency departments nationally may not have a designated emergency nurse educator or PECC. Although our program may be of benefit to general emergency departments without educators and/or PECCs, we did not test it in that setting. We have reflected on the lessons learned from this project and have iteratively improved our intervention, and it is currently being implemented in another cohort. The next iteration involves a shortened duration from 12 weeks to 5 weeks to improve adherence, added requirement for an interprofessional participation (physician or advanced practice provider), and a new virtual interactive telesimulation platform as an alternate and more realistic modality. In addition to guiding the development and implementation of ImPACTS work, we hope that this work will inspire others to consider collaborative distance learning curricula in general emergency departments.

Implications for Emergency Nurses

This collaborative method of development and implementation of an asynchronous distance learning curriculum can

be used by emergency departments as a method for continuing nursing pediatrics education to improve knowledge and critical clinical action performance. As we emerge from the pandemic, we hope that emergency nurse educators will consider collaborative asynchronous education and telesimulation to augment their existing educational activities. Telesimulation has become more common as the COVID-19 pandemic has limited in-person educational opportunities, and this work demonstrates that it is a well-received and cost-effective instructional strategy that can be considered by educators after the pandemic and in low resource settings. In-person hands-on simulation will continue to be needed for tasks such as drawing up appropriate medication doses, placing an intravenous catheter, or finding equipment in the department. The educational materials used for this feasibility project are available as appendices, through the ImPACTS website, and via direct email contact with the study team.[17] It is important to note that this work was not intended for pediatric emergency departments or pediatric-specific settings with specialized pediatric emergency nurse specialists. The level of content for work targeting that group of nurses would likely need to be more advanced.

Conclusion

A longitudinal pediatric distance learning curriculum for general emergency nurses collaboratively developed and implemented by general emergency nurse educators with ImPACTS was feasible and resulted in improvements in nurses' knowledge and skills. The novel components of this work included the collaboration, telesimulation, and diverse asynchronous instructional strategies to provide alternative methods for continuing pediatric education for general emergency nurses during the COVID-19 pandemic. Future directions include shortening intervention time and broadening interprofessional scope.

Supplementary Data

Supplementary Appendix 1Supplementary Appendix 2Supplementary Appendix 3Supplementary Appendix 4

Supplementary Appendix 5

Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2022.09.001.

Team-centered care	➢Verbally describe necessary staff, equipment, and resources to care for a seizing pediatric patient recognizing pediatrics status epilepticus➢Demonstrate effective teamwork and communication○Shared mental model○Directed orders○Closed loop communication
Family-centered care	➢Demonstrate family-centered care via ○Obtain the appropriate history from a family member ○ Address family concerns○Keep the family updated
Clinical knowledge	➢Describe the initial management of an acutely ill pediatric patient○Prioritize airway, breathing, circulation○Describe first line diagnostics and therapies with alternate route (intranasal vs intramuscular)○State need for transfer to tertiary pediatric care center

Questions	N = 13	%
Approximate pediatric volume per d, median (IQR)	21 (5-35)	N/A
Affiliation with AMC	6	46
PALS is required for staff	9	69
PECCs had written job descriptions and responsibilities for their role	4	31
PECCs receive dedicated time for their role	4	31
Ongoing pediatric competencies (skills and/or knowledge) exist for your emergency nursing staff	11	85
PECCs are involved in ED pediatric quality improvement initiatives	7	54
PECCs assist in review of ED policies and procedures related to standards for medication, equipment, and supplies for pediatric patients	7	54
PECCs coordinate with local pediatric credentialing processes and facilitate pediatric competency evaluations for staff	5	39
PECCs serve as a liaison on in-hospital pediatric care committees (eg, trauma, emergency preparedness)	6	46
PECCs serve as a liaison on out-hospital pediatric care committees (eg, EMS)	4	31
PECCs serve as a liaison to local definitive care hospitals to integrate services along the pediatric care continuum	4	31

PECCs facilitate the inclusion of pediatric-specific elements to new ED staff on orientation	9	69
PECCs facilitate the integration of pediatric needs in-hospital disaster planning	3	23
PECCs collaborate with ED leadership to enable adequate staffing, medications, equipment and supplies, and other resources for children in the ED	8	62
PECCs have access to needed resources toadequately perform as a PECC in the ED	9	69
Pediatric simulations occur in the ED	9	69

Questions	N = 10	%
How much pediatric-specific education was provided to your nurses pre-ImPACTS nursing distance learning collaboration?		
1-5 h per y	5	50
6-10 h per y	3	30
>10 h per y	2	20
Do you expect to conduct pediatric education in the coming year?		
Yes	10	100
If yes, do expect to conduct:		
The same amount of education as before	1	10
More education than before	9	90
Has your participation in the ImPACTS distance learning detracted from other nursing education?		
No	10	100
Was 12 weeks of curriculum		
Just enough	6	60
Too much	4	40

Do you have access to the resources you need to perform as a PECC in your ED?		
Yes	9	90
No	1	10
On a scale from 0-10, how likely are you to recommend the ImPACTS distance learning collaborative to a colleague? Median (IQR)	9 (8-10)	N/A

Critical actions	Preintervention		Postintervention	
n = 13	%	n = 8	%	1.Verbalize airway response in first minute
7	54	8	100	2.Verbalize glucose check-in first 3 minutes

5		39	7	88	3.Verbalize correct dose of LORazepam IV/IO as first line agent
9		69	8	100	4.Verbalize correct dose of midazolam
3		23	6	75	5.Verbalize need for second line agent
10		77	8	100	TOTAL seizure score

Median = 60 IQR = 45-60	Median = 100 IQR = 85-100	P value

DETAILS

The Effect of Virtual Reality and Buzzy on First Insertion Success, Procedure-Related Fear, Anxiety, and Pain in Children during Intravenous Insertion in the Pediatric Emergency Unit: A Randomized Controlled Trial: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

Introduction

Distraction methods such as virtual reality and cold vibration device are recommended during intravenous interventions. Few studies have focused on the impact of nonpharmacological interventions on intravenous insertion success.

Methods

A randomized controlled study evaluated effect of virtual reality and cold vibration device application on first-attempt intravenous insertion success and procedure-related pain, fear, and anxiety during intravenous insertion in children. Children aged 4 to 10 years (N = 150) undergoing peripheral intravenous catheterization insertion in the pediatric emergency department were randomized to 1 of 3 groups: virtual reality, cold vibration (Buzzy), and control group. Distraction technique of talking and asking questions of children was used in control group. Primary outcome was first-attempt intravenous insertion success; secondary outcomes were procedure-related pain, fear, and anxiety. Study data were collected using Difficult Intravenous Access score, Emotional Appearance Scale for Children, Wong-Baker Faces Pain Rating Scale, Color Analog Scale, Children's Anxiety Meter-State, and Child Fear Scale. Data were analyzed using chi-square test, Fisher exact test, and Kruskal–Wallis test.

Results

There were no significant differences in first-attempt intravenous insertion success rates (virtual reality = 47.2%, Buzzy® = 50%, control = 46.9%), preprocedural emotional appearance scores, and procedure-related pain and anxiety scores. There was no difference between groups for vital signs before, during, and at fifth minute of procedure.

Discussion

Virtual reality and Buzzy may decrease procedure-related fear in children during intravenous insertion. This research has shown that pediatric emergency nurses can reduce pain and anxiety by talking to children, and simple distractions such as asking questions are as effective as more technological ones.

FULL TEXT

Contribution to Emergency Nursing Practice

•• The first-attempt intravenous success rates, procedure-related pain, and anxiety scores were similar between the groups.

•• This study contributes that virtual reality or Buzzy distractions may be effective in reducing procedure-related fear in children during intravenous insertion.

•• Use of distraction methods may be useful for reducing pain and fear among pediatric patients during intravenous insertion in the pediatric emergency department.

Introduction

Many of the nonpharmacological methods comprise cognitive-behavioral approaches and help distract children's attention from fearful and painful procedures. Cognitive interventions are used in children to direct attention away from procedure-related pain. These approaches promote the right of the child to be fully involved in the procedure. Distraction is the most frequent intervention used in the emergency department to guide children's attention away from the painful stimuli.[1] The nonpharmacological methods applied in the pediatric emergency department (PED) aim to reduce fear and pain and keep the child active during the intervention.[2,3] These distraction methods, which are used in invasive procedures, can be listed as using distraction cards, watching cartoons, making foam bubbles, listening to music, looking through a kaleidoscope, and using virtual reality (VR) glasses.[4,5] These methods do not eliminate the pain but raise the pain threshold by increasing the child's tolerance to pain.[5] Nonpharmacological methods are recognized as reliable and inexpensive and are independent practices of the nurse.[5,6]

The combined or comparative use of pharmacological and nonpharmacological methods in studies conducted in the PED are limited.[7-9] The effect of these distraction methods on pain and fear as well as on intravenous (IV) insertion success should be evaluated. While applying painful interventions, nurses also can apply different methods, such as touching, talking to distract attention, or asking questions. These distraction methods are particularly important for children to have a positive hospital experience. The cold vibration device (Buzzy; Pain Care Labs, Altanta, GA), a bee-shaped gadget producing vibrations and cooling through freezable wings, is effective in reducing pain and frequently used in IV insertion, phlebotomy, and vaccination interventions. A mechanical effect is created by applying the bee-shaped gadget a few centimeters from the needle entry point. It has a cryotherapy effect from a removable cold liquid device.[3,9-11] It was developed as a pain-blocker device for pain management in children.[8] In the study by Baxter et al,[12] children who received cold vibration and standard care experienced less pain. The topical lidocaine and nonpharmacological methods are more effective when combined or used together.[5] Many studies have been conducted on the effect of Buzzy on reducing pain in phlebotomy or vaccine administration. In another study, children received interventions such as Buzzy, jet lidocaine, bubble-blowing, or aromatherapy for pain, stress, and fear associated with phlebotomy. There was a significant difference between intervention and control (no distraction) group's fear levels in favor of the Buzzy group.[3] Kearl et al[8] showed benefit of combined use of Buzzy with the use of J-tip lidocaine injection (National Medical Products, Inc, Irvine, CA).

Children receiving either intervention (J-tip or Buzzy+J-tip) reported lower pain scores during venipuncture or IV start than the no analgesia group.[8] Canbulat Şahiner et al[10] found that the Buzzy group showed significantly lower pain and anxiety levels than the control group (no intervention) during immunization. Binay et al[11] found that Buzzy and blowing soap bubbles had a pain-relieving effect in children during phlebotomy. Bourdier et al[7] compared Buzzy and standard care (EMLA/lidocaine 2.5% and prilocaine 2.5% patch) on pain during cannulation in PED. The Buzzy was

not as effective as the standard care method in children 18 months to 6 years old.[7]

Digital distraction also provides pain and distress reduction for children.[13] The VR distraction can be used to relieve pain during IV insertion and phlebotomy in children.[14-17] Dumoulin et al[14] found a significant reduction in fear of pain and pain intensity in VR, watching television, and distraction provided by the Child Life program group in children aged 8 to 17 years. They found that VR showed the best improvement in reduction in fear of pain in PED.[14] In the systematic review of McCahill et al,[18] the use of VR was found effective in anxiety reduction in children aged 4 to 7 years. Caruso et al[19] concluded that VR reduced anxiety and fear in patients aged 6 to 18 years and was safe to use.

The effects of these VR and Buzzy distraction methods on the IV insertion success should investigate pain or anxiety as well. Studies evaluating the effect of IV insertion success in the younger age group are very limited.[3,5,7-11] The use of nonpharmacological methods may increase IV insertion success in children. In the study of Schlechter et al,[20] they found that first-attempt IV success rates were high and were similar between the groups (VR = 81.0%, standard = 84.2%). Baxter et al[12] found that success on the first IV attempt was 3 times more likely in the Buzzy group than in the standard care group. VR and Buzzy appear to be safe and well tolerated in children and also may affect the first-attempt IV success.[12,20] Many studies generally focus on pain and fear, and few have focused on IV insertion success. Children's previous experiences and negative emotions also can be determined before the procedure. Nonpharmacological methods can be planned according to the emotional state of the child.[21,22]

This study aimed to evaluate the effect of VR and cold vibration device distraction on the first-attempt IV insertion success, procedure-related pain, fear, and anxiety during IV insertion in children aged 4 to 10 years in the PED.

- •H1: First-attempt IV insertion success is higher in patients who use immersive experiments with VR glasses or apply the cold vibration device (Buzzy) during the procedure than in the control group.

- •H2: The pain, fear, and anxiety scores of the patients who use immersive experiments with VR glasses or apply the cold vibration device (Buzzy) during the procedure are lower than those of patients in the control group.

Methods

This prospective, randomized controlled study was conducted at a PED in Izmir, Turkey, between December 2020 and January 2021. A parallel trial design was used describing VR (Samsung Gear Oculus headset), cold vibration device application (Buzzy mini personal), and control group as the third arm. This study was guided by the Consolidated Standards of Reporting Trials (CONSORT) checklist.[23]

Study Sample

Children who underwent IV insertion were eligible to participate in the PED in a province of the Aegean region in Turkey. The inclusion criteria were being between the ages of 4 and 10 years and being conscious (with the ability to communicate). The exclusion criteria were having a physical and psychological condition that prevents them from wearing glasses to view VR; having a visual problem; having mental or physical disabilities; taking any analgesic, sedative, or anticonvulsant; having chronic or life-threatening disease; and refusing the VR or Buzzy intervention during IV insertion.

The sample size was determined with a power analysis, using an effect size of 30% at 95% confidence interval and a type 1 error probability of 5% for the F test analysis. In the G*Power version 3.1.9.7 statistical program, based on the results of first-attempt IV success rates by Schlechter et al,[20] the total sample size was calculated as 148 children. In the comparison of pain and anxiety scores in the study by Canbulat et al,[24] the minimum sample size was calculated as 34 children for each group. In the study, it was planned to fulfill the parametric test assumptions and to have 50 children for each group and 150 children for the total sample, considering 10% loss.

Enrollment and Allocation

A trained researcher PED nurse enrolled the participants who met the eligibility criteria and obtained consent from parents. This researcher PED nurse was employed at the place where the study was conducted, with 5 years of experience and a master's degree. The enrollment was the consecutive arrivals in the department. The patients were randomly and equally assigned into 3 groups: VR (immersive experiment), cold vibration device application (Buzzy), and control group (attention distracted by asking questions). The researcher PED nurse allocated the patients by the stratified randomization: age (Figure).

Outcomes

The likelihood of DIVA was determined by using the DIVA score[25,26] during the assignment of the children to the groups before the procedure. The emotional appearances of children were evaluated using the Emotional Appearance Scale for Children[22,27] before the procedure. The primary outcome was first-attempt IV insertion success. Secondary outcomes were procedure-related pain, fear, and anxiety. Procedure-related pain was measured using the Wong-Baker Faces (WBS) Pain Rating Scale[28] and Color Analog Scale.[29] The procedure-related fear and anxiety was measured using The Child Fear Scale (CFS)[30,31] and The Children's Anxiety Meter.[31,32] In addition, vital signs also were measured before, during, and 5 minutes after IV insertion. The vital signs were recorded on the procedure follow-up form.

Procedure Follow-up Form

The child's DIVA score, procedure initiation time, vital signs, and first-attempt IV insertion success were recorded. First-attempt IV insertion success was defined as the fact that IV placement was made by the nurse in the first attempt.

Difficult Intravenous Access Score

It was developed by Yen et al.[25] The DIVA score with 4 parameters (visibility, palpability, age, and prematurity history) was found to be valid and reliable for Turkish children.[26] The vascular access is assessed as difficult with a 50% failure rate if the total score is 4 and above.[25]

Emotional Appearance Scale for Children

This scale allowed direct behavioral observation and consisted of 5 different behavioral categories: "Facial Expression," "Speaking," "Activity," "Interaction" and "Cooperation Level." The total score is 5 to 25 points calculated by adding the points obtained for each category. Higher scores indicated the appearance of more negative emotional behaviors.[22,27]

WBS Pain Rating Scale

This scale is used in children aged 3 and older to rate pain severity (0-10). The child was asked to choose the face expressing their pain.[28]

Color Analog Scale

This scale is a commonly used self-report measure of pain. It is a 2-sided plastic instrument that consists of a wedge-shaped color-gradated figure (white bottom end to dark red top end) on one side, a numerical scale on the other, and a moveable slider. The child was asked to rate their pain by moving the slider and the corresponding numerical score was recorded.[29]

The Child Fear Scale

This 1-item scale measures procedure-related fear in children and consists of 5 sex-neutral faces, which correspond to no fear (0), a little fear (1), some fear (2), much fear (3), and extreme fear (4).[30,31]

The Children's Anxiety Meter

This assesses children's anxiety and is used before medical procedures. This scale is drawn like a thermometer with

a bulb at the bottom and includes horizontal lines at intervals going up to the top (0-10). Higher values represent higher anxiety.[31,32]

Data Collection

The standard approach was applied to all pediatric patients by the researcher PED nurse. The standard approach included providing information about the procedure, introducing herself, choosing the area together, and being with the parent during the procedure. The children in the control group were asked distracting questions during the IV insertion. Children in the VR or Buzzy group were not spoken to during the VR or Buzzy intervention to avoid confounding the effectiveness of these devices. Responses were only given when the children asked questions such as whether it was over or not. After each child was included in the study, we took the child to the chair where the IV insertion was performed (the starting hour/minute of the procedure was recorded). The child's systolic and diastolic blood pressure, pulse, and respiratory rate were monitored (time 0).

The child's emotional appearance was evaluated with the Emotional Appearance Scale for Children by a trained PED nurse before the procedure. This nurse had 10 years of experience in PED. She received training on the application of scales, and practice was made by applying scales to different children who were not in the study. Children did not know which intervention or control group they were in before their emotional appearance was rated. The IV insertion was performed by the researcher PED nurse (Time 1). Pain, fear, and anxiety scales were administered to the children by the trained PED nurse without the nurse's knowing which group the children belonged to. The scales were marked by the children at the fifth minute after the procedure was finished.

The child was expected to calm down after the procedure. The scales were administered to the child by a trained PED nurse who did not know in which group the child was; thus, blindness was achieved. This nurse, who applied the scales to the child, was not with the child during the intervention. Therefore, pain, fear, and anxiety were evaluated at the fifth minute after the insertion. Because the scales were applied after the procedure, the trained PED nurse did not know which group the children were in. During the 5-minute period after the procedure was over, the nurse tried to distract the child by talking or asking questions. A standard approach was applied to all groups with statements such as "I'm applying the tape, thanks for your cooperation" in this 5-minute period. Pulse and respiration were re-evaluated at the fifth minute after the procedure finished (Time 2). At the fifth minute after the procedure finished, the child was asked to evaluate the most painful moment during the procedure with a WBS Pain Rating Scale and Color Analog Scale. The CFS and The Children's Anxiety Meter were used by the child to indicate how anxious and afraid they were during the procedure. The child was asked to mark it with a pencil by a trained PED nurse.

Control Group

No distraction device was used in the control group. Attention was distracted by asking questions such as "How old are you? Which grade are you in? What is the name of your favorite friend? Which sport do you like better?"

VR Group

The nurse researcher introduced a virtual headset to the child and said that he/she could use immersive experience by wearing a virtual headset during the procedure. The participants underwent the experiment by using Oculus Rift VR and Samsung Galaxy S7 mobile phone. It had the headset display to provide immersive VR. The 3 virtual environments (ie, roller coaster, mine craft, ocean rift) selected in this study by the researchers were suitable for children. The children selected the virtual environment and wore the headset. The immersive experiment began when the IV insertion area was determined and ended 5 minutes after IV insertion. If the child desired to remove the virtual headset during the insertion, he/she was excluded from the study.

Cold Vibration Device (Buzzy) Group

The bee Buzzy was attached to the arm where the nurse researcher performed the IV insertion. Gate control theory may offer an explanation for the effect of Buzzy.[11] The IV insertion area was determined by the nurse researcher. Buzzy was tied 5 cm above the IV insertion area, and after waiting 15 seconds, IV insertion was performed by the nurse researcher, and Buzzy was ended 5 minutes after IV insertion was completed. If the child requested removal of VR or Buzzy during IV insertion, the child was excluded from the study. Buzzy and VR were cleaned with disinfectant before and after each intervention.

Ethics

Ethical approval was received from an institutional review board (5891-GOA). The nurse researcher informed the children and their parents about the study. If the child and parents agreed to participate, we obtained written consent forms. This study is registered with ClinicalTrials.gov: NCT04853056.

Analysis

Percentages and means were used to evaluate the sample demographics. The data were analyzed using SPSS for Windows version 23.0 (IBM, Armonk, NY). The normal distribution of the data was assessed by Kolmogorov–Smirnov and Shapiro–Wilk tests. Chi-square test and Fisher exact test were used to examine the demographic differences in groups. If the scores were not normally distributed, Kruskal–Wallis test was used for nonparametric analysis. The emotional appearance, pain, fear, and anxiety scores of groups were not normally distributed; the comparisons of the scores of the 3 groups were evaluated with Kruskal–Wallis analysis. Vital signs of the patients before, during, and at the fifth minute of IV insertion and procedure time were evaluated with analysis of variance (ANOVA) test. *P* Results Demographics

The final sample consisted of 150 children. No child refused the VR or Buzzy distraction during the IV insertion ([Figure]). There were no statistically significant differences in demographic characteristics (*P* > .05) ([Table 1]).

Diva Scores, First-Attempt IV Insertion Success, And Vital Signs of Groups

The mean DIVA scores ranged from 2.0 to 2.3 in all groups. DIVA scores were ≥4 points in 39.2% of the VR group, 42% of the Buzzy group, and 46.9% of the control group (≥4 points = difficult IV access). There were no differences in terms of DIVA scores. The first-attempt IV insertion success rates were similar among the groups (VR = 47.2%, Buzzy = 50%, control = 46.9%). There were no differences in the first-attempt IV success rates according to the DIVA scores (Table 2).

There were no statistically significant differences in terms of having DIVA, skin condition, peripheral intravenous catheterization area, catheter size, first-attempt IV insertion success, the number of IV insertions, pulse, respiratory rate, and blood pressure before (time 0), during (time 1), and after (time 2) the procedure or duration of IV insertion (*P* > .05). The IV insertion duration was 10.5 minutes in VR group, 11.3 minutes in Buzzy group, and 9.9 minutes in control group ([Tables 2] and [3]).

Emotional Appearance, Pain, Fear, and Anxiety Levels of Groups

Preprocedural emotional appearance scores were 18.8 (4.4) in VR group, 18.3 (4.2) in Buzzy group, and 20.1 (3.2) in control group. Postprocedure WBS pain scores were similar (VR = 5.6 (1.9), Buzzy = 5.8 (1.5), control = 6.0 (1.1). There were no differences in preprocedural emotional appearance scores and postprocedure pain scores (*P* > .05) ([Table 4]).

Postprocedure-related anxiety scores were 5.2 in the VR group, 5.1 in the Buzzy group, and 5.5 in the control group. There was no difference in postprocedural anxiety scores (*P* > .05). Postprocedure fear scores were 3.0 in the VR group, 2.9 in the Buzzy group, and 3.2 in the control group. There was a difference in postprocedure fear scores among the groups (*P* Table 4).

Discussion

VR and Buzzy technologies are used to reduce pain, fear, and anxiety associated with IV insertion.[12,14,33-39] Buzzy is used more frequently, and studies about Buzzy have generally focused on pain.[3,7,8,10-12] Studies carried out in PEDs about the effect of these technologies on IV insertion success are quite new.[14,20,33] Moreover, the number of studies assessing the effect of these methods on fear, anxiety, and distress in children is limited in the literature.[3,5,34] The pain and fear constructs are difficult to define among children compared with adults, as older children tend to express their feelings better than younger children.[30,35] In this study, we included children between the ages of 4 and 10 in the sample and the procedure-related pain, fear, and anxiety experienced by the children.

The primary outcome of this research was the first-attempt IV insertion success. No statistically significant relationship was found in terms of the first-attempt IV insertion success and IV insertion duration. First-attempt IV insertion success was almost similar in all groups (46%-50%). In other studies, the success rate of IV insertion seems to be variable in PEDs (41%-69%).[40,41] A successful IV insertion in a child is an exceedingly difficult process and requires the cooperation of the child and their family, as well as the knowledge, skills, and experience of health professionals. In a previous study, Schlechter et al[20] evaluated the efficacy of VR during IV placement to increase first-attempt IV success. Their primary endpoint was first-attempt IV success. First-attempt IV success rates were 81% in VR group and 84.2% in standard group (standard distraction techniques such as reading a book or iPad use). The successful IV insertion time was shorter in the group using VR; pain and anxiety scores of children also were similar between the groups.[20] Similarly, we found no difference in first-attempt IV insertion success and IV insertion time. Potts et al[33] found that there were no significant differences between the vibrating cold device and standard care 4% topical lidocaine cream group in first-attempt IV insertion success. The IV insertion time was significantly shorter in the vibrating cold device group, and there were no significant differences between groups for self-reported state or trait anxiety.[33] In another study, children's fear and anxiety before phlebotomy and difficult vascular access affected the first-attempt IV insertion success.[42] The stratified randomization was applied according to having difficult vascular access in this study. We thought that the success of the IV insertion might be affected by the presence of difficult vascular access. Although VR or Buzzy distractions did not make any difference in terms of first-attempt IV insertion success, pain, and anxiety in this study, we observed that children in intervention groups experienced less fear. This finding supported a previously published study by Chad et al.[43] There was less than a 0.5-point difference among the groups on a 5-point (0-4) scale in this study. A 17 Tork et al[44] found that the children in the Buzzy group experienced less pain during IV insertion than the children in the control group. Semerci et al[45] found that pain scores were 3.40±3.56 in the Buzzy group and 3.76±3.06 in the control group; there was no difference in pain scores. In this study, there was no significant difference in terms of pain and anxiety, but the intervention groups had lower pain and anxiety scores. The VR and Buzzy interventions were more effective than distraction by asking questions. The effect of Buzzy or VR was generally demonstrated in phlebotomy or vaccination applications. As in this study, these distraction methods may have less effect on reducing pain and anxiety in PED. In a meta-analysis, it was found that large effect sizes indicated that VR was an effective distraction intervention to reduce pain and anxiety in pediatric patients during invasive procedures such as venous access, dental care, and burn care.[46] Studies using VR in the emergency department are very limited.[14,20,47,48] Although first-attempt IV insertion success in another study[40] was similar between groups (buffered lidocaine/no device), the effect of VR or Buzzy on increasing first-attempt IV insertion success was not observed in our study. It is recommended to conduct experimental studies in other age groups in PED to increase the clinical quality level of VR and Buzzy.

The emotional manifestation of the children before the procedure also was evaluated in this study. In all 3 groups, the children had similar emotional manifestation scores (ranging from 18 to 20 out of 25 points in the groups) and experienced negative emotional behaviors. The nonpharmacological methods can be planned by evaluating the

emotional manifestation of children to increase their participation in the procedure and collaboration, especially in emergency departments. The difference in preprocedural emotional manifestation scores between the groups might not have been enough to reveal the effect of nonpharmacological interventions on children's pain, fear, and anxiety. No previous study evaluated the preprocedural emotional manifestation of children undergoing IV insertion in the emergency department. In this study, we aimed to draw attention to the emotional manifestation of children. Previous studies mostly evaluated the pain, fear, and anxiety of children after the procedure.[24,39]

In this study, vital signs were evaluated before, during, and after the IV insertion. There was no difference among the groups in terms of vital signs and the duration of the procedure. In the study by Sonmez Düzkaya et al,[2] the participants watched animations and cartoons before the procedure. A significant difference was found in blood pressure and pulse rates after the procedure.[2] In our study, as a standard approach, all patients were informed, the intervention was explained before the procedure, and the interaction was maintained by asking the child questions after the procedure. All IV insertions were performed by the same researcher PED nurse. In other studies, it is often unclear who applied the intervention, and the standard approach is not clearly stated by the researchers. The nurse's experience also may affect IV insertion success. The data collection process was planned in this way to control the nurse-induced variables. While it may reduce variability, it also may not allow for all differences to be generalizable.

Limitations

This study had limitations. All IV insertions were implemented by the same researcher PED nurse. Whereas distraction was achieved by talking in the control group, in the VR or Buzzy group, no distraction was provided by talking to show the effectiveness of the devices and to reduce confounding among the groups. The interaction was maintained in all groups after procedure. Pain, fear, and anxiety scales were administered to the children by another trained PED nurse who did not know which group the children belonged to. At the fifth minute after the procedure, the child evaluated the most pain, fear, and anxiety they felt during the procedure. Assessing the effect of the interventions on preprocedure and immediately postprocedure (without additional calming) fear/anxiety seems more clinically relevant if it is not possible to assess during procedure measurements. Five minutes after the end of the intervention, the child marked the score expressing the pain, fear, and anxiety felt during the intervention. This validated anxiety and fear scales based on scores; however, they may be inadequate to reveal pain, fear, and anxiety. Three or more attempts were made to insert the IV catheter in one-third of the children. For example, children with more than 3 attempts could be excluded from the study. We could have used a larger sample because of the redundancy of our secondary outcomes.

Implications for Emergency Nurses

Children have a complex perception of pain due to behavioral (crying, staying still), physiological (breathing and increased blood pressure, sweating, tears), psychological (restlessness, fear), and developmental factors. The child's response to pain varies according to the environment, perception of pain, developmental level, gender, and age. Whereas health professionals do not have time constraints to prepare the children who are admitted to the hospital in a planned manner for the hospital environment, illness, treatment process, etc, it is often not possible to prepare children who are brought to the emergency department with no appointment for this process. Unknown conditions, a chaotic environment, and environmental, psychological, and physical factors cause an increase in the fear and pain experienced by the child and may prevent adequate pain management. For this reason, studies can plan to reduce pain, fear, and anxiety, especially in the emergency department. Emergency nurses should try new nonpharmacological methods to increase first-attempt IV success. Before the procedure, the child and family should be involved in the process and should plan for the use of nonpharmacological methods. While trying to reduce the

child's pain, fear, and anxiety, this can ensure that the intervention is short, successful, and safe in the IV insertion. When planning nonpharmacological interventions, emergency nurses should consider the child's emotional manifestation and DIVA.

Conclusion

No difference was found in terms of first-attempt IV insertion success and vital signs before, during, and after the intervention. There was no difference among the VR, Buzzy, and control groups in terms of pain and anxiety, and the children in the VR and Buzzy groups experienced less fear. Although there was a statistically significant difference in fear 5 minutes after procedure among the 3 groups, this finding requires further investigation, as the clinical significance of the difference is uncertain. All distraction methods such as VR, Buzzy, or distraction by asking questions were helpful and effective in IV insertion.

Data, Code, and Research Materials Availability

Ethics approval: The procedures complied with ethical guidelines and received approval from the Non-Invasive Clinical Studies Ethics Committee of the Dokuz Eylül University (5891GOA 2021/12-46)

Consent to participate: The researcher obtained written consent forms from children and parents.

Consent for publication: The authors affirm that human research participants provided informed consent for publication of the data included in this publication.

Acknowledgments

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Author Disclosures

Conflicts of interest: none to report.

Demographics	VR group			Buzzy group			Control group			Test	P value
	Mean	SD	Min-Max	Mean	SD	Min-Max	Mean	SD	Min-Max		
Age (y)	6.4	1.6	4-9	6.7	1.7	4-10	6.4	1.6	4-9	0.533*	.588
Gender	n	%		n	%		n	%			
Female	24	47.1		23	46.0		24	49.0		1.134 †	.567
Male	27	52.9		27	54.0		25	51.0			

	VR group			Buzzy group			Control group			Test	P value
Demographics	Mean	SD	Min-Max	Mean	SD	Min-Max	Mean	SD	Min-Max		
DIVA score	2.0	2.3	0-7	2.1	2.0	0-7	2.3	2.4	0-7	0.250*	.779
Based on DIVA score	n	%		n	%		n	%			
Easy IV access (<4 points)	31	60.8		29	58.0		26	53.1		0.623†	.732
Difficult IV access (≥4 points)	20	39.2		21	42.0		23	46.9			
The patient's skin condition											
Normal	28	54.9		27	54.0		25	51.0		0.676†	.954
Edematous	6	11.8		4	8.0		5	10.2			
Dehydrated	17	33.3		19	38.0		19	38.8			
PIVC area											
Right	8	15.7		12	24.0		10	20.4		1.098†	.577
Left	43	84.3		38	76.0		39	79.6			
Catheter size											
26G	17	33.3		14	28.0		22	44.9		5.040†	.283
24G	28	54.9		33	66.0		22	44.9			

22G	6	11.8		3	6.0		5	10.2			
First IV insertion success											
Successful	24	47.1		25	50.0		23	46.9		0.120†	.942
Unsuccessful	27	52.9		25	50.0		26	53.1			
Number of IV attempt for successful insertion											
1	24	47.1		25	50.0		23	46.9		1.127†	.890
2	13	25.5		13	26.0		10	20.4			
≥3	14	27.5		12	24.0		16	32.7			

	VR group			Buzzy group			Control group			ANOVA Test	P value
Demographics	Mean	SD	Min-Max	Mean	SD	Min-Max	Mean	SD	Min-Max		
Before IV insertion (Time 0)											
Pulse	122.0	99.3	101-148	122.9	132.7	88-178	122.7	100.7	88-178	0.108	.898
Respiratory	27.7	2.9	20-36	28.5	2.6	24-36	28.4	2.5	24-36	1.312	.272
Blood pressure /systolic	100.5	7.3	85-111	103.2	10.7	85-131	102.3	7.9	85-121	1.210	0.301

	VR group			Buzzy group			Control group			Kruskal Wallis Test	P value
Blood pressure/diastolic	64.6	10.3	43-85	65.7	10.9	48-100	65.1	7.6	50-78	0.141	.869
During the IV insertion (Time 1)											
Pulse	135.7	132.5	117-181	136.1	135.4	115-185	137.6	129.2	110-165	0.268	.766
Respiratory	31.3	3.5	26-40	32.2	3.3	24-42	32.1	3.3	24-42	1.101	.335
Blood pressure/systolic	106.8	10.6	91-138	108.2	11.1	90-138	107.6	10.1	95-136	0.208	.812
Blood pressure/diastolic	77.3	17.0	51-120	73.0	13.2	53-102	75.0	14.1	51-110	1.066	.347
5th minute of IV insertion (Time 2)											
Pulse	154.8	18.2	120-183	128.2	11.8	110-155	130.7	11.9	110-165	0.956	.387
Respiratory	29.4	3.3	24-38	29.6	2.7	24-36	30.1	2.6	24-36	0.623	.538
Duration of IV insertion (min)	10.5	5.4	4-25	11.3	7.7	3-45	9.9	4.1	5-20	0.685	.506

	VR group			Buzzy group			Control group			Kruskal Wallis Test	P value
Demographics	Mean	SD	Min-Max	Mean		SD	Min-Max	Mean	SD	Min-Max	
Pre-procedural											

Child Emotional Appearance Scale	18.8	4.4	6-25	18.3	4.2	7-25	20.1	3.2	7-24	4.988	.083
Post-procedural										
Wong-Baker	5.6	1.9	2-10	5.9	1.6	2-8	6.2	1.0	4-9	3.158	.206
FACES (WBS) Pain Rating Scale										
Color Analog Scale	5.9	1.5	2-9	5.8	1.5	2-9	6.0	1.1	3-8	0.218	.897
Child Fear Scale (CFS)	3.0	0.7	1-4	2.9	0.5	1-4	3.2	0.5	2-4	6.824	.033
Children's Anxiety Meter (CAM-S)	5.2	1.4	2-8	5.1	1.5	2-8	5.5	1.2	3-8	2.808	.246

DETAILS

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Creating a Rapid Assessment Zone with Limited Emergency Department Capacity Decreases Patients Leaving Without Being Seen: A Quality Improvement Initiative: JEN

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ABSTRACT (ENGLISH)

Introduction

Patients leaving the emergency department before treatment (left without being seen) result in increased risks to patients and loss of revenue to the hospital system. Rapid assessment zones, where patients can be quickly evaluated and treated, have the potential to improve ED throughput and decrease the rates of patients leaving without being seen. We sought to evaluate the impact of a rapid assessment zone on the rate of patients leaving without being seen.

Methods

A pre- and post-quality improvement process was performed to examine the impact of implementing a rapid assessment zone process at an urban community hospital emergency department. Through a structured, multidisciplinary approach using the Plan, Do, Check, Act Deming Cycle of process improvement, the triage area was redesigned to include 8 rapid assessment rooms and shifted additional ED staff, including nurses and providers, into this space. Rates of patients who left without being seen, median arrival to provider times, and discharge length of stay between the pre- and postintervention periods were compared using parametric and nonparametric tests when appropriate.

Results

Implementation of the rapid assessment zone occurred February 1, 2021, with 42,115 ED visits eligible for analysis; 20,731 visits before implementation and 21,384 visits after implementation. All metrics improved from the 6 months before intervention to the 6 month after intervention: rate of patients who left without being seen (5.64% vs 2.55%; $c^2 = 258.13$; $P < .01$), median arrival to provider time in minutes (28 vs 11; $P < .01$), and median discharge length of stay in minutes (205 vs 163; $P < .01$).

Discussion

Through collaboration and an interdisciplinary team approach, leaders and staff developed and implemented a rapid assessment zone that reduced multiple throughput metrics.

FULL TEXT

Contribution to Emergency Nursing Practice

•• Rapid assessment zones, a type of vertical care model, may be helpful in expediting patient care and reduce the number of patients who leave without being seen.

•• This paper describes how one emergency department used an interdisciplinary team of emergency nurses, ED providers, and ED leaders (medical director, charge nurses, and managers) to successfully implement a rapid assessment zone to reduce the rate of patients leaving without being seen.

•• The results reported in this manuscript may be used to help other emergency departments implement similar projects to reduce their rates of patients leaving without being seen, arrival to provider time, and length of stay for both discharged and admitted ED patients.

Introduction

ED crowding and boarding, the practice of holding patients in the emergency department until an in-hospital bed is available, has been associated with increased in-hospital mortality and delays in care.[1,2] ED crowding also results in patients leaving without being seen (LWBS) by a provider, which increases the risk of adverse events in high-risk populations that need treatment and also contributes to lost revenue.[3,4] For these reasons, LWBS rates represent a key ED performance metric.

Nationally, LWBS rates vary substantially between hospitals[5]; however, one key predictor of ED LWBS rates is the time from when patients check in until they are seen by a provider, also known as "arrival to provider" time.[6,7] Efforts

to reduce "arrival to provider" time often realign ED resources, including placing a provider (physician or advanced practice provider) in triage and cohorting inpatient overflow patients ("ED boarders") in one area.[8,9] In addition, rapid assessment zones (RAZs) have been proposed as a way to shift ED providers, nurses, and technicians to the front end of the emergency department to expedite assessment and treatment.[10] Early assessment includes identification of patients who do not require physical bed space, thereby conserving ED bed space and other resources for higher-acuity patients. RAZs also can incorporate evidence-based, nurse-initiated orders and facilitate treatment and discharge of low acuity patients from the waiting room.[11] In 2019, our hospital noted increased LWBS rates. As part of a quality improvement project, we implemented a RAZ with a vertical care model and examined its impact on ED LWBS rates, arrival to provider times, and ED discharge length of stay (DLOS). Although the project focused on the implementation of ED-specific initiatives, we also examined the impact on length of stay (LOS) for admitted patients and LOS for all ED patients.

Methods Design And Setting

We performed a single-site quality improvement initiative examining the impact of a RAZ on commonly measured ED operational metrics before and after intervention. The ED Medical Director was approached by hospital leadership and asked to reduce LWBS rates, which were as high as approximately 8% in certain months of the preimplementation measurement period, compared with the hospital's internal goal of a LWBS rate of Figure 1). This work was approved by the Allegheny Health Network Institutional Review Board.

Overview of Raz

In response to ED crowding and suboptimal performance metrics (eg, LWBS of approximately 8%), we assembled a multidisciplinary throughput team composed of US Acute Care Solutions (USACS) clinical leaders from the Clinical Resource Group, ED leaders, providers, emergency nurses, and support staff to redesign front-end flow and serve as process champions. The ED providers at Mercy Health-Fairfield Hospital are employed by USACS, and the Clinical Resource Group is an internal USACS quality improvement and implementation team who provides quality and process improvement services to hospital partners at no additional cost to the organization. Our focus was to create a rapid assessment and vertical care model to best use the existing footprint of the emergency department, expedite initial provider and nurse triage assessments, determine patient placement into the appropriate care area, and expedite testing, thereby decreasing the LWBS rates and decreasing the DLOS.[12]

The RAZ was created using an existing 8-bay treatment zone in the front end of the emergency department to be used from 7 am to 10 pm daily ([Figure 1]). This 8-bay area was formerly the department's "Fast Track" area, which during the COVID-19 pandemic was largely unused space. Staff resources were shifted to the front end to operate the RAZ with triage nurse(s), an ED technician, and a phlebotomist. Before the process change, there was 1 triage nurse at all times, and as staff expanded during the day, there were 2 triage nurses from 11 am to 11 pm, 1 technician assigned to triage, and 1 phlebotomist for the department. Triage patient flow prior to process change was linear. Patients were quick registered by a member of the registration team and brought into one triage room by the triage nurse for assessment by the triage nurse who then entered preapproved protocol orders before sending patients back to the waiting room. Patients were called to a blood draw area for testing to be initiated by the triage tech or phlebotomist when they were available. Following this obtaining of specimens, patients were sent back to the waiting room, where staff from imaging would pick up and return patients if imaging studies were ordered. Implementation of the RAZ process created a front-end team composed of the triage nurse(s) and triage technician and stationed the ED phlebotomist primarily in the RAZ area where the bulk of testing occurred. From 7 am to 11 am, there was 1 triage/RAZ nurse using 4 RAZ bays. Depending on RAZ volume, 2 or 3 triage/RAZ nurses functioned in this area between 11 am to 11 pm. The triage nurse role was redefined to fit the new process, with the

RAZ nurses sharing the responsibility of performing the triage assessment and initiation of orders with the technician and phlebotomist. RAZ patient flow begins with quick registration; then, patients are called by an available RAZ team member to any of the open RAZ bays. Any available provider (physician or advanced practice provider) could see a RAZ patient, with the provider performing the RAZ assessment being the provider of record for the entire ED visit. The RAZ process includes initial nursing triage assessment, provider assessment, order entry, phlebotomy, obtaining any other ordered specimens, medication administration, treatments, and full registration. One of the RAZ bays was dedicated to performing urgent electrocardiograms.

During the initial assessment, the provider and triage nurse would collaborate on which patients were appropriate to remain in the RAZ process and which patients would be placed in a bed in the main emergency department. After RAZ tasks (eg, blood draws) were completed, the patient was moved either back to the waiting area or to a bed in the main emergency department (Figures 2 and 3). The imaging departments picked up RAZ patients for testing from the waiting area and returned patients to the same area after testing. The goal was to have patients seen with workups started within 20 minutes of arrival to the emergency department. When there was a delay of greater than 20 minutes for provider assessment, a member of the front-end team called the providers to identify a reason for the delay, and if no provider was available, one of the RAZ nurses entered protocol orders to keep RAZ flow moving. When a provider became available, the provider and the RAZ team worked to cycle patients back into the RAZ area from the waiting area for their provider assessment and enter any additional orders. In this model, critically ill walk-in or ambulance patients were directly assigned a bed in the main emergency department. Noncritical walk-in or ambulance patients were registered and proceeded through the RAZ process.

Before implementation of the RAZ process, the throughput team developed provider and emergency nursing staff education that included team role responsibilities, appropriate patient types for vertical care, vertical care orders, emphasis on concurrent provider and nurse assessment and decision making, and focus on a short RAZ LOS. In addition, staff training included elements of patient and family education, with scripting of key words to explain the new process (Figure 3). It was essential that staff be able to articulate the benefits of the process changes to patients and their loved ones, promoting a positive patient experience. Education was conducted at staff meetings, shift huddles, and in real time on shift using the RAZ flow diagrams and scripting samples (Figure 4; Supplementary Appendix 1). A timeline of the implementation can be seen in Figure 5. During initial implementation, a member from the USACS Clinical Resource Group, a group of clinicians with over 10 years of experience in improving ED operations, was on site to support ED leadership and staff. This team member was available alongside ED leaders to help answer questions in real time and observe challenges and successes while ensuring consistency.

Methods of Measurement

We used data from the 6 months before and 6 months after RAZ implementation. Visit characteristics, including LWBS, arrival to provider time, and DLOS were abstracted by trained billing specialists. Briefly, the emergency department is staffed by a national group that is responsible for its own billing and coding. ED records are reviewed by billing and coding specialists who extract data from the health records including visit characteristics (eg, disposition). All specialists undergo ongoing training, auditing, and external evaluation to ensure consistency. In addition, they are required to have or acquire relevant billing and coding certification(s). In addition to being used for billing and coding, the abstracted data are saved to a database, allowing for additional analyses that have been successfully used previously.[13]

Outcomes

Our primary outcome was percentage of patient visits with LWBS dispositions, defined as patients who presented to the emergency department and were registered for treatment but subsequently left before being evaluated by an ED

provider.

Our secondary outcomes included arrival to provider time, defined as the length of time (in minutes) from patient arrival to initial provider evaluation; DLOS, defined as the length of time (in minutes) from patient arrival to the time the patient leaves the department upon discharge; and LOS for all ED patients and LOS for admitted ED patients (in minutes), defined as the time from ED arrival until admission.

Analysis

All ED visits during the measurement period were considered for analysis. Visits where the disposition was not recorded were excluded. Time intervals less than 0 minutes or greater than the 99% percentile of times were considered spurious and interpreted as missing.[14] We summarized characteristics of ED visits using descriptive statistics. Pre- and post-RAZ implementation metrics were compared using parametric or nonparametric methods when appropriate. Normality of the data was determined by using the Shapiro-Wilk test. All analyses were completed with Stata (v. 12, College Station, TX).

Results

There were 42,390 initial ED visits during the examined time period. After removing 276 ED visits where no disposition was recorded, there were 42,115 ED visits available for analysis; 20,731 visits before implementation and 21,384 after RAZ implementation ([Table 1]). The majority of patients in each group were triaged as an Emergency Severity Index 3 and were discharged. All evaluated outcome metrics improved from the 6-month preintervention period to the 6-month postintervention period: LWBS (5.64% vs 2.55%; c^2 = 258.13; P P P Table 2). These results were immediate and sustained during the studied time interval ([Figures 6-8]). LOS for all patients and LOS for admitted patients also decreased ([Table 2], [Supplementary Appendix 2]).

During initial implementation, there was a higher volume of mid- to lower-acuity patients than anticipated. These mid- to lower-acuity conditions allowed these patients to remain "vertical" instead of requiring a physical bed ("horizontal") for their care. Vertical care means evaluating and treating patients without the use of a physical emergency department room when one is not necessary and assigning patients to virtual beds in the electronic health record instead of actual treatment rooms.[8] Vertical patients are stable and can sit in a chair to receive treatments and therapies and wait for discharge. This required another emergency nurse to move from the main emergency department to the RAZ beginning at 11 am and closing a section in the main emergency department for a total of 3 RAZ nurses. This section closure was possible, because the RAZ process successfully identified vertical appropriate patients who formerly were bedded in the main emergency department, thereby conserving the main ED rooms for higher-acuity patients, reducing back-end volume, allowing an emergency nurse to shift to the RAZ where the patient volume exists. This reallocation of nursing resources did not affect the ratios in the main emergency department and did not change the care provided to higher-acuity patients who required critical care, admission, or transfer. This was achieved without hiring additional staff or increasing provider hours.

Discussion

ED crowding and throughput are critical issues, as prolonged wait times can jeopardize quality of care and patient safety.[15] In our single-site emergency department, the implementation of a RAZ was associated with improvement in a number of ED metrics including LWBS rates, arrival to provider times, and DLOS. Creating a RAZ and vertical care process for appropriate patients helped to conserve monitored beds in the main emergency department for higher-acuity patients, which was necessary because of ED crowding. This was accomplished without the addition of staff or provider hours. Current staffing resources were used, and daily assignments were changed to redefine staff roles and shift staff to the front end, creating a RAZ and vertical care team. The RAZ model of care has been sustained through daily review of performance metrics, weekly debriefing discussions at the ED throughput team

meetings, and ownership of the new process by the local ED team. ED leaders and throughput team members initially served as process champions and coaches on shift to help answer questions and address issues in real time. The team met daily during the first 2 weeks and then moved to weekly debrief discussions to discuss successes, challenges, and metrics and to make systematic alterations to the process when necessary. Consistent communication was sent to the provider and nursing teams weekly to provide status and process updates. As the RAZ process became more hardwired, debrief meetings happened every 2 weeks ([Figure 3]).

ED capacity and crowding contribute significantly to LWBS, and it is important to incorporate methods to keep patients moving through the department and optimize existing space to help expedite safe patient care.[16] Having a provider assessment with orders initiated early in the visit is a key determining factor to reducing LWBS.[17] Patients experience an overall shorter LOS when cared for in a vertical model.[18] From a patient experience perspective, using key words to inform patients of the process steps, letting them know that they are moving forward in the process, and keeping them routinely informed on their plan of care also influence LWBS.[19]

Our results are consistent with those of other studies looking at the impact of RAZ on ED metrics. Anderson et al examined the impact of a RAZ in a high-volume, academic, urban emergency department and found similar results.[10] Without increasing staffing, they were able to decrease arrival to provider times, DLOS times, and LWBS rates. In addition, studies have shown that bringing additional resources to the triage area and, in appropriate patients, keeping patients "vertical" can help to decrease time in the emergency department.[7,8] ED leaders may consider a combination of these options when looking to decrease LWBS rates and improve ED throughput.

Although our results are encouraging, they should be considered in context. Improving throughput times in the emergency department requires a team approach. The RAZ and vertical care process is not a simple Provider in Triage model aimed solely at decreasing arrival to provider times but is a throughput model intended to appropriately align ED staff and resources and separate out lower-acuity vertical care patients, which has proven to be effective in decreasing arrival to provider times, DLOS, and LWBS rates.[20]

Hospital leadership should be involved in discovering the root cause of ED crowding and LWBS as optimization of the emergency department involves addressing both front-end and back-end issues (ie, boarding).[7] Multiple studies have examined other aspects associated with ED crowding and specifically focus on boarding as a key contributor.[3] Our findings should be incorporated in the context of other hospital-wide solutions to continually improve ED throughput and maximize the quality and efficiency of care delivered in the emergency department.

Limitations

Our work has several limitations. It was performed at a single community emergency department. How these results translate to other emergency departments (eg, academic facilities, larger annual volumes) is unknown. Individual efficiency variances exist between individual emergency nurses and provider clinicians. Although it was not formally measured in regard to this initiative, we anecdotally noted frequent ED boarding during the project. How RAZ implementation would affect emergency departments without boarding is unknown. We did not adjust for potential underlying differences in patient characteristics. Overall, there were improvements in our studied outcomes; however, it is unclear whether specific populations are affected differently by the RAZ. We also did not specifically account for seasonal volume and acuity variations. Data were reviewed over a 12-month timeframe, 6 months before and 6 months after the intervention. We did not look at data over several years, and we acknowledge that there could be seasonal differences in patient populations.

Implications for Emergency Nurses

The key to our success was using an interdisciplinary team approach to process design and implementation during all phases of this process improvement initiative. A team approach has been shown to increase team ownership and

sustainability of new processes. Leaders can engage staff in the Plan, Do, Check, Act Deming Cycle method of process improvement to improve team engagement during process improvement.[21] Team collaboration on process change and creation of the RAZ resulted in fewer patients LWBS, improved patient throughput, and improved ED performance metrics. Emergency nurses were key participants on the process change design team, providing valuable insights on the details of how to structure RAZ patient flow, organization of the workspace, and staff workflow. During the first 4 weeks of implementation, emergency nurses kept a daily logbook of issues that occurred, which were acted upon each day by ED leadership. Emergency nurses also participated in weekly debrief sessions outlining the challenges and successes of the week and helped to troubleshoot the identified challenges. Leveraging the expertise of emergency nurses in the process design promoted early adoption and staff ownership of the RAZ process. Creation of a vertical care model helped conserve main ED beds for higher-acuity patients, ensuring that there was increased bed availability for critical patients. Implementing a process that dedicates space and staff resources to rapid assessment and initiation of care has changed the culture of this emergency department, creating a sense of urgency to quickly care for all patients, no matter what their acuity level. Assessing patients and initiating diagnostic testing quickly has proven effective in reducing LWBS rates, arrival to provider times, and LOS.

Conclusions

The implementation of a RAZ resulted in immediate and sustained reductions in LWBS. Involving an interdisciplinary team in systematic process design and implementation was crucial to eliciting staff feedback and gaining staff buy-in for these operational changes. Team engagement is key when creating culture change and sustaining long-term process change. This approach may be used by other emergency departments to accelerate patient care and improve ED throughput.

Acknowledgments

Author Disclosures

Supplementary Data

Online Supplement 1Online Supplement 2

Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2022.10.002.

Supplementary Appendix 1

Rapid Assessment Scripting examples that were shared during staff education

Abbreviations: RAZ – Rapid Assessment Zone; ER – Emergency Room; ED – Emergency Department; RN – Registered Nurse; WR – Waiting Room

Supplementary Appendix 2

Changes in key metrics during the project time period. Implementation occurred on February 1, 2021, these results show 6 months prior to implementation (August 2020-January 2021) and 6 months post-implementation (February

2021-July 2021). (A) Median length of stay (in minutes) for all ED patients during the time period. (B) Median length of stay (in minutes) for admitted patients during the time period.

Characteristics	Preintervention	Postintervention	c^2 value	P value
Visits	20,731	21,384		
ESI level	n (%)	n (%)		
1	233 (1.15)	159 (0.75)	530.26	<.01
2	5090 (25.13)	3444 (16.33)		
3	10,310 (50.91)	11,814 (56.02)		
4	4431 (21.88)	5491 (26.04)		
5	187 (0.92)	181 (0.86)		
Disposition	n (%)	n (%)		
AMA	208 (1)	211 (0.99)	292.44	<.01
Admitted	5473 (26.4)	5374 (25.13)		
Discharged	13,365 (64.47)	14,767 (69.06)		
LWBS	1170 (5.64)	545 (2.55)		
Other (eg, died in ED or transferred)	515 (2.48)	486 (2.27)		

Outcomes	Preintervention	Postintervention	c^2 or Kruskal-Wallis value	P value

Point estimate or median	95% CI or IQR	Point estimate or median	95% CI or IQR			LWBS % (95% CI)
5.64	5.33-5.97	2.55	2.34-2.77	258.13	<.01	Median arrival to provider (IQR)
28	8-83	11	4-27	3278.66	<.01	Median LOS for discharged patients (IQR)
205	133-304	163	102-243	990.51	<.01	Median LOS for admitted patients (IQR)

DETAILS

Document 11 of 49

Implementing a Resilience Bundle for Emergency Nurses: An Evidence-Based Practice Project: JEN

ABSTRACT (ENGLISH)

Introduction

Resilience bundles are designed to work within and enhance existing routines. In the wake of COVID-19, nurses are reporting high levels of burnout and are leaving the field at an alarming rate. Hospital system leaders across the country are working to develop wellness programs to improve nurse morale, decrease burnout, and enhance resilience. Resilience can help mitigate nurse burnout, and using a bundle of tools to help nurses develop resilience is more effective than a single strategy.

Methods

Using the Connor-Davidson Resilience Scale-10 and the Perceived Stress Scale 4, emergency nurses were surveyed to measure resilience and stress before and after implementation of a 3-strategy resilience bundle. We surveyed at baseline, phase 1 (6 weeks after implementation), and phase 2 (15 weeks after implementation).

Results

A statistically significant increase in the Connor-Davidson Resilience Scale-10 scores was identified between the baseline and phase 1 surveys. A measurable decrease in the Perceived Stress Scale 4 was found between the baseline survey and the phase 1 and phase 2 postintervention surveys.

Discussion

Although evidence suggests a multifocal approach to improving resilience, use of resilience bundles is new. To enhance nurse resilience and mitigate burnout, nurse leaders may consider resilience bundles to prioritize the mental health and wellness of their staff.

FULL TEXT

Contribution to Emergency Nursing Practice

••What is already known about this topic? Although a bundle strategy for enhancing resilience is a relatively new concept, several recent studies show promising results.

••What does this paper add to the currently published literature? Implementation of Resilience bundles can function within existing workflows, can be low cost, and can be specially designed for each unique nursing environment.

••What is the most important implication for clinical practice? Implementation of resilience bundles has been shown to be effective in enhancing resilience.

Introduction

Emergency nurses experience considerable stress and numerous emotionally exhausting events in their role.[1] Emergency departments are frequently challenged with high levels of nurse turnover due to burnout and compassion fatigue, leading to a vicious cycle of highly stressed and emotionally exhausted nurses working in understaffed environments.[2-4] Interventions that focus on building resilience can mitigate nurse burnout, which can help to reduce compassion fatigue and nurse turnover.[5-7]

Burnout affects nurses around the world and is described as mental and physical fatigue[8] associated with decreased job satisfaction, depression, anxiety,[9] poor job performance, and nursing turnover.[10] Emergency nurses are particularly prone to burnout because of the nature of emergency clinical care. Emergency nurses experience highly

emotional situations frequently during their shifts, such as caring for trauma patients and observing fatalities.[2] Nurse burnout and stress negatively impact clinical outcomes, nurse turnover, and patient experience.[11] The International Council of Nurses[12] reported that 80% of nursing organization leaders are concerned about the burnout and exhaustion experienced by the nursing workforce. In addition, the Joint Commission[13] reported that emergency nurses are at higher risk of burnout than nurses in many other fields. Nurses who experience burnout are at risk of developing psychological and physical problems including depression, impaired memory, musculoskeletal pain, and compassion fatigue.[13,14] In nurses, increased burnout also is associated with higher levels of absenteeism and turnover, substance abuse disorders, and even suicide.[13,14]

Before the COVID-19 pandemic, about 40% of United States nurses reported experiencing burnout at some point in their career.[6,15] The COVID-19 pandemic brought new challenges, fears, and stressors to the nursing profession. Inadequate personal protective equipment, increased patient-to-nurse ratios, and higher acuity patients are examples of the added stressors that undoubtedly increased nurse burnout.[16] Foli et al[16] study of nurses' experiences during the COVID-19 pandemic revealed alarming numbers of nurses reporting anxiety, depression, and increased substance use.

In addition to burnout, emergency nurses are experiencing compassion fatigue, vicarious or secondary trauma, and second-victim trauma.[16] Compassion fatigue is (a) a loss of the ability to nurture and/or (b) apathy that results from repeated exposure to tragedy and absorbing the suffering of others.[17] Repeated exposure to high stress and emotional exhaustion leads to compassion fatigue and burnout in emergency nurses.[2] Emergency nurses frequently care for patients in acute distress who are suffering traumatic injuries, all while coping with overcrowded, fast-paced environments. Repeated exposure to this environment may lead to compassion fatigue.[18] Vicarious or secondary trauma is defined as the accumulation of acute and chronic trauma experienced through witnessing others trauma.[16] This trauma effects how nurses make decisions both at work and in their personal lives. Second-victim trauma is the trauma that may be experienced after an adverse event, poor outcome, or medical error.[13,16]

Resilience

Resilience is the ability to adjust to adversity, retain a sense of control, and maintain positivity.[6,7] Resilience is a learned trait that can be fostered and enhanced.[6,7,13,19-21] Increasing resilience in nurses decreases nurse burnout and compassion fatigue[3] and improves nurse-sensitive indicators for quality patient care.[5,10]

In their position statement on emergency nurse duty hours and patient safety, the Emergency Nurses Association[22] recommend that nurses and leaders implement strategies to increase nurse resilience. Enhancing the resilience of emergency nurses increases their joy in the workplace,[23] the Institute for Healthcare Improvement's fourth aim in the Quintuple Aim.[24] Furthermore, improving joy in the workplace decreases turnover rates and improves patient safety and quality.[23] Increasing resilience is one way to improve joy in the workplace.[23]

Resilience Bundle

Although a bundle strategy for enhancing resilience is a relatively new concept, several recent studies show promising results.[15,25-28] The evidence supports the use of multimodal approaches for increasing nurse resilience.[13,25,29,30] A single approach rarely benefits all nurses equally[31]; therefore, implementing a bundle of evidence-based interventions is considered most effective.[32] The elements for the bundle were selected after evaluation of available knowledge and consideration of sustainability and ability to implement at the project site. Creating a serenity room,[2] using structured debriefing,[3] and implementing a program of relaxation and mindfulness[33] have each been shown to promote resilience in nurses.

Serenity Room

The allocation of a small space (serenity room) for relaxation and restoration during work allows staff to relax and

refresh. The serenity room provides a quiet space for taking breaks at work, which is advantageous because work breaks promote self-care and replenishment and reduce fatigue.[13,34] An employer's commitment to creation of this space also sends a positive message to staff that their well-being is important and valued by the organization.[2,13]

Debriefing

The Emergency Nurses Association[22] position statement on healthy work environments cites debriefing as an integral component of a healthy work environment. Debriefing is the facilitated reflective process of the interprofessional team involved in a critical event.[35] Debriefing builds resilience through helping nurses to better understand their own emotions and experiences through social connectedness and group bonding.[3]

Mindfulness

Mindfulness is defined as being present in the current moment[36] in mind and body to reduce stress and anxiety, improve focus, and decrease burnout.[37] Promoting positivity through mindfulness moments increases resilience.[33] Mindfulness activities may include a few minutes of quiet deep breathing, coloring, or journaling. Learning to practice mindfulness while at work can help nurses to focus their attention on the work at hand. Moreover, learning this skill also can benefit nurses by teaching them how to focus attention and be engaged with family.[34]

Problem

The project site is a level I trauma center with 66 ED beds with approximately 77,000 ED visits per year. The emergency department employs approximately 120 registered nurses, ranging from graduate nurses to nurses with more than 20 years of experience. The emergency department's turnover rate for nursing staff was 16.7% in 2019, 17.4% in 2020, and 33% in 2021. The unit is understaffed about 10% of the time, increasing workplace stress. Although resilience has been shown to reduce burnout, compassion fatigue, and nurse turnover,[5-7] This emergency department had no strategies in place to improve resilience in nurses who work in the department. At the time of this project, the hospital had recently begun efforts to enhance clinician resilience through the addition of a serenity room at the center of the hospital, approximately a 7-minute walk from the emergency department. The objective of this evidence-based practice implementation was to increase resilience levels of emergency nurses. Permission was obtained by hospital administration to implement the project. The Texas Tech University Health Sciences Center Quality Improvement Review Board determined that this project was categorized as evidence-based implementation and evaluation and did not meet the definition of human subjects research or quality review; thus, this project was exempt from further institutional review.

Methods

This was an evidence-based practice project. Interventions were selected after review of available literature and discussion with ED administration. The 3 elements of the resilience bundle implemented for this project were (a) mindfulness and relaxation techniques added to daily shift huddles; (b) structured debriefing led by charge nurses after a death on the unit, a highly stressful or emotional event, or at the charge nurse's discretion; and (c) a serenity room, designed and developed for the use of all ED employees.

Education for the charge nurse team about the project was provided at the monthly charge nurse meetings in August 2021 and September 2021. The charge nurse team, consisting of 13 nurses at the time of project implementation, was taught by the lead author to lead mindfulness activities and reflective debriefing. The charge nurse team received a copy of Practicing Mindfulness by Matthew Sockolov,[38] as well as the Mindfulness Game by Innericons,[39] to use as prompts for mindfulness-based activities during shift huddles. These items were selected by the primary author after review of available materials. Posters teaching and encouraging mindfulness were hung throughout the unit. We used Walker et al[40] STOP 5 (Summarize, Things that went well, Opportunities for improvement, Points for action) debrief method and provided copies for the charge nurse to use for debriefing sessions (see [Figure]). ED

administrative staff designated and transformed an unused room in the emergency department to a serenity room. The project site Foundation donated the funds for a massage chair for the emergency department. The remaining items for the serenity room were donated by the first author. A list of items and cost may be viewed in [Table 1].

Before implementation of the resilience bundle, a link to a Qualtrics (Provo, UT) survey was emailed to all emergency nurses at the project site, including bedside staff nurses, the charge nurse team, and emergency nurse administration through their employee email accounts. When fully staffed, the emergency department employs approximately 120 full-time equivalents of nurses. The survey consisted of 5 demographics questions (see [Table 2]), the Connor-Davidson Resilience Scale 10 (CD-RISC-10), and the Perceived Stress Scale 4 (PSS4). Permission was obtained to use the CD-RISC-10 survey, and permission was not required for use of the PSS4.

The CD-RISC-10 is a valid and reliable tool (α = 0.93)[41,42] with 10 self-assessment statements and scoring that ranks each item from not at all true (0) to true nearly all the time (4). CD-RISC 10 scores range from 0 to 40: the higher the score, the higher the resilience. The PSS4 is a valid and reliable self-assessment (α = 0.81) used to measure perceived stress.[43] This 4-question survey scores statements on a Likert-type scale ranging from Never (0) to Very Often (4). The total score range is 0 to 16, with higher scores on the PSS4 indicating higher levels of stress.

Phase 1 data were collected via Qualtrics survey 6 weeks after implementation of all elements of the resilience bundle (insert dates). Phase 2 data were collected via Qualtrics survey 15 weeks after implementation. In addition to the questions in the baseline survey, phase 1 and phase 2 surveys also contained qualitative questions about the use of each of the elements of the bundle and an open-ended question for additional feedback. Qualitative questions asked whether the participant used each element of the bundle and whether they found it useful. IBM SPSS Statistics 25 was used to analyze data.[32] Demographic data were analyzed using descriptive statistics. The Kruskal-Wallis test (KW) and the Mann-Whitney U test were used to test for differences among baseline, phase 1, and phase 2 survey data. The project team elected not to use paired samples owing to high nurse turnover rate. For each survey phase, the survey link was available for 2 weeks.

Results

Demographic characteristics of emergency nurses are displayed in [Table 2]. Response rates were calculated using filled full-time equivalents at the close of each survey time frame. The baseline survey had a 51% response rate, the phase 1 survey had a 30% response rate, and the phase 2 survey had a 29% response rate. Normality and uniformity (Poisson) of the summative score continuous variables were tested with the Kolmogorov-Smirnov test. None of the summative scores tested were normally or uniformly distributed. The Mann-Whitney U test was used to compare mean ranks of 2 groups, and KW test was used to compare 3 groups of non-normally distributed summative score data. The threshold of probabilistic significance for differences in comparisons was set at the level of 0.05. Incomplete surveys were excluded from analysis.

Because the data were not normally distributed, we used the KW test and found no statistically significant differences in CD-RISC-10 scores across the 3 groups (N = 96, KW = 3.78, df = 2, P = .08). CD-RISC-10 scores increased from baseline (n = 47, median [Md] = 29, interquartile range [IQR] = 27-34) to phase 1 (n = 26, Md = 32.5, IQR = 28.75-38) and from baseline (n = 47, Md = 29, IQR = 27-34) to phase 2 (n = 23, Md = 30, IQR = 25-35). After further investigation, we found that the mean rank of the CD-RISC-10 score was significantly higher (n = 26, mean rank [MR] = 43.44, SD = 6.16) in phase 1 than at baseline (n = 47, MR = 33.44, SD = 4.96) in a 1-sided Mann-Whitney U test (n = 73, U = 778.500, P = .03). See [Table 3] for results.

A total of 5 open-ended comments (56%) were favorable, and 44 open-ended comments (44%) were unfavorable (see [Table 4]). An example of a favorable comment was, "It was awesome." An example of an unfavorable comment was, "Serenity rooms are useless if there's no time to utilize them." The mean rank of the perceived stress score

was measurably lower in the combined postintervention group (phase 1+2, n = 49, MR = 46.27, SD = 2.34) than in the pre-intervention group (n = 47, MR = 50.83, SD = 2.8) but was not significantly different in a Mann-Whitney U test (N = 96, U = 1,042.000, P = .42, z = −0.425).

Discussion

Implementation of a resilience-building bundle produced a statistically significant increase in resilience among emergency nurses from baseline (n = 47, MR = 33.44, SD = 4.96) to phase 1 (n = 28, MR = 43.44, SD = 6.16) after intervention (n= 73, U = 778.500, P = .03). These results are similar to results found by others who implemented toolkits or bundles aimed at reduction of stress and enhancement of resilience.[25-27] The mean CD-RISC-10 score increased from baseline (M = 29.96, SD = 4.96) to phase 1 (M = 32.31, SD = 6.2). Although there was a decrease of the mean score of the CD-RISC-10 from phase 1 (M = 32.31, SD = 6.2) to phase 2 (M = 30.17, SD = 5.65), the mean for phase 2 was still higher than the baseline mean. These results suggest that the implementation of a resilience bundle may have been effective in enhancing the resilience of emergency nurses.

Davis and Batcheller[25] implementation of a resilience bundle in a pediatric intensive care unit also showed enhanced resilience over 6 months. Mintz-Binder et al[27] found that implementation of resilience-building methods, which the authors called a toolkit, improved nurse resilience over a period of 6 weeks. In their study, nurses' resilience was measured using the CD-RISC-10 scale at baseline and after implementation of stress-reduction techniques.[27] Andersen et al[26] replicated this toolkit in an inpatient hospital setting and also found a significant increase in nurse resilience over their 3-month study period. The resilience bundle in the present study was inspired by Mintz-Binder et al[27] and Andersen et al[26] studies; however, this bundle was implemented in an emergency department and focused specifically on resilience of emergency nurses.

Although the majority (56%, n = 5) of nurses who provided comments to the open-ended question were favorable (eg, "Love the room! I am finally able to sit and have lunch now" and "Please keep the tranquility room!! It is such a nice little break from the hustle and bustle!"), some nurses' comments were not favorable. One comment was particularly concerning:The mindfulness exercises seem tone deaf in the face of such overwhelming adversity, rather like telling someone to smile while they're drowning. The debriefing forms are somewhat better, but there is very little time or chance to complete them. The serenity room is very beautiful, from the glimpses of it I've caught running from one end of the ER to the other. Perhaps someday I'll have time to use it.

This statement illustrates a call to action for ED leaders. A resilience bundle cannot function as a Band-Aid and cannot replace adequate staffing and emotional support from leadership. It is vital that organizations and health care leaders prioritize the mental health and well-being of their staff.[13] In order to retain nurses and improve staffing conditions, hospital leaders must provide safe working conditions, support nurses' health and well-being, and develop and sustain a culture of safety.[13,44,45]

Project Barriers and Limitations

Baseline surveys were distributed during a small COVID-19 surge at the project site, which may have reduced response rates. Phase 1 and 2 surveys were distributed during a large COVID-19 surge at the project site, when patients diagnosed with COVID-19 were occupying >30% of hospital beds at the facility. In addition, large numbers (almost 26%) of emergency nursing staff were out sick with COVID-19 themselves. Staffing challenges led to administrative nurses providing care at the bedside and increased nurse-to-patient ratios from 1:3 to 1:4. Second, the nurse turnover rate for the project site exceeded 30% during the project, reducing the number of nurses available to complete surveys. Finally, charge nurse turnover during project implementation was >46%. Charge nurse turnover created a challenge in providing new charge nurses with information about the resilience bundle, including the use of debriefing and mindfulness activities during shift huddles.

The project included a relatively small sample size of emergency nurses. Larger projects across multiple facilities or multiple departments over a longer period of time would enhance understanding of the effects of resilience bundles. Moreover, the inability to measure scores for the same individuals across the multiple surveys limited the ability to determine each individual's response to interventions. It is possible that the choice of mindfulness-based activities may have influenced adoption. Finally, the short time frame of the project did not allow for study of potential effects of seasonal variation.

Implications for Emergency Nurses

Since the COVID-19 pandemic, nurse burnout has increased, and some scholars have reported that 30% to 40% of nurses intend to leave the nursing profession.[46,47] Furthermore, emergency departments across the country have experienced a large influx of critically ill patients, ED crowding, and boarding of patients for extended periods of time as a result of COVID-19.[48] Although a resilience bundle is not a substitute for adequate staffing and emotional support for emergency nurses, it can improve the psychological well-being of nurses and help mitigate nurse turnover.[49] Resilience can help build a bridge from burnout to wellness. With positive resilience interventions, burnout may be decreased, and wellness may be enhanced.[28] Nurse leaders should focus efforts to support both individual and organizational resilience, stress reduction, and wellness strategies to enhance nurse well-being as well as retention. Health care leaders also may consider appointing a Chief Wellness Officer, a dedicated person responsible for organizing and overseeing the culture of wellness within an organization.[13]

Conclusion

The implementation of this resilience bundle provided emergency nurses at the project site with new tools to foster and enhance resilience. Results of this project have been shared with leadership hospital-wide. Working to improve nurse resilience is an ongoing effort, and the bundled approach provides a variety of approaches to target resilience for different team members' unique preferences. Future projects would benefit from larger sample sizes from multiple centers, conducted over a longer time frame to increase generalizability of findings.

Acknowledgments

Author Disclosures

Conflicts of interest: none to report.

Resource	Quantity required	Cost per each ($)	Total cost ($)
Massage chair	1	0 (donated by Foundation)	0
Aromatherapy diffuser	1	15	15
Sound machine	1	20	20

LED candles	1 pack of 9 candles	20	20
Vacant or occupied sign	1	10	10
Fluorescent light cover	2	35	70
Tranquil tapestry or wall art	1	30	30
Total cost			~165

Characteristic	n (%)
Age group (y)	
18-20	2 (2.1)
21-30	45 (46.9)
31-40	35 (36.5)
41-50	12 (12.5)
51-60	2 (2.1)
Gender	
Male	6 (6.3)
Female	86 (89.6)
Prefer not to respond	4 (4.2)
How many y have you been a nurse?	
<1 y	9 (9.4)
1-3 y	21 (21.9)
4-9 y	36 (37.5)
10-15 y	18 (18.8)

16-20 y	9 (9.4)
>20 y	3 (3.1)
How many y have you been an emergency nurse?	
<1 y	17 (17.7)
1-3 y	24 (25)
4-9 y	32 (33.3)
10-15 y	20 (20.8)
>20 y	3 (3.1)
What is your education level?	
Diploma nurse	2 (2.1)
Associate degree	14 (14.6)
Bachelor's degree	41 (42.7)
Master's degree	17 (17.1)
Doctoral degree	15 (15.6)
Prefer not to respond	7 (7.3)

Variables	CD-RISC-10			PSS4			
Baseline	Phase 1	Phase 2	Baseline	Phase 1	Phase 2	Survey dates

September 9, 2021-October 11, 2021	November 22, 2021-December 5, 2021	January 1, 2022-January 20, 2022	September 27, 2021-October 11, 2021	November 22, 2021-December 5, 2021	January 1, 2022-January 20, 2022	N
47	26	23	47	26	23	Mean
29.96	32.31	30.17	8.91	8.92	8.78	SD
4.96	6.16	5.65	1.53	1.79	1.70	Median
29	32.5	30	9	9	9	Range

Responses
Please Keep the Tranquility Room!! It's such a nice break from the hustle and bustle!
I appreciate Whitney focusing efforts on a staff who has been stretched too thin for too long.
Serenity rooms are useless if there's no time to utilize them.
Love the room! I'm finally able to sit and have lunch now instead of standing in a corner shoveling food in as quick as I can!
I think it's a great idea if you have time to take to stop, but there's such a rushing culture here that it's not really encouraged to stop and take time for yourself while at work.
Did not have time post shift to utilize the serenity room. Certainly did not have time during shift.
The mindfulness exercises seem tone deaf in the face of such overwhelming adversity, rather like telling someone to smile while they're drowning. The debriefing forms are somewhat better, but there is very little time or chance to complete them. The serenity room is very beautiful, from the glimpses of it I've caught running from one end of the ER [emergency room] to the other. Perhaps someday I'll have time to use it.
I would like to have more time in the serenity room.
It was awesome.

DETAILS

Subject:	Emergency medical care; Anxiety; Health promotion; Intervention; Burnout; Mindfulness; Morale; Nurses; Emergency services; Evidence-based practice; Stress; Resilience; COVID-19; Fatigue; Patient safety; Trauma; Pandemics; Implementation; Evidence-based nursing; Polls &surveys; Coronaviruses; Mental health
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Document 13 of 49

Ovarian Hyperstimulation Syndrome: A Case Report: JEN

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ABSTRACT (ENGLISH)

Background

Ovarian hyperstimulation syndrome is a rare, life-threatening obstetric emergency. Early recognition and prompt treatment of ovarian hyperstimulation syndrome are essential owing to the risk of long-term complications associated with this condition.

Case Presentation

A 30-year-old female presented to the emergency department with a chief complaint of abdominal pain. After assessment and diagnostic testing, she was diagnosed as having ovarian hyperstimulation syndrome. The patient was admitted for 24-hour observation. The patient was discharged home with instructions to follow up with an outpatient reproductive medicine clinic. One month after her visit to the emergency department, the patient has not had any complications related to the diagnosis.

Conclusion

This manuscript outlines the case of a patient presenting to the emergency department with ovarian hyperstimulation syndrome that was promptly recognized and treated. It is important for emergency nurses to quickly identify the risk factors and clinical presentation of ovarian hyperstimulation syndrome to decrease the risk of long-term complications.

FULL TEXT

DETAILS

Subject:	Laboratories; Emergency medical care; Tomography; Life threatening; Risk factors; Medical diagnosis; In vitro fertilization; Cysts; Vital signs; Nurses; Emergency services; Anticoagulants; Infertility; Abdomen; Complications; Urinalysis; Vomiting; Patients; Hemoglobin; Nausea; Blood tests; Ascites; Diarrhea; Oliguria; Liver; Permeability; Thromboembolism; Pain; Abdominal pain; Fertility; Patient admissions; Anuria; Creatinine; Case reports; Diagnostic tests
Identifier / keyword:	Case report; Ovarian hyperstimulation syndrome; Emergency nursing; Fertility treatment
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A Pilgrimage Under the Midnight Sun for a Cause: JEN

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ABSTRACT (ENGLISH)

In subsequent years, I became part of the International Advisory Council, and though heavily marked by the pandemic, it became a family for me. By donating through the ENA Foundation, there is a possibility to gift nurses access to important and lifesaving educational materials that could turn them into the nursing leaders within their own communities. Helping them become the leaders in their own lands is not only ideal but may be the necessary step to change the dire and present status of health care where they live and work. Many more interesting encounters dotted my trip that then inspired days dedicated to several groups of people: international emergency nurses and nurses providing acute care with extremely limited resources, nurses who are hurting in the different dimensions of life, nurses who have left emergency departments or the nursing profession itself, those who have gone before us, and those who provide amazing support systems that take care of us.

FULL TEXT

June 24 at 3 am, 5 kms (3 miles) from Rödön Church, Sweden. Something is outside the tent. Loud trampling woke me. It is already light outside. Tentatively, I look through from under the tent. A large bull moose is outside. Oh…he just turned his head toward me. I keep lying down, not moving a muscle. I see his silhouette shadowing on the fabric, I estimate his distance to be just a meter away. I keep silent, holding my breath. I keep questioning why I am doing this…

June 25 at 6 pm, just under 1 km to Ristafallet, Sweden. I am amazed. My heart is full watching these majestic waterfalls (see [Figure 1]). A show of the power of nature! It had been an impossible day, walking hours under the sun with temperatures around 31 °C (87.8 °F). I felt all the fatigue of the day being washed away. This has been an important reward and reminder to keep on going.

June 28 at 4 am, the Swedish-Norwegian border. There is snow on the ground, and finally, wind has blessed me with its presence after 8 days of heat. I smell rain on the horizon, and for some reason, my feet feel light. I seem to walk with such ease, and although it seems as if I am running through the stages of the pilgrimage route like an ultramarathoner, it is more the energy of the path and a stubborn dedication to the campaign that move me. Just over 169 kms (105 miles) to go and just completed walking through Sweden. The end goal seems so near.

July 2 at 8 pm, Trondheim, Norway. I have arrived. It was a hard stage, walking through mountainous wetlands and hours of rain on open lands. It was a long day. And seeing the Nidaros cathedral on the horizon, a bittersweet feeling filled my very being. I was able to cover over 600 kms (373 miles) in 15 days. I was accompanied by amazing environs and moods the entire way. Completely focused on the here and now and at the same time experiencing worlds of divine nature that tugged at the heartstrings. The physical part of the campaign has been achieved, and one can honestly say it was a wonderful journey.

My name is Walter Sergio Lugari, and I am an emergency nurse from Germany (see [Figure 2]). I walked 600 kms of the

St. Olavsleden (the northernmost pilgrimage trail that celebrates St. Olaf, the King of Norway from 1015 to 1028) from Sundsvall in Sweden to Trondheim in Norway to raise funds for the Emergency Nurses Association (ENA) Foundation. These funds would enable international emergency nurses without the means to afford access to important emergency nursing educational materials and programs to become nursing leaders in their own communities. Hence, under the "Where is Walter Campaign," I had the privilege to give back to ENA.

In 2019, I was a recipient of the International Scholarship to attend the Emergency Nursing conference in Austin, Texas. I still remember the moment that I opened that email. I was still relatively new in the emergency department and felt somehow behind schedule when it came to being adequately trained. It was a night shift, long and completely full of patients. It took a second to understand what I just read. The first words woke a sense of excitement and, of course, trepidation. I was to embark on a journey that would potentially change my life.

Then the day came. The early morning walk to the conference center filled my head with many thoughts; "What should I expect?" "What will I witness?" "Will I fit in here?" and, "Is this worth the financial and physical investment I've put in?" My first encounter witnessing the General Assembly as an observer was awe-inspiring. The machinations, the deliberate motions, and the elegance behind the structure of the different statements, all of which would make the organization stand for the interests of emergency nurses and, ultimately, all of our patients. Then came the advance practice sessions that inspired me to take the path I am currently engaged in. Seeing the mass of emergency nurses registering and taking part in the multitude of sessions and their engagement roused a sense of wonder and, guiltily, jealousy. This is a world that seemed so open, so engaged in providing the best possible experiences for its members. A world that drew me in to better myself, to engage and even give back.

One can set any expectation one wishes before coming to the conference. Nothing compared to this event, and all anticipations were broken and amplified. The richness of these experiences was without comparison. I never felt alone but rather part of an amazing family filled with incredible characters. And to answer that last question I asked of myself, yes, it was more than worth it. I came home laden with new knowledge and skills that catapulted not only my standing but also a passion for emergency nursing that I had never possessed before.

The international scholarship for the conference has been a powerful democratizer, allowing international emergency nurses to witness, experience, and engage in such an important if not life-changing event. It changed my view on emergency nursing and initiated a change in me to want to advocate for our profession and become a better emergency nurse. ENA, in itself, has made me desire to better myself.

In subsequent years, I became part of the International Advisory Council, and though heavily marked by the pandemic, it became a family for me. This year was also the year I took the reins of chairmanship. I have always been a believer in being grateful and giving back. Based on stories from other emergency nurses and my international experience as a nurse, I wanted to focus on international emergency nurses who do not and may never have the opportunity or means to be part of ENA, let alone take part in something as important as the Emergency Nursing conference. Consequently, the "Where is Walter Campaign" was born.

By donating through the ENA Foundation, there is a possibility to gift nurses access to important and lifesaving educational materials that could turn them into the nursing leaders within their own communities. Helping them become the leaders in their own lands is not only ideal but may be the necessary step to change the dire and present status of health care where they live and work. I hold this cause dearly. Through this special pilgrimage, I was able to raise $1226 for the Foundation.

The idea behind the campaign came to me as I was completing a different pilgrimage. Pilgrimages have been a physical rehabilitation and mental haven that have saved me. Walking and hiking hundreds of kilometers to a destination is something little more than being in a Zen mode. One confronts their own fears; the fear of failure, the fear of breaking down, the fear of being alone. One also faces physical and mental limitations. Dealing with having surgery on my knee that was not properly rehabilitated coupled with workplace psychological trauma, these pilgrimages or treks were my lifelines. At the same time, it served as a perfect setting to weave stories through metaphors of experience that surround us as emergency nurses (see [Figure 3]).

The day came, and I arrived at Sundsvall on the Baltic coast. It would have been a perfect start…then I realized that

I had made an error with booking my accommodations--wrong month! Yet, a perfect stranger heard of my trip and offered me a couch to sleep on. Many more interesting encounters dotted my trip that then inspired days dedicated to several groups of people: international emergency nurses and nurses providing acute care with extremely limited resources, nurses who are hurting in the different dimensions of life, nurses who have left emergency departments or the nursing profession itself, those who have gone before us, and those who provide amazing support systems that take care of us.

I was so inspired by what I was living: the paths, the scenery, and just the energy that completely engulfed me with a persistent rhythm. It filled my soul and reminded me to keep my feet on the ground and to keep practicing gratefulness. It felt natural, remembering those that brought me forward. I carried a pair of hiking poles gifted before my first pilgrimage by a mentor who is facing perhaps a very important personal battle. In return, I carried an extra pilgrim's passport and collected stamps in her honor. Practicing gratefulness came easy.

After this entire adventure, I realized several things: one needs to put the words one believes in into action, gratefulness begets a full heart, and never forget to pay it forward (See [Figure 4]). With these last teachings, I welcome all to apply for these scholarships, especially our international members, to embrace these lessons I have learned and contribute to making ENA the amazing organization that it is.

Author Disclosures

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A Single-Center Prospective Study of the Effects of Different Methods of Phlebotomy in the Emergency Department on Blood Sample Hemolysis Rates: JEN

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ABSTRACT (ENGLISH)

Introduction

Hemolysis is more commonly seen in the emergency department and causes delays in diagnosis, hospitalization, discharge, and treatment of patients. The aim of this study was to determine the most appropriate phlebotomy method and device to reduce blood sample hemolysis in the emergency department.

Methods

This prospective, comparative descriptive study involved patients who presented to the emergency department with any medical condition and required blood sampling. Patients were divided into 6 groups according to the method of phlebotomy and the device used for phlebotomy. Data were analyzed with logistic regression.

Results

A total of 715 patients participated in the study. The blood sample hemolysis rate in the emergency department was

25.7%. When the hemolysis rates were compared with a steel straight needle or intravenous catheter, it was found that the use of steel straight needle significantly reduced hemolysis. Blood drawing through a 20 G intravenous catheter with Luer-Lock access device reduces the risk of hemolysis. Male sex and difficult blood collection also have been shown to increase the risk of hemolysis.

Discussion

Blood should be drawn with a steel straight needle instead of an intravenous catheter. However, when that is not possible, we recommend the use of a 20 G intravenous catheter with Luer-Lock access device if a blood sample is to be drawn from intravenous line.

FULL TEXT

Contribution to Emergency Nursing Practice

••Blood sample hemolysis causes re-collection of blood samples and prolongs the length of stay of patients in the emergency department.

••The use of 20 gauge intravenous catheter and Luer-Lock access device is effective in reducing blood sample hemolysis when blood is drawn from the intravenous catheter.

••Using a steel straight needle is best practice to reduce blood sample hemolysis, but if not possible, use of Luer-Lock access device and a larger bore intravenous catheter is better than a smaller one. This should lead to fewer delays in treatment and discharge.

Introduction

Most factors that cause erroneous laboratory test results occur in the preanalytical phase.[1] Hemolysis is the major cause of preanalytical errors.[2] Hemolysis is more commonly observed in emergency department specimens than in other hospital departments, and 10% to 30% of emergency department specimens are affected by hemolysis.[3] While blood sample hemolysis affects test results by causing a false decrease in albumin, alkaline phosphatase, and sodium, it also falsely increases alanine aminotransferase, aspartate aminotransferase, lactate dehydrogenase, creatine kinase, and, especially, potassium levels.[2,4] In addition, blood sample hemolysis causes positive interference in troponin I tests but false negative results for troponin T.[2] Therefore, many laboratories reject the hemolyzed blood sample and require repeat samples for the affected test. This situation prolongs the results of laboratory tests, causing delays in diagnosis, hospitalization, discharge, and treatment of patients and increasing the length of their stay in the emergency department.[5] In addition, blood sample hemolysis may lead to patient and nurse dissatisfaction.[6,7]

The high rates of blood sample hemolysis in the emergency department have been attributed to the frequent use of intravenous (IV) catheters.[8] However, in order to save time and provide comfort to the patient (by avoiding a second vascular access), in ED practice in our country, when both an IV infusion is to be placed and a blood sample is to be drawn, the blood samples are usually drawn with a syringe from the IV catheter after the vascular access has been placed. This poses risks such as needlestick injuries and blood contamination and increased hemolysis during the transfer of blood from the syringe to the blood tubes.[9] In recent years, blood drawing devices such as S-Monovette tubing (Sarstedt, Nümbrecht, Germany) and Luer-Lock access device (Becton Dickinson, NJ) ([Figure]) have been used to reduce blood sample hemolysis during phlebotomy from IV catheters.[9,10]

The aim of this study is to determine the rates of hemolysis in phlebotomy methods used in the emergency department and to determine the most appropriate phlebotomy method and device to reduce hemolysis of blood samples in the emergency department.

Methods

This study is a prospective, comparative descriptive study conducted in the Emergency Medicine Clinic of Kırşehir Training and Research Hospital between April 1, 2021, and May 31, 2021. The research involving human subjects was conducted in accordance with all relevant national regulations and institutional policies and was consistent with the principles of Declaration of Helsinki. It was approved by the Ethics Committee of the Faculty of Medicine of Ahi Evran University under number 2021-06/60. Patients were informed verbally about the study, and verbal informed consent was obtained.

Setting and Sample

Our hospital is the only hospital in the city center and serves as a tertiary emergency service. The emergency department is visited by an average of 360,000 patients per year, and we have 36 nurses and 30 physicians working in our department. Regardless of their demographic characteristics and comorbidities, patients who presented to the emergency department with any complaint and required blood sampling for testing (biochemistry test) were included in the study. Patients younger than 18 years and patients who had an IV catheter placed by emergency medical services before admission to emergency department were excluded.

GPower 3.1.9.7 (Heinrich-Heine-Universität, Düsseldorf, Germany) program was used to calculate the sample size of the study. The Cohen's effect size (d = 0.17) was calculated using data from a similar study in the literature, and the total study group was calculated as a minimum of 573 with a margin of error of 5% and power of 95%.[11]

Procedure

In the study, blood samples were collected from the vein with a steel straight needle or via an IV catheter. Syringes and blood transfer devices (Vacutainer and Luer-Lock access device) were used as phlebotomy devices. The syringe was used for phlebotomy with a steel straight needle as well as for blood drawing from the IV catheter hub. The Vacutainer (Becton Dickinson, NJ) was used for steel straight needle phlebotomy, and the Luer-Lock access device was used for blood drawing from the IV catheter hub. IV catheters with 2 different gauges, 22 G (blue) and 20 G (pink), were used for vascular access. The steel straight needle of syringe and the Vacutainer were 21 G. Accordingly, the patients who participated in the study were divided into 6 groups.

Group 1

Patients whose blood was drawn via steel straight needle using a syringe without establishing vascular access.

Group 2

Patients whose blood was drawn via steel straight needle using a Vacutainer (Holder) without establishing vascular access.

Group 3

Patients whose vascular access was established with a 22 G IV catheter and whose blood was drawn with a syringe.

Group 4

Patients whose vascular access was established with a 22 G IV catheter and whose blood was drawn with the Luer-Lock access device.

Group 5

Patients whose vascular access was established with a 20 G IV catheter and whose blood was drawn with a syringe.

Group 6

Patients whose vascular access was established with a 20 G IV catheter and whose blood was drawn with the Luer-Lock access device.

The study groups were studied sequentially. When one group was completed, the next group took its turn. Patients

without exclusion criteria were assigned to the study group of the day by the nurse. Venous blood was collected from all patients who participated in the study. Blood was collected from the antecubital region by 6 nurses with at least 2 years of experience in emergency services. The nurses collecting the blood were previously trained about the study. Data were entered into the study form by the nurses who drew the blood. The study form included information on age, sex, whether vascular access was established, phlebotomy device used, IV gauge, and difficulty level of phlebotomy (easy, medium, difficult). Blood was collected in 5 mL gel serum tubes (BD Vacutainer SST II tube, Becton Dickinson, NJ), which had to be filled completely. Blood collected with the syringe was transferred to the tube by opening the cap. The tubes were sent to the biochemistry laboratory of the hospital by pneumatic system without waiting. The blood, which was allowed to clot in the laboratory for 30 minutes, was centrifuged at 2000 g for 10 minutes, and the serum was separated. The presence of hemolysis in the serum was detected using an autoanalyzer (AU 680; Beckman Coulter Inc, Brea, CA). Laboratory personnel were blinded to the study.

Statistical Analysis

Normality of the data was determined using the Kolmogorov-Smirnov test. Because age, which is a continuous parameter, was not normally distributed, the Kruskal-Wallis test was performed to compare the groups. Then, Dunn's nonparametric comparison was used for post hoc analysis. Chi-square test was used to compare categorical data. Significance was adjusted according to the post hoc Bonferroni method (adjust). Independent predictors of hemolysis were determined using logistic regression analysis. Hosmer-Lemeshow goodness-of-fit statistics were used to assess model fit. Statistical analyses were performed with SPSS for Windows version 21.0 software package (IBM Corp, Armonk, NY). *P* values of **Results**

A total of 715 patients participated in the study. The blood sample hemolysis rate of all samples sent to the laboratory from the emergency department was 25.7%. The median, minimum, and maximum ages of the participants were 49, 18, and 94 years, respectively. The number of male participants in the study was 298 (41.7%). Demographic characteristics and hemolysis rates of blood samples from the groups are summarized in [Table 1].

Blood sample hemolysis was more frequent in men than in women (33.6% and 20.1%, respectively, *P* Table 1). The lowest blood sample hemolysis rate was found in group 2 and the highest in group 3 (11.2% and 41.8%, respectively) ([Table 1]). Although hemolysis rates increased with increasing phlebotomy difficulty, there was no statistically significant difference (24.1%, 29.3%, and 36%, respectively).

The hemolysis rate in patients whose blood was drawn with the IV catheter (groups 3, 4, 5, and 6) was statistically significantly higher than in patients whose blood was drawn with a steel straight needle (groups 1 and 2) (32.1% and 17.4%, respectively).

There was no statistically significant difference in the hemolysis rates of patients (between groups 1 and 2) whose blood was drawn with a syringe and a Vacutainer without IV access (23.4% and 11.2%, respectively) ([Table 1]).

There was no statistically significant difference between the rate of blood sample hemolysis in patients whose blood was drawn through a 22 G catheter with a syringe and with a Luer-Lock access device (41.8% and 32.2%, respectively). The rate of blood sample hemolysis in patients whose blood was drawn through a 20 G catheter with a Luer-Lock access device was statistically significantly lower than in patients whose blood was drawn with a syringe (15.7% and 39.3%, respectively) ([Table 1]).

The logistic regression analysis performed to determine the risk factors affecting blood sample hemolysis rates is summarized in [Table 2]. The result of the logistic regression analysis was that phlebotomy with Vacutainer without vascular access reduces the risk of hemolysis by approximately half compared with syringe (odds ratio [OR] = 0.47, *P* = .02). Phlebotomy through a 22 G catheter with a syringe statistically significantly increased the risk of hemolysis (OR = 2.64). Although phlebotomy with a Luer-Lock access device increased the risk of hemolysis (OR = 1.72), it

was not statistically significant. Although phlebotomy via a 20 G catheter with Luer-Lock access decreased the risk of hemolysis, it was not statistically significant. Phlebotomy with a syringe statistically significantly increased the risk of hemolysis (OR = 2.20). According to logistic regression analysis, male sex statistically significantly increased the risk of hemolysis (OR = 1.92). According to the difficulty level of phlebotomy, difficult phlebotomy statistically significantly increases the risk of hemolysis (OR = 2.53).

Discussion

The literature reports a particularly high incidence of hemolysis (6%-30%) in ED blood samples.[8,12,13] In our study, the rate of hemolysis in ED blood samples was 25.7%, which is consistent with the literature. In our study, male sex and difficult phlebotomy were found to significantly increase the risk of blood sample hemolysis. Nevertheless, there is a contradiction in the literature between studies investigating the association between age, phlebotomy difficulty, and hemolysis.[8,14-16]

Similar to previous research studies, we found that blood sample hemolysis rates were significantly higher in blood samples collected with an IV catheter than with a steel straight needle.[8,17,18] Some studies have found that the use of evacuated tube systems compared with a syringe is associated with higher blood sample hemolysis rates when blood is drawn with a straight needle as the method of phlebotomy.[16,19] However, in another study, it was found that the use of a syringe was found to cause a higher rate of blood sample hemolysis compared with evacuated tube systems.[20] In our study, we found that phlebotomy with the Vacutainer without IV access reduced the risk of hemolysis by about half compared with the syringe.

Researchers found that phlebotomy with the vacuum system, especially from IV catheters, increases hemolysis compared with manual aspiration.[9,13,21] It was found that blood sample hemolysis rates were higher when blood was collected from the IV catheter in the emergency department using the Luer-Lock access device compared with aspiration using the S-Monovette tube but lower than routine (aspiration using the syringe).[10] In addition to studies reporting that a decrease in catheter diameter results in a significant increase in hemolysis rates in blood samples, there are also studies reporting that there is no significant relationship between catheter diameter and blood sample hemolysis.[4,11,19,22] In our study, phlebotomy with a syringe was found to increase the risk of hemolysis in both 20 G and 22 G IV catheters. Phlebotomy via a 22 G IV catheter with Luer-Lock access device increased the risk of hemolysis, whereas phlebotomy via a 20 G IV catheter decreased the risk of hemolysis.

Limitations

The main limitation of our study is that it is a single-center study. The other limitation is the use of only 22 G and 20 G IV catheters in patients with IV access. In addition, the different age and sex distribution between the study groups could be considered a limitation of the study. Further studies are needed to investigate the effects of different catheter diameters on blood sample hemolysis outcomes.

Implications for Emergency Nurses

Blood sample hemolysis is a prevalent condition in emergency departments. Hemolysis leads to false results, repetitive blood draws, delays in diagnosis, and patients' prolonged stay in the emergency department, and this extra time causes patient and nurse dissatisfaction. Drawing blood through intravenous catheters in the emergency department increases the rate of hemolysis. In this large-sample study, the effects of different blood drawing methods and devices on blood sample hemolysis were compared. Blood drawing through a steel straight needle is the best method to reduce blood sample hemolysis. In cases in which drawing blood through the intravenous catheter is required, the utilization of a 20 G catheter and a Luer-Lock access device together reduces the rates of hemolysis and thus prevents its undesirable consequences.

Conclusion

According to the results of our study, phlebotomy with steel straight needles (especially the use of a holder) reduces blood sample hemolysis in the emergency department. Therefore, it is recommended that nurses consider obtaining blood samples with steel straight needles separately from the placement of the IV catheter. However, when that is not possible, we recommend phlebotomy from a 20 G IV catheter with a Luer-Lock access device in cases where phlebotomy via vascular access is required in the emergency department. We think that the result of this study may be important in terms of suggesting an alternative technique to reduce the hemolysis that occurs when blood is drawn from the IV catheter, which is an important problem in emergency services. In this regard, there is a need for studies with different catheter diameters and phlebotomy devices.

Data, Code, and Research Materials Availability

Author Disclosures

Variable	Group 1 (n = 158) (straight needle-syringe)	Group 2 (n = 152) (straight needle-Vacutainer)	Group 3 (n = 98) (22 G IV catheter with syringe)	Group 4 (n = 87) (22 G IV catheter with Luer-Lock)	Group 5 (n = 112) (20 G IV catheter with syringe)	Group 6 (n = 108) (20 G IV catheter with Luer-Lock)	P value
Male, n (%)	75 (47.5)*	39 (25.7)*	36 (36.7)*	40 (46)*	60 (53.6)*	48 (44.4)*	< .001
Age, y	42 (31-57)	43 (29-59)	53 (30-71)	50 (33-62)	53 (39-70)	57 (41-71)	< .001
Hemolysis, n (%)	37 (23.4)*	17 (11.2)*	41 (41.8)*	28 (32.2)*	44 (39.3)*	17 (15.7)*	< .001

Risk factor	OR (95% CI)	P value
Syringe		< .001
Vacutainer (holder)	0.47 (0.25-0.88)	.02
Syringe with 22 G catheter	2.64 (1.50-4.63)	.01
Luer-Lock with 22 G catheter	1.72 (0.94-3.12)	.08
Syringe with 20 G catheter	2.20 (1.28-3.80)	.01
Luer-Lock with 20 G catheter	0.68 (0.35-1.31)	.25
Age	1.00 (0.99-1.01)	.93
Sex (male)	1.92 (1.34-2.76)	< .001
Degree of difficulty (easy)		.06
Degree of difficulty (medium)	1.39 (0.91-2.12)	.12
Degree of difficulty (difficult)	2.53 (1.02-6.26)	.05

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New Life and Tragic Loss: A Story of Resilience: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

New life, tragic loss, faith, family, and resilience are key themes that abound in emergency nursing. Providing emotional support to new graduate nurses is important and has been shown to increase assurance and a sense of relaxation and safety.2 New nurses emulate the behaviors they observe modeled in front of them. Using the Married

State Preceptor Model, my preceptee was able to work side by side with me during the code, which has been shown to reduce new graduate anxiety about independent practice.3 The "Married State" refers to the concept that 2 individuals work together as a single unit to achieve a common goal. Spiritual care has been shown to improve quality of care and benefit patients/families as well as provide spiritual wholeness and growth in nurses' personal and professional lives.5 Faith and spirituality offer a sense of hope amid situations that seem hopeless.

FULL TEXT

New life, tragic loss, faith, family, and resilience are key themes that abound in emergency nursing. In this story, readers also may discover examples of leadership development, clinical advancement, collaboration, and a culture of caring.

Preface

This story starts in 1985 in Orange County, CA, when a woman went into preterm labor at 32 weeks. The woman and her obstetrician did not know that she had an undiagnosed placenta previa. A baby girl was born after the placenta, with a nuchal cord, and she was in respiratory arrest. The baby was resuscitated and taken to the Neonatal Intensive Care Unit (NICU), where she remained for the next few weeks. The physician told the mother that her baby only survived because of the actions of the nurses involved in the delivery and resuscitation. That baby was me!

The primary NICU registered nurse (RN), Mary, had only been working in the NICU for a year. A young eager nurse at the beginning of her career, she had a passion for caring for the hospital's smallest and arguably the most vulnerable population. It wasn't until years later that she learned how this chance encounter at my birth would impact my life in the future.

An Emergency Nurse's Greatest Fear

Fast forward to years later in the emergency department. I was helping another relief charge nurse plan for our day and volunteered to work with a preceptee. No sooner did my preceptee arrive, the tones went off, "Code White ED… Code White ED… Code White ED."—this signified a neonatal emergency. My heart momentarily stopped, and the panic many RNs feel when we hear those words enveloped the team. One of my first thoughts was, "How am I supposed to focus and teach at the same time?" I quickly gathered myself and prepared for the patient's arrival. Limited pre-arrival information was available as the paramedics "scooped and ran" from a local urgent care. There was something about an infant possibly in cardiac arrest. I quickly laid the Broselow tape (Armstrong Medical Industries, Inc, Lincolnshire, IL) on the bed and showed my preceptee how we measure approximate weights in this situation. The Broselow tape has been shown to accurately estimate weight in pediatric patients weighing 18 kg or less.[1] We pulled out intravenous equipment as well as the intraosseous drill, because we were not sure of the infant's condition and what we would need to grab first.

The infant arrived in cardiac arrest. Cardiopulmonary resuscitation was in progress. I immediately snapped into the zone and began to work. The neonatologist secured the airway and requested assistance from an NICU nurse. That NICU nurse was "my" RN at the time of my birth. I suddenly felt more at ease when I saw Mary walk in. We had been in infant resuscitations together before, and I knew that she was the support I needed.

I accompanied the ED physician as we went to speak with the parents, and my preceptee followed. This is one of the most difficult conversations that ED staff can have. I gently put my hand on the shoulder of my preceptee and whispered to her, "You are okay, just breathe." In that moment, she needed to know that I was there to support her and that she could trust and lean on me. Cardiac arrests can be very overwhelming and traumatic for the new graduate nurse, especially when an infant is involved. Providing emotional support to new graduate nurses is important and has been shown to increase assurance and a sense of relaxation and safety.[2] New nurses emulate the behaviors they observe modeled in front of them. Remaining calm and focused provided reassurance to the new nurse I was working with and showed her that it is possible to do so and remain emotionally in control during these types of situations.

We quickly returned to the resuscitation efforts, and return of spontaneous circulation was eventually obtained. After

the infant was stabilized and the team left, I went to debrief with my preceptee and our clinical educator. We talked about emotions, the grief process, and the importance of processing. We also talked about how calm the resuscitation was. I was taken aback when my preceptee said that she was only able to be calm because of the calm demeanor I was projecting. While I may not have realized it, I was teaching by example during this resuscitation. The education in a critical, high-stress situation was not only attainable, but it may have left a lasting impression on our new nurse. Using the Married State Preceptor Model, my preceptee was able to work side by side with me during the code, which has been shown to reduce new graduate anxiety about independent practice.[3] The "Married State" refers to the concept that 2 individuals work together as a single unit to achieve a common goal. The expression "joined at the hip" is often used to describe this state. The learner progresses from working "side by side" with the preceptor, to "shadowing," and ultimately, to providing "frontline" care.

I went to clean up the room and found Mary gathering her equipment to take back to the NICU. Every time Mary and I work together, we reminisce about her working in the NICU during the month I was admitted there after my birth. Mary praised my poise and my skills during the code. That was very meaningful coming from an NICU nurse and especially one I look up to. I told Mary that having her there with me allowed me to stay focused and trust in myself. Unfortunately, I've also experienced infants who passed away after emergency encounters, leaving me numb during the shift and days following. These feelings were expected after such a tragic loss, and, while I knew what to expect, I may not have been prepared for those emotions. After the numbness came irritability and anger. I was easily bothered by the littlest things at work and at home. By the next week, my mood returned to normal, but I knew I would never forget that case. Understanding the phases of grief is an important part of emotional wellness: denial, anger, bargaining, depression, and acceptance. Having people to confide in and talk to as well as maintaining physical health helps to promote emotional well-being and to prevent abnormal signs of grieving that may lead to posttraumatic stress disorder.[4] Self-care that week was exceptionally important for me and included getting enough sleep, eating healthy, and exercising. Not doing so could have led down a dark path of isolation, binge eating, and withdrawing from emotional connections.

Double Dose

Weeks later, while I was healing, I thought to myself, "If I didn't have another Code White case for a while, that would be great." I was in charge this time when I heard those tones again. This time, the code was in the NICU. As a member of the code team, I responded to the NICU. Collaboratively, we attempted to revive the neonate. I could see the emotion on the distraught faces of the NICU nurses. I too struggled to keep my emotions in check as I tried to stay focused; meanwhile, my heart was racing. The baby did not survive.

I introduced myself to the family and offered to pray with them. Praying publicly was not something I was comfortable with, but I knew I had to. Spiritual care has been shown to improve quality of care and benefit patients/families as well as provide spiritual wholeness and growth in nurses' personal and professional lives.[5] Faith and spirituality offer a sense of hope amid situations that seem hopeless. Spirituality is also a key component in holistic care and caring for the "whole" person. Being able to openly share my faith in these situations fills my heart and make me feel complete.

Later that day, I was called to another area of the emergency department to find a patient who had delivered an under-20-week fetus. How could this be happening right now? I thought to myself. We got a neonatal blanket from the NICU and wrapped the baby presentably, so that the baby could be held and grieved. I again offered to pray for this baby with the parents. The fetus was then placed in a bucket and sent to pathology. I struggled with this action and my desire to respect the life of the fetus, as they felt incongruent. The somberness I was feeling could be seen expressed on the faces of all my colleagues.

After this event, I reached out to my brother, an ED physician's assistant. I told him about praying for the babies and how scary it was. He responded, "You don't have to be a preacher to teach people about God." I immediately started to cry. Crying is often hard for emergency nurses after cases like these. Our subconsciousness tries to protect us, often dumping emotions, before we can even acknowledge them. I was grateful to my brother that night.

The next week, I received a text from a friend who works in our hospital's Clinical Excellence department, which is

responsible to review cases such as resuscitations. She and I started as new graduate nurses together in 2009, and she had seen my name involved in both cases and reached out to make sure I was okay. I was comforted by this action. It was nice knowing that someone was concerned about my well-being when as nurses we spend so much time focused on the needs of others.

Recognizing the Signs of Depression and Seeking Help

All nurses, both new and experienced, are at risk for moral injury after facing traumatic events. Managing ongoing stressors, recognizing signs of depression, and knowing how to seek help are invaluable. When working with new nurses after a traumatic event, I usually recommend that they take a few minutes after to reflect and explore their feelings related to the experience or on their way home. I also ask them to compare how they expected to feel during and after the event and the actual feelings they experienced. Self-care can take on many different forms. I have colleagues who enjoy the quiet solitude of a hot bubble bath, gardening on their days off, or spending time with their grandkids. Personally, I prefer a long run that allows me to expel energy and process my thoughts.

However, self-care is not always enough, and depression may develop. Recognition of signs of depression in either ourselves or our colleagues is an important component of promoting resiliency. Loss of interest in spending time with family or friends, calling in sick to work, self-medicating with alcohol, difficulty concentrating, responding slowly in a crisis, decreased productivity, and outburst toward patients and colleagues may be recognizable signs of depression in a nurse. Nurses often are uncomfortable admitting that they are struggling and may resist asking for help because of the stigma associated with mental health. Seeking professional medical care from a therapist can significantly improve one's mental health and promote resiliency.[6] The stress of the pandemic these past 2 years has led me personally to seek out a trauma therapist. Some of my colleagues have done the same. I try to speak openly with my colleagues about seeking care in hopes of further erasing the stigma.

Finally, one can speak to their nurse leaders about organizational resources such as an employee assistance program (EAP). EAPs are offered at no cost with the primary goal of assisting employees with emotional, marital, substance abuse, and other work-related issues. Programs commonly include opendoor policies, support groups, and counseling. Evidence shows that employees who participate in an EAP often report lower levels of anxiety, depression, and work-related stress. Employees also tend to experience increased life satisfaction and higher work engagement.[7]

Conclusion

I believe that the culture of my organization is somewhat unique from many other organizations because of the culture of family. To me, every person who works here is invested in the wellness and success of each other. These lasting relationships that we build allow us to get up each day and face the next unknown tragedy. It allowed me to be able to give my best self on these families' worst days. Emotional wellness and trauma were not talked about much in the past. Thankfully, in recent years, there has been a shift in focus to recognize the emotional toll that nurses face and healthy coping mechanisms to improve mental health and increase resilience.

Author Disclosures

Conflicts of interest: none to report.

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Emergency Medicine Images: Headache After a Lumbar Puncture: JEN

🔗 ProQuest document link

FULL TEXT

Patient Presentation

A 34-year-old man presented to the emergency department for a persistent, positional headache 3 weeks after a routine lumbar puncture (LP) for the workup of multiple sclerosis. The headache started gradually approximately 1 week after the uneventful LP and consistently improved with lying flat and worsened when upright. At a previous ED visit for this headache, an epidural blood patch was considered for postdural puncture headache (PDPH); however, the anesthesia service did not think a blood patch would be better than conservative treatment, given the usual benign course and the expectation for near-term resolution of symptoms with PDPH. With the patient experiencing persistent symptoms affecting his daily activities despite home analgesics, the ED clinician ordered a noncontrast head computed tomography scan (CT) ([Figures 1] and [2]).

Diagnosis Bilateral subdural hematomas

Symptomatic subdural hematoma is a rare but potentially life-threatening complication of LP and neuraxial anesthesia described primarily in case reports.[1-3] The proposed mechanism of subdural hematoma after LP is via cerebrospinal fluid (CSF) leak resulting in decreased CSF pressure. This leads to sagging of the brain in the cranial vault, causing tearing or shearing of the bridging veins in the subdural space.[4-7]

PDPH is a common clinical diagnosis (does not typically warrant imaging) occurring in up to 11% of cases after LP ([Table 1])[12]; however, clinicians must consider the differential diagnosis for PDPH to avoid missing potential dangerous conditions ([Table 2]). Further evaluation is warranted in patients with a prolonged headache (> 5-10 days) after LP, an intractable headache, a headache that persists or worsens after epidural blood patch, a new neurological deficit, or if the headache becomes nonpositional.[1,15,16]

The neurosurgical service offered the patient a bilateral decompressive craniotomy for symptomatic relief, but he elected for nonsurgical management. An epidural blood patch is contraindicated in patients with a CSF leak in the presence of intracranial hemorrhage, as this may increase intracranial pressure.[1] The patient was discharged from the emergency department with a treatment plan for bedrest, an oral steroid taper, and 1 week follow-up with the neurosurgery clinic for re-evaluation and a repeat computed tomography scan. The patient fully recovered without surgical intervention.

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Conflicts of interest: None to report.

The views expressed in this article are those of the authors and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the United States Government.

Common features and associated symptoms
•Headache onset within 5 days of lumbar puncture or within 2 days of unintentional dural puncture during epidural anesthesia•Headache spontaneously improves within 2 weeks without treatment•Positional headache (worse upright, improved supine)•Nausea•Neck stiffness•Dizziness (including vertigo)•Vision changes (blurred, diplopia, photophobia)•Auditory disturbances (tinnitus, hearing loss)

Differential diagnoses

•Primary headache (ie, migraine, tension, etc.)•Exacerbation of pre-existing chronic headache disorder•Preeclampsia/eclampsia (in pregnancy and postpartum)•Spontaneous intracranial hypotension•Idiopathic intracranial hypertension•Central nervous system infection•Reversible cerebral vasoconstriction syndrome•Posterior reversible encephalopathy syndrome•Subdural hematoma•Cerebral venous thrombosis

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Erratum to The Effects of Motivational Messages Sent to Emergency Nurses During the COVID-19 Pandemic on Job Satisfaction, Compassion Fatigue, and Communication Skills: A Randomized Controlled Trial [Journal of Emergency Nursing , Volume 48, Issue 5, September 2022, Pages 547-558]Sonay Goktas, PhD, RN, Elif Gezginci, PhD, RN, and Hilal Kartal, RN, Istanbul, Turkey: JEN

🔗 ProQuest document link

FULL TEXT

We regret that the first author's name was written incorrectly as Sonya Goktas, and instead should have been written as Sonay Goktas.
We apologize for any inconvenience caused.

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The Effect of the Flipped Classroom Model on Teaching Clinical Practice Skills: JEN

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ABSTRACT (ENGLISH)

Introduction
No evidence was found in the literature for the use of the flipped classroom model in teaching clinical practice skills in paramedics. The study aimed to determine the effect of the flipped classroom model in teaching clinical practice skills to paramedic program students.

Methods
The study was a single-center, randomized controlled, single-blind parallel-group study. The research was carried out with a university's first-year paramedic program students in the 2021 to 2022 academic year. The students were

divided into groups by stratified sampling (intervention group = 21, control group = 21). Five clinical skills practices at various times were explained to the intervention group with the flipped classroom model and to the control group with the traditional lecture method. The research data were collected with the Introductory Characteristics Information Form, Checklists, Time Tracking Form, and Students' Questionnaire for Evaluating the flipped classroom model.

Results

Although the students in the intervention group received a higher total score from all 5 clinical practice skills than the students in the control group, this difference was not statistically significant ($P > .05$). However, although the time allocated for applications in the intervention group was 40 to 75 minutes longer than in the control group, most students stated that this model successfully taught skills and theory, increased their motivation during the application, and reduced application and exam anxiety.

Discussion

The flipped classroom model can be used as an alternative method to the traditional system in teaching clinical practice skills. This innovative educational approach can be recommended as a student-centered method in clinical skills teaching.

FULL TEXT

Contribution to Emergency Nursing Practice

••Medical errors experienced during the delivery of health care negatively affect both health workers and patients. Medical errors can occur, because of many reasons such as inadequate education.

••With this study, for the first time in the literature, the flipped classroom model was used on 5 different applications and was done with paramedic program students.

••The flipped classroom model can be used as an alternative method to the traditional system in teaching clinical practice skills.

Introduction

Teaching clinical practice skills has a key place in the education of health professionals. These skills contribute to shaping the professional identities of the students who are the professional health workers of the future.[1] Clinical skill is a complex action that requires a critical attitude by adapting theoretical knowledge to each patient and situation based on scientific evidence.[2,3] This situation requires health professionals to be constantly aware of developments in this field. Students should be given the opportunity to develop their knowledge and competence performance in skills education by using innovative education methods.[4]

Innovative teaching methods emphasize problem-solving, reasoning, putting theory into practice, and student-centered learning, especially for students in hands-on education such as health programs. Strategies for student-centered learning have shown themselves intensely in teamwork and case-based learning models. In conjunction with these models, the flipped classroom model (FCM) has been found to be an opportunity for students to take an active role both inside and outside the classroom, take responsibility for learning, and use information and communication technologies. The FCM has been a preferred learning method in various programs recently, and its use is increasing.[5-7]

In the FCM, students are given access to the lesson content before the classroom environment through written, audio, and video materials. At this stage, called prestudy, students are given a primary education with material depending on their learning speed. Afterward, students participate in interactive activities such as small group discussions and case scenarios to apply what they have learned.[6,8] In addition, it has been reported that FCM can improve individual inquiry, collaborative effort, social interaction, and independent learning skills.[9,10]

Before technological innovations, traditional presentation methods such as textbook reading and slide shows were used widely.[11-13] However, it has been reported that this approach causes attention deficit in students and is insufficient in developing students' clinical practice skills.[13,14] In line with these results, it is seen that the traditional education approach cannot meet the needs of students in transferring and acquiring knowledge. Depending on the use of the conventional education approach in health programs, theoretical knowledge is transferred to students in the classroom environment, and limited time is left for laboratory studies that improve their learning skills. Various activities are given to students as homework, and students are left alone with the responsibility of absorbing and consolidating knowledge. In the FCM, activities inside and outside the classroom change places.[13] In the traditional education approach, although the time spent by the teacher with the students in a classroom after the subject is taught is approximately 20 to 35 minutes, this time is 75 minutes on average in the classrooms where FCM is used.[10]

In curricula where clinical practice skills are intense, such as health programs, FCM allows students to practice more in the classroom environment. However, in a systematic review, it is recommended that more experimental studies be conducted to prove the effectiveness of FCM.[15] Considering the studies in the field of health in the literature, there is evidence for the use of FCM in medicine and nursing education. However, in these studies, the effect of this training method used on only 1 clinical practice skill (respiratory system, urinary system) was evaluated.[16,17] However, there is no evidence of its use in the paramedic program, which is one of the departments where the health personnel who make the first intervention to the patient are trained and which takes the most practice. This study aimed to determine the effect of the FCM in skills performance with paramedic students.

Methods Trial Design

Consolidated Standards of Reporting Trials, 2010, were followed to report the research. This research is a single-center, randomized controlled, single-blind, parallel-group study conducted in Turkey. The clinical trial registration number is NCT05402215.

Ethical

Before collecting the research data, permission was obtained from the local ethics committee (04.10.2021-61) and the institution where the research would be conducted. During the data collection phase, information about the research was communicated verbally and in writing to the students. Written informed consent whereby they agreed to participate in the research was obtained. The ethical principles of the Declaration of Helsinki were complied with at all stages of the study. The students were informed that the same lesson subjects would be taught in both groups. At the same time, it was assured that the data obtained would be confidential and that the lesson grades of the students who did not participate in the study would not be affected. In addition, they were informed that they could withdraw from the study at any time.

Participants

The research was conducted in the paramedic program at a state university in Turkey. The paramedic program, whose training period is 2 years, includes practical lessons such as Emergency Patient Care, Emergency Aid and Rescue Studies, Basic and Advanced Life Support, and Ambulance Service Training Applications. Clinical practice skills are included in the content of the emergency patient care lesson. Graduates work in emergency health care units of other institutions and organizations, especially health institutions.

The data were collected within 1 year, in the Fall and Spring semesters of the 2021 to 2022 academic year. The study population consisted of 49 students who enrolled in the 2021 to 2022 academic year paramedic program, studied in the first year, and chose the lesson in which clinical practice skills were explained. Sample selection was not made in the study, and we aimed to reach the entire study population. A total of 3 students were not included in

the study, because 2 students had previously taken the lesson on clinical practice skills and 1 student refused to participate in the study. For this reason, the research started with 46 students, a 93.9% representation of the study population.

Randomization

To ensure the homogeneity of the research groups, the students were assigned to the groups by stratified randomization method. In randomization, students' grade point average and the characteristics of the school they graduated from were taken as a basis. The total score average for the grade point average and the categorical distribution for the school they graduated from were considered. In order to reduce selection bias, randomization was made by a person other than the researchers using the Excel (Microsoft) program, and 23 students were assigned to the intervention group and 23 to the control group. No statistically significant difference was found between the study groups regarding the variables used in stratified randomization ([Table 1]).

Two students in each group were excluded from the study during the research process because of lateral transfer and dropout. Therefore, the study was completed with 21 students in each group ([Figure 1]). After the data collection phase was completed, using G∗power 3.1 (Franz Faul, Universität Kiel, Germany), the sample size was determined to be sufficient by finding power = 0.92 in the post hoc analysis performed with a 5% type 1 error, taking the mean scores of the clinical practice checklist as a reference.

Survey Tools

The data of the study were collected using the "Introductory Features Information Form" containing the introductory information of the students, the "Clinical Practice Skill Videos and Checklists" containing the clinical practice skill steps, the "Time Tracking Form," and the "Student's Questionnaire for Evaluating the Flipped Classroom Model."

Introductory Features Information Form

The researchers prepared the introductory characteristics information in the light of the literature to define the characteristics of the intervention and control group students.[9,10,18] The form consists of 7 questions, including the characteristics of the students' age, gender, chronic illness, grade point average, financial situation, place of residence during university education, and family type.

Clinical Practice Skill Videos and Checklists

Among the most common practices performed by health care professionals are intravenous (IV) catheterization, IV blood collection, blood pressure measurement from the brachial artery, intramuscular (IM) injection into the ventrogluteal region, and urinary catheterization in women.[19,20] For this reason, these most frequently applied skills were preferred in the study.

Clinical Practice Skill Videos and Checklists were prepared by researchers using clinical practice guidelines and expert opinion was taken from 3 academicians in the field of nursing fundamentals.[21,22] Experts were asked to evaluate the videos and checklists. It was concluded that the videos after the evaluation could be used in the education of the students in the intervention group and that the checklists were appropriate for skill evaluation. In the study, IV catheterization (28 administration steps), IV blood collection (24 administration steps), blood pressure measurement from the brachial artery (24 administration steps), IM injection into the ventrogluteal region (34 administration steps), and female urinary catheterization (5 checklists containing skill steps of 39 application steps) were used. In the checklists, each application step was arranged in a 3-point Likert scale as "applied" (2 points), "applied incompletely" (1 point), and "did not apply" (0 points). The lowest score in the checklists was 0, and the highest score differed according to the number of skill steps in clinical applications.

Time Tracking Form

The researchers created the form to determine the time allocated for each clinical practice lesson's theoretical and

practical parts in the intervention and control groups. The lecturer filled out the form after each lesson.

Student Assessment Questionnaire for the FCM

The researchers developed the questionnaire so that the students in the intervention group could evaluate the clinical practice skill process they received with FCM at the end of 1 year. There were 5 questions in the survey. Survey questions were answered as "yes," "partly," or "no."

Outcome Criteria

After randomization, the "Descriptive Characteristics Information Form" was applied to determine the descriptive characteristics of the students in both groups. Checklists were filled in during the applications at various times, depending on the lesson curriculum. At the end of the 1-year period, the "Students' Evaluation Questionnaire for the Flipped Classroom Model" was applied to determine the students' thoughts on FCM. The students were given the forms and were requested to answer them.

The primary outcome was the practice skill score determined by checklists. The secondary result was the time allocated for theoretical explanation and practice teaching clinical practice skills determined by the follow-up chart. The tertiary outcome was the intervention group students' feedback on the FCM.

Application of Research

The data of the study were collected during the COVID-19 pandemic. Therefore, the protective equipment recommended by the Ministry of Health to be used in the education process also was used in the data collection process. After the sample group was determined, a face-to-face meeting was held with the students. The applications to be made during the process were explained, and the questions the students were curious about were answered. Afterward, students were given an introductory feature information form, and they were asked to fill in the forms.

While FCM was used in teaching clinical practice skills to students in the intervention group, the traditional lecture method was used in the control group. Each clinical skills practice was made in the weeks determined according to the lesson curriculum. The videos that the researchers had previously prepared for clinical skills practices were shared with the intervention group students 1 week before each clinical skills practice lesson day for prestudy purposes, and the students were asked to work on these videos. On the day of the lesson, the researcher (instructor conducting the lesson) conducted group work, question-answer, and discussion activities with the students in the classroom environment. The clinical skills practices were explained to the students in the control group by the researcher (instructor conducting the lesson) using presentation and demonstration methods. In the intervention and control groups, time was kept by the researcher to determine the time allocated for the theoretical and practical parts of each clinical practice lesson. At the end of each clinical skills practice lesson, students in both groups were asked to apply clinical skills practice on simulation models of the application.

While the students were completing the clinical skills practices, one of the researchers observed the clinical skills practices and marked only the skill level in the checklists ("applied," "incompletely applied," and "did not apply") without any comment or direction. The checklists were filled by another researcher who did not know which group the students belonged to in order to reduce the risk of bias.

Evaluation Of Data

The statistical package program evaluated the data obtained from the research in the computer environment SPSS Statistics 23.0 (IBM Corp, Armonk, NY). The normal distribution of numerical data was examined with the Shapiro-Wilk test of normality. Descriptive data were shown as numbers, percentages, and averages. Comparisons of numerical data between groups were made with an independent sample t test, and comparisons of categorical data were made with Fisher's or Pearson's chi-square analysis according to distribution. The comparison of the scores

obtained from the checklists between groups was made with the independent sample *t* test. In all comparisons, the results were evaluated with a 95% confidence interval, and *P* Results

A total of 42 students participated in this study. [Table 2] shows the introductory characteristics of the students in the intervention and control groups. The students in the intervention and control groups did not have any statistically significant differences in age (*P* = .89), grade point average (*P* = .82), gender (*P* = .50), chronic illness (*P* = .55), place of residence during university education (*P* = .57), financial situation (*P* = .59), and family type (*P* = .38). These results show that the 2 groups are homogeneous regarding introductory characteristics.

The distribution of the scores obtained by the students from the checklists applied during their clinical practice skills is given in [Table 3]. IV catheterization (*P* = .14), IV blood collection (*P* = .21), blood pressure measurement from the brachial artery (*P* = .78), IM injection to the ventrogluteal region (*P* = .95), and urinary catheterization in women (*P* = .99) of the students in the intervention and control groups were found to have similar total scores from practice skills and no statistically significant difference.

[Table 4] shows the distribution of the time allocated to theoretical explanation and practice teaching clinical practice skills according to the intervention and control groups. In the intervention group, the time allotted for practice after the lecture was 135 minutes for IV catheterization, 140 minutes for IV blood collection, 105 minutes for blood pressure measurement from the brachial artery, 135 minutes for IM injection into the ventrogluteal region and urinary tract in women, and 110 minutes for catheterization. In the control group, it was determined that the time allocated for the application was lower in all 5 clinical applications.

[Table 5] shows the distribution of the students' views on FCM in the intervention group. A total of 90.5% of the students stated that FCM's clinical practice skills were successful in teaching skills, 95.2% of them said that FCM was successful in the theoretical teaching of clinical applications, 66.7% of them stated that FCM reduced the anxiety experienced during laboratory application, 76.2% said that FCM increased your motivation for the clinical practice skills lesson, and 52.4% of them stated that FCM's clinical practice skills lesson reduced test anxiety.

Discussion

Health services are the priority of all countries. However, medical errors experienced during the provision of the service negatively affect both health care professionals and patients. Medical errors can occur because of many reasons. The leading causes of medical errors are grouped under 3 headings: institutional factors, technical factors, and human-related factors such as lack of communication, lack of time, wrong decision, and insufficient education.[23] One of the ways to prevent these mistakes is to ensure that students thoroughly learn the practices in the education process and have the equipment to apply them in their professional life. For this, it is recommended to use innovative training methods.[10,24]

The data obtained from this study, which was conducted to determine the effect of FCM on students' learning clinical practice skills compared with the traditional teaching method, were compared with the literature.

Although the total score average of the students in the intervention group in the skills of IV catheterization, IV blood collection, blood pressure measurement from the brachial artery, IM injection to the ventrogluteal region, and urinary catheterization in women was higher than that of students in the control group, there was no statistically significant difference between the groups (*P* > .05; [Table 3]). There are studies with comparable results in the literature. Similarly, in a study conducted on nurses using FCM, it was found that there was no significant difference between the 2 different teaching methods.[25] There are also studies demonstrating the effectiveness of the FCM on clinical skills. In their study, Aksoy and Gurdogan[17] demonstrated that FCM effectively improves urinary system knowledge and skills. In studies conducted with the FCM in the surgical field and on drug applications, it was found that the model significantly affected theoretical knowledge and clinical practice skills.[26,27] As a result, when the data obtained from

the study are compared with similar studies in the literature, it is thought that FCM can be used in teaching clinical practice skills.

Studies show that FCM allows teachers to devote more time to their students to explore the practice during the lesson.[18,24,28] Students need support and time to transfer the knowledge they have learned to practice during the lesson. Our study determined that the time allocated for the application was higher in the intervention group than in the control group (Table 4). However, the fact that the students in the intervention group practiced longer than the control group was not statistically significant in terms of their total score averages from clinical practice skills. This may be, because students are evaluated in their first laboratory practice. In other words, in our study, an average of 5.95 minutes was allocated to each student in the intervention group in the first application. During this time, they were both given the opportunity to practice and evaluated according to the checklists. The students in the control group were asked to practice for an average of 2.95 minutes, and the checklists were filled out. Therefore, it is thought that there is no statistical difference in terms of clinical practice skills, but the time allocated to the practices in the groups may be effective in the success of the students.

Students in the intervention group stated that FCM successfully taught skills and theory of clinical practices, reduced anxiety experienced during laboratory practice, increased motivation for practices, and decreased anxiety about clinical practice skills exams (Table 5). In the literature, it has been shown that FCM increases students' participation in the lesson, their interaction with teachers and peers, and their attention span, and provides opportunities to receive simultaneous feedback.[29] In another study, it was stated that statistically significant findings could not be reached, but students saw FCM as an acceptable approach.[16] In line with the answers given by the students in the intervention group about FCM, it was concluded that this innovative approach is an effective method on teaching clinical practice skills.

The COVID-19 pandemic has led to the cessation of face-to-face education in institutions and the start of digital developments in education.[30-32] Various international organizations have recommended using distance education programs and open access platforms to reduce disruption to the learning process.[33] In a study investigating the effect of FCM in online education, it was stated that the model was effective in learning.[34] In line with the information obtained from these research findings and the literature, it is thought that FCM can be preferred by educators in both face-to-face and online education.

Strengths and Limitations

There is limited information in the literature on the use of FCM in the curriculum of health programs. The study's strengths are that the model is made for 5 different applications and that it is the first study in the literature on its use in paramedic program. However, the study also has some limitations. The research was conducted in a single institution with a small number of sample groups. The study focused only on the difference between FCM and traditional teaching methods rather than multiple learning approaches. Therefore, it cannot be generalized to all students in the health program where clinical practice skills are taught.

Implications for Emergency Nurses

It is vital that the applications are carried out effectively in emergency services and in the prehospital area. Nurses and paramedics working in these areas need to receive well-equipped training. Therefore, innovative approaches have an important place in the process of learning clinical practice skills of paramedic program students.

With this study, for the first time in the literature, the FCM was made on 5 different applications and was used on paramedic program students. It has been proven that the FCM can be used as an alternative method to the traditional system in teaching clinical practice skills.

Conclusion

The total scores of the students in the intervention group for IV catheterization, IV blood collection, measuring blood pressure from the brachial artery, IM injection to the ventrogluteal region, and applying urinary catheterization in women, and the time allocated for the application were higher than those in the control group. The students in the intervention group stated that FCM successfully taught skills and theory of clinical practices, reduced the anxiety experienced during laboratory practice, increased the motivation for the practices, and decreased the concern about the clinical practice skill exam. These results support that FCM can be used in teaching clinical practice skills.

The FCM is used in this example to teach clinical skills but also can be used to teach didactic or conceptual knowledge. For example, it also can be used in the teaching of other clinical practice skills such as shock, triage, and head injury. In addition, it is recommended to evaluate the long-term effects of the model and compare it with other training models in future studies.

Data, Code, and Research Materials Availability

Author Disclosures

Acknowledgments

Characteristics	Experimental group (n = 21)	Control group (n = 21)	Test value	P
(Mean ± SD) or n (%)	(Mean ± SD) or n (%)	Grade point average	2.83 ± 0.50	2.87 ± 0.46
−0.225[*]	.823	School they graduated from		
		Health vocational high school	4 (76.2)	5 (66.7)
0.141[†]	.707	Other	17 (23.8)	16 (33.3)

Characteristics	Experimental group (n = 21)	Control group (n = 21)	Total (N = 42)	Test value	P

Mean ± SD or n (%)	(Mean ± SD) or n (%)	(Mean ± SD) or n (%)	Age	20.09 ± 1.26	20.04 ± 086
20.07 ± 1.06	0.143*	.887	Grade point average	2.83 ± 0.50	2.87 ± 046
2.85 ± 0.48	−0.225*	.823	Gender		
			Female	16 (76.2)	14 (66.7)
30 (71.4)	0.467[†]	.495	Male	5 (23.8)	7 (33.3)
12 (28.6)	Chronic disease				
	Yes	2 (9.5)	1 (4.8)	3 (7.1)	0.359[‡]
.549	No	19 (90.5)	20 (95.2)	39 (92.9)	Place of residence during university education
					Dormitory
6 (28.6)	7 (33.3)	13 (31.0)	1.135[‡]	.567	House
13 (61.9)	10 (47.6)	23 (54.8)	With family	2 (9.5)	4 (19.0)
6 (14.3)	Financial situation				

	Income less than expenses	9 (42.9)	8 (38.1)	17 (40.5)	1.059‡
.589	Income equals expense	12 (57.1)	12 (57.1)	24 (57.1)	Income more than expenses
0 (0.0)	1 (4.8)	1 (2.4)	Family type		
			Nuclear	19 (90.5)	17 (81.0)
36 (85.7)	0.778	.378	Extended	2 (9.5)	4 (19.0)

Clinical practices	Experimental group (n = 21)			Control group (n = 21)			Test value*	P
Mean ± SD	Min	Max	Mean ± SD	Min	Max	IV catheterization	47.14 ± 3.18	39
53	45.71 ± 3.00	41	54	1.496	.142	IV blood collection	43.90 ± 2.02	40

Clinical practices	Experimental group (n = 21)					Control group (n = 21)		
Blood pressure measurement from the brachial artery	46	42.76 ± 1.86	39	46	1.902	.064	39.62 ± 2.87	32
IM injection to the ventrogluteal region	44	39.61 ± 2.55	35	46	−0.284	.778	51.22 ± 6.81	40
Urinary catheterization in women	63	51.19 ± 7.36	34	62	−0.065	.948	59.57 ± 7.89	46

Time used for theoretical lecture	Time used for practice lecture	Time used for theoretical lecture	Time used for practice lecture	IV catheterization
25	135	80	80	IV blood collection
20	140	80	80	Blood pressure measurement from the brachial artery
55	105	120	40	IM injection to the ventrogluteal region

25	135	90	70	Urinary catheterization in women

Questions about FCM	Yes n (%)	Partially n (%)	No n (%)
Do you think FCM is successful in teaching skills of clinical applications?	19 (90.5)	1 (4.8)	1 (4.8)
Do you think that FCM is successful in the theoretical teaching of clinical applications?	20 (95.2)	0 (0.0)	1 (4.8)
Do you think that FCM reduces the anxiety you experience during laboratory practice?	14 (66.7)	5 (23.8)	2 (9.5)
Do you think that FCM increases your motivation for the clinical practice skills lesson?	16 (76.2)	4 (19.0)	1 (4.8)
Do you think that FCM's clinical practice skills lesson reduces test anxiety?	11 (52.4)	6 (28.6)	4 (19.0)

DETAILS

Subject:	Intubation; Research; Emergency medical care; Intervention; Students; Paramedics; Teaching methods; Application; Clinical medicine; Control groups; Video recordings; Medical personnel; Clinical skills; Professional ethics; Medical errors; Skills; Flipped classroom; College students; Motivation; Blood pressure; Academic achievement; Teaching; Data collection; Professionals; Clinical education; Tracking; Nursing; Classrooms; Learning; Education
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A Problem Well-Named is a Problem Half-Solved: Usefulness of Nursing Diagnosis as a Way to Teach Emergency Nursing: JEN

ABSTRACT (ENGLISH)

Van Horn and Kautz1 recognized that the use of nursing languages such as North American Nursing Diagnosis Association, Nursing Interventions Classification, and Nursing Outcomes Classification in evidence-based practice promoted the retention of essential nursing practice rather than an immediate jump to the medical model for evidence-based practice.2 Although Hoyt and Cajon3 recommended the use of standard nursing language for emergency nursing, the environment of the emergency department is often offered as a reason why it is not used in nursing care or documentation, specifically the patient load, lack of a standardized model for use of nursing diagnoses, and lack of administrative support for their use, as well as a decided lack of theoretical or practical training in the use of nursing diagnosis.4 Castner5 suggested that nursing diagnosis is not as useful owing to the generally collaborative nature of emergency nursing and that nursing diagnoses be used in the pattern of "nursing care needed: system: clarifier" where the clarifier is left to nursing judgment. Use of nursing diagnoses are reported in general emergency nursing,7 trauma care,8 and prehospital care.9,10Usefulness of Nursing Diagnosis in Emergency Nursing Common nursing diagnoses used in emergency departments include impaired gas exchange, ineffective breathing pattern, impaired spontaneous ventilation, risk for infection, risk for impaired skin integrity, impaired tissue integrity, risk for falls,11 and decreased cardiac tissue perfusion.12 Other commonly seen problems are knowledge deficit, anxiety, and alterations in comfort. Emergency nursing education benefits from a focus on nursing diagnosis to give nurses new to the emergency department specifically a grounding in how medical problems affect humans, the resultant risks of those effects, and how to manage and evaluate interventions.Author Disclosures None to report.Conflicts of interest None to report.

FULL TEXT

Patients presenting to the emergency department are generally unknown and potentially acutely ill; there is not the same understanding of the patient problem as in inpatient nursing, where the patient has been evaluated and assigned a medical diagnosis. Teaching nurses new to the emergency department how to quickly identify life-threatening problems is challenging, as it requires a mental shift from the diagnosis-based care of inpatient nursing to a symptomatic presentation orientation. In this article, I will present the case for nursing diagnosis as a way to orient nurses new to the emergency department in thinking about patient problems and immediate interventions. Many nurses educated in the United States are exposed to some degree to a nursing language. Nursing language is used specifically to determine problem and etiology so that the best nursing interventions can be derived to address the patient's problem and assist the patient in moving from presentation to outcome. There is a critical link between problem identification and problem solving and, therefore, effective patient care. Van Horn and Kautz[1] recognized that the use of nursing languages such as North American Nursing Diagnosis Association, Nursing Interventions Classification, and Nursing Outcomes Classification in evidence-based practice promoted the retention of essential nursing practice rather than an immediate jump to the medical model for evidence-based practice.[2]

Although Hoyt and Cajon[3] recommended the use of standard nursing language for emergency nursing, the environment of the emergency department is often offered as a reason why it is not used in nursing care or documentation, specifically the patient load, lack of a standardized model for use of nursing diagnoses, and lack of administrative support for their use, as well as a decided lack of theoretical or practical training in the use of nursing diagnosis.[4] Castner[5] suggested that nursing diagnosis is not as useful owing to the generally collaborative nature of emergency nursing and that nursing diagnoses be used in the pattern of "nursing care needed: system: clarifier" where the clarifier is left to nursing judgment. In emergency practice, this is arguably a valid suggestion; however, it obscures the contribution of nursing knowledge to the understanding of patient problems, which is critical at the initial encounter.

Why then should we consider the use of nursing diagnoses to frame assessment and care in the initial education

and training of nurses new to the emergency department? The language of nursing diagnosis can be viewed not as a label or a checkbox but as a clinical judgment[6] and thus helps to describe what nurses do. Nursing diagnoses provide a perspective for naming, understanding, and thinking about a set of clinical observations; naming a problem as it may present in the emergency department requires both a considerable knowledge base and the recognition and clustering of specific cues and their meaning when they appear separately or together.

This becomes important in the uncertain clinical environment of the emergency department, where patients may be under nursing care for some time before a medical diagnosis is determined. The use of nursing diagnoses allows emergency nurses to identify the effect of the problem on the patient and begin to treat the effects. Use of nursing diagnoses are reported in general emergency nursing,[7] trauma care,[8] and prehospital care.[9,10]

Usefulness of Nursing Diagnosis in Emergency Nursing

Common nursing diagnoses used in emergency departments include impaired gas exchange, ineffective breathing pattern, impaired spontaneous ventilation, risk for infection, risk for impaired skin integrity, impaired tissue integrity, risk for falls,[11] and decreased cardiac tissue perfusion.[12] Other commonly seen problems are knowledge deficit, anxiety, and alterations in comfort. These are not just labels chosen off a list but the codification of a nursing judgment made after an assessment.

How Do We Structure Education Around This Idea, Then?

For nurses new to the emergency department, seeing the effect a problem has on the patient and then gathering information to confirm the cause is critical. For example, a 78-year-old patient with a history of chronic obstructive pulmonary disease comes into the emergency department complaining of shortness of breath. The patient's oxygen saturation (SaO_2) is 90%; respiratory rate (RR) is 24 and shallow. Lungs are clear. The patient has recently recovered from a severe case of shingles and has some postherpetic neuralgia that is still causing severe pain. It is reasonable to identify the problem as an ineffective gas exchange, as evidenced by his low SaO_2 and his RR of 24, or as an ineffective breathing pattern, as evidenced by his shallow breathing. We also should consider an alteration in comfort as a priority nursing diagnosis.

If we start with a medical diagnosis (chronic obstructive pulmonary disease), we might anticipate orders for steroids, bronchodilators, and oxygen. If we start with a nursing diagnosis (pain/alteration in comfort, ineffective breathing pattern, ineffective gas exchange) related to his postherpetic neuralgia and evidenced by his shallow breathing and stated pain, we also can address the underlying cause of the patient's poor oxygenation. The pain gets addressed, and we expect that the gas exchange issue also will be resolved. How will we know? Breathing becomes less shallow, RR comes down, and SaO_2 comes up.

Similarly, if we consider a patient with vomiting and diarrhea as a problem of fluid and electrolyte imbalance rather than gastroenteritis, the interventions are clear regardless of medical diagnosis: replace fluids and electrolytes. The outcomes are equally clear: measures of adequate fluid and electrolyte balance. In severe cases, this also may be a problem of inadequate tissue perfusion, which elevates the patient's risk profile, and is not intuitive to a medical diagnosis of gastroenteritis.

Preventing Premature Closure, Anchoring, and Diagnostic Momentum

Finally, the use of nursing diagnoses can mitigate problems of premature closure, anchoring, and diagnostic momentum, which can result from an immediate attachment to a medical diagnosis. This is an important consideration, because the continuous assessment and treatment of patient problems as described by nursing diagnosis allows for a more open-ended focus on the underlying pathophysiology. In addition, it can keep nurses focused on managing ongoing risks; if we use our gastroenteritis versus fluid and electrolyte imbalance example, the nurse will focus on risks such as alterations in fluid and electrolyte balance and ineffective tissue perfusion as well as checking in on the patient for pain or vomiting.

Emergency nursing education benefits from a focus on nursing diagnosis to give nurses new to the emergency department specifically a grounding in how medical problems affect humans, the resultant risks of those effects, and how to manage and evaluate interventions.

Author Disclosures

None to report.

Conflicts of interest

None to report.

DETAILS

Emergency Nursing Review Questions: January 2023: JEN

Webb, Sara

🔗 ProQuest document link

ABSTRACT (ENGLISH)

What pattern of burns would you expect to see on the child? a.burns to lower body, sparing the buttocks, clearly demarcated burn lines b.irregular burn lines with burns on anterior legs and lower torso c.irregular burns to top of feet d.burns to anterior chest with a "splash" appearance 3) What studies are not part of a routine workup of a patient with suspected nonaccidental trauma? a.skeletal survey b.complete blood count c.thyroid studies d.liver function test 4) What fractures have been found to be highly specific for nonaccidental trauma? a.femur fracture in a 7-year-old ambulatory child b.classic metaphyseal lesion in a 1-year-old c.humerus fracture in a 6-year-old d.tibia/fibula fracture in a 10-year-old 5) Accurate and thorough documentation is often the key to holding abusers responsible. Which example of documentation is correct? a.Mom's boyfriend acted guilty so he must have caused their injuries. b.The patient had a hand print the size of mom's hand on her leg. c.George Smith, mother's boyfriend, stated baby "fell off of the changing table onto the floor." d.Father states that baby fell onto a carpeted floor and had no loss of consciousness. Liver function test will help to identify occult abdominal injuries and need for further abdominal imaging.1,3-54 Answer: B Classic metaphyseal lesions (ie, bucket-handle fractures) are highly specific for nonaccidental trauma.

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 3-week-old infant presents to the emergency department with altered mental status. The father states that he witnessed the baby "roll off of the bed" onto a hardwood floor. What should you be most suspicious of regarding the history?

•**a.**Baby was left unattended.

•b.Baby rolled off of the bed.

•c.The floor was hardwood.

•d.Baby was in the middle of the bed.

2)

Child protective services presents to the emergency department with a 16-month-old child that was removed from his home. His injuries include bruises on torso, ears, and nose in multiple stages of healing and burns to the lower half of his body. His mother admitted that she held the child in hot water after he would not stop whining. What pattern of burns would you expect to see on the child?

•a.burns to lower body, sparing the buttocks, clearly demarcated burn lines

•b.irregular burn lines with burns on anterior legs and lower torso

•c.irregular burns to top of feet

•d.burns to anterior chest with a "splash" appearance

3)

What studies are not part of a routine workup of a patient with suspected nonaccidental trauma?

•a.skeletal survey

•b.complete blood count

•c.thyroid studies

•d.liver function test

4)

What fractures have been found to be highly specific for nonaccidental trauma?

•a.femur fracture in a 7-year-old ambulatory child

•b.classic metaphyseal lesion in a 1-year-old

•c.humerus fracture in a 6-year-old

•d.tibia/fibula fracture in a 10-year-old

5)

Accurate and thorough documentation is often the key to holding abusers responsible. Which example of documentation is correct?

•a.Mom's boyfriend acted guilty so he must have caused their injuries.

•b.The patient had a hand print the size of mom's hand on her leg.

•c.George Smith, mother's boyfriend, stated baby "fell off of the changing table onto the floor."

•d.Father states that baby fell onto a carpeted floor and had no loss of consciousness.

Answers

1 Answer: B

When taking a history of a pediatric patient, it is important to consider developmental milestones in relationship to their injury. In this particular case, it is extremely unlikely that a 3-week-old baby would be able to roll from the middle of the bed and off of the bed independently. Rolling from back to belly is a milestone that is most commonly achieved at 4 to 6 months of age. Nonaccidental trauma should be considered in all patients whose age and mechanism of injury do not match.[1]

2 Answer: A

Burns to the perineum and lower legs are very commonly associated with intentional burns. Often the buttocks, or a portion of the buttocks, are spared because they are pressed against the bottom of the tub/sink/container, where it is cooler, as they are being held in the water. The burn line in intentional burns is often clearly demarcated because of being held into the water with few splash marks owing to the child flailing. In an accidental burn, the burn marks are generally irregular and often do not cover both anterior and posterior surfaces.[1-3]

3 Answer C:

Thyroid studies are not indicated in a routine workup for nonaccidental trauma. Skeletal survey in kids at the age younger than 2 years or nonverbal children will help to identify all current, old, and healing fractures. Complete blood count is important to look for any major bleeding. Liver function test will help to identify occult abdominal injuries and need for further abdominal imaging.[1,3-5]

4 Answer: B

Classic metaphyseal lesions (ie, bucket-handle fractures) are highly specific for nonaccidental trauma. The other fractures are possible nonaccidental fractures but not highly specific.[1,3,5]

5 Answer: C

Many abusers are caught by major changes in their stories. It is important to document exactly what is said and by whom. If everyone documents exactly what is said, it is easier for law enforcement or child protective services to see all of the changes in the story. It is never acceptable to put judgments in patient health records. It is best to only record facts, and measurements of bruises, contusions, etc.[1]

DETAILS

Document 22 of 49

Editorial Board: JEN

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FULL TEXT

TVM:UNDEFINED

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Document 23 of 49

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DETAILS

Illuminating Emergency Nurses' Perceptions of Stigma, Attribution, and Caring Behaviors Toward People With Mental Illness Through the Lens of Individualized Care: A Cross-sectional Study: JEN

🔗ProQuest document link

ABSTRACT (ENGLISH)

Introduction

Emergency nurses' negative attitudes and lack of caring have been identified as factors affecting the experience of individuals with mental illness in emergency departments. This study examined the relationships between emergency nurses' perceptions of stigma, attribution, caring behaviors, and individualized care toward people with mental illness.

Methods

A cross-sectional study was conducted among 813 nurses working in United States emergency departments. Data were collected using a demographic questionnaire; the Mental Illness: Clinicians' Attitudes Scale-4; the Attribution Questionnaire; 24-Item Caring Behaviors Inventory; and the Individualized Care Scale-Nurse version. Data analyses consisted of descriptive and correlation statistics and multiple linear regression.

Results

The findings from the final regression analysis revealed that caring had a significant relationship with individualized care (version A: $\beta = 0.70$, $P < .001$; Version B: $\beta = 0.73$; $P < .001$). Stigma and attribution had significant inverse relationships with individualized care ($\beta = -0.07$, $P < .01$; $\beta = -0.06$, $P < .05$, respectively).

Discussion

The results of this study indicated that emergency nurses' perception of individualized care toward people with mental illness is mostly associated with the nurses' level of caring behaviors toward this population. Stigma and attribution had little to no effect. Findings from this study reinforce nurses' altruistic and caring qualities. The findings suggest the need for a possible paradigm shift from antistigma training to trainings that prioritize caring behaviors toward mental illness. This could ultimately improve health equity, safety, and overall outcomes for people with mental illness.

FULL TEXT

DETAILS

Subject:	Emergency medical care; Health disparities; Illnesses; Perceptions; Stigma; Professional attitudes; Mental disorders; Nursing care; Altruism; Questionnaires; Individualized; Negative attitudes; Nurses; Emergency services; Caregiving; Behavior; COVID-19; Attribution
Location:	United States--US
Identifier / keyword:	Caring behaviors; Stigma; Attribution; Individualized care; Emergency nursing; Mental illness

Evaluation of Care Outcomes of Patients Receiving Hyperkalemia Treatment With Insulin in Acute Care

Tertiary Hospital Emergency Department: JEN

ABSTRACT (ENGLISH)

Introduction

Treatment of hyperkalemia using intravenous insulin can result in severe hypoglycemia, but regular blood glucose monitoring is not standardized. This study aimed to (i) explore the demographics of adult patients receiving hyperkalemia treatment and (ii) identify the incidence rate of hypoglycemia and associated demographic or clinical characteristics.

Methods

A descriptive design with prospective data collection was used. This study recruited 135 patients who received hyperkalemia treatment in the emergency department. Structured blood glucose monitoring was conducted at 1, 2, 4, and 6 hours after receiving intravenous insulin. Univariate analyses of association between demographic and clinical variables and hypoglycemia outcome were performed.

Results

There were 31 hypoglycemic events, with 11.9%, 7.4%, 2.2%, and 1.5% occurring at the 1, 2, 4, and 6 hours after treatment. The logit regression showed no significantly increased risk of hypoglycemia in terms of the demographic and clinical variables.

Discussion

The variation in blood glucose response observed in this study combined with the high incidences of hypolycaemia indicated the need for frequent and longer duration of monitoring for patients who were being treated for hyperkalaemia with IDT.

FULL TEXT

DETAILS

Subject:	Emergency medical care; Diabetes; Insulin; Cardiac arrhythmia; Glucose monitoring; Mortality; Demography; Hospitals; Data collection; Hypoglycemia; Emergency services; Glucose; Potassium; Acute services; Hyperkalemia; Iatrogenesis; Nurses; Blood; Clinical variables
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Publication date:	Jan 2023

Making the Journal of Emergency Nursing POP!: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

Based on these interactions, I recognized that JEN needed to POP! during the transition period between Editors-in-Chief. In my final editorial as the interim Editor-in-Chief, I'd like to highlight a few achievements of JEN that were accomplished during this transition period with the support of JEN's Editorial Board (Susan Barnason, Mohamed El-Hussein, Patricia Normandin) and Managing Editor (Annie Kelly).Partnerships To maximize the relevance of content for JEN readers, I partnered with the American Academy of Pediatrics and American College of Emergency

Physicians to copublish a policy statement on pediatric safety in the emergency care setting.1 I also partnered with the Advanced Emergency Nursing Journal to reprint a guest editorial focused on the 2021 emergency nurse practitioner competencies.2 I look forward to reading about future partnerships yielding translatable content to the international audience of JEN readers.Opportunities Opportunities have been made available for authors to publish projects with the potential for impacting the triple aim of health care, specifically "improving the experience of care, improving the health of populations, and reducing per capita costs of health care" (p. 759).3 JEN is perfectly situated as the premiere emergency nursing journal to afford these opportunities for both novice and expert authors. Examples of articles with relevance to the triple aim and emergency nursing practice include Faber et al's4 article on a rapid assessment zone to reduce patients leaving without being seen and Thomas et al's5 article on a pediatric distance learning curriculum, both in the current January issue.Performance As the Associate Editors, Annie Kelly, and I wrote in our September 2022 editorial,6 JEN is committed to publishing content that gets back to the roots of emergency nursing practice.

FULL TEXT

As the *Journal of Emergency Nursing (JEN)* enters its 50th anniversary, I am proud to have served as its interim Editor-in-Chief and look forward to Dr Anna Valdez's leadership as the new Editor-in-Chief. As a lifetime member of the Emergency Nurses Association (ENA), previous chapter and state leader, and a 2018 to 2020 ENA Board of Directors member, I met with a mass of emergency nurses over the years. I listened and learned about members' wants and needs as they relate to the content for *JEN*. Based on these interactions, I recognized that *JEN* needed to POP! during the transition period between Editors-in-Chief. POP! stands for partnerships, opportunities, and performance. In my final editorial as the interim Editor-in-Chief, I'd like to highlight a few achievements of *JEN* that were accomplished during this transition period with the support of *JEN*'s Editorial Board (Susan Barnason, Mohamed El-Hussein, Patricia Normandin) and Managing Editor (Annie Kelly).

Partnerships

To maximize the relevance of content for *JEN* readers, I partnered with the American Academy of Pediatrics and American College of Emergency Physicians to copublish a policy statement on pediatric safety in the emergency care setting.[1] I also partnered with the *Advanced Emergency Nursing Journal* to reprint a guest editorial focused on the 2021 emergency nurse practitioner competencies.[2] I look forward to reading about future partnerships yielding translatable content to the international audience of *JEN* readers.

Opportunities

Opportunities have been made available for authors to publish projects with the potential for impacting the triple aim of health care, specifically "improving the experience of care, improving the health of populations, and reducing per capita costs of health care" (p. 759).[3] *JEN* is perfectly situated as the premiere emergency nursing journal to afford these opportunities for both novice and expert authors. Opportunities continue to be available for authors and author teams originating from across the globe to publish in *JEN*. Examples of articles with relevance to the triple aim and emergency nursing practice include Faber et al's[4] article on a rapid assessment zone to reduce patients leaving without being seen and Thomas et al's[5] article on a pediatric distance learning curriculum, both in the current January issue.

Performance

As the Associate Editors, Annie Kelly, and I wrote in our September 2022 editorial,[6] *JEN* is committed to publishing content that gets back to the roots of emergency nursing practice. As a scientific journal, *JEN* has continued to publish quality research—providing the research addressed clinical relevance for emergency nursing. We also increased the content of our sections, which, based on our recent readership survey, is highly valued. For example, in the November 2022 issue, Somes[7] described a campaign to increase older adult driver safety in the Geriatric Update column. We also resumed our Emergency Nursing Review Questions column to help readers prepare in obtaining their certification in emergency and pediatric emergency nursing, which supports the ENA's position that "attainment of emergency nursing certification contributes to the delivery of safe, effective, quality care" (p. 299).[8]

Conclusion

With each new Editor-in-Chief, *JEN* is transformed. During my interim period, I provided a transition between Dr Jessica Castner and our new Editor-in-Chief Dr Anna Valdez. I am deeply honored to have received the trust and confidence of the ENA Board of Directors and the *JEN* Editorial Board to have served as the interim Editor-in-Chief for the previous 7 months. I especially look forward to witnessing Dr Valdez elevating *JEN* as she continually improves the quality and impact of the published articles. I also am excited to hear her upcoming vision for *JEN* and seeing it POP!

Author Disclosures

Conflicts of interest: none to report.

DETAILS

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Emergency Nursing Review Questions: November 2022: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

A.Brown recluse spider B.Scorpion C.Black widow spider D.Fire ant 5. A.Distal capillary refill of 2 seconds B.Compartment pressure of 70 mm Hg C.Palpable radial pulse D.Arterial pressure of 90 mm Hg Answers Correct answer: B If a patient is unable to see the largest print on an eye chart, 20/200, the next option would be to ask the patient whether they can perceive hand or finger motion, followed by the ability to see light (B). A brown recluse spider bite is cytotoxic, causing local tissue damage (A).

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 patient with a potential eye injury is attempting to read the Snellen eye chart. The patient cannot identify the E at the top of the chart, 20/200 with the injured eye. What is the next level regarding vision testing?

2. **A.**Document 20/200 as the maximum measurable visual acuity.

3. **B.**Ask the patient whether they can see finger movement at a 20-foott distance.

4. **C.**Document unable to determine a visual acuity for the injured eye.

5. **D.**Instill fluorescein stain to determine whether vision improves.

2.

A 4-year-old child is airlifted to a trauma center with burn injuries from a backyard grill fire. The child has burns to the

entire left arm, left anterior leg, and anterior chest and abdomen. Based on the rule of "9"s, what is the approximate percentage of body burns?

•A.44%

•B.34%

•C.18%

•D.27%

3.

An ED patient is being treated for paroxysmal supraventricular tachycardia. The initial and repeated doses of Adenocard (adenosine) have not altered the rhythm. The provider orders a bolus of Cardizem (diltiazem) and an infusion. Vital signs are noted to be BP 130/80 mm Hg, pulse rate of 180 beats per minute, respiratory rate of 16 beats per minute, temperature of 36.8 °C (98.3 °F), pulse oximetry (SiO_2) of 99% room air, and weight of 65 kg. Your suggested action would be:

•A.hold off on the Cardizem (diltiazem) because of the vital signs.

•B.suggest additional Adenocard (adenosine) before Cardizem (diltiazem).

•C.administer 16 mg bolus of Cardizem (diltiazem) and 10 mg/hour infusion.

•D.administer 65 mg bolus of Cardizem (diltiazem) and a 25 mg/hour infusion.

4.

A patient arrives in triage with a possible insect bite to the left hand. You observe a single puncture wound with moderate edema and redness. The patient is complaining of severe cramping to the upper arm and abdomen. You would suspect what type of insect bite?

•A.Brown recluse spider

•B.Scorpion

•C.Black widow spider

•D.Fire ant

5.

Compartment syndrome is suspected in a patient with severe swelling to the forearm from a crush injury. Which of the following would confirm the diagnosis?

•A.Distal capillary refill of 2 seconds

•B.Compartment pressure of 70 mm Hg

•C.Palpable radial pulse

•D.Arterial pressure of 90 mm Hg

Answers

1. Correct answer: B

If a patient is unable to see the largest print on an eye chart, 20/200, the next option would be to ask the patient whether they can perceive hand or finger motion, followed by the ability to see light (B). Documentation of 20/200 would indicate the patient was able to see the largest letters. In the situation described, the patient was unable to see the largest letter (A). Other options for obtaining visual acuity would include finger movement, reducing the distance of the visual chart, light perception, and hand movement (C). Fluorescein stain is used to stain any abrasions or injury to the cornea, being enhanced with a black light (D).[1]

1. Correct answer: B

The rule of "9"s for children defines the entire left arm as 9%, left anterior leg as 7%, and the anterior chest and abdomen as 18%, or 34% of the total body surface area (B). The other choices listed do not match the percentage distribution in accordance with the rule of "9"s for children (A, C, D). Other methods for determining percentage of body surface area burned include the Lund and Browder formula and an estimation of 1% of body surface area by using the palm of the child's hand.[2]

1. Correct answer: C

The next treatment option for a patient with stable paroxysmal supraventricular tachycardia refractory to Adenocard (adenosine) would be a calcium channel blocker such as Cardizem (diltiazem). The initial dose should be 0.25 mg/kg followed by an infusion of 5 to 15 mg/hour. This patient is described as weighing 65 kg, so the correct initial bolus should be 16 mg followed by an infusion of 10 mg/hour (C). The listed vital signs would be defined as stable, not prohibiting the use of a calcium channel blocker such as Cardizem (diltiazem) (A). Current recommendations are for the use of Adenocard (adenosine) for an initial treatment and a repeated double dose. Further repeated dosing is not described (B). The dosing and infusion are not correct for the current recommendations of Cardizem (diltiazem) (D).[3]

1. Correct answer: C

A typical bite from a black widow spider may cause localized numbness initially then followed by localized pain and muscle spasms. The venom is neurotoxic, causing damage to nerve tissue. The symptoms may progress to a rigid board-like abdomen and difficulty in breathing. The female spider is larger and more toxic (C). A brown recluse spider bite is cytotoxic, causing local tissue damage (A). A scorpion sting is painful, not causing muscle cramps, and causes skin discoloration and swelling (B). Fire ant bites cause itching, skin redness, and pustule formation (D).[4]

1. Correct answer: B

A compartment pressure of 70 mm Hg would be high, indicating increased pressure within the extremity compartment. A normal compartment pressure is less than 10 mm Hg. Increased pressure is indicative of compartment syndrome and requires immediate intervention such as a fasciotomy (B). Distal capillary refill of 2 seconds would be considered normal (A). A palpable radial pulse would be a normal finding, although it could be obtained with mild compartment syndrome. (C). An arterial pressure of 90 mm Hg would be considered a normal finding (D).[5]

DETAILS

Quality Improvement: Implementing Nurse Standard Work in Emergency Department Fast-Track Area to Reduce Patient Length of Stay: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

Introduction

The average length of stay of a fast-track area of a large urban hospital was excessively long, which affected the patient experience and the rate at which patients left without being seen. One approach to reducing average length of stay is to create nurse standard work. Nurse standard work was a defined set of process and procedures that reduce variability within a nurse's workflow.

Methods

Nurse standard work was created by a team of nurses assisted by management engineering using lean methodology and A3 problem solving. Data were gathered about average length of stay and left without being seen for patients in the emergency department fast-track area of an urban emergency department from October 2018 to June 2020. This period includes 5 months before the intervention start, 4 months during nurse standard work implementation, 9 months using nurse standard work before the unit was repurposed during COVID-19, and 3 months during COVID-19.

Results

Nurse standard work helped reduce average length of stay in the emergency department fast-track area from 205 minutes before project initiation to 150.4 minutes in the 7 months after implementing nurse standard work. The time spent walking for supplies was reduced from 422 and 272 seconds before nurse standard work to 25 and 30 seconds for the nurse technician and nurse, respectively, after nurse standard work. Left without being seen was decreased from 4.7% in October of 2018 to 0.7% by March of 2020.

Discussion

Nurse standard work reduced the amount of time that nurses spent performing support tasks and reduced delays in providing patient care, which then allowed more time for nurses to interact directly with patients. Nurse standard work provides a clear task sequence that eliminates delays in treating patients, but it also allows for fast identification of delays that do occur and simplifies problem solving to eliminate reoccurrence of delays. Therefore, nurse standard work is an essential component of efforts to reduce patient average length of stay in health care processes and reduce left without being seen to the national standard of less than 2%.

FULL TEXT

Contribution to Emergency Nursing Practice

•• This paper investigates how to create and maintain nurse standard work, which is essential to maintaining a lean value stream. Nurse standard work in the fast-track area of an emergency department helped to decrease the length of stay of fast-track patients. Management was able to maintain the use of nurse standard work through the use of daily audits of whether the staff were following the standard work procedures.

•• Recommendations are that nurses, who perform the care process, should be engaged in the creation and maintenance of nurse standard work.

Introduction

Overcrowding is an important issue in emergency departments across the United States[1] due to more patients seeking medical care through the emergency department and hospitals operating close to capacity, which creates lengthy patient wait times.[2] These long waits both negatively affect patient satisfaction and increase stress for staff,[3] which previous research about fast-track areas serving low-acuity patients (ie, emergency severity index [ESI] 4 or 5[4]) found decreases patient waiting and average length of stay (ALOS), which then decreases left without being seen (LWBS) and increases patient satisfaction.[5] Creating a fast track is one of the most implemented approaches to increase ED capacity and reduce ED overcrowding.[6]

Problem Addressed

The fast-track area of the emergency department had a patient ALOS of 205 minutes in August 2018, which contributed to a crowded ED waiting room. Management created a "lean team" made up of project engineers (with previous lean experience) and ED leadership to implement lean in the fast-track area to reduce ALOS. After an initial investigation, this lean team determined that there was variance in how nursing tasks were performed, which contributed to patient waiting. The lean team then created a team of nurses whose charge was to establish standard work for the nurse's workflow. The target goal was to achieve and maintain an average ALOS of 162 minutes. This target was set, because it allowed fast track to meet the average demand plus 1 standard deviation (SD).

Background

Standard work improves customer response time in several ways. Standard work helps to stabilize the system, which then allows managers to determine whether there is adequate capacity available to meet demand. Standard work also creates clear goals for employees and provides a baseline for further improvement.[7] These characteristics of standard work make it a valuable tool to increase cost-effectiveness and productivity.[8-10] Standard work is also valuable in health care,[11-17] but although the need for standard work practices such as nurse standard work (NSW) is recognized,[18,19] there has been no detailed explanation of how to achieve and, importantly, maintain NSW.[13,20] Although standard work does not require that 1 patient at a time be processed, 1 tool of lean operations to improve patient flow is to ensure that each step of work is done for only 1 patient at a time, a batch size of 1.[21] Organizing work into batches increases the average waiting time[22] and creates spikes of work within the process that leads to further delays.[23]

NSW is not a clinical pathway, which is a standard set of clinical protocols for disease treatment,[24] but it is a standard sequence of repeatable steps performed by nurses that facilitates patient flow and improves quality.[25] In general, standard work for any process consists of 3 elements: (1) takt time, (2) sequence of tasks to be performed, and (3) standard inventory needed in the workplace that are then listed on a standard work sheet.[26,27] Takt time is the time available to complete the work divided by patient demand (time available/[number of patients/hr]). Takt time states the amount of time within which the standard work needs to be completed. The task sequence is established by observing work as performed to determine the best task sequence to complete all tasks within takt time. To perform tasks within the takt time requires that all necessary supplies be available, so the third standard work component is a list of needed supplies. Standard work improves performance in 3 ways. First, takt time sets a baseline performance level required for the system to serve all the patients. Second, establishing a standard task sequence that can be performed within takt time ensures that the most efficient practice is known and is shared with all nurses. Third, identifying required supplies and setting par levels for them eliminates delays and interruptions when the nurse is doing their work. Hence, NSW can simplify nursing tasks by ensuring that the nursing tasks can actually be performed as designed so nurses are not constantly working around process problems,[28] which reduces variability to ensure consistent care for all patients. NSW is effective, because it increases task performance

predictability and allows staff to quickly recognize what tasks are done and undone. Eliminating the need to search for what to do next frees up staff cognitive resources[29] and simplifies task performance, which allows time for nurses to respond flexibly to patients' heterogeneous needs.[17]

Purpose

The project's goal was to create and then maintain NSW to support a lean improvement project in a large urban emergency department. The NSW project team used the A3 standard problem-solving approach as a guide to creating NSW to reduce patient ALOS. This report includes an explanation of how NSW was created using the A3 process and the importance of daily managerial audits of NSW compliance used to sustain the gains in ALOS. We also report about a secondary outcome of reduced LWBS rate.

There are multiple standard problem-solving methods in use, but one characteristic they share is that they operationalize the scientific method by creating a set of steps for the team to follow. This team used the A3 problem-solving method, which divides the plan-do-study-act improvement method into smaller steps.[30] The A3 9 block format used to establish NSW is shown in [Figure 1]. The A3 directs the team to perform each of these steps in sequence and to focus its effort on tasks (e.g., the specified step in the template) that lead to problem solution. As standard procedure in A3 problem solving, the NSW team shared its progress with others weekly. It posted the updated A3 on a white board outside the ED nurse lunchroom.

Ethical Considerations

This research was determined to be exempt by the hospital institutional review board, because the research did not involve human subjects research. None of the participants had a conflict of interest.

Methods

This study was done in a large academic level I trauma center in the southeastern United States that treats more than 100,000 patients annually in the 102 beds in a pediatric and adult emergency department. Three nurses, a nursing assistant manager, a nurse educator, a nurse technician, and a project engineer comprised the group for the NSW project. The NSW project was part of a larger lean implementation that included multiple disciplines including physicians, ED leadership, pharmacy, radiology, and patient experience. This project began in December of 2018 and was completed by May 2019. NSW was maintained until the pandemic closed the unit in March of 2020.

Measures

ALOS (the time of patient arrival until discharge) and LWBS (the number of patients who leave before seeing a provider) were both measured for this project. The ALOS is a performance measure that is routinely gathered by the hospital. The primary goal of this intervention was to reduce ALOS. The ED lean team that sponsored this project investigated changes in the process weekly to determine whether this intervention was successful and whether the changes were cost effective.

Creating Nurse Standard Work

A nurse serving on the ED lean team was charged with creating and leading the NSW team and serving as the liaison between the lean and NSW teams to report weekly progress and barriers being encountered. The NSW team consisted of nursing staff who worked in the triage and fast-track areas. Gathering data was a lengthy part of the project taking 5 weeks as NSW team members spent only 2 hours each shift observing and recording the process steps as performed and did their clinical work for the remainder of their shift. The team was assisted by a lean facilitator experienced using the A3 problem-solving approach. The NSW team methods are explained step by step below using the 9 block A3 format given in [Figure 1].

Blocks: 1. Reasons for Action and 2. Initial State of A3

The NSW team was charged with creating NSW to create a stable process for providing patient care with a target

ALOS of 162 minutes for the fast-track area. This target time allowed staff to meet takt time within the fast-track area and time for the processes before the fast-track area. The first step was to determine the initial baseline state from the patient's perspective as they moved from arrival at security until they were discharged. The team observed, timed and documented all cyclical and noncyclic work elements during each process step similar to previous research.[31] The NSW team used the same observation sheet to gather data about tasks performed by each of the 8 different staff roles patients interacted with during their ED visit until the observers saw convergence on the work elements performed and the time taken to do the work (eg, 1 role required 40 observations). Convergence meant that the team was not observing any new cyclic (ie, repeatable) or noncyclic work. [Figure 2] shows a sample of 4 detailed observations of the nurse specialty technician (NST) role. Note that task 2 in [Figure 2], labeled "2. Help provider and RN as needed," shows high variance in task time (ie, 424-120 seconds) with an average of 254 seconds (see "Average repeatable/"Base time" column).

Blocks: 3. Target State and 4. Gap Analysis of A3

The target state was to develop NSW that allowed all tasks to be completed within takt time, and the gap was any difference between the takt and actual time. The first step in calculating takt time was to measure the SD and average demand per hour during the previous year. Demand for the next year was forecast to equal last year's average demand per hour plus 1 SD as shown in [Figure 3]. The annual demand for fast track was forecast to be 33,000 patients. The second step in calculating takt time was to determine the time available in minutes for the year. The fast-track area was scheduled for 20 hours per day, 7 days a week, which equals 438,000 minutes per year. The third step was to calculate takt time as (time available)/demand, so takt = (438,000 minutes)/(33,000 patients), or 13.27 minutes per patient room. Given that fast track has 6 rooms, each patient needs to have all tasks from arrival to discharge completed within 79.62 minutes (4772 seconds). Finally, each role interacting with the patient was assigned a portion of the takt time. Given that the fast-track registered nurse (RN) and NST needed the most time, they were each given the largest allocation of any of the 8 roles or 809 seconds.

To analyze the gap, the average number of times the RN and the NST performed each task and the percent of times a task was observed (ie, occurrence rate) and the average repeatable/base time to perform that task ([Figure 2]) were placed into a baseline observation summary sheet for each role and then the weighted average time for each task was calculated (see [Figure 4]A). The sum of the weighted averages was compared with the takt time for each role. Both the NST and RN tasks had longer weighted average baseline times than the takt time. [Figure 4]A shows that the RN baseline time was 907 seconds, which is 98 seconds longer than the 809 second takt time.

Blocks: 5. Solution approach and 6. Rapid Experimentation of A3

To eliminate the RN and NST workload gap (ie, difference between takt time target and actual time), the NSW team examined each task in detail for both the RN and NST. The team posted these tasks and times on a board in the conference room and then listed all the subelements of each task. For example, subelements to complete the RN's "Charting" task included the following: (1) record disposition, (2) charge capture, (3) list all procedures or split/wound care provided, and (4) record any radiology ordered or provided. The team then identified all delays, interruptions, and walking that occurred when a task subelement was performed. For example, how much time did the RN spend searching for supplies or walking between locations to get supplies. To accurately measure walking, the NSW team first created a map of the fast-track area (see [Figure 5]) and then recorded all staff movements within and out of the area, creating a series of spaghetti diagrams (not shown, see previous examples[32]). The NSW team found that the RN and NST frequently left fast track to get orthopedic supplies and medicines and that almost three fourths of the medications and supplies needed were located outside the fast-track area. To eliminate these times, the NSW team cleaned and standardized the fast-track storeroom using the 5S technique.[32,33] An essential step was to establish a

standard set of medicines and supplies to be maintained at par level in the fast-track area. The NST was then charged to check that all fast-track supplies were at par level at the beginning of each day. The spaghetti diagrams also showed the NSW team that there was no standard procedure to bring patients from the waiting room to fast-track area when a room became available. This task was assigned to the NST as well as the task of monitoring the waiting room for arrival of ESI 4 and 5 patients using electronic health record screens.

Observations identified a delay in the RN patient discharge process that was caused by registration not starting patient discharge until the provider submitted discharge orders. This was addressed by creating standard work for registration that specified that registration was to be initiated as soon as feasible after the triage examination. Discussions to accomplish this led to registration and fast-track working together as a team with the common goal of expediting patient care. For example, if the RN was in the room performing a task such as starting an intravenous line, registration could enter and begin their process.

A significant improvement in patient flow was achieved by eliminating work batching. A common practice was for the provider to place orders for multiple patients at one time. The provider hopes that by batching this process step the average time of performing the step for each patient can be reduced. However, even if the task time is reduced, batching increases patient waiting and prevents other staff from starting their work. Batching at 1 step "starves" the next step and eventually overwhelms the next step when a batch of work suddenly arrives.[34]

Implementing these interventions required cooperation of multiple roles outside of nursing, so creating NSW also standardized other system work. These interventions eliminated delays and clarified task assignments and reduced the RN workload to 799 seconds (see [Figure 4]B) and the nurse technician workload to 802 seconds (see [Figure 4]C). These workloads were 10 and 7 seconds, respectively, less than their 809 second takt targets.

Blocks 7 Completion Plan and 8 Confirmed State of A3

Once NSW is created, it must become the way work is done. One technique to maintain NSW was to post the NSW tasks in the workplace. For example, the RN NSW was posted above the RN desk as shown in the right-hand side of [Figure 5]. The team added a standardized introduction and explanation of care to NSW, because it was a hospital-wide requirement for all nurse/patient contacts. [Figure 5] shows the NSW noncyclic tasks (eg, walking for supplies and medicines) below the 6 repetitive NSW tasks.

A second step was to include training about NSW within the ED staff training procedures. A third and critical step to maintain NSW was to institute manager daily audits. Daily audits ensure that standard work is performed and demonstrate that management considers standard work to be important.[35] The team developed an audit form (see [Table 1]) to check daily the extent to which NSW was used. The right-hand side of the Table shows the person responsible for the item being audited. Of the 21 standard NSW tasks, 13 were the responsibility of someone other than the RN or NST. For example, audit items 1, 2, and 3 were the responsibility of the charge nurse, but were required for the fast-track RN to maintain takt. The NSW audit was done at the beginning of each day by an emergency nurse manager. Having a manager conduct the audit is important for 2 reasons: (1) this signals that management cares about NSW. and (2) auditing NSW engages the manager in the standard work. On average this audit took 5 minutes or less each day. To do the audit, managers interviewed the RN in the fast-track area while looking at the digital dashboard (see "Digital Dashboard" in [Figure 5]). The auditor checked "Yes" or "No" for each of the 21 items in the form. A "Yes" was scored as 1 point and the points were totaled at the bottom. The audit was structured to avoid "blame" and to focus on problems performing NSW.

Results

The primary analysis was a precomparison and postcomparison of ALOS performance using the Xbar and S control charts shown in [Figure 6]A and 6B, respectively, to identify a significant change.[36] Data from the first 8 weeks of 2019

were used to set the control limits for the Xbar and S chart. The control charts start with week 9, 2019 and extend through February 2021. The charts do not extend further, because the fast-track area was repurposed to manage the large number of COVID-19 patients arriving during the pandemic. Significant events in the creation and maintenance of NSW are shown on the horizontal axis; otherwise, the horizontal axis shows the week of the year. The control limits were updated when the charts indicated a significant change in the process (eg, the ALOS in [Figure 6] A remained below the centerline for more than 5 consecutive weeks). The NSW team ALOS goal was 162 minutes (see [Figure 6]A) and the initial centerline for ALOS was 200.2 minutes, which was reduced to 150 minutes as NSW was implemented; however, ALOS increased to 200 minutes when fast track transitioned to a COVID-19 unit. In week 15 of 2020, fast-track patients stayed away from the hospital (ie, there were only 17 ESI 4 and 5 patients for the week) as COVID-19 increased and ALOS was only 59 minutes.

[Figure 6]B shows that the SD was small and moved randomly around the centerline and never approached its control limits. This means that the SD was within its control limits. [Figure 7] gives the ALOS for each month from January 2019 to March 2020 when fast track was converted to treating COVID-19 patients. [Figure 7] also includes the monthly LWBS. The horizontal axis shows the month when the NSW tasks were implemented. This shows a gradual drop in ALOS starting in January until in July when it was below 150 minutes. ALOS stayed close to 150 minutes the rest of the year, below the target of 162 minutes, whereas LWBS decreased below its target level of 2% and stayed there through March 2020.

Discussion

This was a quality improvement study where preintervention performance was compared with postintervention performance. The team designing the changes included those who were actually doing the work, which can best be described as an action research methodology as the researchers not only tested an intervention, but they also simultaneously managed the practical realities, implementing it within the emergency department.[37] Nursing standard work created here had 3 elements: (1) takt time, (2) task performance sequence, and (3) standard inventory. The NSW team formed the last week of February 2019 and met weekly until the work was completed in the third week of April 2019. The NSW team reported its progress completing its A3 to the larger lean team weekly. All process changes were implemented as they were developed, which was feasible because the NSW team included those actually performing the work. For example, the NST began to pull patients form the lobby the first week of March, the registration process changed the first week of April, and task assignments for the NST and RN were completed by the third week of April and formalized as standard work the first week of May 2019. The audit process was finalized in week 1 of June 2019. Implementing changes slowly allowed for staff to determine whether the change was beneficial to the project and allowed for focused education to be provided to the staff. Initially, the NSW team wanted to implement solutions as they discovered problems; however, taking time to work through the A3 methodology allowed for data-driven changes rather than based off of perceptions.

The NSW team used the A3 problem-solving method to identify and remove barriers to achieving NSW. This structured problem solving forced the NSW team to avoid quick fixes and to instead examine each individual process element. As described earlier, creating NSW was a process of making small changes to multiple job elements. Creating NSW was an example of evidence-based problem solving in health care. It required accurate measurements of patient demand and task performance times and observations of delays and performance barriers. However, creativity also was required for the NSW team to rethink how to perform required tasks to meet the takt time goal. Some creative solutions were to use 5S to address the lack of storage space for supplies. Finally, it required manager discipline via the NSW audit to maintain NSW and not to conduct a "blame"- audit, but rather a problemidentification audit.

The major changes to complete NSW within the takt time were that the NSW team identified excessive walking, delays, and interruptions it could eliminate by standardizing storeroom supplies using 5S and by standardizing the medicine storage in the fast-track area. The NSW team also recognized that assigning the NST the task of monitoring the track board and pulling patients from the waiting room quickly when a fast-track room became available eliminated service delays. The RN and NST shared the task of ensuring that patients going to radiology were properly dressed; this effort to coordinate care eliminated a process delay.

Daily audits by a nurse manager of NSW performance assisted compliance by reminding everyone that system performance depends on standard work, but also gave staff daily access to management when problems were encountered.[38] The audit is feedback to both the manager and staff. It checks the unit compliance level and also provides a means for staff to notify management of operational failures when they occur.[28] When staff can share process problems with managers as they occur, the manager has more information and can intervene to solve throughput problems in real time to enable patient care.[38]

Limitations

The generalizability of one case study of 1 fast-track area experience creating NSW is necessarily limited, but the approach taken here to identify repeatable tasks versus nonrepeatable tasks is applicable to all locations. A second limitation is that the outcome measures were gathered by the hospital, and patient satisfaction with the fast-track experience could not be measured. Third, the NSW team gathered data about task performance through task observation, which is time consuming, so the data gathering was limited. In addition, changes to the task elements, such as delegating tasks to the NST, are situation dependent and may not be applicable to other fast-track units. However, the process steps of implementing NSW and the NSW audit are generalizable to other environments.

Conclusion

NSW was an effective intervention that significantly reduced ALOS for fast-track patients in a large urban hospital. Sustainability depends on management follow-through, given that an essential step in this intervention is the management audit of standard work. There has been a lack of investigation in the health care literature about how to create and maintain standard work practices. A next, very important step is to investigate the effects of standard work in other ED units. After the COVID-19 pandemic, the fast-track area physically moved to another area to allow 2 additional beds, but all processes developed before this were duplicated in the new fast-track area. Hospital management found this process valuable, and other hospitals within the system are now implementing a similar process.

Author Disclosures

Conflicts of interest: The authors do not have any conflicts of interest to report.

		Score: yes = 1; no = 0	Responsible
1	Is 1 RN assigned?		Charge nurse
2	Is 1 NST assigned?		Charge nurse
3	Are 2 advanced practice providers assigned?		Charge nurse

4	Are supplies stocked to standards? (lac cart, IV cart, ortho room)		NST
5	Are fast-track rooms full of appropriate patients (if available)?		NST
6	Is the NST pulling patients? (see dashboard)		NST
7	Are rooms cleaned and marked available within 5 min?		NST
8	Is provider seeing patient within 5 min? (see dashboard)		Provider
9	Is the provider seeing one patient and writing orders before seeing the next patient? (see dashboard)		Provider
10	Is RN signing up for patients? (see dashboard)		RN
11	Does the Pyxis have the needed medications?		Material services
12	Are meds being administered within 15 min? (see chart)		RN
13	Is patient ready to depart 15 min or less? (see dashboard)		RN
14	Is discharge paperwork ready once discharge chosen? (ask RN)		Provider
15	Are providers handing nurses discharge paperwork? (ask RN)		Provider
16	Are all tests being processed appropriately? (ask RN)		Lab/Radiology
17	Is RN taking proactive measures for any delayed testing? (ask RN)		RN
18	Has housekeeping rounded on fast-track? (ask RN)		Housekeeping
19	Is person assigned to job knowledgeable of standard work procedure?		Charge nurse
20	Is registration complete before patient being ready for DC? (ask RN)		Registration
21	Is the daily management system (computer screen) updated?		Information systems
Total			

DETAILS

ED Update: Overview of New Neonatal Resuscitation Guidelines: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

Most neonates at birth make the transition to extrauterine life without intervention.1 About 85% of term neonates will begin breathing within 30 seconds after birth.1 Another 10% of these neonates will begin to breath in response to drying and stimulation.1 Five percent of term neonates will need positive-pressure ventilation intervention to successfully transition to extrauterine life.1 Two percent of term neonates will need to be intubated.1 Unfortunately, 1 to 3 neonates per 1000 births will need chest compressions or emergency medications after birth.1 These data outline the importance of emergency nurses maintaining neonatal resuscitation competence.4,5 There are multiple perinatal risk factors that increase the possibility of the need to provide neonatal resuscitation at birth. Neonatal resuscitation may be required for neonates who have no fetal or maternal identified risk factors.1 Pregnant patients who have 1 perinatal high-risk factor should prompt emergency nurses to prepare as a team and plan neonatal resuscitation in case of an emergent delivery.1 Examples of risk factors that emergency nurses should consider depend on the gestational age of the neonate to be delivered.1 There will be an increased potential need for neonatal resuscitation in the neonate who is delivered at a gestational age <36 weeks or ≥41 weeks.1 Some maternal antenatal risk factors to consider during a potential emergency delivery include pre-eclampsia or eclampsia, hypertension, polyhydramnios, and oligohydramnios.1 Women not having had prenatal care increases the risk that neonatal resuscitation may be required at birth.1 Pregnant women with acute or chronic medical conditions, trauma, infection, and use of legal and illegal substances may increase the risk for neonatal resuscitation at birth. Some intrapartum risk factors that may increase the risk for neonatal resuscitation at birth are intrapartum bleeding, meconium-stained amniotic fluid, chorioamnionitis, shoulder dystocia, prolapsed umbilical cord, and placental abruption.1 Perinatal risk factors that relate to the fetus are multiple gestation, fetal anemia, fetal hydrops, fetal macrosomia, intrauterine growth restriction, and significant fetal malformations or anomalies.1 Requiring an emergency cesarean delivery or forceps- or vacuum-assisted delivery and breech or other abnormal presentation are risk factors that indicate that neonatal resuscitation may be required at birth.1 Emergency nurses need to be aware that mothers who had opiates within 4 hours of delivery increases the neonate risk of requiring resuscitation after delivery.1 In addition, mothers who are receiving general anesthesia or magnesium therapy increases the risk for the neonate to require resuscitation after delivery.1Important Steps in the Neonatal Resuscitation New Guidelines It is recommended that emergency nurses and the emergency delivery team be trained and prepared for an emergency delivery. When it is identified that your team may need to deliver a baby in the emergency department, once your team has assembled, it is critical to complete a pre-resuscitation team briefing that reviews the current situation, including any plans that the patient and her physician or certified nurse midwife developed during antenatal counseling.1 A team leader should be identified, assess risk factors present, anticipate potential complications including the team response, identify who will be documenting the events as they occur, delegate tasks, discuss needed equipment including supplies, and review how to call for additional help if required.1 The NRP 8th Edition recommends a specific algorithm that begins with antenatal counseling, which is usually done by patient's delivery team before delivery, and team briefing and equipment check before the neonate is born.1 NRP 8th Edition includes 4 new prebirth questions, which are, "What is the expected gestational age?"; "Is the amniotic fluid clear?"; "Are there additional risk factors?"; and "What is our umbilical cord management plan?"1 The fourth new prebirth question involves the health care team discussing with the patient the umbilical cord management plan after the neonate is born to see whether delayed cord clamping is an option or risk factors contraindicate it.1,2 The umbilical cord management plan is important for the team and patient to discuss in anticipation of an emergency

delivery rather than the number of babies that will be delivered, which was included in the previous NRP guidelines.[1] The rationale for adding the umbilical cord management plan is that scientific evidence suggests there are benefits for term neonates and vigorous preterm neonates to have delayed umbilical cord clamping after birth for 30 to 60 seconds.[1] Evidence is inconclusive on whether to delay cord clamping for newborns who are not vigorous.[1] Immediate or early cord clamping may be indicated if there are placental circulation concerns.[1] Another new NRP 8th Edition change is that the period for cessation of resuscitation efforts has been extended from 10 minutes up to 20 minutes after birth, which highlights that the decision is individualized for each patient and situation.

FULL TEXT

Emergency deliveries are high-risk low-volume situations that can happen in any emergency department. Even in planned labor and delivery settings, unexpected neonatal resuscitation may be required. Successful neonatal resuscitation requires an organized, evidence-based team approach, which is provided in the new Neonatal Resuscitation Program (NRP) 8th Edition guidelines.[1,2] The NRP was updated by the American Academy of Pediatrics and American Heart Association in June 2021.[1,2] The NRP 8th Edition practice changes can be seen in Table 1.[1,2] It is critical that emergency nurses anticipate and be prepared to resuscitate a neonate at any time. Many emergency nurses have not completed NRP 8th Edition education. This article is not intended to replace NRP.[1,2] The purpose of this article is to describe new evidence-based neonatal resuscitation changes in the NRP 8th Edition.[1,2]

Hundreds of births occur across emergency departments in the United States.[3] The exact number of births in the emergency department is not known.[4] In 2021, The United States had 3,659,289 registered births.[4] Infant mortality rate in 2019 was 558.3 per 100,000 live births.[4] This statistic reveals the possibility of neonate death after a live birth in the emergency department.[4] Preterm births accounted for 10.48% of these 2021 births in the United States.[4] It is important for emergency nurses to remain calm and supportive while incorporating medical-legal considerations, from triage of the pregnant patient to the ultimate admission of the neonate. The initial approach during care of the emergent birth of the neonate in the emergency department should begin with stabilization of the airway, breathing, and support circulatory measures. The emergency nurse should anticipate initiation of measures that stabilize the neonate's temperature and blood sugar levels until the neonate is admitted. Most neonates at birth make the transition to extrauterine life without intervention.[1] About 85% of term neonates will begin breathing within 30 seconds after birth.[1] Another 10% of these neonates will begin to breath in response to drying and stimulation.[1] Five percent of term neonates will need positive-pressure ventilation intervention to successfully transition to extrauterine life.[1] Two percent of term neonates will need to be intubated.[1] Unfortunately, 1 to 3 neonates per 1000 births will need chest compressions or emergency medications after birth.[1] These data outline the importance of emergency nurses maintaining neonatal resuscitation competence.[4,5]

There are multiple perinatal risk factors that increase the possibility of the need to provide neonatal resuscitation at birth. Neonatal resuscitation may be required for neonates who have no fetal or maternal identified risk factors.[1] Pregnant patients who have 1 perinatal high-risk factor should prompt emergency nurses to prepare as a team and plan neonatal resuscitation in case of an emergent delivery.[1] Examples of risk factors that emergency nurses should consider depend on the gestational age of the neonate to be delivered.[1] There will be an increased potential need for neonatal resuscitation in the neonate who is delivered at a gestational age 1 Some maternal antenatal risk factors to consider during a potential emergency delivery include pre-eclampsia or eclampsia, hypertension, polyhydramnios, and oligohydramnios.[1] Women not having had prenatal care increases the risk that neonatal resuscitation may be required at birth.[1] Pregnant women with acute or chronic medical conditions, trauma, infection, and use of legal and illegal substances may increase the risk for neonatal resuscitation at birth. Some intrapartum risk factors that may increase the risk for neonatal resuscitation at birth are intrapartum bleeding, meconium-stained amniotic fluid, chorioamnionitis, shoulder dystocia, prolapsed umbilical cord, and placental abruption.[1] Perinatal risk factors that relate to the fetus are multiple gestation, fetal anemia, fetal hydrops, fetal macrosomia, intrauterine growth restriction, and significant fetal malformations or anomalies.[1] Requiring an emergency cesarean delivery or

forceps- or vacuum-assisted delivery and breech or other abnormal presentation are risk factors that indicate that neonatal resuscitation may be required at birth.[1] Emergency nurses need to be aware that mothers who had opiates within 4 hours of delivery increases the neonate risk of requiring resuscitation after delivery.[1] In addition, mothers who are receiving general anesthesia or magnesium therapy increases the risk for the neonate to require resuscitation after delivery.[1]

Important Steps in the Neonatal Resuscitation New Guidelines

It is recommended that emergency nurses and the emergency delivery team be trained and prepared for an emergency delivery. When it is identified that your team may need to deliver a baby in the emergency department, once your team has assembled, it is critical to complete a pre-resuscitation team briefing that reviews the current situation, including any plans that the patient and her physician or certified nurse midwife developed during antenatal counseling.[1] A team leader should be identified, assess risk factors present, anticipate potential complications including the team response, identify who will be documenting the events as they occur, delegate tasks, discuss needed equipment including supplies, and review how to call for additional help if required.[1] The NRP 8th Edition recommends a specific algorithm that begins with antenatal counseling, which is usually done by patient's delivery team before delivery, and team briefing and equipment check before the neonate is born.[1] NRP 8th Edition includes 4 new prebirth questions, which are, "What is the expected gestational age?"; "Is the amniotic fluid clear?"; "Are there additional risk factors?"; and "What is our umbilical cord management plan?"[1] The fourth new prebirth question involves the health care team discussing with the patient the umbilical cord management plan after the neonate is born to see whether delayed cord clamping is an option or risk factors contraindicate it.[1,2] The umbilical cord management plan is important for the team and patient to discuss in anticipation of an emergency delivery rather than the number of babies that will be delivered, which was included in the previous NRP guidelines.[1] The rationale for adding the umbilical cord management plan is that scientific evidence suggests there are benefits for term neonates and vigorous preterm neonates to have delayed umbilical cord clamping after birth for 30 to 60 seconds.[1] Evidence is inconclusive on whether to delay cord clamping for newborns who are not vigorous.[1] Immediate or early cord clamping may be indicated if there are placental circulation concerns.[1] Another new NRP 8th Edition change is that the period for cessation of resuscitation efforts has been extended from 10 minutes up to 20 minutes after birth, which highlights that the decision is individualized for each patient and situation. ([Table 1]).[1,2]

Initial Steps in Neonatal Resuscitation

The NRP 8th Edition changes include initial steps in neonatal resuscitation, electronic cardiac monitoring, EPINEPHrine dosing, 0.9% normal saline flush volume, and the time frame to stop resuscitative efforts.[1] The initial NRP resuscitation steps were rearranged in the order that represents the most widespread practice.[1] Foundations of neonatal resuscitation include a rapid evaluation to determine whether there is a need for resuscitation or whether the neonate can remain with the mother.[1] NRP 8th Edition resuscitation steps include warm, dry, stimulate, position airway, and suction if needed.[1,2]

•• Within 1 minute of a neonate's birth, health care providers should assess whether neonate is term gestation, has a good tone, and is breathing or crying. If the neonate is term, has good tone, and is breathing and crying, then the neonate stays with the mother for the beginning steps of routine care and ongoing evaluation.[1]

•• If during the 1-minute assessment the neonate is not term gestation, does not have good tone, or is not breathing or crying, then the health care provider should provide warmth, dry the neonate, stimulate, and position the airway.[1] Establishing an open airway is the initial step to perform and support spontaneous respirations.[1] The proper neonate airway position includes placing the neonate on the back, keeping the head and neck in neutral position (sniffing position), placing a small towel under the neonate's shoulders, and avoiding hyperextension or neck flexion.[1]

••During an emergency delivery, remember that ventilation of the neonate's lungs is the most critical step in effective neonatal resuscitation.[1] If spontaneous breathing does not occur, then you should provide positive-pressure ventilation to assist breathing for neonates with apnea or bradycardia.[1] Other interventions are to apply continuous positive airway pressure or supplemental oxygen if the neonate has labored breathing or low oxygen saturation.[1]

••Routine suctioning of the neonate is not recommended for the crying, vigorous neonate.[1] Secretions should be cleared from the neonate who is not breathing, is gasping or has poor tone.[1] A bulb syringe may be used gently to remove upper airway secretions in the neonate who has secretions that are blocking the airway, for neonates who cannot clear their own secretions, or if you anticipate providing positive-pressure ventilation.[1] Remember that neonates are obligatory nose breathers, which means that if suctioning is needed, suction the mouth before nose.[1] If suction is required, do not suction too deep or vigorously, because it may cause bradycardia or apnea due to vagal stimulation.[1] Neonates with copious secretions can be managed by turning the head to the side, which allows the secretions to collect in the cheek for easier removal.[1]

Steps After 1-minute Assessment

The neonate with labored breathing or persistent cyanosis during the 1-minute assessment rather than apnea or gasping with a heart rate less than 100 beats per minute should have the airway repositioned in the sniffing position; suction if needed, place pulse oximetry, apply oxygen if needed, and consider positive-pressure ventilation (see [Table 2]).[1] If the neonate has apnea or gasping with a heart rate less than 100 beats per minute, provide positive-pressure ventilation within 60 seconds of birth.[1] A pulse oximeter should be placed on the neonate's right hand or wrist along with cardiac monitoring.[1] Emergency nurses need to be aware that targeted oxygen saturation percentages for neonates are significantly different during the first 10 minutes of life compared with adult oxygen saturations.[1] (See [Table 2]). If these measures are successful, then provide the neonate postresuscitation care and team debriefing.[1,2] If positive-pressure ventilation is provided, you should anticipate that the neonate may need endotracheal intubation or use of a laryngeal mask airway adjunct.[1] Positive-pressure ventilation that is successful will demonstrate a rise in heart rate.[1] If the neonate's heart rate does not increase within the first 15 seconds of positive-pressure ventilation and if no chest movement is observed, then start ventilation corrective steps.[1] Corrective ventilation steps include the mnemonic, MR. SOPA, which are mask adjustment (M), reposition the head and neck (R), suction the mouth and nose (S), open the mouth (O), increase pressure (P), and consider alternative airway (A).[1] If the neonate's heart rate is less than 60 beats per minute, endotracheal intubation or laryngeal mask placement should be considered as well as chest compressions with coordination of positive-pressure ventilation with 100% oxygen.[1] The International Liaison Committee on Resuscitation NRP currently recommends chest compressions if there is bradycardia (heart rate less than 60 beats per minute) that does not resolve after 30 seconds of effective positive-pressure ventilation with a properly secured advanced airway.[5] With that in mind, scientists are still investigating when the best time is to initiate compressions, which may guide future NRP updates. Umbilical vein cannulation should only be considered by trained health care providers.[1] When neonatal resuscitation is required, try to identify and correct causes. If these measures are successful, then the emergency nurse should provide postresuscitation care and team debriefing.[1]

EPINEPHrine Consideration

In the situation that the neonate's heart rate remains less than 60 beats per minute, intravenous administration of EPINEPHrine should be given every 3 to 5 minutes while trying to identify causes such as hypovolemia or pneumothorax.[1] Circulation measures may be needed if severe bradycardia persists despite assisted ventilation.[1] Circulation support includes performing chest compressions, which are coordinated with positive-pressure

ventilation.[1] The drug EPINEPHrine should be administered if severe bradycardia remains despite assisted ventilations that coordinate with chest compressions and continue.[1]

Two medication changes in the new NRP 8th Edition guidelines are simplifying the initial dose of intravenous EPINEPHrine.[1] The drug EPINEPHrine is important during neonatal resuscitation, because it is a cardiac and vascular stimulant.[1] EPINEPHrine is advised only if the neonate's heart rate remains less than 60 beats per minute after 30 seconds of positive-pressure ventilation that demonstrates inflation of the lungs, which is seen by chest movement; as well as 60 seconds of chest compressions coordinated with positive-pressure ventilation with 100% oxygen ventilation provided through a correctly placed endotracheal tube or laryngeal mask insertion.[1]

Recalling dose ranges for any medication during a high stress situation with accuracy can been difficult. This can be especially difficult when it comes to EPINEPHrine doses, because they are expressed in mg/kg per dose and mL/kg per dose, where 0.01 mg = 0.1 mL. The only EPINEPHrine that should be used is the EPINEPHrine labeled either 0.1 mg/mL or 1 mg/10 mL.[1] Interchanging mg/kg dosing with mL/kg dosing could result in a 10 times medication overdose or underdose. The emergency nurse should always make sure to obtain the 1 mg/10 mL concentration of EPINEPHrine and be attentive to the units of the dose being given, so the correct volume can be drawn up for administration. Double checking the dose with a second registered nurse or pharmacist is ideal before administration. To decrease confusion, the NRP 8th Edition guideline simplifies the dose range for EPINEPHrine by suggesting an initial dose within the previously established range.[1,2] Their suggested initial dose falls in the middle of the dosing recommendation, but this may vary between emergency settings. The NRP 8th Edition suggests the initial intravenous or intraosseous dose of 0.02 mg per kg (equal to 0.2 mL/kg).[1,2] EPINEPHrine dose by the endotracheal route is recommended to be 0.1 mg/kg (equal to 1 mL/kg), which can be used until intravenous access is established.[1,2] Familiarizing oneself with the initial dose in the emergency department's neonatal resuscitation policy is critical to being prepared for this type of an emergency.[1,2]

Emergency nurses should prepare the EPINEPHrine by using a sterile connector or stopcock to transfer the EPINEPHrine from the glass vial injector to a syringe.[1] The 1 mL syringe size should be used for the intravenous or intraosseous routes of EPINEPHrine.[1] Endotracheal route of EPINEPHrine should be administered with a 3 to 5 mL syringe.[1] All syringes should be labeled with the EPINEPHrine name and the route of administration. EPINEPHrine should always be given rapidly to be effective.[1] The doses of EPINEPHrine for intravenous/intraosseous administration have not changed but have been made a dose range, which is easier to recall, although additional research is required.[1,2]

Normal Saline Flushes

The new NRP 8th Edition has changed the 0.9% normal saline flush volume, which is given after EPINEPHrine intravenous or intraosseous doses. The change is that all EPINEPHrine intravenous or intraosseous doses should be followed immediately with a 3 mL 0.9% normal saline flush for all neonates regardless of gestational age or weight.[1,2] The rationale for increasing the flush volume and standardizing it to 3 mL is that scientific evidence found that the volume was safe, and the lower dose flush volume may not be enough to ensure circulation of the EPINEPHrine throughout the body.[1] The emergency nurse should have a labeled flush ready to be administered after the EPINEPHrine is given to increase the circulation of EPINEPHrine to the heart.[1,2]

Volume Expanders

There is no change in the administration of a volume expander if the neonate is not responding to the resuscitation attempts and is demonstrating shock signs or blood loss history.[1] Volume expanders should be considered in neonates in hypovolemic shock due to acute fetal-maternal hemorrhage from extensive vaginal bleeding, vasa previa, fetal trauma, umbilical cord prolapse, placental laceration, tight nuchal cord, or blood loss from the umbilical

cord.[1] Neonates who are in hypovolemic shock appear pale and do not respond to effective ventilation, chest compressions, and EPINEPHrine.[1] The recommendation for volume expanders are 0.9% normal saline or type O Rh (Rhesus) factor negative packed red blood cells administered via intravenous or intraosseous route.[1] Volume expanders should be prepared in 30 to 60 mL syringes that are labeled.[1] The dose of volume expanders remains 10 mL/kg, which are given over 5 to 10 minutes.[1] If no neonatal improvement is noted after the first dose, a second dose of packed red blood cells of 10 mL/kg may be given.[1] Do not routinely give volume expander during neonatal resuscitation in the absence of acute blood loss with signs of shock.[1]

Postresuscitation Debriefing

After a neonatal resuscitation has taken place, NRP recommends a debrief for all team members involved.[1] A debrief should be led by ED leadership experienced in debriefing. The debriefing questions include asking team members to discuss what went well, what could have been done differently, comments, or suggestions for future neonatal resuscitation events.[1]

Implications for Emergency Nursing

Emergency nurses at any time may be expected to provide neonatal resuscitation measures. However, the reality is that most emergency nurses may not have completed the NRP provider course, which would offer a competence measurement for emergency neonatal resuscitation. It is important that emergency nurses stay up to date with the most current neonatal resuscitation care recommendations to offer the neonate the highest possibility of survival. All emergency nurses should know their organization's emergency delivery care and care of the neonate plan. If an organization does not have an emergency delivery policy and procedure, the emergency nurse can collaborate with their ED leadership team to develop one. Emergency nurses and all personnel involved in emergency deliveries should brief before and debrief after the event to review and correct any equipment or system issues identified.[1]

Conclusion

All emergency nurses need to anticipate and prepare for emergency neonatal resuscitation. The NRP 8th Edition changes provide an organized evidence-based algorithm of the practice changes that can improve patient safety outcomes.[1] It is recommended that nurses working in settings where an emergency birth could occur consider the NRP 8th Edition provider course training.[1]

Author Disclosures

Conflicts of interest: none to report.

Old NRP 7th Edition information	New NRP 8th Edition update

Prior prebirth question, "How many babies?" removed as 1 of the 4 prebirth questions.	New: 4 prebirth questions[1,2]1."What is the gestational age?"2."Is the amniotic fluid clear?"3."Are there additional risk factors?"a.Antepartum risk factorsb.Intrapartum risk factors4."What is our umbilical cord management plan?" (New fourth prebirth question).[1,2]a.If term or late preterm is expected, discuss whether delayed umbilical cord clamping will be considered. The recommendation is to delay umbilical cord clamping for 30-60 seconds after birth for strong crying neonates.[1]b.If a preterm neonate will be delivered, assess risk and benefit of delayed cord clamping or whether immediate cord clamping will be done to provide resuscitative measures.[1]c.Very preterm neonates are fewer than 32 weeks gestation.
Initial steps did not reflect existing practice	Initial steps changed to existing practice.[1,2] The initial steps include:1.Warm2.Dry3.Stimulate4.Position airway5.Suction if needed
Electronic cardiac monitor was recommended during cardiac compressions to assess heart rate. This is later than the current recommendation.	Cardiac monitoring is recommended when an alternative airway is necessary to provide a precise neonate heart rate assessment. This is earlier than old recommendation.[1,2]
The old 0.9% normal saline flush IV/IO after EPINEPHrine administration recommendation was lower and variable mL volume.	New 0.9% normal saline flush volume recommendation after administration of EPINEPHrine IV/IO is 3 mL. The volume of 3 mL is the new recommendation for all gestational ages and weights.[1,2]
Old EPINEPHrine IV/IO and endotracheal doses were complex.	The new initial IV or IO EPINEPHrine dose recommendation is 0.02 mg/kg, which equals 0.2 mL/kg (from EPINEPHrine concentration 1 mg/10 mL) ET EPINEPHrine dose recommendation, while awaiting vascular access, is 0.1 mg/kg, which equals 1 mL/kg (from EPINEPHrine concentration 1 mg/10 mL).[1,2]
Old timeframe was after 10 minutes of resuscitation, providers could stop resuscitative measures if there was confirmed absence of heart rate. The decision to stop or continue was individualized.	New timeframe is that if after approximately 20 minutes of resuscitation after birth if there is no neonatal heartbeat after all appropriate resuscitative measures were performed, health care providers consider stopping resuscitation. The decision to stop or continue remains individualized.[1,2]

Neonates age of life in minutes	Oxygen saturation percentage
Neonates targeted oxygen saturation table at birth[1]	
1 minute of life	60%-65%
2 minutes of life	65%-70%
3 minutes of life	70%-75%
4 minutes of life	75%-80%
5 minutes of life	80%-85%
10 minutes of life	85%-95%
Initial oxygen concentration for positive-pressure ventilation	
≥ 35 weeks gestational age	21% oxygen
< 35 weeks gestational age	21%-30% oxygen

DETAILS

Subject:	Anemia; Emergency medical care; Fetal growth; Intervention; Umbilical cord; Ventilators; Risk factors; Infants; Cessation; Amniotic fluid; Equipment; Bleeding; Emergency services; Gestational age; Births; Caesarean section; Childbirth &labor; Breathing; Nurses; Hypertension; Delayed; Anesthesia; Cardiac arrhythmia; Dystocia; Chest; Midwives; Antenatal care; Mothers; Counseling; Suctioning; Eclampsia; Fetuses; Newborn babies
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Pathway to Healing and Recovery: Alleviation of Survivor Worries in Sexual Assault Nurse Examiner-Led Sexual Assault Telehealth Examinations: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

Introduction

The purpose of this study is to understand the pre-examination worries of individuals who experience sexual assault, and whether those worries were experienced or resolved during a telehealth-enabled, sexual assault nurse examiner-led sexual assault examination.

Methods

Patient surveys were administered to understand pre-examination worries, whether those worries were ultimately experienced during the consultation, and patient perceptions of care quality, telehealth consultation, and whether the examination helped individuals feel better. Data analysis was conducted using descriptive statistics and binomial proportion tests.

Results

Surveys were collected from 74 adolescents and adults who obtained sexual assault care at 6 rural and 2 suburban hospitals. Study findings showed individuals overcome substantial worries to access care, with 66% having at least 1 worry and 41% endorsing 3 or more pre-examination worries. Most participants felt believed (83%) and did not feel judged (88%) or blamed (85%) during their examination. Analysis of pre-examination worries and worry resolution during the examination showed 88% to 100% resolution of worries related to being believed, judged, blamed or lacking control. Participants highly rated the quality of care received (92%) and 84% stated the examination helped them feel better, suggesting a sexual assault nurse examiner-led examination is an important step toward recovery and healing.

Discussion

These findings have implications for emergency department support for sexual assault nurse examiner-led care and public health messaging to demystify sexual assault care, allay fears, and highlight care benefits.

FULL TEXT

Contribution to Emergency Nursing Practice

••Sexual assault is a public health crisis, yet a small percentage of victims come forward for essential health services. Care delivered by sexual assault nurse examiner has been shown to be beneficial to patients.

••This paper adds an understanding of the pre-examination worries/concerns of sexual assault victims, and whether those worries were experienced or resolved during the examination. In addition, in this study, participants endorsed that having a telehealth-supported sexual assault nurse examiner-led sexual assault examination helped them feel better and that having a telehealth consultation improved the quality of care they received.

••The findings from this study should strengthen the commitment of emergency departments to building and supporting sexual assault nurse examiner-led care for victims of sexual assault.

Introduction

The MeToo movement, high-profile cases of celebrity sexual perpetration (eg, Harvey Weinstein, Bill Cosby), and organizational complicity of sexual violence (eg, United States gymnastics, university sports, Catholic church) have shone a bright light on what statistics have demonstrated for years—that sexual assault (SA) is a public health crisis, with an estimated 459,310 rapes and/or SAs reported in 2019.[1] To promote healing and recovery, those who are victimized must feel safe coming forward to receive physical and mental health care. An important aspect of addressing this crisis requires understanding the barriers to victim disclosure and obstacles faced by those seeking help.

There are numerous fears or concerns that may keep survivors from seeking care after an SA. Even when SA examinations are conducted with a compassionate, person-centered, trauma-informed approach, they inherently contain elements that may produce fear and anxiety for someone considering whether to seek care.[2] Individuals are asked to recount in detail the assault they endured. This information is essential to guide the health care provider as they assess for injury and preserve trace evidence of the assault. A thorough examination can last 3 to 5 hours, including detailed body and genital inspection and photo-documentation to support what is seen during the examination. These elements alone provide ample reason for an individual to opt out of this experience. Concerns

that an individual will not be believed or be shamed or judged are warranted given that there are disparities in whether a survivor will be cared for by a health care provider trained in the delivery of forensic SA care.[3] For these reasons, health care access may be delayed or foregone and the opportunity to document and preserve evidence of the assault is missed. Furthermore, only 5% of reported SA cases result in arrest and 2.5% result in successful prosecution,[4] and the likelihood of a case being prosecuted is exceedingly rare without an examination or physical evidence of the assault.[5,6] Given this, it is not surprising that only 21% to 43% of survivors disclose their assault/seek medical care.[7-11]

The negative effects of sexual trauma take a toll on the lives of those victimized and have significant costs, with estimated societal costs of $3.1 trillion (in 2014 US$) over the victimized individuals' lifetime.[12] Therefore, early interactions are critical to establishing a healing pathway for survivors and to ensure every individual who experiences trauma is afforded compassionate, trauma-informed care by health care, advocate, and law enforcement responders.

Given the low rates of survivors seeking medical and legal post-assault services, studies are needed to better understand fears, concerns, and worries that may prevent survivors from seeking help. Furthermore, studies are needed to explore whether fears, concerns, and worries are actually experienced and whether the examination ultimately resolves worries and helps survivors feel better.

This study focuses on the retrospective (ie, immediately postexamination) accounts of the pre-examination worries of individuals who access SA nurse examiner (SANE)-led SA health care supported by expert telehealth consultation, and their perceptions of various elements of the examination experience. This study was conducted as part of a larger evaluation project examining the efficacy of a telehealth program that provides training, peer review, and mentoring through live telehealth consultation with certified SA experts (teleSANEs) to enhance access to SANE care.[13,14]

Methods Study Design and Recruitment

Patient experience data were collected from 8 hospitals (6 rural and 2 suburban) partnered with the SA Forensic Examination Telehealth Systems telehealth program to support less experienced local SANE-trained nurse examiners in Pennsylvania between 2018 and 2021. All patients 12 years of age and older who presented to a partner hospital for an SA examination were offered a telehealth consultation by the local SANE provider. During telehealth consultations, SANE-trained local nurses provide the on-site care to the patient while also connecting in real time with highly experienced, certified SANEs (teleSANEs) using specialized telehealth equipment, allowing the remote expert to mentor, provide quality assurance, and seamlessly participate virtually in all aspects of care. Detail regarding telehealth care delivery has been described previously.[13,14]

Patients who consented to receive a telehealth consultation were offered the opportunity to participate in a survey about their experience at examination completion. Patients were eligible to participate in research if they consented to receive an SA telehealth consultation, were 12 years of age or older, and were English speaking. Incarcerated individuals in state facilities were eligible to participate. Patients were ineligible if they were incapacitated or if they were incarcerated in county or federal institutions because those institutions do not have a centralized body to approve research, making inclusion of these groups not feasible. Before research consent, teleSANEs provided detailed information about the research, answered any questions, and obtained informed consent. Of note, TeleSANEs are required to complete the Collaborative Institutional Training Initiative course on the Protection of Human Research Participants[15] and receive additional training in obtaining informed consent for research to ensure the highest level of protection for study participants.

After the completion of the SA telehealth-supported examination, patient SA examination experience surveys were

administered on a tablet via Research Electronic Data Capture (REDCap), a secure, electronic research data management system.[16] Neither local nurses nor teleSANEs were able to view patient responses. Response bias was limited by providing privacy and confidentiality so the individual could record honest responses about care received. All procedures in this descriptive study were approved by the university's Institutional Review Board for human subjects.

Measures Worry/Concerns

An expert panel of SANEs and research methodologists developed the items used in this study. Items were developed to elicit concerns individuals had about receiving a forensic SA examination and whether the care provided resulted in the individual actually experiencing those concerns during the examination. The measures developed for this study are consistent with previous research methodology[17,18] examining patient perceptions of SANE examinations and added elements to explore survivor concerns about being believed, being in control, being judged, being blamed, being embarrassed, and experiencing pain during the examination. Items were included that assessed patients' retrospective (ie, postexamination) perceptions of whether they experienced those concerns during the examination (eg, feeling believed, in control).

Experience of Care

The patient survey included items to examine whether the individual perceived that the examination itself had a healing effect and an additional item to explore whether telehealth was perceived as beneficial. An open-ended question for comments or feedback about the care received was included.

Demographic data collected included age, gender identity, ethnicity, incarceration status, and race. All patient survey questions were answered postexamination. Participants were asked to rate their level of agreement with 6 pre-examination worry items using a Likert scale. The survey instrument can be viewed in [Supplementary Data].

Hypothesis and Analysis Plan

The primary hypothesis was that individuals would endorse having worries/concerns before obtaining an examination and that with care provided by trained clinicians (SANEs), worry resolution will occur more frequently than by chance. The secondary hypotheses were that care provided by SANE-trained nurses with additional support from experienced certified SANEs via telehealth would result in individuals endorsing that the exam helped them to feel better and high endorsement of care quality. There was a scant amount of missing data across responses (19 As a result, pairwise deletion of missing responses was deemed appropriate and used.[20] Binomial proportion tests were run between the subset of participants who had initial worries and experienced resolution of those worries (eg, those worried about being blamed before their examination and who responded "I did NOT feel blamed" at examination completion).

Qualitative data were analyzed by 3 of the study authors. Initial coding was done by the lead author followed by 2 rounds of discussion with study team members to refine the thematic categories. In 2 instances, participants gave feedback that fell into more than 1 category and those comments were parsed and placed in more than 1 category.

Results

From September 15, 2018 to June 30, 2021, 139 telehealth SA consultations were conducted in 8 SA Forensic Examination Telehealth Systems partner hospitals. Of those, 29 patients (21%) declined research participation and 24 were ineligible (17%). Of those deemed ineligible, 3 individuals (13%) were non-English speaking, 2 had a cognitive disability (8%) that limited their participation, and 2 were ineligible (8%) because research was not yet approved at that hospital site. Early in the project implementation, 8 incarcerated individuals (33%) were ineligible; 7 because they presented for care prior to Institutional Review Board approval allowing the participation of incarcerated individuals and 1 individual was incarcerated in a local jail or federal prison. An additional 9 individuals

(38%) were ineligible owing to consent process errors (eg, errors in data input on electronic forms). The remaining 86 patients consented to research participation. Of those, 12 left without being offered the survey (14%). The final sample included in this analysis comprised the 74 SA patients who consented to participate in this study and completed a survey.

Sample demographics are presented in [Table 1]. Participants were predominantly White (n = 58; 85%), Non-Hispanic (n = 55; 81%), and female (n = 64; 87%). Most were between the ages of 18 and 40 years (n = 51; 69%) with a mean age of 27 years (SD = 11.60).

Mean participant endorsement (range of 0 [no worry] to 5 [high worry]) of worry categories is presented in [Table 2]. Notable is that "lack of control" was less of a worry than other categories. [Figure 1] shows how many different categories of worry that participants were concerned about pre-examination.

Pre-examination worry levels and whether the worry was realized during the examination are presented in [Figure 2]. For each item, responses were aggregated into the following groups: agreement (strongly agree or agree), slight agreement/disagreement (slightly agree or slightly disagree), and disagreement (disagree or strongly disagree). To examine response patterns, each actual examination experience (rows in the table) is presented alongside the pre-examination worry (columns in the table).

Control: Of 74 responses, n = 32 (43%) expressed some degree of pre-examination worry about lack of control. During the examination, n = 14 (19%) expressed some level of lack of control, whereas n = 60 (81%) stated they felt in control.

Being believed: Of 72 responses, n = 44 (61%) expressed some degree of pre-examination worry about being believed. During the examination, n = 12 (17%) expressed some level of not being believed, whereas n = 60 (83%) stated they felt believed.

Being judged: Of 69 responses, n = 39 (57%) expressed some degree of pre-examination worry about being judged. During the examination, n = 8 (11%) expressed some level of not feeling believed, whereas n = 61 (88%) stated they did not feel judged.

Being blamed: Of 73 responses, n = 42 (58%) expressed some degree of pre-examination worry about being blamed. During the examination, n = 11 (15%) expressed feeling some amount of blame, whereas n = 62 (85%) stated they did not feel blamed.

Pain: Of 74 responses, n = 52 (71%) expressed some degree of pre-examination worry about pain during the genital examination. During the examination, n = 30 (40%) expressed having some level of genital pain, whereas n = 44 (59%) stated they did not experience genital pain.

Embarrassment: Of 70 responses, n = 49 (70%) expressed some degree of pre-examination worry about the examination being embarrassing. During the examination, n = 19 (27%) expressed some level of embarrassment, whereas n = 51 (73%) stated the examination was conducted so as to feel less embarrassed.

[Table 3] displays binomial proportion test results to determine whether worry resolution (ie, pre-examination worries not being realized during the examination) was statistically different than chance. Resolution of worries related to lack of control, being believed, being judged, and being blamed were statistically significant (P

Individuals rated 3 additional elements of the examination on a 5-point scale (5 represented either "strongly agree" or "excellent" depending on the question) yielding the following mean and SD results. Individuals highly endorsed that the examination helped them to feel better with 4.27 (SD = 1.01). Additionally, participants highly endorsed that having a telehealth consultation improved the quality of care they received (4.35 [SD 1.08]), and they highly rated the care they received (4.68 [SD 0.66]).

Of the 74 participants, 16 participants (21%) wrote comments about the care they received. The responses fell into 5

themes: (1) caring nurses; (2) empowering information and choice; (3) made to feel safe; (4) positive feedback; and (5) critical feedback. Representative quotes for each of the 5 categories are presented in ^{Table 4}.

Discussion

The first step toward recovery from SA begins when an individual can safely and confidently access health care from SANEs or trained health care providers. Yet many victims of SA do not access health care services. Understanding barriers to accessing care and individual experience of the care received can provide information to improve public health messaging about the benefits of SANE-led health care evaluation if sexually assaulted. This study addresses these gaps by engaging individuals who received a telehealth-supported, SANE-led examination to reflect on the fears/worries they had prior to obtaining the examination and reflections on whether those fears/worries were realized/experienced during the examination.

Our findings demonstrate that most individuals who come forward must overcome substantial concerns to access care, with 66% being worried about at least 1 aspect of the examination and 41% endorsing 3 or more pre-examination fears/worries. Importantly, most participants felt believed (83%) and did not feel judged (88%) or blamed (85%) during their examination. This suggests that for most, their original worries did not come to fruition. In all, 88% to 100% of respondents indicating a pre-examination worry about being judged, being blamed, being believed, or lacking control indicated their worry was not realized during the examination. Worries related to the examination being painful and embarrassing were not experienced by most participants (59% and 73%, respectively), although rates of worry resolution were lower than for the other concerns (53% and 63%, respectively). These findings suggest that in settings where SA victims have access to care delivered by trained SANEs and supported by certified SANEs via telehealth, the fears/worries that individuals may harbor before an examination are largely not realized.

The findings from this study are similar to other studies that have examined patient experience of SA examinations conducted by SANE examiners. In-depth interviews of adolescent survivors of SA revealed an overall positive experience with the SANE care they received, specifically citing the importance of being believed, having their accounts of their assault validated, and not being judged by the nurse examiner.[17] Another study found that 95% of those who received a SANE examination felt believed and did not feel judged.[23] A multisite study of adult females who had received a SANE-led examination (n = 695) found that most patients rated their care as high-quality and endorsed that SANEs took their needs seriously, showed care and compassion, explained examination processes, and did not blame the victim.[24] Our findings extend previous research by examining worry resolution, where individuals who endorsed being worried before the examination largely did not experience those worries during the examination. The extent to which concerns were not experienced (particularly among those who held these worries/concerns pre-examination) reflect the positive psychological effects of high-quality SANE care during the examination.

SANE training is rooted in person-centered, trauma-informed principles. SANE care aims to empower survivors by restoring choice and control over all aspects of the examination. Examinations are conducted with attention to the preservation of dignity and privacy. However, SA examinations are detailed, and even with the most sensitive and compassionate response, the patient is likely to feel vulnerable. In this study, individuals had less worry resolution related to whether the examination was painful or embarrassing. These findings are not surprising given previous research findings in which participants cited the inherent awkwardness and uncomfortableness of the examination and yet credited the SANE nurses' sensitivity to those discomforts as easing the process.[17] Another study highlighted that the caring and compassionate responses of the nurses, coupled with the choice afforded to the patient throughout the examination, resulted in a positive "humanizing" experience.[18] Like this study, previous

studies similarly found high levels of patient satisfaction with the care they received.[17,18,23]

Participants endorsed that having a telehealth consultation improved the care they received (88%) and 92% rated their care as "excellent" or "very good." These findings suggest patients recognize the benefits they receive from this relatively new model of SA care where experienced SANE nurses are paired with experienced, certified SANEs through telehealth, working together to ensure best clinical practices are used and that a safe and caring environment exists for the patient. Beyond satisfaction with care, we were interested in whether patients felt better after their examination. Most study participants (84%) stated that the examination helped them to feel better. Others have also found that care delivered by SANEs improves health outcomes for SA survivors.[25,26] Acute care delivered by a SANE after an SA can set in motion a positive path of recovery and healing.

Patient fears/worries of negative reactions are justified. Numerous studies show that individuals disclosing SA are frequently met with negative reactions.[27] Law enforcement response that results in a secondary victimization of individuals who have experienced SA has been covered extensively in the literature and the media.[28,29] Our findings, and those of other SANE-led programs,[17,18,23] provide evidence that in most cases the fears that may keep individuals from seeking health care after an SA are not realized in interactions within SANE-led programs. This study specifically demonstrates that individuals who experience SA feel better after receiving care from a SANE and a teleSANE partner.

Limitations

There are several study limitations. This study was conducted in a single state, in sites that deliver a local SANE-led response supported by an experienced, certified SANE consultant via telehealth, so findings are not generalizable to examinations conducted by providers who are not SANE-trained and are not supported by an experienced teleSANE consultant. Although the study sample is small, it is relatively robust given that SA examination perception data were rare, especially in rural and underserved areas. This study has some strengths and limitations related to diversity. The study sample comprised mostly White women and does not adequately examine perspectives of persons of color, diverse ethnic groups, or male perspectives of SA examination experience. All but one of the individuals who declined to participate were White, indicating that lack of diversity in the sample may be caused by a nondiverse community population. Notably, 5% of the population identified as transgender or gender nonconforming, showing some progress in provision of care to those with historically greater barriers to accessing care for SA.

Although our results indicate that telehealth-supported SANE examinations helped patients feel better, no studies have examined this effect in programs with care provided only by local-SANE-trained nurses. Data collection from comparison hospitals without a teleSANE response is underway.

Implications for Emergency Nurses

This study highlights the high degree of worry that individuals must overcome to seek care for SA. Concerns are likely to be even greater in the many that chose to not seek care. These findings could guide the development of communications, public relations, and educational campaigns about the availability and benefits of SANE examinations. Quality SANE programs could lead to more trust and utilization of the health care system in rural and underserved communities, ensuring more victims receive quality care in their community. Public messaging should address that SANE examinations are supportive, rehumanizing, and restore a sense of control.

The findings from this study should strengthen health care organizations' commitment to quality SA care delivery. Hospitals that have new or relatively inexperienced SANE nurses or have low SA patient volume can benefit from the mentoring, quality assurance, and real-time expertise provided in a comprehensive SA telehealth program. SANE programs benefit the community by demonstrating that the hospital cares about victims of SA and has taken measures to ensure that consistent, quality care is available. With most patients stating the examination helped

them to feel better, quality SANE examinations may lead to greater uptake of supportive recovery and mental health services, thereby reducing the deleterious effects of SA.

Conclusion

Individuals who have experienced SA have substantial pre-examination worries to overcome to access care. Worries such as fear of not being believed, being judged, or being blamed during the examination are rarely experienced by individuals receiving care from telehealth-supported SANE programs. Findings demonstrating that the examination helped survivors feel better and high endorsement of care quality signify that care delivered in SANE programs can initiate a pathway of recovery and healing. These findings have implications for hospital administrators related to supporting SANE-led care and public health messaging to demystify SA care, allay fears, and highlight the benefit of care delivered by SANE nurses.

Acknowledgments

Author Disclosures

Supplementary Data

Supplementary Data

Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2022.06.005.

Variable	N	%
Age (n = 74)		
< 18 y	14	19
18-24 y	27	37
25-40 y	24	32

40-60 y		9	12
Gender identity (n = 74)			
Female		64	87
Male		6	8
Transgender/Genderqueer/Gender nonconforming		4	5
Race (n = 68)			
American Indian or Alaska Native		1	2
Black or African American		7	10
White		58	85
Unknown or prefer not to answer		2	3
Ethnicity (n = 68)			
Hispanic or Latino		3	4
Non-Hispanic or Latino		55	81
Unknown or prefer not to answer		10	15
Incarcerated status (n = 74)			
Incarcerated individual		6	8
Nonincarcerated individuals		68	92

Worry category	n	Mean	SD	Range
Lack of control	74	1.65	1.55	0-5
Being believed	73	2.62	1.87	0-5
Being judged	69	2.36	1.94	0-5

Being blamed	73	2.40	1.91	0-5
Genital examination would be physically painful	74	2.68	1.77	0-5
Examination would be embarrassing	72	2.71	1.73	0-5

Worry	Pre-examination worries		Worry resolution		
n	%	n	%	P	About lack of control
n = 11	15	n = 11	100	< .001	About being believed
n = 30	41	n = 28	93	< .001	About being judged
n = 26	38	n = 23	88	< .001	About being blamed
n = 29	40	n = 26	90	< .001	About examination being painful
n = 30	41	n = 16	53	.856	About examination being embarrassing

Themes	Responses N	Representative quotes
Caring nurses	4/16	"I really felt approved and loved by everyone. They really helped me and were very supportive. I felt like they knew me and understood me. They didn't judge or question me about things I did not feel comfortable talking about." "[The nurse] was amazing and talked me through such a rough time." "I loved having the lady on the screen in the room [telehealth consultant]. She was incredibly helpful and helped me relax"
Empowering information and choice	5/16	"I think this was an informed experience." "Very knowledgeable and thorough. Great at explaining things."
Made to feel safe	2/16	"[The nurses (local and telehealth consultant)] did great and made me feel safe and comfortable." "I felt in control and safe, comforted and guided the right way."
Positive feedback	6/16	"Nurses and staff were amazing." "So nice 2 me even tho I was miserable."
Critical feedback	1/16	"Felt as though the supply kit was a bit outdated. Two speculums broke during the procedure."

DETAILS

Subject:	Research data management; Emergency medical care; Public health; Recovery; Telemedicine; Patients; Healing; Emergency services; Worry; Quality of care; Sex crimes; Endorsements; Nurses; Consent; Hospitals; Health care; Perceptions; Trauma; Hypotheses; Sexual assault; Consultation; Missing data; Victimization; Nurse led care; Polls &surveys; Imprisonment
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Optimizing Pediatric Patient Safety in the Emergency Care Setting: JEN

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ABSTRACT (ENGLISH)

This is a revision of the previous American Academy of Pediatrics policy statement titled "Patient Safety in the Emergency Care Setting" and is the first joint policy statement by the American Academy of Pediatrics, the American College of Emergency Physicians, and the Emergency Nurses Association to address pediatric patient safety in the emergency care setting. Caring for children in the emergency setting can be prone to medical errors because of a number of environmental and human factors. The emergency department has frequent workflow interruptions, multiple care transitions, and barriers to effective communication. In addition, the high volume of patients, high decision density under time pressure, diagnostic uncertainty, and limited knowledge of patients' history and preexisting conditions make the safe care of critically ill and injured patients even more challenging. It is critical that all emergency departments, including general emergency departments who care for the majority of ill and injured children, understand the unique safety issues related to children. Furthermore, it is imperative that all emergency departments practice patient safety principles, support a culture of safety, and adopt best practices to improve safety for all children seeking emergency care. This policy statement outlines the recommendations necessary for emergency departments to minimize pediatric medical errors and to provide safe care for children of all ages.

FULL TEXT

Policy Statement

Over the last 2 decades, patient safety has become a key priority for health care systems because of increased recognition of the risks of medical care. Since the publication of the 2000 report of the Institute of Medicine (now the National Academies of Sciences, Engineering, and Medicine) "To Err is Human: Building a Safer Health System,"[1] there have been significant increases in research, education, collaboration among numerous organizations, and development of outcome measures to promote safety in the medical care arena. Despite such progress, medical errors and patient harm remain common.[2,3]

Since the publication of the original American Academy of Pediatrics (AAP) policy statement on this topic,[4] several specific policies of the AAP, American College of Emergency Physicians (ACEP), and Emergency Nurses Association (ENA) related to patient safety strategies have been published in the peer-reviewed medical literature, including pediatric readiness in the emergency department (ED), handoffs, patient- and family-centered care, and medication safety.[5-8] In addition, the revised policy expands on the principles of pediatric patient safety in the AAP policy statement from the Council on Quality Improvement and Patient Safety[9] to address elements specific to caring for pediatric patients in the emergency care setting. Of note, the revised policy statement is also intended for promoting pediatric safety in all emergency care settings, including general EDs caring for children and pediatric EDs.

The Joint Commission constructed a framework that health care organizations can use to accelerate their progress toward the ultimate goal of zero harm. The framework is organized around 3 major domains of change including: 1) commitment of leadership to the goal of zero harm; 2) promotion of safety culture; and 3) empowerment of the work force to employ robust process improvements tools.[10] In addition, the Institute for Healthcare Improvement and Safe &Reliable Healthcare collaborated to develop the Framework for Safe, Reliable, and Effective Care. The framework consists of 2 foundational domains—culture and the learning system—along with 9 interrelated components, with engagement of patients and families at the core.[11] The 9 components include leadership, 4 cultural components (psychological safety, accountability, teamwork and communication, and negotiation) and 4 components of the learning system (transparency, reliability, improvement and measurement, and continuous learning). This policy statement will address adopting these frameworks of The Joint Commission as well as the Institute for Healthcare Improvement and Safe &Reliable Healthcare in the emergency care setting to provide resources and recommendations that promote pediatric patient safety.

Recommendations for Optimizing Pediatric Patient Safety in the Emergency Care Setting Leadership Commitment to Safety Through Adopting Pediatric Readiness

••Make patient safety in the ED a priority for hospital and ED leadership.

••Ensure that all EDs have the appropriate resources (medications, equipment, policies, and education) and capable staff to provide emergency care for children, per the AAP, ACEP, ENA joint policy on pediatric readiness in the emergency department.[5]

••Support the presence of a pediatric ED quality and patient safety committee or pediatric representative on the ED quality and safety committee, which increases the culture of safety and addresses pediatric specific safety issues.[12]

••Support the concepts and encourage acceptance of tenets of pediatric readiness in all EDs across communities at state and national levels.[5]

••Establish processes for ongoing quality improvement and regular assessment of pediatric readiness in the ED and develop a plan to address any deficiencies.

Factors Influencing Patient Safety Culture in the ED

The main factors influencing patient safety culture in the ED are human, managerial, and organizational and environmental.[13,14]

I Factors That Influence People and Their Behavior Patient- and Family-Centered Care

••Acknowledge the family's role in the health of the patient as one of the core principles of patient- and family-centered care to ensure patient safety.[15]

••Engage patients and families at all points of emergency care, including family presence during procedures and resuscitation, cultural sensitivity, communication, shared decision-making, coordination with the medical home, and discharge planning and instructions.[7]

••Establish a clear policy and procedure for family presence, supported by all levels of the hospital staff including physician specialties, which will decrease family and staff anxiety when family is present during procedures and resuscitations[7,16,17]

••Support attention to the physical, emotional, and distinct medical needs of children. Having designated areas in a general ED allows for taking steps toward making the physical environment safer for children, such as locks on cabinets, and placing dangerous equipment—ie, the sharps containers high and out of reach of children.

••Support patient- and family-centered care and safe care of all children, including children and youth with special health care needs such as children with intellectual disabilities, children who are nonverbal and have cerebral palsy, and children with deafness. This includes ensuring specific components of dignity and respect (such as listening to families), participation, collaboration, information and child-oriented resources, support for families, and environmental resources (eg, conducive and welcoming waiting room design and wait-time strategies).[18]

••Support the presence and expertise of a certified child life specialist in the ED that focuses on age-appropriate distraction techniques to minimize anxiety and fear and need for sedation in children undergoing procedures like intravenous line insertion, wound repair, and other invasive and painful procedures to positively affect the experience for the child and their caregiver and help improve safety and satisfaction with the ED visit.[19-21]. Training

for nurses and physicians regarding distraction and pain-alleviating strategies is important especially in the absence of a child life specialists.

• •Encourage timely communication between the ED and the medical home to ensure safe and continuum of care.

• •Encourage seeking resources available at the Institute for Patient- and Family-Centered Care on the subject including a self-assessment inventory specific to the ED.[22]

Communication
• •Cultural competency, cultural humility

• ○Acknowledge the impact of racial and/or ethnic disparities on many aspects of emergency care, such as recognizing disparities in analgesic management for children presenting with acute abdominal pain, appendicitis, and fractures[23-25]; imaging[26]; and antibiotic prescriptions in viral infections.[27]

• ○Advocate for efforts to target implicit bias training and diversify the ED workforce, which has the potential to close some of the gaps in heath disparities in the emergency care settings.[28,29]

• ○Improve clinicians' cultural competency and awareness of their own implicit bias on the safety and quality of care of children in emergency care settings by providing education in health equity.[30] The fast pace and stressors in the ED environment may lead to cognitive shortcuts and greater use of stereotypes, which exacerbate implicit biases.[28]

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Language barriers
• ○Identify language and cultural barriers in the emergency care setting, because they have a large impact on health care delivery and patient safety because of higher rates of medical errors and worse clinical outcomes.[31,32] Patients with language, culture, and socioeconomic challenges are disproportionately at risk of experiencing preventable adverse events in the health care system.[33-35]

• ○Implement shared decision-making practices and address issues of ethnic culture, literacy, and language barriers by using trained language interpreter services rather than bilingual relatives or limited clinician's proficiency in the patient's language.[36,37] Lack of such resources can increase the risk of adverse safety events, return visits to the ED, or deviation from evidence-based guidelines in emergency care setting.[38-41]

• ○Expand available resources for beside ED interpreters, such as using tele-interpreter services, which include sign language.[42]

Errors in Diagnosis in Pediatric Emergency Medicine
• •Recognize that diagnostic errors or delayed diagnoses can occur throughout all settings of care including the ED. Such errors may cause harm to patients by preventing or delaying appropriate treatment, providing unnecessary or harmful treatment.[43]

• •Identify factors that can cause breakdown in the diagnostic process. These include patient factors (language barriers, lower health literacy, and altered mentation), provider factors (overconfidence, cognitive biases, inadequate training, loss of skills/competencies, drug use), and systems factors (such as lack of available resources and poorly designed electronic health system). System factors also include socioeconomic factors (disparities attributable to insurance, race, language barriers, social determinants of health) that predispose

patients to diagnostic errors.[43]

••Become aware of common cognitive biases in the clinician that can lead to diagnostic error.

••Systematically address diagnostic errors in the pediatric emergency care setting to provide high-quality and safe care.[44-48]

Shift Work/Burnout/Wellness

It has long been recognized that clinician factors, such as physician burnout, have a significant influence on the health care system in terms of productivity, care quality, and patient safety.[49-51] Burnout has led many physicians to consider reducing workload, retiring early, quitting, or even suicide.[52] Clinicians' mental health is also often affected by burnout.[50]

••Recognize clinician's burnout and poor well-being as factors contributing to poor safety outcomes such as incorrect medication orders, delayed care, and incorrect documentation, all of which contribute to diagnostic errors and patient harm.[51]

••Be aware of the potential impact of "off hour" shift work (evenings, nights, weekends, and holidays), changing shift assignment from day to night in the ED on premature burnout as well as poor overall physical, cognitive, mood and mental health.[53-56] All of these factors impact the potential to cause medical errors and risk to patient safety.[56,57]

••Consider using behavioral interventions such as light therapy, keeping a consistent shift, moderate caffeine consumption, and scheduled naps to minimize the short-term negative effects of a shifting sleep schedule. In addition, many of the risks of shift work are associated with metabolic syndrome and obesity. Therefore, encouraging all ED staff in keeping a healthy weight, exercising regularly, and adopting healthy eating habits might decrease such risks.

••Take into account improvement in clinicians' wellness when planning interventions to improve patient safety.[53] It is also critical to advocate for governments and health policy makers to invest in the wellness of health care professionals, especially nursing, to counter workforce shortage, which was exacerbated during the COVID-19 pandemic in hospitals and EDs, to ensure a healthy population.[58]

II Managerial Factors Psychological Safety and Reporting Close Calls

••Enhance patient safety by using reports from frontline staff of near misses and unsafe conditions to identify latent safety events. Such reporting is vital to continue to improve systems within the ED environment to ensure patient safety.[59]

••Encourage open communication and joint review and auditing (morbidity and mortality conferences or other mechanisms) of "near misses" among ED physicians and ED nursing staff. That practice can help create "just culture" with no individual blame for errors, which can mitigate reluctance among clinicians to report and discourage the hiding of events.[60]

••Listen to families, as an underused source of data in emergency care settings, to learn about errors, especially preventable adverse events, many of which may not be otherwise recognized by the medical team or documented in the medical record or event reporting.[61]

ED Crowding and Patient Safety

•• Recognize that ED crowding threatens pediatric patient safety and poses an increased risk of medical errors, including errors related to delays in providing emergent care.[62-68]

•• Support sustainable solutions to ED crowding that decrease input by increasing primary care access through extended hours of the medical home.[69,70]

•• Support ED throughput by implementing a 5-level triage system with nurse-initiated, evidence-based, standardized protocols and order sets at the point of initial triage consistent with the recommendations of the AAP policy statement on overcrowding and ACEP standardized protocols for optimizing ED care and policy triage scale standardization.[71-75]

•• Increase the use of clinical pathways, which could be included as part of the electronic health record (EHR) order set, in emergency care settings to decrease variation, increase efficiency, and improve safety for pediatric patients.[76,77]

•• Improve the efficiency of care provided in emergency care settings to all acuity levels through the use of fast track and split flow on presentation.[73,78,79]

•• Develop innovative ED staffing models that adapt to growing patient needs [80] and introduce active bed management to facilitate timely ED to inpatient bed transfer and improve ED throughput.[81,82] Active bed management includes improvement of hospital inpatient discharge processes, such as timely room cleaning, streamlining the discharge process, and conducting early rounds to determine patients' eligibility for discharge. All of these practices can facilitate early transfer of patients from ED to the inpatient unit.

•• Address nursing and staff shortage in the inpatient unit as well as in the ED, which can worsen during disasters such as during the COVID-19 pandemic. Such shortages can exacerbate the lack of available beds for admitted patients and also overburden nursing staff and create potential safety concerns.[83]

•• Recognize that boarding, because of pediatric mental health issues, can worsen during disasters such as during the COVID-19 pandemic, where mental health illnesses increased in frequency and severity.[84] Disparities also exist in the outcomes of mental health; Black and Hispanic families are at risk for increased burden of grief because they experience higher mortality with certain illnesses such as with COVID-19, food insecurity, financial instability, and education interruption.[85,86]

•• Advocate for increased mental health services in schools; integrate mental health into pediatric primary care; increase insurance coverage and payment for mental health in the ED as well as follow up care; and extend access to telehealth, all of which can decrease children and adolescents in crisis requiring ED visits. Advocacy for having appropriate mental health resources in the ED is critical for safety planning and post-discharge mental health outreach.

•• Explore research, education, and collaboration to develop and implement sustainable solutions to prevent and manage ED crowding.

III Organizational and Environmental Factors Teamwork/Team Training

••Train ED staff in teamwork that teaches individuals to crosscheck each other's actions using easy to remember acronyms[87,88] and mnemonics like those identified in the Children's Hospital's Solutions for Patient Safety-Zero Harm program to decrease the possibility of errors.[89]

••Optimize classroom education in teamwork by using simulation with specific scenarios to facilitate critical thinking skills, team interaction, and communication in the ED.[88] Multidisciplinary teams benefit from pre-event briefing, huddles, and post-event de-briefing to help identify opportunities for improvement. Simulation training is an effective tool to modify safety attitudes and teamwork behaviors in the ED setting. Sustaining cultural and behavioral changes requires repeated practice opportunities and accountability of the entire ED team to complete such training.[90]

••Support the integration of team training in the physician, nursing, and emergency medical services (EMS) training programs. The Agency for Healthcare Research and Quality provides information on several team-training programs with documented success in managing the challenging environment of the ED.[91]

••Incorporate a cultural broker (a go-between, one who advocates on behalf of another individual or group), when available, in the care team who can support the team to effectively address cultural differences in the patient's practices and subsequently promote health equity and safety.[92]

Emergency Department Shift Huddles

••Conduct shift huddles among all staff involved in the patient's care regularly in the ED to improve care coordination, relationships, and collaboration and strengthen the culture of safety.[93,94] In addition, if time and circumstances allow, encourage less formal "spot" meetings at mid-shift to tackle any foreseeable concerns.

••Support safety huddles/safety briefings including daily check-ins. Huddles are recommended as a team building tool in Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS), which is an evidence-based teamwork system aimed at optimizing patient outcomes and safety to increase situational awareness and decrease error.[95]

••Support interprofessional and interdepartmental communication and collaboration between the ED and hospital units to improve patient flow from the ED to other units.[96]

Handoffs in the Emergency Department

Communication errors are a contributing factor for approximately two-thirds of sentinel events,[97] more than half of which involve handoff failures.[98]

••Recognize that patients requiring emergency care often transition across and within multiple care areas, including the prehospital setting, the ED, inpatient units, and medical homes. All of these transitions of care require handoffs to exchange mission-specific information, responsibility of care, and authority for treatment and procedures.[6] The joint policy statement from the AAP, ACEP, and ENA on handoffs reviewed many recommendations to improve the safety practice in the ED setting.[6]

••Recognize that miscommunication and misinformation that starts in the ED may affect a patient's inpatient and outpatient care as well, because such information can be perpetuated throughout the entire patient encounter (and future encounters). Handoffs are a well-documented safety risk in the ED attributable to communication errors, [6,99-102] cognitive biases,[102] and environmental factors.[6]

••Increase structured handoffs in the ED, which occur in less than 20% of handoffs from ED to inpatient care.[103] Numerous models have been implemented and studied to improve the quality of handoffs, including checklists[102-105] structured mnemonics,[104,106,107] and handoff bundles.[108,109] Examples of mnemonics include SBAR (situation, background, assessment, and recommendation),[110] SOUND (synthesis, objective data, upcoming tasks, nursing input, and double check),[104] ABC-SBAR (airway, breathing, circulation followed by situation, background, assessment, and recommendation),[108] and I-PASS (illness severity, patient summary, action list, situation awareness and contingency planning, and synthesis by receiver).[106]

••Develop novel and innovative physician staffing models to allow overlapping shifts to decrease the number of handoffs that occur. [111] Of note, the needs of each individual ED are unique. Therefore, the utilization and distribution of various staffing models utilizing physicians and other clinicians within the ED should be determined at the site level by local ED leadership.[112]

••Monitor patients in high-risk situations, in which key team members will visit such patients regularly to assess for change in clinical status. This situation includes handoff of a patient with an uncertain diagnosis or disposition, an unstable patient, a consultant-driven evaluation, a pending imaging study, deviations from a typical diagnosis or treatment plan, or a prolonged stay in the ED.[113]

••Explore further research comparing different handoff models in the ED setting to determine their effects on patient harm and clinical outcomes. In addition, best practices for handoffs need to be derived and validated so they can be implemented to improve patient safety in the emergency care setting.

Empowerment of the Workforce to Employ Robust Process Improvements and Safety Strategies

It is critical for patient safety to ensure that staff has the ability to do what is necessary for patients in a timely manner, keeping the best interest of the patient in mind, including adapting to technology and developing and implementing strategies for providing safe and quality medical care. Information from frontline clinicians is critical to continue to improve any system process or strategies taken to increase patient safety.

The Role of Information Technology in Patient Safety

••Recognize the important role of information technology in improving health care safety and quality. In the modern ED, EHR functionally integrates bed management, patient flow, medication ordering and administration, abnormal study results, documentation, changes in clinical status, and disposition planning.

••Increase the implementation of computerized physician order entry (CPOE) and clinical decision support (CDS) with electronic prescribing to reduce ordering medication errors. On the other hand, CPOE systems may not fully eliminate medication errors in children, because commercial or independently developed CPOE systems may fail to address critical unique pediatric dosing requirements.[114] In addition, because true dosing alerts for medication errors can be overridden by clinicians, system refinements are necessary to reduce the high false-positive alert rate, which could lead to alert fatigue.[115]

••Develop CDS tools and integrate them into EHR to streamline workflows. An example of a guideline embedded within information systems to increase adherence to best practices is the successful CDS implementation in EHR of the 2 Pediatric Emergency Care Applied Research Network (PECARN) prediction rules to identify children at very low risk of clinically important traumatic brain injury. As a result, head computed tomography (CT) utilization rates decreased from 26.8% to 18.9% with no increase in returns within 7 days and no significant missed diagnoses.[116]

•• Identify technological solutions to medical safety concerns such as the use of electronic equipment (eg, programmable "smart" infusion pumps in neonates,[117] barcoding to compare identification bands with medications). Such solutions have resulted in improved detection of medication calculations and administration errors.[118]

•• Leverage the use of telehealth to enhance patient safety by connecting patients and pediatricians to remote specialist care. Telehealth can help in preventing unnecessary transfers and keeping patients in rural areas connected to the health care system when in-person visits are difficult to achieve.[119-122]

•• Recognize and support the evolving role of data science, and specifically artificial intelligence (AI) methods, in creating statistical models that can be integrated into CDS to improve patient safety and outcomes. In the ED, data science methods such as AI are increasingly being used for disease identification, admission or discharge prediction, and patient triage.[123] AI is also being used to guide "smart" staffing decisions and resource allocation.[124]

Strategies for Improving Medication Safety in the Emergency Care Setting

•• Use strategies for improving medication safety as outlined in the joint policy statement from the AAP, ACEP, and ENA on pediatric medication safety in the ED.[8] This includes the development of a standard pediatric formulary that includes standard concentrations and dosage of high-risk and frequently used medications, such as resuscitation medications, vasoactive infusions, narcotics, and antibiotics, as well as look-alike and sound-alike medications.[8]

•• Establish a process to ensure that body weight is measured and recorded in kilograms only to avoid inappropriate calculations.[8,125,126]

•• Advocate for the integration of ED pharmacists, when possible, within the ED team to verify the preparation, dosing, dispensing, and reconciliation of medications administered in the ED as well as drug education to heath care team and patients.[127-129] Having pharmacists in the ED directly or in a consultative fashion remotely (telepharmacy) may increase medication safety in the emergency care setting.

•• Establish the use of a distraction-free medication safety zone and implementation of an independent 2-clinicians check process[130] for high-alert medications, as suggested by the Institute for Safe Medication Practices and The Joint Commission.[131,132] Patient-identification policies, consistent with The Joint Commission National Patient Safety Goals, should be implemented and monitored.[130-132]

•• Recognize risk factors for medication errors during ordering, preparation, and administration such as not using the appropriate weight and performing medication calculations based on pounds instead of the recognized standard of kilograms, inappropriate calculations including tenfold-dosing errors, and making medication errors in the 5 rights of medication (the right patient, the right medication, the right dose, the right time, and the right route).

•• Establish safe sedation practices using guidelines such as the recently developed guidelines through a collaborative effort of the AAP and the American Academy of Pediatric Dentistry.[133]

•• Advocate for policies to address timely tracking, reporting, and evaluation of patient safety events and for the disclosure of medication errors or unanticipated outcomes. Education and training in medication error disclosure should be available to care providers who are assigned this responsibility.[5,134135]

Pediatric Emergency Care Safety During Disasters Including Infectious Outbreaks

• Recognize that one of the fundamental foundations of pediatric disaster readiness is ensuring that general EDs are able to meet the needs of children on a daily basis. Thus, one of the key components of disaster preparedness for EDs is to be "pediatric ready."[5,125]

• Ensure disaster planning takes into consideration the unique needs of children, especially those with access and functional needs and preexisting and complex medical conditions, as well as recognition of physical, developmental, and psychosocial differences, because the majority of children present to community hospital EDs.[136]

• Review ED disaster plans to ensure the safety of unaccompanied children, because during disasters, children may present unaccompanied by caregivers and unable to self-identify,[137] and have an established protocols for patient tracking and family reunification.[137]

• Recognize that in a hazardous materials event, plans for decontamination of children should include attention to water temperature and pressure to reduce hypothermia and prevent further dermal injury.[138]

• Ensure that ED staff has practiced pediatric disaster plans either through simulations or including children in disaster drills given that disasters are "low frequency, high impact events."[139-141]

• Recognize that the mental health needs of children experiencing disasters can extend into adulthood.[142] Therefore, hospital ED pediatric disaster plans may include identifying personnel to attend to the psychosocial and psychological needs of children to immediately decrease mental stress/trauma.

• Ensure that staff and pediatric patients have adequate personal protective equipment to reduce transmission during infectious outbreaks.

• Use available resources to improve pediatric disaster preparedness and response. The Emergency Medical Services for Children Improvement and Innovation Center has excellent resources for disaster preparedness.[143] The AAP offers a resource kit and related tabletop exercises scenarios on a collaborative website as well as a chapter within the Topical Collection Part One on Pediatric Preparedness Exercises.[144,145] This kit was based on implementation of an AAP and Centers for Disease Control and Prevention virtual exercise.[146]

Conclusion

Patient safety remains a critical priority for all clinicians caring for children who are ill and injured as it is the foundation of high-quality health care. Clinicians must practice patient safety principles, support a culture of safety, and adopt best practices to continue to improve safety for all children seeking emergency care.

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DETAILS

Subject:	Language; Shift work; Emergency medical care; Socioeconomic factors; Collaboration; Culture; Health care policy; Communication; Physicians; Nurses; Emergency services; Best practice; Density; Interpreters; Pediatrics; Medical errors; Bias; Patient safety; Uncertainty; Safety; Decision making; Quality improvement; Burnout; Critical incidents; Industrial safety; Children &youth; Mental health; Education; Interruptions; Human factors; Children; Artificial intelligence
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2022: A Year in Review: JEN

🔗ProQuest document link

ABSTRACT (ENGLISH)

Speaking of recharge, this event is where we kicked off the idea of "recharge" and encouraging emergency nurses to focus on caring for themselves to best care for others. ENA was faced with many substantial public health events and unprecedented political actions. Members from each state attended, meeting with legislators and supporting important bills related to emergency nursing.

FULL TEXT

The year has come to an end. I have had the pleasure of serving in the role of Emergency Nurses Association (ENA) President during a time in which circumstances have been challenging and incredibly rewarding. At the beginning of the year, in January, I was unsure what to expect as world events continued to evolve. Turns out, I couldn't have asked for a better experience serving the members of this association. As I've said time and again, this year has truly been the highlight of my career in emergency nursing.

The year began with ENA's first in-person event, in Charleston, South Carolina, at Leadership Orientation 2022. Attending in person was a milestone in and of itself, and observing people reconnect with one another was an exhilarating "recharge" moment for me. Speaking of recharge, this event is where we kicked off the idea of "recharge" and encouraging emergency nurses to focus on caring for themselves to best care for others. The concept has been a consistent theme for the year and one that I hope people will continue to hold on to, as it will help keep those working in this field energized.

ENA was faced with many substantial public health events and unprecedented political actions. We have continued to navigate issues including gun violence and women's health rights and have found ways to strengthen our voice on the advocacy front. I applaud both the association and its members for their passion about issues that impact both the profession and the communities we serve. At the ENA Day on the Hill event, we watched that advocacy in action. Members from each state attended, meeting with legislators and supporting important bills related to emergency nursing. We were so fortunate to have the opportunity during that time to partner with the American College of Emergency Physicians in our "No Silence on ED Violence" media event. This event was quite moving, and its focus on the impact of workplace violence on caregivers was forceful.

Another milestone in 2022 was the ENA annual conference in Denver, CO. The conference was last held in person in 2019, so this event was a key networking and "recharge" occasion for emergency nurses from all around the globe. Watching people reconnect with old friends and colleagues, engage in hands-on simulation training, and participate in informational and innovative education was great. As nurses, we heard from some of the best speakers and teachers in our profession and are grateful for the knowledge-sharing opportunity.

The close of this year is truly bittersweet. I could certainly imagine a life being the ENA President for the rest of my career—I mean really, who couldn't—and I deeply appreciate the time I have had in the role. I had the opportunity to travel to emergency departments throughout the country, meet ENA members all over and see the incredible work happening in their hometowns, and connect with committed and innovative industry partners. The appreciation for what an emergency nurse does is widespread, and I echo the sentiment of those I have encountered. I am grateful for what each of you does to care for your community and for one another. You take care of people in their most challenging moments and when they least expect to need care. You do that with compassion, grace, and true respect for being the care givers that you are. My hope is that I have represented you and the association well this year. Please know that I am your colleague and that I share the love of emergency nursing. This year has been one of great opportunity for me and I am honored to have been in the role. Thank you for your work and continue to find ways to recharge!

Author Disclosures

Conflicts of interest: none to report.

DETAILS

NCPD Earn Up to X.X Contact Hours: JEN

FULL TEXT

TVM:UNDEFINED

DETAILS

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Building a Campaign to Increase Older Driver Safety: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

With aging, physical and cognitive changes can affect driving safety. Emergency nurses can provide education for seniors that can create awareness of these changes and ways to mitigate the changes, allowing the older driver to remain independent and a safer driver.

FULL TEXT

As the population in the United States ages, the number of drivers older than the age of 60 years (older adult drivers) is increasing, and, unfortunately, so are the number of their deaths on the road. In 2021, 7530 drivers at the age of 60 years and older died nationwide as a result of road-related crashes.[1] This is a 14.5% increase from 6578 deaths of those older than the age of 60 years in 2020[1] and an 11% increase from 6784 deaths in 2017.[2] Reports show that based on per mile traveled, fatality rates rapidly increase in drivers older than the age of 70 years and even more so in those at the age of 85 years and older.[3,4] These rising trends have been noted since 2014 despite the efforts of many states working to reduce road-related fatalities in all ages.[3,4]

Crash-related injuries have been rising as well. Motor vehicle crashes (MVCs) are the second most common reason for injuries in those older than the age of 65 years, with falls being first.[5] In 2017, there were approximately 289,000 adults at the age of 65 years and older who were seriously injured as a result of MVCs. In 2019, there were 355,111 adults older than the age of 65 years seriously injured. In 2020, there were only 271,209 serious injuries as a result of MVCs, but this decrease is suspected to be caused by older adults staying home owing to COVID-19.[6] Serious injury data for 2021 have not yet been published by the National Highway Traffic Safety Administration, but if serious injury statistics follow the fatality trend, these numbers will increase. (It should be noted that, when surveying crash data, reports vary when defining an "older adult driver," with fatality statistics using the age ≥60 years, serious injury statistics using the age ≥65 years, and Insurance Institute for Highway Safety using the age ≥70 years when describing fatalities and injuries based on "miles traveled" in their reports.)

When considering the safety of older adult drivers on the road and their risk of injury and death, several factors come into play. Older adult drivers have more driving experience, drive fewer miles on average, and experience fewer MVCs.[2-5] However, aging leads to physical and cognitive changes, which not only put them at an increased risk of being involved in a crash but also increase frailty and fragility, thus putting the older adult driver at risk of death even in a minor MVC.[3-7] Not all deaths are immediate, but may occur in the days to months after the crash as a result of complications related to injuries that occurred during the crash. Of note, MVC-related deaths that occur 30 days beyond the crash do not factor into crash fatality statistics.[6] Education focusing on older adult driver safety

is an injury prevention strategy emergency nurses could spearhead in their communities and incorporate into education when discharging an older adult driver back onto the roadways and home.

Taking Action

While acknowledging how essential rapid assessment, triage, and care of the older adult crash victim are, our goal is to describe injury prevention strategies related to older adult drivers that emergency nurses can deploy as part of discharge education or as a community outreach activity. It is important to recognize that older adult drivers may be suspicious that safe driving education might be an attempt to get them to stop driving, but by using noncritical language and a nonthreatening approach, emergency nurses will find active older adults are eager to learn.[5] Experience has shown that not only are older adult drivers interested in driving tips to make them safer but family members and friends are interested in the same information and frequently have stories to share and questions related to older adult drivers.

When presenting older adult driver safety information, a good ice breaker starts with the notion that everyone ages and everyone experiences these changes—just at differing rates. A successful approach in the past used a large poster or slide (and matching handouts) that stated "With aging, physical strength and flexibility lessen. Medications affecting alertness can cause reactions to slow. Before getting behind the wheel consider these things!" The "4-7 poster" as it came to be known lists the 4 things associated with aging that affect driving and 7 actions that can increase driver safety (see [Box 1]).[5] The poster provided a backbone for a variety of discussions and educational opportunities by listing the effects of aging on driving and actions that can be taken. By putting these things into perspective, discussions become less threatening for older adults. By identifying and elaborating on actions that can mitigate changes associated with aging, drivers can select actions that help them to be a safer driver, even before getting behind the wheel. These "topic suggestions" provide fuel for additional questions, discussions, and learning opportunities related to safe driving.

Examples of safe driving content that can be teased from the poster include the following:

•• Signs and symptoms of physical and cognitive changes that occur as a normal part of aging while reminding learners that aging occurs in all, just in different stages and at different rates

•• Lists of common medical conditions—diabetes, dementia, Alzheimer's disease, Parkinson's disease, visual changes, stroke or cardiac conditions, and mobility issues that can affect driving[5]

•• Simple screening tools for physical and cognitive changes that affect driving (see [Table])[5,7,8]

•• Lists of prescription medications, over-the-counter medications, and herbals that can affect driving[5]

•• Sheets of exercises to strengthen driving muscles or puzzles that can challenge the brain[5]

•• Driving and road conditions that can be problematic, but adjusted for when planned for ahead of time[5]

Other useful information such as how to appropriately wear a seat belt, adjust the seat and mirrors, and recognize driving situations that are higher risk such as intersections, merging, and left-hand turns can be shared.[4,5,11] An older adult driver safety event may simply be the nurse presenting information, or the nurse could lead a discussion about a chosen topic, a question/answer session, or could involve a slide show, short video clips, or a demonstration involving a nonmoving vehicle (when COVID-19 restrictions allow), or providing small mats or rugs that show a variety of road configurations including roundabouts, merging lanes, and intersections, which participants can "practice" driving using toy cars (see [Figure]). The use of "props" and "fun" when teaching has been shown to be effective in all age learners, and the road mats have been found to be a nonthreatening way to demonstrate safe driving.[12-14] Hard-copy examples of resources that can be downloaded for printing, or accessed on the internet, and information about older adult driver safety classes, CarFit events (see description later), and a list of how to access

low cost rides can be provided. Creating and sharing links to website pages that are dedicated to older adult driver safety and injury prevention are a great way to provide information, especially for local senior center leaders or others to use or share. [Box 2] identifies a variety of websites that have free and downloadable information related to older adult driver safety.

Limiting Driving and Safety

Most drivers recognize when it is time to self-limit, or stop driving, usually at approximately the age of 65 years.[4,5] Common reasons older adult drivers identified as reasons to limit or stop driving include vision changes, warnings on medication bottles, medical conditions, or no longer feeling comfortable behind the wheel of a motor vehicle.[4,5] Some older adults continue to drive but adjust their driving to avoid driving in poor weather, after dark, in areas where there is a lot of traffic, confusing intersections and traffic patterns, or where speed limits are higher.[4,5] Sometimes an unsafe older adult driver will not, or cannot, stop driving for a variety of legitimate reasons such as not having alternative methods of transportation, or they are the only means of transportation for required activities of daily living for themselves or a family member (such as grocery shopping, health care provider appointments, and trips to the pharmacy). It is then that family members or others must step in.[5] A frequent "ask for help" from family members is for information on how to manage the older adult driver who refuses to relinquish the keys and is at risk of harming themselves or others when driving. Recognize that this is often a difficult conversation to have. Families are uncomfortable because this conversation often can strain relationships with their loved one. Medical personnel are often just as uncomfortable having this discussion because there is the risk that the patient may switch providers if the topic is broached.[5] Concern about an older adult's loss of independence and ability to have an active life are frequent reasons given by law enforcement, health care, and families for not taking steps that would lead to having an older adult driver's driving skills evaluated.[5] It should be noted that having one's driving skills evaluated does not always lead to loss of driving privileges. Sharing this information may relieve some of the guilt felt by those asking for the evaluation of skills by the State's Driver Vehicle Services Department.

A great resource related to this issue is the Hartford Foundation's "We Need to Talk" booklet (see [Box 2]). The booklet is free to download and contains much useful information. A second valuable resource is the local occupational therapy practioner or driving rehabilitation specialist. These experts are trained to assess patient's ability to perform activities required for driving. Depending on who requests the assessment and the driver's insurance, an assessment related to driving fitness may be covered, or partially covered, by health insurance.[5] Being able to provide a list of the area occupational therapy practioners and driving rehabilitation specialists can be helpful, as can asking the emergency care provider to write a prescription for an assessment. Providing information about these resources and other materials related to older adult drivers can help either guide a conversation or provide support for those concerned.

A program offered by the American Occupational Therapy Association, in conjunction with the American Association of Retired Persons, is CarFit (see [Box 2]). During this interactive event, the older adult drives their vehicle into a "station" where the CarFit technician goes through a 12-point check sheet that ensures the driver "fits" in their vehicle appropriately and can use its safety features.[11] Emergency nurses can train to be a CarFit technician and help with events. Simple adjustments to seats, seatbelts, and mirrors can be taught to the driver by the technician. If more extensive teaching or reinforcement of teaching is needed, the technician can check a box indicating this or note other concerns. During "checkout," the last step of the event, an occupational therapy practioner or driving rehabilitation specialist at the event will provide additional training or suggestions that can increase the driver's safety.[11] Becoming a CarFit technician can lead to great collaborations between emergency nurses and occupational therapy practitioners while providing great opportunities for emergency nurses to conduct injury prevention activities.

If one is highly concerned about an older adult's driving skills, there is an additional resource emergency nurses should be aware of to provide this information to drivers and their families. All states have a process that allows others to request the Department of Vehicle Services to have a driver be examined for continued driving privileges if they are concerned about a driver's safety.[5] It is important to know that submitting this request does not automatically lead to loss of license, but doing so initiates a multistep process, which may show the person is still safe to drive, may limit the times or places they drive, or may result in loss of license. As a word of caution, unless "protected" by state statute, the name of the person submitting the request will generally be released to the driver should they ask.[5] However, this is a helpful option families can use when they are concerned about an older adult family member's driving. Emergency nurses do need to remind families that they also need to take action to ensure the driver does not have access to the vehicle's keys or take steps to disable the vehicle. Revocation of a driver's license does not automatically mean the older adult driver will not still attempt to drive.

Methods to spread older adult driver risk awareness and safety information are only limited by the imagination. If there are concerns about spread of infection—such as COVID-19—providing older adult driver safety information virtually is certainly an option. As people start getting back together, venues can include senior centers, senior gyms, churches, fairs, and other events where active older adults and/or their families gather. Interactive question and answer sessions where coffee and snacks are available seem to increase older adult attendance.

Taking steps to increase older adult driver safety is an action that emergency nurses can do in small doses or as large events. Funds to offer this education can often be obtained by providing brief awareness education about older adult driver risks and safety to those who have funds for injury prevention and simply asking for financial support. Before conducting the "ask," it is important to prepare a budget, which explains the items for which the funds will be used. Providing safety education as part of discharge instructions related to seat belt usage, seat and mirror adjustment, or the "4/7 older driver safety hints" may help save a life. Providing education that will help to keep older adults mobile, independent, and safe on the roads is something emergency nurses can and need to do.

Author Disclosures

Ability	Screening tools
Physical ability	Timed up and go test[8] Rapid pace walk[8]
Cognitive ability	Driver Orientation Screen for Cognitive Impairment[9]•9 question screening tool that scores cognitive ability primarily used by law enforcement, but adaptable for othersMini-COG•3-word recall and clock drawing[5]MMSE•10-task screening tool to assess cognitive function[10]MoCA∗•11-task screening tool to assess cognitive function[5]

AAA (American Automobile Association): https://seniordriving.aaa.com/

AARP (American Association of Retired Persons): https://www.aarp.org/auto/driver-safety/

American Occupational Therapy Association: https://www.aota.org/Practice/Productive-Aging/Driving.aspx

CarFit: https://www.car-fit.org/

CDC (Centers for Disease Control and Prevention): https://www.cdc.gov/trasnportationsafety/older_adult-drivers/index.html

CHORUS (Clearinghouse for Older Road User Safety): https://www.roadsafeseniors.org/blog/10-suggestions-how-approach-your-aging-parent's-driving

Hartford Foundation resources found at: https://www/thehardford.com/resources/mature-market-excellence/publications-on-aging

The Hartford Foundation booklet: "We need to talk" is found at: https://s0.hfdstatic.com/sites/the_hartford/files/we-need-to-talk.pdf

NHTSA (National Highway Traffic and Safety Administration): https://www.nhtsa.gov/road-safety/older-drivers

DETAILS

Document 35 of 49

A Multicenter Retrospective Evaluation of Specialized Laboratory Investigations in the Workup of Pediatric Patients With New-Onset Supraventricular Tachycardia: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

Introduction

Specialized laboratory evaluation of supraventricular tachycardia in children may occur, but the utility is unknown. The study objectives are to assess the type, frequency, and results of specialized laboratory testing performed in pediatric patients presenting with new-onset supraventricular tachycardia. We hypothesized that when specialized laboratory testing occurs (particularly for cardiac failure, toxicologic, inflammatory, and thyroid diseases), the results are generally within normal limits.

Methods

This is a retrospective descriptive study using an electronic health record database (TriNetX, Inc). We collected and evaluated the following data of subjects aged younger than 18 years with a first-time supraventricular tachycardia diagnosis: demographics, diagnostic codes, deaths, and laboratory codes/results (natriuretic peptide B, natriuretic peptide B prohormone N-terminal, troponin I, toxicology testing, inflammatory markers, and thyroid studies).

Results

A total of 621 subjects (524 [84.4%] without laboratory testing, 97 [15.6%] with laboratory testing) were included. Thyroid studies (65 [10.5%]) were the most frequent laboratory study performed followed by cardiovascular specific

studies (35 [5.6%]), inflammatory markers (21 [3.4%]), and toxicology tests (10 [1.6%]) (*P* = .002). Obtained laboratory testing was more frequent with older subjects, females, and need for emergency, hospital, and critical care services.

Discussion

Cardiac-specific and noncardiac laboratory testing is frequently ordered for pediatric patients who present with supraventricular tachycardia. Thyroid studies were the most common laboratory testing ordered, but abnormal results only occurred in less than a quarter of subjects. These findings may highlight a quality improvement opportunity for emergency nurses and practitioners in the practice of obtaining laboratory tests to better reflect high-value evidence-based care for this vulnerable population.

FULL TEXT

Contribution to Emergency Nursing Practice

•• Specialized laboratory evaluation of supraventricular tachycardia in children may occur, but the utility is unknown.

•• In this multicenter electronic health record database analysis, we found that cardiac-specific and noncardiac laboratory testing may be ordered for pediatric patients who present with supraventricular tachycardia. Thyroid studies were the most common laboratory testing ordered, but abnormal results only occurred in less than a quarter of subjects.

•• These findings may highlight a quality improvement opportunity for emergency nurses and practitioners to change the practice toward ordering laboratory tests based on clinical indication.

Introduction

In the pediatric population, cardiac rhythm disturbances make up approximately 5% of hospitalizations per year and certain types are an important cause of morbidity in infants.[1,2] Thus, children with this condition require not only acute treatment but subspecialty pediatric cardiology care and close follow-up to ensure the best possible outcome.[3] Despite the requirement for subspecialty care, this patient population may first be managed by a general emergency medicine, pediatrics provider, and nursing staff, who not only must be able to identify supraventricular tachycardia (SVT) but manage this condition in collaboration with a prescribing provider while supporting the patient and family.[4,5]

The most common cardiac rhythm disturbance in the pediatric population is SVT.[6] It is a dysrhythmia that originates from atrial or atrioventricular nodal tissue above the bundle of His.[7] In children, the mechanism of SVT is most commonly caused by the presence of an accessory electrical pathway creating a reentrant circuit between the atrium and the ventricle or within the atrioventricular node.[8,9] When triggered, it results in increased heart rates and, if not addressed, may result in heart failure and/or death.[8]

After stabilization, oftentimes in the emergency setting, an extensive diagnostic workup may be performed. In addition to routine laboratory evaluation, this may consist of cardiac-specific laboratory and specialty laboratory tests such as thyroid function studies and drug/toxicology screens.[10] However, its utility is unclear given that most patients with SVT have structurally normal hearts and often do not have any noncardiac associated conditions.[9] Thus, extensive testing could lead to unnecessary invasive evaluation of these patients, excess costs, longer lengths of stays in the emergency department, and unnecessary worry for the parents and practitioners.[4] An understanding of how emergency and nonemergency clinicians assess pediatric patients presenting with SVT may help (1) assess the need for laboratory testing and (2) justify whether a high-value evidence-based approach to medical decision making for children with cardiac dysrhythmias is needed.

The objective of this study is to (1) assess the type and frequency of specialized laboratory testing (cardiovascular

specific serum studies [natriuretic peptide B, natriuretic peptide B prohormone N-terminal, troponin I], toxicology testing, inflammatory markers, and thyroid studies) performed with patients younger than 18 years of age who present with SVT for the first time and (2) determine the frequency that these tests reveal an abnormal result. We hypothesize that, although noncardiac specific laboratory testing is frequently performed, it often produces a result that is within normal limits (a low positivity rate).

Methods Study Design

This is a retrospective observational cohort study that was conducted using the TriNetX electronic health record (EHR) data of pediatric patients younger than 18 years of age with a cardiac dysrhythmia–related diagnostic code. TriNetX is a global federated health research network that provides researchers access to continuously updated data elements on EHRs from participating health care organizations, predominantly in the United States.[11] TriNetX is certified to the ISO 27001:2013 standard and protects health care data by maintaining compliance with the Health Insurance Portability and Accountability Act Security Rule. The EHR data elements are aggregated and deidentified, including demographic characteristics, diagnoses, procedures, medications, laboratory values, and genomics, all in compliance with the deidentification standard outlined in Section §164.514(a) of the Health Insurance Portability and Accountability Act privacy rule. Because no protected health information is received by the user, we were provided a waiver from the Penn State Health Institutional Review Board to perform this study.

Data Collection

On January 22, 2021, we analyzed the available EHR data of 621 pediatric patients aged 18 years or younger who had a first-time SVT-related international classification of diseases diagnostic code and received the following services (emergency department, hospital, and/or critical care). It was assumed that subjects who had this diagnostic code were seen by a clinician, were evaluated, were diagnosed as having SVT, and had no other reason to have this diagnostic code based on the evaluation that was performed. We excluded patients who had previously undergone cardiac surgery, because these patients frequently have cardiac dysrhythmias and may not receive additional testing. We also excluded children with congenital heart disease. The SVT diagnosis entry dates ranged from April 9, 2002, to January 28, 2021. (Please see ^{Supplementary Table} for diagnostic code definitions.)

After the query, we obtained the following data: age, sex, race, ethnicity, and type and results of laboratory testing that was performed within the first day after the first reported instance of an SVT-related diagnostic code. For each unique patient, we analyzed the following specific laboratory testing categories: (1) cardiovascular specific studies (natriuretic peptide B, natriuretic peptide B prohormone N-terminal, troponin I) and (2) noncardiovascular studies. Noncardiovascular specific studies were focused on thyroid studies (free thyroxine [T4], thyrotropin), toxicology testing (qualitative urine [substance presence] and quantitative serum [substance presence and amount]), and inflammatory markers (C-reactive protein, erythrocyte sedimentation rate). We determined whether test results were within normal limits for natriuretic peptide B, natriuretic peptide B prohormone N-terminal, troponin I, C-reactive protein, erythrocyte sedimentation rate, free T4, and thyrotropin. Frequency of results not within normal limits was determined for each laboratory category and individual laboratory tests. Owing to a lack of reference values (and the likelihood that the different health care organizations may use different laboratories with different reference ranges), only qualitative and not quantitative serum for the toxicology tests were reviewed. The reference values for all the other laboratory tests were quantitative. Upon review of the nontoxicology laboratory tests, it was noted that some unique subjects had duplicate codes/values (ie, presence of 2 troponin I levels) and the presence of more than 1 distinct laboratory code/value within a laboratory category (ie, presence of C-reactive protein and erythrocyte sedimentation rate in the inflammatory marker category). For duplicate laboratory codes/values, we counted the laboratory once for each unique subject that had this occurrence and recorded the maximum value (ie, troponin I of

0.014 ng/mL and 0.015 ng/mL, only 0.015 ng/mL was recorded). The only exception was the thyrotropin level, where we recorded the minimum value for this, given that the clinician was likely evaluating for hyperthyroidism. For multiple distinct laboratory codes/values within a laboratory category, it was considered as part of the laboratory category and also counted once. In addition to the above, we evaluated for diagnostic codes specific for heart failure, thyroid disorders, and pre-excitation syndrome.

Statistical Analysis

Summary statistics using mean and standard deviation or proportions were reported for demographic, other diagnoses, and common procedural terminology codes for pediatric patients with an SVT diagnosis. Multiple categories of the race were rare; thus, they were regrouped into White and others for analysis.

Fisher's exact test was applied to compare various categorical clinical characteristics between those who received laboratory testing and not. Given that the distribution of age was highly skewed, the Wilcoxon rank sum test was applied to test the difference between the 2 groups.

We used Cochran's Q test to investigate whether a laboratory category was performed more commonly than others. If the null hypothesis of Cochran's Q test was rejected, we further applied pairwise McNemar's tests to examine whether the most commonly performed laboratory category had a higher frequency than the rest. Bonferroni correction was applied to control the familywise error rate.

To investigate whether there is an association between the laboratory evaluation and clinical characteristics (age, sex, race, and common procedural codes), we first used univariate logistic regressions of each variable of interest on each laboratory category and binary outcome in any laboratory or not. A generalized additive model using the thin plate regression spline was fit to confirm the linearity assumption on continuous variables in the logistic regression. For multivariate analysis, we conducted the multivariate logistic regression with backward stepwise variable selection based on the Akaike information criterion. Odds ratio, 95% confidence interval and *P* value were calculated to assess the relationship between clinical characteristics and each outcome.

We used statistical software R 4.1.1 (R Foundation for Statistical Computing) with packages tidyverse v1.3.1, arsenal v3.6.3, coin v1.4-,1 and mgcv v1.8-36. Given the exploratory nature of the analysis for this retrospective study, no adjustment for multiplicity was applied for the regression model. *P* values of less than or equal to .05 were regarded as statistically significant.

Results Demographic Characteristics

A total of 621 subjects (524 [84.4%] without laboratory studies and 97 [15.6%] with laboratory studies) were included in this study. Associated diagnoses, race, hospitalization, and critical care services were similar in both groups. Demographic characteristics are summarized in [Table 1].

Frequency of Specific Laboratory Tests Performed

A higher frequency of thyroid laboratory studies was performed (65 [10.5%]) compared with cardiovascular specific studies (35 [5.6%]), inflammatory markers (21 [3.4%]), or toxicology tests (10 [1.6%]) (*P* = .002). Of the cardiovascular specific tests, a greater frequency of troponin I (27 [4.3%]) was reported than natriuretic peptide B (10 [1.6%]) and natriuretic peptide B prohormone N-terminal (3 [0.5%]). Of the inflammatory marker studies, C-reactive protein (16 [2.6%]) and erythrocyte sedimentation rate (10 [1.6%]) laboratory tests were performed. Of the thyroid studies, 31 (5.0%) were free T4 and 60 (9.7%) were thyrotropin. Toxicology tests had 10 (1.6%) qualitative results available. These results were all negative or unknown ([Table 2]).

Association of Specialized Laboratory Testing With Demographic Characteristics

Analysis of demographic characteristics indicated an association between specialized laboratory testing and older age (1.11 [1.06-1.16], *P* *P* = .04). Male sex was associated with lower odds of specialized laboratory testing (0.61

[0.39-0.95], *P* = .03). Similar findings were observed after fitting multivariable logistic regression models, with the exception that hospitalization (2.47 [1.19-5.16], *P* = .02) and critical care services (2.73 [1.32-5.62], *P* = .007) were observed to be associated with specialized laboratory testing (^{Table 3}).

Frequency of Laboratory Results Not Within Normal Limits

The frequencies of laboratory results not within normal limits (occurring once within each category) were nominally similar for cardiovascular (8 [22.9%]) and thyroid (15 [23.1%]) study categories with a higher frequency noted in the inflammatory marker (8 [38.1%]) category. Specific laboratory value results are summarized in ^{Table 4}.

Discussion

In this study, we aimed to investigate the type, frequency, and results of laboratory testing performed in pediatric patients presenting with SVT for the first time. We found that thyroid studies were most frequently ordered, but an abnormal result occurred in less than a quarter of subjects where this testing occurred. Laboratory testing was noted to be associated with older subjects (>11 years of age), females, and different types of medical services (emergency, hospital, and critical care). These findings may have implications for the management of pediatric patients who present with new-onset SVT in the emergency and hospital setting, particularly when it is appropriate to send specialized laboratory testing and if quality improvement initiatives are necessary to reduce potentially unwarranted testing.

After stabilizing a child with SVT, clinicians may order additional diagnostic testing. This is often done to evaluate for noncardiac diseases or conditions that are known to cause cardiac dysrhythmias. For example, thyrotoxicosis is known to induce cardiovascular effects including sinus tachycardia and a predisposition to arrhythmias.[12] Similarly, different forms of cardiac dysrhythmias may be induced by illicit drug abuse.[13,14] Although most pediatric patients who present with a new-onset SVT are unlikely to have one of these conditions as the underlying cause, in the right clinical context, it may be necessary to maintain a low threshold of investigation for one of these causes.[15] However, even though clinicians obtained thyroid function tests, our study found that less than a quarter of the results were outside normal limits. Perhaps this is because the incidence of hyperthyroidism occurring in children without any predisposing risk factors is rare.[16] Children presenting with thyroid storm account for less than 3% of all patients with hyperthyroidism.[12] Although sinus tachycardia is commonly reported, the presence of other cardiac dysrhythmias is rare with atrial fibrillation and less common forms of SVT ranging from only 2% to 20% in all patients in a hyperthyroid state.[12,15] In our study, the infrequency of elevated thyroid function tests in the setting of a pediatric patient presenting with new-onset SVT suggests routine use of these tests may be unwarranted in the diagnostic workup of these patients.[17] These findings point to the understanding that cardiac dysrhythmias are usually cardiac related, especially in an otherwise healthy pediatric patient. In general, we found that thyroid testing is one of the most commonly ordered laboratory tests but it is generally unrevealing, and when abnormal, it may not change clinical decision making especially if the symptoms of the clinical presentation are nonspecific.[18] All clinicians should be aware of this and only obtain such ordered testing if it is clinically justified and warranted.

Cardiac testing also was noted to be ordered with an abnormal result that also occurred in less than a quarter of the subjects in our study. Elevated cardiac enzymes, particularly troponin, are can indicate myocardial cell injury.[19] Thus, elevated troponin levels are frequently measured to evaluate for ischemic heart disease and risk stratify adult patients for the need for emergent cardiac catherization.[20] However, in children, myocardial injury is rare and elevated troponin can be from cardiac or noncardiac causes and alone does not reveal the etiology of myocardial injury.[20] In these instances, elevated troponin levels may be present owing to reversible cell damage and not necessarily cell death.[19] In particular, elevated troponin is common in patients presenting with cardiac dysrhythmias and is most often thought to be rate related rather than ischemic in nature.[20] Hence, unlike in adults, elevated

troponin in pediatric patients is less specific and diagnostic and does not usually require emergency cardiac catherization.[19]

In our study, laboratory testing was significantly associated with older subjects and a similar association was noted between laboratory testing and different medical services rendered (emergency, hospital, critical care). Invasive evaluation of younger children (such as in our study) may not occur owing to phlebotomy difficulty, clinicians recognizing the possibility of a lower yield in positive results, or a clinician's desire to avoid additional stress and anxiety on a sick patient or their caregivers.[21] Even though our retrospective study was limited, these results may reinforce the notion that laboratory testing is not without risk and only should be obtained in children with SVT if clinically indicated. In addition, if our interpretation of these findings is correct, there are other drawbacks, especially in a hospital-based setting. Some of these include increased health care costs, increased length of hospital stays, and attainment of inconclusive or unactionable test results, which could lead to additional anxiety for the patient and their families.[17] In these circumstances, more testing could mean an increased risk of false-positive test results that could trigger unnecessary further investigations or treatment. Furthermore, in a situation where there is a low pretest probability for a particular condition, ordering additional tests also can elicit an aspect of unease for the provider to interpret the test result and determine the next best course of action in the context of a clinically indeterminate patient. From a nursing perspective, when performing phlebotomy, there is a risk of losing future intravenous sites.[22] This is especially important in young children, who may have a smaller superficial vein size and often require multiple venipunctures.[23] This can lead to multiple phlebotomy experiences resulting in additional stress and trauma inflicted on the patient. Repeated laboratory draws, especially if the first result is abnormal, also can lead to anemia.[24,25] Thus, when a child presents to the emergency or hospital setting with a condition (even as serious as SVT), risk stratification needs to occur for all types of patients to best select the necessary tests and interventions for these patients and avoid reflexively ordering laboratory tests.

Based on our study findings, an alternative approach to the diagnostic workup of pediatric patients presenting with new-onset SVT in the emergency and hospital setting should be considered. First, a thorough and comprehensive history and physical examination should be performed on all patients to guide clinical suspicion and decision making.[19] All laboratory testing that is ordered, whenever possible, should be guided by clinical indication and consideration of the patient's comprehensive history to prompt the necessary investigations that need to be performed. This may be challenging in an emergency department, especially when this may be the first time the patient presents with a condition with an acute onset, but there may be particular clinical features that can assist the clinician. Hyperthyroidism is more common in children with other autoimmune conditions and in children with a family history of autoimmune thyroid disease.[16] Therefore, it would be reasonable to obtain thyroid function tests in these patients to evaluate for thyroid disease as a potential underlying cause of the patient's cardiac dysrhythmia. From a cardiac perspective, although elevated troponin is specific for myocardial injury, it alone does not indicate any particular mechanism or etiology.[19] In fact, multiple studies have shown that troponin levels are poor predictors of acute myocardial infarction in the setting of cardiac dysrhythmias.[20] Therefore, isolated elevated troponin levels may have limited usefulness in the investigation of patients with cardiac dysrhythmias without additional testing and workup to determine the underlying etiology of suspected myocardial injury.[19] Therefore, we suggest that cardiac tests such as troponin levels be reserved for patients with a high clinical suspicion such as those who possess additional risk factors that make underlying heart disease (such as a cardiomyopathy or viral myocarditis) more likely or those who present with electrocardiogram changes indicative of ischemic heart disease. Before phlebotomy for ordered laboratory tests, interprofessional communication should be considered. The use of multidisciplinary communication and/or a checklist can reduce the number of unwarranted laboratory testing.[25] Communication in this

fashion, so that all contributing services can decide which laboratory tests are necessary, proper, and ultimately unavoidable, may prevent the risk of additional blood loss. In addition, it may reduce the loss of future intravenous sites on patients; reduce trauma, stress, and anxiety on the part of the patient and their family; and reduce institution/patient expenditure. Previous studies in other clinical settings have demonstrated that this type of approach can be a safe and effective method to direct laboratory testing needs.[25] Future study through interprofessional quality improvement initiatives may be necessary (Table 5).

Limitations

This study had several limitations. This was a retrospective study; thus, the associations we found are not causation. Owing to database limitations, clinical documentation is not available for review. Thus, we do not know why these patients received additional testing, including how the patient presented or the risk associated with the patient's condition. We also were unable to investigate why male subjects and younger subjects underwent less laboratory testing. It is possible that the patients provided a clinical history that warranted a thorough workup or were seen at a nonpediatric emergency department. The data were restricted to institutions that participate in this database retrieval system. Owing to database limitations, we were unable to confirm the disease state reported by clinicians potentially resulting in bias. In addition, it is possible that not all EHR data were reported or all subjects who presented with a cardiac dysrhythmia were coded. Because we were not provided the reference ranges for quantitative serum toxicology results, it is unknown whether there were findings that were not within normal limits.

Implications for Emergency Nurses

Pediatric patients who present with new-onset SVT in the emergency and hospital setting require early recognition and treatment. However, after stabilization, they may not need extensive diagnostic testing. The results of this study may indicate that quality improvement initiatives to change practice toward ordering of laboratory tests based on clinical indication are needed to create a high-value evidence-based framework for the workup of pediatric patients presenting with new-onset SVT.

Conclusions

Our study found that both cardiovascular and noncardiovascular testing may be ordered for pediatric patients who present with SVT. Thyroid studies were the most common laboratory testing ordered, but an abnormal result only occurred in less of a quarter of subjects where this testing occurred. Although the providers may have performed this testing to confirm a negative result, the low positivity rate may potentially call into question the utility of noncardiac laboratory testing in the emergency and hospital setting for patients presenting with new-onset SVT. It also may highlight a quality improvement opportunity for emergency nurses and practitioners in the practice of obtaining laboratory tests to better reflect high-value evidence-based care for this vulnerable population.

Author Disclosures

Conflicts of interest: none to report.

Ethical Statement

TriNetX is a global federated health research network that provides researchers access to continuously updated data elements on EHRs from participating health care organizations, predominantly in the United States.[11] TriNetX is certified to the ISO 27001:2013 standard and protects health care data by maintaining compliance with the Health Insurance Portability and Accountability Act Security Rule. The EHR data elements are aggregated and deidentified, including demographic characteristics, diagnoses, procedures, medications, laboratory values, and genomics, all in

compliance with the de-identification standard outlined in Section §164.514(a) of the Health Insurance Portability and Accountability Act privacy rule. Because no protected health information is received by users of this network, the Penn State Health Institutional Review Board provided a waiver for users from our institution to perform these type of studies.

Appendix

Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2022.07.002.

Clinical characteristics	No specialized laboratory testing	Specialized laboratory testing	P value
Total number of subjects, n (%)	524 (84.4%)	97 (15.6%)	-
Approximate age (y, mean, SD)[*]	7.0 (SD = 5.5)	10.1 (SD = 5.2)	< .001
Age groups, n (%)			
0-5 y	227 (43.3)	22 (22.7)	-
6-10 y	123 (23.5)	21 (21.6)	
11-18 y	174 (33.2)	54 (55.7)	
Sex, n (%)			.03
Male	275 (52.5)	39 (40.2)	
Female	249 (47.5)	58 (59.8)	
Race, n (%)			.1
American Indian or Alaska Native	3 (0.6)	1 (1.0)	
Asian	11 (2.1)	2 (2.1)	
Black or African American	78 (14.9)	20 (20.6)	
Unknown	84 (16.0)	7 (7.2)	
White	348 (66.4)	67 (69.1)	
Ethnicity, n (%)			< .001

Hispanic or Latino	109 (20.8)	5 (5.2)	
Not Hispanic or Latino	317 (60.5)	65 (67.0)	
Unknown	98 (18.7)	27 (27.8)	
Associated diagnoses, n (%)			
Heart failure	9 (1.7)	2 (2.1)	.70
Thyroid disorders	5 (1.0)	1 (1.0)	> .99
Pre-excitation syndrome	67 (12.8)	4 (4.1)	-
Common procedural terminology codes, n (%)			
Emergency department services	324 (61.8%)	71 (73.2%)	.04
Hospitalization	112 (21.4%)	17 (17.5%)	.50
Critical care services	138 (26.3%)	25 (25.8%)	> .99

Laboratory studies	Frequency of unique subjects	P value
Any thyroid study	65 (10.5)	.002
Free thyroxine (T4) (LOINC 3024-7)	31 (5.0)	
Thyrotropin minimum value (LOINC 11580-8)	60 (9.7)	
Any cardiovascular specific laboratory study	35 (5.6)	
Natriuretic peptide B (LOINC 30934-4; 42637-9)	10 (1.6)	
Natriuretic peptide B prohormone N-terminal (LOINC 33762-6)	3 (0.5)	
Troponin I (LOINC 10839-9, 42757-5; 49563-0; 76399-5; 89579-7)	27 (4.3)	
Any inflammatory marker level	21 (3.4)	

C-reactive protein (LOINC 1988-5; 11039-5; LP15023-2)	16 (2.6)	
Erythrocyte sedimentation rate (LOINC 4537-7; 30341-2; 82477-1; LP16409-2)	10 (1.6)	
Any drugs and toxicology screen or serum level	10 (1.6)	

Variable	Univariate analysis		Multivariate analysis		
Odds ratio (95% CI)	P value	Odds ratio (95% CI)	P value	Male
0.61 (0.39-0.95)	.03	0.57 (0.36-0.90)	.02	Caucasian
1.13 (0.71-1.80)	.61	-	-	Age
1.11 (1.06-1.16)	< .001	1.12 (1.07-1.18)	< .001	Emergency department services
1.69 (1.04-2.73)	.04	2.97 (1.41-6.27)	.004	Hospitalization services
0.78 (0.45-1.37)	.40	2.47 (1.19-5.16)	.02	Critical care services

Laboratory value	Frequency of abnormal test result, n (%)
Cardiovascular laboratory studies	8 (22.9)
Natriuretic peptide B (LOINC 30934-4; 42637-9)	3 (30.0)
Natriuretic peptide B prohormone N-terminal (LOINC 33762-6)	2 (66.7)

Troponin I (LOINC 10839-9, 42757-5; 49563-0; 76399-5; 89579-7)	12 (44.4)
Inflammatory markers	8 (38.1)
C-reactive protein (LOINC 1988-5; 11039-5; LP15023-2)	5 (31.3)
Erythrocyte sedimentation rate (LOINC 4537-7; 30341-2; 82477-1; LP16409-2)	4 (40.0)
Thyroid studies	15 (23.1)
Free thyroxine (T4) above normal limit (LOINC 3024-7)	3 (9.7)
Free thyroxine (T4) below normal limit (LOINC 3024-7)	3 (9.7)
Thyrotropin minimum above normal limit (LOINC 11580-8)	9 (15.0)
Thyrotropin minimum below normal limit (LOINC 11580-8)	2 (3.3)

Type of patient	Practice recommendation
All patients	Perform a comprehensive history and physical examination to guide medical decision making.
All patients	Before testing, consider multidisciplinary communication to obtain high yield laboratory tests and avoid unwarranted laboratory testing.
Patient with hyperthyroidism and/or family history of autoimmune thyroid disease	Consider thyroid function testing.
Patient with underlying heart disease (ie, cardiomyopathy or viral myocarditis)	Consider testing of cardiac biomarkers (troponin, natriuretic peptides) and markers of inflammation (C-reactive protein and/or erythrocyte sedimentation rate).

Category	Description

Supraventricular tachycardia	"427" (ICD-9-CM: "Paroxysmal supraventricular tachycardia"); "427.2" (ICD-9-CM: "Paroxysmal tachycardia, unspecified"); "I47.1" (ICD-10-CM: "Supraventricular tachycardia"); "I47.9" (ICD-10-CM: "Paroxysmal tachycardia, unspecified")
Heart failure	"428" (ICD-9-CM: "Heart failure"); "428.42" (ICD-9-CM: "Chronic combined systolic and diastolic heart failure"); "428.21" (ICD-9-CM: "Acute systolic heart failure"); "428.9" (ICD-9-CM: "Heart failure, unspecified"); "I50.21" (ICD-10-CM: "Acute systolic (congestive) heart failure"); "I50.9" (ICD-10-CM: "Heart failure, unspecified"); "I50.30" (ICD-10-CM: "Unspecified diastolic (congestive) heart failure"); "I50.41" (ICD-10-CM: "Acute combined systolic (congestive) and diastolic (congestive) heart failure")
Thyroid disorders	"244.9" (ICD-9-CM: "Unspecified acquired hypothyroidism"); "E03.1" (ICD-10-CM: "Congenital hypothyroidism without goiter"); "E06.3" (ICD-10-CM: "Autoimmune thyroiditis"); "E03.9" (ICD-10-CM: "Hypothyroidism, unspecified")
Pre-excitation syndrome	"426.7" (ICD-9-CM: "Anomalous atrioventricular excitation"); "I45.6" (ICD-10-CM: "Pre-excitation syndrome")

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ABSTRACT (ENGLISH)

Typically, PPPE is experienced within 4 to 6 weeks after delivery; however, symptom onset has been reported as long as 3 months postpartum.6,7 Delivery by C-section and health factors such as hypothyroidism, kidney disorders, elevated prepregnancy body mass index, or mild to moderate hypertension before or during pregnancy are also independent factors for PPPE.8 Patients often present with headache and an elevated blood pressure defined as over 160 mm Hg systolic and/or 110 mm Hg diastolic.9,10 However, any new neurologic sign, especially when combined with a blood pressure at or over 140 mm Hg systolic and/or 90 mm Hg diastolic, in a postpartum woman is a red flag. The American College of Obstetricians and Gynecologists recommends confirmation by measuring blood pressure at least 4 hours after the previous measure, unless the initial measurement was considered severe (greater than either 160 mm Hg systolic or 110 mm Hg diastolic), in which case treatment is recommended within the hour.11 Suresh et al12 suggest a more rapid recognition and management strategy, which may be more appropriate in the emergency department. Rapid, appropriate care could make a significant difference for Jane and for her

FULL TEXT

Jane, a 36-year-old woman, presents to your ED triage desk reporting recent vision changes. Her partner, standing nearby holding their 3-week-old child, shares that Jane started bumping into walls and doorways about an hour ago. Jane tells you that she has never had anything like this before. She initially denies blurred vision but then corrects herself, stating, "Well, I guess there is some blurriness, but it comes and goes." She shares, "I thought I was just really, really tired, but then I just got so scared. We called my doctor who told us to come in to be seen."

She reports being in otherwise good health, with no prescribed medications, no known allergies, and no significant medical history. Her recent pregnancy, which had no complications except extended gestation resulting in a cesarean delivery (C-section) at 41 weeks and 5 days. Jane's vital signs were as follows: blood pressure, 146/82 mm Hg; heart rate, 86; respiratory rate, 18; oximetry, 98% on room air; temperature, 37.2 °C (98.9 °F) orally; and 2 out of 10 discomfort in her lower abdomen from the C-section surgical incision.

Something does not feel right, but you are not sure what it is. Knowing that you are an inexperienced triage nurse, you excuse yourself to consult with the more experienced charge nurse.

On the basis of the scenario above, what triage acuity level is most appropriate? What are possible differential diagnoses? This article covers 2 high-risk conditions Jane could be experiencing.

Stroke Symptoms

Care of the patient experiencing a stroke is common for the emergency nurse and typically presents with speech changes, arm or leg weakness, or facial drooping.[1] Jane has none of these.

Visual changes may be sign of a posterior stroke and were reported in one prevalence study to be present in 48% of patients being admitted to the hospital with a stroke diagnosis.[2] Assessment using a stroke scale including questions about vision could identify patients with complaints such as Jane's as high risk for possible stroke. There are several validated stroke scales in which vision is an assessment component, and for all of them, a positive screening requires an immediate rapid response.

••BEFAST is an acronym for its elements of balance, eyes, face, arms, speech, and time.[1] Screening would be considered positive if any BEFAST element is present[1] within the time frame specified by the organization, which can range from 3 to 24 hours.

••ROSIER (rule out stroke in the emergency room) assesses syncope, facial weakness, arm weakness, leg weakness, speech changes, and vision changes; a positive screening includes 1 or more of those signs present.[3,4]

••VAN is a screening for large cerebral vessel occlusion and is an acronym for its elements of vision, aphasia, and neglect. A positive screening requires motor weakness and 1 or more of the VAN elements.[5]

In an emergency department using a stroke screening scale with an eye or vision component, and given the short time since symptom onset, activation of the emergency department's stroke response process for Jane may be appropriate.

Postpartum Pre-eclampsia

As a woman 3 weeks postpartum after a C-section, Jane is at risk for postpartum pre-eclampsia (PPPE). Typically, PPPE is experienced within 4 to 6 weeks after delivery; however, symptom onset has been reported as long as 3 months postpartum.[6,7] Delivery by C-section and health factors such as hypothyroidism, kidney disorders, elevated prepregnancy body mass index, or mild to moderate hypertension before or during pregnancy are also independent

factors for PPPE.[8]

Patients often present with headache and an elevated blood pressure defined as over 160 mm Hg systolic and/or 110 mm Hg diastolic.[9,10] However, any new neurologic sign, especially when combined with a blood pressure at or over 140 mm Hg systolic and/or 90 mm Hg diastolic, in a postpartum woman is a red flag. Even though she did not report a headache, Jane's vision changes and slightly elevated systolic blood pressure, combined with her history of C-section delivery, may appropriately raise your suspicion of Jane's risk for PPPE.

It is worthy to note that one elevated blood pressure during pregnancy or in the postpartum period does not equate to a diagnosis of PPPE. The American College of Obstetricians and Gynecologists recommends confirmation by measuring blood pressure at least 4 hours after the previous measure, unless the initial measurement was considered severe (greater than either 160 mm Hg systolic or 110 mm Hg diastolic), in which case treatment is recommended within the hour.[11] Suresh et al[12] suggest a more rapid recognition and management strategy, which may be more appropriate in the emergency department. Their recommendation is to retake an initially severe level blood pressure measurement within 15 minutes.[12] In addition, Hauspurg and Jeyabalan[6] suggest that PPPE should be a diagnosis of exclusion after other, more serious diagnoses, such as stroke, are ruled out.

Triage Decision

You are grateful for the guidance from your charge nurse and the quick refresher on possible high-risk considerations such as stroke and PPPE. As neither of these conditions requires immediate life-saving intervention,[13] you assign the patient an Emergency Severity Index triage acuity level 2 because of the risk associated with her presenting complaints. Fortunately, the patient is quickly taken to an available ED room for evaluation and care.

Conclusion

Jane is fearful and presents with high-risk symptoms. Although her symptoms could be attributed to extreme exhaustion, she also could be experiencing a stroke or postpartum pre-eclampsia, among other possible diagnoses. As a triage nurse, recognizing a high-risk situation from vague presentation symptoms can save a life or prevent a condition from worsening. Rapid, appropriate care could make a significant difference for Jane and for her family.

Acknowledgments

Author Disclosures

Conflicts of interest: none to report. Most "Triage Decisions" submissions are based on actual cases, but this submission uses a simulated patient to remind the reader of a presentation that may be familiar and a condition which may be uncommon.

DETAILS

Subject:	Patients; Emergency medical care; Measurement; Hypertension; Blood pressure; Stroke; Clinical nurse specialists; Conflicts of interest; Hypothyroidism; Consultation; Body mass index; Pregnancy; Obstetricians; Cesarean section; Emergency services; Preeclampsia; Caesarean section; Gynecologists
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Refractory Anaphylactic Shock Requiring Emergent Venoarterial Extracorporeal Membrane Oxygenation in the Emergency Department: A Case Report: JEN

ABSTRACT (ENGLISH)

Venoarterial extracorporeal membrane oxygenation is a viable salvage intervention for patients who experience cardiopulmonary arrest or profound shock from any cause. Acute anaphylactic shock is a rare cause of cardiac arrest. We present a case of a 35-year-old male who experienced cardiac arrest owing to anaphylactic shock while receiving general anesthesia for a routine outpatient surgical procedure. Traditional advanced cardiac life support therapies were provided by paramedics en route to the emergency department of a suburban, community-based hospital. Maximal medical management including endotracheal intubation, intravenous steroids, intravenous crystalloid fluid administration, intravenous vasoactive medications, and high-quality cardiopulmonary resuscitation was provided. Although return of spontaneous circulation was achieved, profound cardiogenic shock persisted. Venoarterial extracorporeal membrane oxygenation was initiated by the emergency department provider and nursing team. The patient survived, was neurologically intact, had full recovery, and was discharged home several days later. We have extensive experience with venoarterial extracorporeal membrane oxygenation, and this case exemplifies the value of an established emergency department extracorporeal membrane oxygenation program in managing all causes of cardiac arrest or refractory shock.

FULL TEXT

Contribution to Emergency Nursing Practice

••It is well established that extracorporeal membrane oxygenation is a temporary form of life support that can offer circulatory and pulmonary support for patients experiencing cardiopulmonary failure who have not responded to traditional therapies.

••This case review adds to current published literature in that it exemplifies the use of venoarterial extracorporeal membrane oxygenation in managing patients who experience cardiac arrest and or refractory cardiogenic shock.

••The most important implication for clinical practice demonstrated by this case review is the value of an established emergency department venoarterial extracorporeal membrane oxygenation program.

Introduction

Venoarterial extracorporeal membrane oxygenation (VA-ECMO) is a viable salvage intervention for patients who experience cardiopulmonary arrest or profound shock from any cause, including anaphylaxis. We present a case of a 35-year-old male who experienced cardiac arrest owing to anaphylactic shock during a routine outpatient surgical procedure. This case exemplifies the value of an established ED ECMO program in managing all causes of cardiac arrest or refractory shock.

Patient Presentation

A 35-year-old male was transported by emergency medical services to the emergency department from an outpatient surgical center after experiencing cardiopulmonary arrest while undergoing induction of general anesthesia during an elective excision of a ganglion cyst from his left leg. In addition to general anesthesia, the patient was prophylactically given the antibiotic ceFAZolin (2 g). He had no known allergies to medications or known medical history. The anesthesiologist who performed the induction at the surgical center accompanied the patient in the ambulance to the emergency department and was therefore available to describe the events that surrounded the arrest event.

At 9:10 am, the patient was put under general anesthesia with propofol, succinylcholine, fentaNYL, and midazolam

(exact doses were not immediately available for review). Approximately 10 minutes after induction, the patient was suddenly and unexpectedly found to be hypoxemic (60%) with an end-tidal capnography of 30 mm Hg. He quickly became pulseless, and cardiopulmonary resuscitation was initiated by the anesthesiologist. Advanced cardiac life support (ACLS) protocols were initiated. Hypoxemia was refractory to aggressive bag valve mask ventilation (Fraction of inspired oxygen [FiO_2] 100%) through the supraglottic airway that was placed during induction. Before emergency medical services arrival to the surgical center, the anesthesiologist replaced the supraglottic airway with an endotracheal tube and confirmed proper positioning within the trachea with direct visualization using glide scope. Despite 12 minutes of cardiopulmonary resuscitation and 2 doses of intravenous (IV) EPINEPHrine (0.1 mg/mL), the patient remained pulseless with a narrow-complex electrical rhythm. At 9:45 am, just before the patient's arrival to the emergency department, the emergency medical services team was able to achieve return of spontaneous circulation after administration of the third dose of IV EPINEPHrine (0.1 mg/mL).

Upon presentation to the emergency department, the following vital signs were documented: temperature of 36.5 °C (97.7 °F), blood pressure of 116/65 mm Hg, heart rate of 125 beats per minute, oxygen saturation of 87% with bag valve mask (100% FiO_2), and end-tidal capnography of 25 mm Hg. Point of care iStat and ChemStat (Abbott Labrotories) were performed at 10:05 am, in addition to a formal laboratory results that reflected a severe respiratory acidosis (pH 7.158, partial pressure of carbon dioxide 56.1 kPa, bicarbonate 20 mmol/L, and partial pressure of oxygen 136 kPa). The ED physicians placed a 9-French (Fr) central line (9 Fr, 10 cm, 0.035 inch diameter, Arrow International, Inc, Reading, PA) in the right femoral vein and 5 Fr arterial line (5.0 Fr, 7 cm, 0.035 inch diameter, Cook Inc, Bloomington, IN) in the left common femoral artery. A rapid ultrasound for shock and hypotension evaluation was performed, which determined the cause of shock to likely be distributive.[1] In response, the patient received IV crystalloid (normal saline 30 cc/kg) while vasopressor therapy was initiated. The emergency provider administered 7 doses of IV push-dose EPINEPHrine (10-20 mcg each) to address the vasoplegia. Norepinephrine and EPINEPHrine drips were quickly titrated to the maximal rates of 32 mcg/min and 10 mcg/min, respectively. A fixed-dose vasopressin drip was started at 0.04 units/min. To specifically treat anaphylaxis, methylPREDNISolone 125 mg, diphenhydrAMINE 50 mg, and famotidine 20 mg were each given IV push. The patient remained hypotensive, with a mean arterial pressure of 40 to 50 mm Hg, despite these interventions. Rearrest was considered imminent.

The decision was made to initiate VA-ECMO for cardiopulmonary support, because concern was mounting that the refractory hypotension was causing insufficient perfusion of the brain and vital organs. Using the previously placed femoral arterial and venous lines as conduits for ECMO cannula placement, Seldinger technique was performed and guidewires (Super Stiff Amplatz, 145 cm, 0.035 inch diam, Boston Scientific, Heredia, Costa Rica) were placed. Serial dilation was performed, and ECMO cannulas (21 Fr venous, 55 cm; 17 Fr arterial, 23 cm, Maquet Cardiopulmonary GmbH, Rastatt, Germany) were successfully placed ([Figure]). The entire procedure was facilitated by an emergency nurse who had received extensive previous training in ECMO initiation. The nurse assisted with guidewire management, dilator selection, and placement of the ECMO cannulas. The nursing team then optimized ECMO hemodynamics as follows: pump flow was steadily increased and initial ECMO parameters were selected: 2.8 liters per minute flow rate, 2500 revolutions per minute, 3 liters per minute sweep gas rate, and 100% FiO_2. The settings were appropriately adjusted based on initial and serial arterial blood gas results. The profound respiratory acidosis was corrected by adjustment of the ECMO circuit's sweep gas rate.

Additional diagnostics were completed and alternative causes of cardiac arrest were ruled out. Ultimately, all involved providers surmised that the most likely cause of arrest was caused by anaphylactic shock caused by the ceFAZolin that was administered as a component of routine preoperative care.

After stabilization on VA-ECMO in the emergency department, the patient was transported to the intensive care unit where he remained on ECMO for 2 days before decannulation. The patient walked out of the hospital, neurologically intact 10 days after a 10-day stay.

Discussion

Anaphylaxis is an allergic reaction that can be life threatening.[2] The global incidence of severe anaphylactic reactions is between 50 and 112 per 100,000 people, and ED visits for anaphylactic reactions increased 101% between 2005 and 2014.[3] One of the top 3 causes of anaphylactic reaction is the administration of antibiotic agents, with penicillins, cephalosporins, and sulfonamides being common culprits.[4] Anaphylactic reactions are typically categorized by their phenotypic presentation and underlying endotype (type I, cytokine storm, mixed, and complement).[5] Anaphylactic reactions may present with a variety of symptoms including: flushing, pruritus, throat tightness, cardiovascular collapse, shortness of breath, and hypoxemia. These symptoms can be caused by immunoglobulin E– and nonimmunoglobulin E–mediated mechanisms.[5] Among all patients admitted to hospitals with anaphylaxis, fatalities account for only 1%, and the fatality rate remains stable at 0.63 to 0.75 per million adults per year.[5]

Medication reactions that occur during the perioperative period can be life threatening and unpredictable.[6] Among medications used in the perioperative arena, the first-generation cephalosporin, ceFAZolin, is a common choice for first-line prophylaxis during surgical procedures.[6] The overall incidence of adverse drug reactions or hypersensitivity drug reactions to cephalosporins ranges from 1% to 10%, with rare anaphylaxis rate less than 0.02%.[7] CeFAZolin is the most causative agent for perioperative anaphylaxis in the United States.[7] The most important risk factor for cephalosporin allergy is a known allergy to penicillin or history of reaction to cephalosporin.[6]

VA-ECMO is a temporizing form of life support that offers circulatory and pulmonary support for patients experiencing both cardiac and pulmonary failure who are unresponsive to conventional therapies.[8] The concept of artificial cardiopulmonary support was first proposed by LeGallois in 1813 but implementation required the discovery of heparin in 1918.[9] Since its first successful initiation in 1953, exceptional efforts have been made to allow for prolonged and expanded use.[8] It was not until the 1970s that the first cases of extracorporeal cardiopulmonary resuscitation (ECPR)/salvage cases were published.[9] ECPR defines initiation of ECMO during cardiac arrest as a salvage option in patients unresponsive to traditional interventions and therapies.[10] In their 2019 guidelines for cardiopulmonary resuscitation and emergency cardiovascular care, the American Heart Association supports the use of ECPR in select situations: "We suggest ECPR may be considered as a rescue therapy for selected patients with cardiac arrest when conventional cardiopulmonary resuscitation is failing, in settings where this can be implemented."[11]

During VA-ECMO, deoxygenated blood is drained from the venous system by a large bore cannula that is typically placed in the common femoral vein and advanced to the right atrial inlet via the inferior vena cava.[8] Blood is drawn, by negative pressure, from the right atrium by a centrifugal pump. Blood is then advanced, by positive pressure, from the pump to the membrane oxygenator, whereby gas exchange occurs (oxygenation and removal of carbon dioxide). The blood is then returned to corporeal circulation through a separate cannula that is typically placed in the femoral artery.[8] Although VA-ECMO is a common intervention for support of cardiogenic shock, this case suggests a role for VA-ECMO in profound anaphylactic shock refractory to traditional medical therapies.

As ED physicians and nurses become more adept with its utility, ECPR is becoming more commonly used in emergency departments throughout the world. Programs have been developed to train physicians and nurses in ECPR initiation and management of patients on ECMO after cardiopulmonary arrest.[12] In 2016, Tonna et al[13] reached out to the 99 United States centers that submitted ECPR data to the Extracorporeal Life Support

Organization. Of those that responded, only 36 centers had attempted ECMO in the emergency department.[13] Several early studies have shown efficacy in its use over traditional ACLS, and the American Heart Association has endorsed the use of ECMO in appropriate situations.[10,14]

As ED teams become more and more experienced with ECPR, the individual roles of the team members also have evolved. Years ago, this ED team deployed the concept of the "nurse-led code" whereby experienced emergency nurses are given the responsibility to run the ACLS components of a resuscitation.[15] This strategy allows the physician to focus on the elements of ECMO needed for successful resuscitations.[15] As it stands, the roles and responsibilities of both the physicians and nurses continue to evolve, leading to increased interest, motivation, engagement, and satisfaction with their contributions to resuscitation science. We have found this collaborative approach to benefit all.

Implications for Emergency Nurses

We present a case of a patient who experienced profound cardiopulmonary collapse owing to anaphylactic shock most likely caused by the administration of IV ceFAZolin. Despite aggressive use of IV fluid administration, attempts to correct the profound respiratory acidosis, ventilatory support, and escalation of multiple vasopressors, the patient remained hypotensive and cardiac rearrest was considered imminent. Being a facility with over a decade of experience using ECMO as a rescue tool, this ED team was able to rapidly deploy VA-ECMO with an excellent outcome. The aforementioned case demonstrates the value of establishing an ED ECMO program and its potential impact on resuscitation survival rates.

Patient Recount of Events

In the Fall of 2021, I scheduled an elective surgery to remove a ganglion cyst from the lower part of my left leg. I wanted to get this thing removed, because first of all, it was unsightly, and secondly, I enjoy an active lifestyle and there was always a fear something worse would happen if I hit it or tied my boots too tight while enjoying the outdoors (maybe a little irrational but in the back of my head nonetheless). I thought to myself a quick outpatient procedure and a little bit of recovery and I won't have to worry about this lump on my leg anymore.

The day of the scheduled surgery I remember being dropped off, taking a quick inventory of what I walked in with, and then getting settled in for what I thought wasn't supposed to be more than an hour. When I woke up the next day, you could say I was a little confused. Where in the world was I, why does my groin hurt and I don't remember discussing anything about a catheter for this elective surgery! I don't remember the faces of those I spoke with after coming to but what I do remember is being told multiple times how lucky I was to be alive. When I was more alert, the ER staff explained everything that happened.

I'm grateful for everything the ER team has done to save my life. I'm happy to be back to life as normal and coaching my daughters'softball and watching my son play volleyball. I'm glad to have another opportunity to live to a ripe old age with them.

Conclusion

ED ECMO is a salvage therapy to be considered only after traditional interventions fail to resolve profound shock or cardiopulmonary arrest. This emergency department has considerable experience using VA-ECMO in a variety of extremis situations.[15] A collaborative team of ED physicians and emergency nurses work closely together to make this happen, and the roles of all team members continue to expand. This specific case review depicts the utility of an implemented ED ECMO program.

Author Disclosure

The patient care evaluated in this case report was performed in the emergency department where both authors are currently employed.

Data, Code, and Research Materials Availability

A written informed consent was obtained from the patient regarding publication of this case report, use of personal statement, and any/all accompanying images. A copy of written consent is available for review by the editor-in-chief of this journal.

DETAILS

Document 38 of 49

Emergency Department Nurses' Perceptions of Patient Substance Use, Impact on Sexual Assault Care, and Access to Follow-up Behavioral Health Resources: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

Introduction

Patients may present to the emergency department for sexual assault care under the influence of drugs or alcohol. However, many emergency nurses are not prepared to meet their unique needs or aware of follow-up behavioral health resources. The purpose of this study was to (1) summarize current resources provided to patients and processes for referral to behavioral health services after sexual assault care, (2) explore emergency nurses' attitudes and behaviors toward patient substance use, and (3) explore nurses' perceptions of adjunct mobile health interventions for follow-up behavioral health care and describe anticipated barriers to use.

Methods

Fifteen emergency nurses participated in semi-structured qualitative interviews.

Results

Participants had mixed perceptions of patient intoxication during sexual assault care. They felt that conversations about substance use may be more appropriate after the ED visit. Participants recognized the opportunity to connect ED patients with substance use treatment or prevention resources but perceived that there are few local service providers. Most participants were not referring patients with substance use issues to behavioral health services after sexual assault care and said that their emergency departments did not have processes for referral to these services. Acceptability of mobile health for follow-up behavioral health care was high, but participants had concerns for patient privacy and internet access. Participants gave recommendations to improve referral practices and patient engagement with mobile health interventions.

Discussion

This study highlights the need for emergency nurses to consider patient intoxication during sexual assault care and opportunities to connect patients with resources post-assault.

FULL TEXT

Contribution to Emergency Nursing Practice

•• What is already known on patient substance use and sexual assault care: patients may be under the influence of drugs and alcohol when they present to the emergency department for sexual assault care; however, nurses may not be prepared to meet their unique needs or to make referrals to services.

•• The main finding of this paper: participants recognized the opportunity to discuss patient substance use and connect them with treatment or prevention resources, but most were not making referrals and perceived limited access to local service providers.

•• Recommendations for translating findings into emergency clinical practice: mobile health may be a feasible and acceptable strategy to promote follow-up behavioral health care for sexual assault survivors after emergency care.

Introduction

Substance use and sexual assault are often intertwined. Studies of adolescent and college-age females suggest that over half of sexual assault survivors report alcohol use at the time they were assaulted.[1-4] Compared with alcohol use, illicit drug use at the time of assault is less common; however, cannabis use has been indicated in approximately one-third of sexual assaults.[5] Drug and alcohol intoxication can increase vulnerability to sexual assault.[6] A past study revealed that women who use both alcohol and drugs or only drugs are more likely to be assaulted than women who do not use substances.[7]

Negative Behavioral Health Outcomes after Sexual Assault

Sexual assault can lead to short- and long-term behavioral health problems, including misuse of substances (drugs and alcohol),[8,9] acute symptoms of stress and depression,[10] risk of suicide,[11,12] and symptoms of posttraumatic stress disorder.[13-15] Sexual assault increases risk for drug and alcohol problems.[16-18] Survivors may use substances as a form of self-medication, as a manifestation of self-harming behavior, or to cope with traumatic memories, low self-esteem, anxiety, depression, or loneliness after the assault. History of sexual assault is associated with both recent drug use as well as history of drug use issues; in fact, assault has been shown to precede substance use disorder onset in most cases among those with prior histories of substance misuse and assault.[19] Substance use at time of assault also was significantly positively associated with substance use 6 weeks later in a study of women seeking postassault medical services, demonstrating the importance of screening for substance use in the weeks after assault.[1] A study by Liebschutz et al[20] revealed a high frequency of physical and sexual abuse among women (81%) and men (68%) admitted for inpatient detoxification. They found that physical and sexual abuse was significantly associated with more substance use consequences.[20]

Patient Intoxication and Sexual Assault Care

Although sexual assault survivors are more likely to delay emergency care if they are intoxicated,[2] ED providers should be aware that patients may be under the influence or have recently used substances when they present for emergency sexual assault care. In one study, one-third of young adults (36%) reporting alcohol use at the time of assault were evaluated on the day of the assault.[2] Studies indicate that approximately half of sexual assault survivors seeking ED-based medical care after their assault reported substance use at the time of assault.[1,21] Therefore, emergency departments must be prepared to meet patients' unique needs related to the sexual assault, including the possibility that the patient is intoxicated at the emergency department or has a substance use disorder; however, nurses are often not trained to care for sexual assault patients.[22] In addition, one study found that nurses

experience low motivation and role-support related to caring for patients with a history of illicit drug use.[23]

Behavioral Health Care after Sexual Assault

Along with exacerbating associated mental health consequences[9] and increasing risk for sexual revictimization,[24] patient substance use may influence engagement with follow-up care. Currently, only 1 in 3 survivors engages in follow-up care after a sexual assault forensic medical exam.[25,26] A retrospective cohort study of women presenting to an urban hospital after sexual assault confirmed low follow-up care rates among survivors over a 36-month period, and use of cocaine was associated with less follow-up.[25] However, alcohol use was associated with more follow-up.[25]

The emergency department may present an opportunity to link sexual assault survivors to follow-up behavioral health services and resources, including substance use prevention or treatment services, yet referral to local follow-up services may be lacking. Emergency departments often struggle to provide information on survivor medical and behavioral health care,[27] in part owing to lack of awareness of services or lack of availability of follow-up behavioral health services in under-resourced or rural communities.[28,29] Little is known about emergency nurses' perspective on their role in referring patients to behavioral health resources, particularly patients who are recent survivors of sexual assault.

Opportunity for Screening and Brief Intervention via Mobile Health

Because patient-provider contact during emergency care is often short, and adequate follow-up after ED visits can be difficult to access,[30] innovative solutions to link sexual assault survivors to behavioral health resources are needed. Adjunct digital or mobile health (mHealth) applications could be useful in screening for emergent behavioral health symptoms, providing brief behavioral health interventions, and promoting in-person follow-up care. Follow-up mHealth interventions may be particularly feasible, given that nearly all ED patients in the United States report having cell phone access.[31,32] mHealth interventions have shown promise in reducing substance use, at least in the short-term,[33] as well as promise in promoting attendance of needed health care.[34] A recent study found that sexual assault survivors perceived that their feedback provided via a mobile application would likely encourage service providers to be more responsive to their suggestions on how to improve their care.[35] However, little is known about emergency nurses perspectives on offering mHealth interventions.

Purpose of the Study

Emergency departments must be prepared to provide quality care to patients who are intoxicated or under the influence of substances upon arrival for sexual assault care, as well as link patients to needed follow-up services. Additional research is needed to explore emergency nurses' perceptions of patient intoxication, impact on sexual assault care, and the need for follow-up behavioral health services and resources, as well as opportunities to enhance referral to treatment for patients with existing substance use disorder or referral to prevention resources for patients at increased risk for substance use after sexual assault. The purpose of this study was to (1) summarize current resources provided to sexual assault patients and processes for referral to behavioral health services in a southern state; (2) explore nurses' attitudes and behaviors toward the substance use of patients and potential unmet needs; and (3) explore nurses' perceptions of the potential utility of adjunct mHealth interventions for follow-up behavioral health care and describe anticipated facilitators and barriers to use.

Methods Participants

Participants were 15 nurses from 13 emergency departments across Arkansas (11 rural, 2 urban). On average, interview participants had been in nursing practice for 15.7 years (range: 3-35 years), with their current emergency department for 9.7 years (range: 1-20 years), and in their current nursing role for 9 years (range: 2-18 years). Nearly half of participants (46%) had worked in previous roles in their current hospital before becoming a nurse.

Procedure

Data for this study were collected between August and December 2020. In the context of a larger project that aimed to examine sexual assault care processes and telemedicine use in Arkansas emergency departments, we surveyed leadership from 16 emergency departments. Using contact information provided by their ED leadership, a total of 48 non–sexual assault nurse examiner (SANE) nurses from these 16 emergency departments were contacted via email by the first author, informing them about the study aims and methods and inviting them to respond if they were interested in participating in a phone interview. Participants were eligible if they were currently employed in an Arkansas emergency department, were not sexual assault nurse examiner–certified, and had facilitated a sexual assault forensic medical exam within the past year. Aiming to recruit at minimum 1 nurse per emergency department, we achieved an 81% ED response rate.

Data collection consisted of a 1-time phone interview using a semistructured interview guide. The interview guide explored (1) current behavioral health and advocacy resources provided to sexual assault patients, (2) attitudes and behaviors toward the substance use of patients and potential unmet needs, and (3) nurses' perceptions of the potential utility of adjunct web-based interventions for follow-up behavioral health care and describe anticipated facilitators and barriers to use (see [Table] for interview questions). All participants gave informed consent. Each participant was compensated $50 for their time participating. This reimbursement amount was determined based on the average hourly wage of an emergency nurse and the anticipation that the introduction, consent process, and interview together would last approximately 1.5 hours. Interviews lasted for an average of 63 minutes (range: 43-82 minutes). Data analysis was ongoing during data collection, and data collection continued until saturation of themes had been reached. Interviews were audio recorded and transcribed verbatim. The University of Arkansas for Medical Sciences Institutional Review Board approved study procedures.

Data Analysis

The codebook was created in an iterative process of discussion and refinement. First, 3 coders independently coded 5 interviews and identified preliminary codes. The team then met to discuss coding, identified common codes, and organized them into major themes, establishing the preliminary codebook. Coding for interviews 1 to 5 was then revised to reflect the codes in the preliminary codebook. Then, the research team collectively coded 5 additional interviews in group discussion, revising the codes and definitions as needed. Once the codebook had been established, the first author coded the remaining 5 interviews. This coding was checked by a second coder, and they met to discuss and resolve any disagreements in coding. Coding discrepancies were resolved through consensus or by a third reviewer.

Results

Qualitative analysis revealed 6 themes: (1) limited follow-up resources provided to sexual assault patients, (2) emergency departments lacking processes for referral to local behavioral health services, (3) mixed perceptions of patient intoxication frequency and impact on sexual assault care, (4) hesitance toward substance use screening and referral as part of sexual assault care, (5) concerns regarding patient privacy, anonymity, and access to mHealth for follow-up behavioral health intervention, and (6) needed patient-level, provider-level, and ED-level strategies for mHealth dissemination.

Limited Follow-Up Resources Provided to Sexual Assault Patients

Participants perceived that there were no or few sexual assault–specific follow-up resources for survivors in their local community. These emergency nurses often rely on a small number of community behavioral health care providers to serve their patient population after discharge from the emergency department, particularly those in rural areas where local service providers are limited. Some participants were aware of local behavioral health care

providers, but these nurses were not helping their sexual assault patients make follow-up appointments with these providers.

Emergency Departments Lacking Processes for Referral to Local Behavioral Health Services

Most participants said that their emergency department has no formal process for referral to behavioral health services and that it is up to the individual nurse to decide to help connect patients to resources. However, most were willing to make referrals, but 1 participant highlighted the issue of service availability, saying, "You really can't refer patients to things that aren't there." Many participants perceived that other professionals (eg, social workers) should help patients navigate follow-up care, but many said that they do not have these resources at their emergency department. Participants' go-to standard of care was to provide patients with the resource sheet found in the state crime lab's sexual assault evidence collection kits before discharge. However, they perceived that the resources listed are out of date, and most are not local. One participant said, "Even the resources in [rural town] are very limited...Used to give [a resource sheet] to them, but I know that I've tried several of the numbers on there myself and know a lot of them don't exist anymore."

Mixed Perceptions of Patient Intoxication Frequency and Impact on Sexual Assault Care

Participant opinions were mixed on how frequently they encounter patients who are intoxicated or under the influence of drugs and/or alcohol when they present for sexual assault care. For example, 1 participant said, "I have not had anyone that has been totally under the influence of drugs and alcohol that's come in," and another said, "It's not as common as you think, actually." However, others had a different perception of frequency. One participant perceived that patients are under the influence of drugs or alcohol when they present for sexual assault care "Fifty percent of the time maybe," and another said, "I will say that I've done more exams on patients that have been intoxicated than not."

Several said they regularly see patients the morning after the sexual assault, and therefore, even if patients were intoxicated when they were assaulted, they perceive that the patient would be sober when they arrived at the emergency department. One participant said, "It's hours later usually. It occurred that night, and they show up the next morning." Some participants perceived that if the patient was intoxicated when they arrive at the emergency department, it was most likely from methamphetamine use. One participant said, "The ones that actually come in high, most of the time it's meth." Another said, "It's not uncommon for us to see patients that are still super high. Meth is very popular in our area, and so we get a lot of people that are very high on meth."

Participants discussed the influence intoxication could have on a patient's ability to consent to the sexual assault exam, as well as on their willingness to undergo forensic evidence collection. Some made connections between patient intoxication and timeliness of forensic evidence collection. One participant said, "We would, a lot of times, let them sober up before. Because legally if they're under the influence they can't legally consent to that exam," and went on to say, "I think sometimes we have to weigh up the delay of the exam versus consent.... If there is a delay in collecting evidence, which has a time factor…you're risking losing precious evidence." While some participants said that there may be a delay in forensic evidence collection if they wait for the patient to sober up, some participants said that patient intoxication delays care "only if they are combative, if they are not cooperative with the exam." When asked whether there is a delay in the exam if the patient is intoxicated, another participant said, "If they are not cooperative, you give them a while to cool off and settle down, let them think about it, sober up a little, and then go back and try to start over." Some participants said that patient intoxication does not delay care so long as the patient verbally agrees to the exam. One participant said, "You try to go off of what they tell you…If they allow you to do a collection, if they allow you to do an exam, then you do it." Another participant said, "Some of them, even though they are high or whatever, still understand what we're doing and can still talk to us and let us know what

happened or whatever. But we, again, we're just going to try to…. We do what they'll allow us to do."

Hesitance Toward Substance use Screening and Referral as Part of Sexual Assault Care

Participants were comfortable talking about substance use with patients generally, but many were unsure of the appropriateness of talking about substance use as part of the sexual assault forensic medical exam. The emergency nurses reported asking basic substance use screening questions of all patients and discussing substance use with sexual assault patients "if it's indicated"; however, they reported seeing the sexual assault as the main issue at hand and primary focus in these interactions. Participants were hesitant to discuss substance use with patients after sexual assault, because they were sensitive to the need to avoid statements that could be perceived as victim blaming. One participant described this as a "fine line." However, they recognized the ED visit as an opportunity to get patients the help they need for substance use disorders. Most participants said that this conversation about substance use may be more appropriate at a later time, rather than at the sexual assault exam. For example, 1 participant said, "I don't know if it would be appropriate at that time. I mean, unless the patient asks for some sort of assistance," and went on to say that this conversation would be more appropriate "at a different time, when they're not just in the aftermath of being assaulted." Another participant was hesitant to discuss substance use during the exam, because "you don't want to put blame on that as being the reason as to why they did [get sexually assaulted]," and another participant suggested providing "something that's addressed post-discharge, just in an educational setting like, 'What makes us at more risk?'"

Participants also described barriers to getting their patients with substance use disorders to substance use treatment after their ED visit. Some participants reported the belief that patients may not be receptive to substance use treatment and that suggesting it may be perceived as judgmental, such as, "If it's someone that's very closed off...they're not receptive to anything...then I would hate to bring that up and them feel like they were being judged in our facility." Participants also said that because patients seeking sexual assault care often present at night or on the weekend, it can be hard to get patients into substance use treatment, because service providers may only be open during the work week and "There's nobody to call nights, weekends, or in a crisis." In addition, some said that treatment centers may not take patients without private insurance. One participant noted, "If they don't have insurance, a lot of places won't accept patients …It's difficult to find placement for patients who have no insurance in those type of facilities."

Utility of mHealth for Follow-Up Behavioral Health Intervention with Privacy and Access Considerations

Acceptability of an mHealth intervention for follow-up behavioral health after sexual assault care was high among participants. Participants repeatedly highlighted anonymity as a positive aspect, such as, "You don't have to talk to anybody to use an app…it's intimidating to call someone and say, 'XYZ happened to me.'" Another participant said,

When they leave here, they're looking at a list of phone numbers, and they may not be ready to talk to somebody on the phone or know really how to ask or tell what they're feeling. And that they can do it...people can pick up their iPhone and Google something or a symptom and this will give them a place to start their research. It will give them a place that has the answers to their questions. And it will make it easier.

However, some had concerns about patient privacy and access to mHealth after sexual assault. In reference to privacy concerns, many participants pointed at abusive relationships, for instance, "If they have something like that on their phone, if they're still with the person who was abusing them...they might feel that somebody's spying on them." Participants perceived that most patients have smart phones but may not have consistent data or wireless internet access. They recommended that there be multiple options to access the intervention, such as a mobile application, a weblink, and a phone number, to address access issues and privacy concerns.

In addition to access issues and privacy concerns, some participants perceived that patients' pre-existing mental

health or substance use issues may be a barrier to their use of an mHealth intervention. One participant highlighted compliance issues: "I feel like patients that have mental health issues already or substance abuse issues already may not be the most compliant patients."

Needed Patient-Level, Provider-Level, and ED-Level Strategies for mHealth Dissemination

Participants gave recommendations for patient-level dissemination strategies for the mHealth intervention, including providing a flyer or info sheet to the patient at discharge advertising the mHealth intervention. They also suggested that the app should have reminders to engage with the intervention (eg, push notifications). They believed that active outreach or virtual coaching would help to remind patients to use it. One participant said, "If you had someone that checked on them every so often, that would increase their usage of their app."

Participants also gave recommendations for ED- and provider-level dissemination strategies. Many suggested that the referral to the mHealth app should be added to their workflow (eg, put it on their checklist). They also suggested that information about the mHealth intervention should be added to the discharge paperwork in the electronic health record (EHR). One participant said, "It would need to be part of the protocol...to document in the medical record." Some suggested that a flag could be built into the EHR to remind nurses to discuss it with the patient. Many participants also recommended posting flyers about the mHealth intervention in the emergency department where nurses would see it, such as on bulletin boards. Participants recommended providing in-service education about the mHealth intervention so that they would have more information about it and be able to describe it to patients and answer questions.

Discussion

The primary objectives of this qualitative study were to (1) identify resources provided to sexual assault patients and processes for referral to treatment services; (2) explore nurses' attitudes and behaviors toward the substance use of patients; and (3) explore nurses' perceptions of the potential utility of adjunct mHealth interventions for follow-up behavioral health care and describe anticipated facilitators and barriers to use. Given that many of these participants were employed at hospitals in rural areas, where mental and behavioral health services are often lacking,[36] it is not surprising that some participants were unaware of substance use treatment and prevention resources or that some struggled to identify reliable services to refer their patients to after their ED visit for sexual assault care. Improving linkage to substance use treatment after an ED visit is a national priority. In fact, one of the Healthy People 2030 objectives is to "increase the proportion of people who get a referral for substance use treatment after an emergency department visit."[37] There is a growing body of evidence suggesting that screening, providing brief intervention, and referring patients to treatment (known as "SBIRT") for substance use can be a clinical and cost-effective strategy in the emergency department.[38] However, little research has been conducted exploring this strategy with patients who have recently been sexually assaulted or how nurses' attitudes about it may impact implementation. Our study revealed that emergency nurses can be hesitant to discuss substance use with patients seeking sexual assault care and perceive that this discussion may be more appropriate at a later time, after the patient leaves the emergency department. Recognizing that trauma can increase risk for subsequent behavioral health problems, participants agreed that follow-up behavioral health care, including ongoing screening and access to treatment and prevention interventions, could be beneficial to patients after sexual assault care.

Strategies to Improve Linkage to Follow-Up Care

Study participants requested an up-to-date resource list, including information about national, state, and local behavioral health resources, that can be given to their patients to improve linkage to follow-up care. However, maintaining such a list would require periodic updating and dissemination. Implementing systems that ensure that such resources lists are kept up-to-date and are provided to patients in need of services should be a priority. This

type of resource list may be of particular benefit to patients accessing care in rural emergency departments, where patients may have few options for local behavioral health services and may benefit from access to mHealth interventions or services outside of their local community.

Because some participants were hesitant to talk with patients about substance use in the same visit as the sexual assault exam, it may be beneficial for this conversation to occur in a follow-up phone call. Follow-up contact via phone call, video, or text message also could provide an opportunity for emergency nurses to present or remind patients about substance use prevention resources. As participants highlighted, such a recommendation would need to be made sensitively and without judgment or blame. To avoid stigmatizing language, survivor input should inform the language used by clinicians when screening, providing intervention, and referring survivors to substance use treatment and resources.

mHealth for Behavioral Health Care after Sexual Assault

Digital health and mHealth interventions also may help to improve patient engagement with follow-up behavioral health services. A 2019 study by Kmiec and Suffoletto[39] found that nearly half of ED patients with a substance use disorder being referred to outpatient treatment agreed to use a text message program that provided daily motivational messages, assessments, tailored feedback, and reminders about treatment location and contact information. In their study, individuals who opted in to the text message program had higher rates of substance use disorder treatment initiation than individuals who did not opt in, and 84% of program participants said that they would recommend the program to someone else.[39] A common concern among the nurses we interviewed was patient receptiveness to mHealth interventions, mostly regarding privacy. However, a study by Mahlalela et al[35] found that 72% of participants endorsed high comfort levels specifically with postrape mHealth interventions. Nurses should be educated about the receptiveness of patients to engage in mHealth interventions after an assault, as well as patient cell phone access.[31,32]

Participants in this study also gave recommendations for improving both patient engagement with and provider referral to an mHealth intervention to prevent substance misuse after assault. To encourage patient engagement with mHealth interventions, nurses recommended information sheets about the intervention be provided to patients at discharge, as well as active outreach and push notifications to remind patients to engage with the intervention. To remind providers to refer patients to the mHealth intervention, nurses recommended putting the referral in their workflow, including a reminder in the EHR discharge paperwork, and posting flyers about the intervention to inform and remind nurses about it.

A recent systematic review by Gagnon et al[40] of mHealth adoption by health care professionals found that adoption was often influenced by perceptions of mHealth usefulness and ease of use, familiarity with the technology, design and technical concerns, cost, time, privacy and security issues, risk-benefit assessment, and interaction with others. Given the findings of Gagnon et al[40] that familiarity with the technology influences clinician adoption of mHealth, training on the mHealth technology may be warranted. Our participants agreed that in-service training on the mHealth intervention would help them feel more prepared to talk to the patient about the intervention.

Education on Substance use, Treatment Options, and Prevention Resources

Given the hesitancy of our participants to have conversations with sexual assault patients about substance use and treatment options, as well as past studies revealing nurses' low motivation to care for patients with a history of illicit drug use revealed in previous research,[23] our findings suggest that education on strategies for discussing substance use with sexual assault patients also may be beneficial. Education addressing bias and stigma toward intoxicated patients and those with substance use disorders and compliance with treatment is needed. This education also may improve patient-centered care, considering that training on how to deliver SBIRT has been shown to improve

nursing students' attitudes toward patients who use alcohol.[41] Given participants' lack of awareness of substance use treatment options and prevention resources, continuing education should provide information about these services, particularly those that are specific to trauma survivors. Education on appropriate processes for obtaining patient consent for forensic evidence collection when patients have recently used substances also may be warranted.

Limitations

This exploratory qualitative study had several limitations. First, the study involved interviews with emergency nurses only. While nurses play a critical role in the care of patients after a sexual assault, the perspective of other providers and patients may have enhanced findings of this study. Second, assessment of facilitators and barriers to follow-up mHealth interventions for this patient population were speculative, given that such an mHealth intervention had not been disseminated. This study took place in a southern state with nurses from predominantly rural emergency departments; therefore, these findings should be considered within this context, as they may differ in other regions or areas. Moreover, because most participants were from rural emergency departments, this prohibited comparison between urban and rural emergency departments. In addition, these interviews served as an introductory, exploratory assessment of a range of topics; additional, in-depth qualitative interviews with both emergency nurses and patients seeking sexual assault care about these topics would further enhance our understanding of the nuances of the impact of patient substance use on sexual assault care and follow-up care needs.

Implications for Emergency Nurses

Emergency nurses should be aware that patients may be under the influence of drugs or alcohol when they present for sexual assault forensic medical care. Training should be provided to emergency nurses to facilitate discussions about substance use and treatment options with patients after sexual assault care. Alternatively, a process for follow-up contact with the patient to discuss substance use and treatment options could be implemented. When local substance use treatment providers and prevention resources are scarce, emergency departments should consider referring patients to digital and mHealth resources to provide supportive services to patients after they leave the emergency department; however, consideration should be made for patients' concerns with privacy, anonymity, and access to internet for mHealth use.

Conclusion

This study highlights the need for improved training of emergency nurses to meet the unique needs of patients who are under the influence of drugs and alcohol, as well as patients with existing substance use issues, when they seek sexual assault care. Participants expressed resistance to addressing substance use during the sexual assault forensic medical exam out of concern for victim blaming and instead encouraged referral to prevention resources or treatment resources to occur sometime after the ED visit. Participants perceive limited availability of follow-up behavioral health resources in their local communities and did not have consistent processes for making referrals to follow-up services. There may be an opportunity to fill this gap by leveraging mHealth to provide ongoing screening, offer brief treatment or prevention interventions, and promote follow-up health care utilization after the ED visit. In this study, the emergency nurses interviewed had favorable views toward referring patients to an mHealth resource and the anonymity and convenience it would provide. Future research should explore the role of mHealth in preventing negative behavioral health outcomes such as substance use after sexual assault and explore the opportunities that emergency departments present in connecting patients with digital interventions after sexual assault care.

Acknowledgments

Topic	Interview guide questions
Referral resources for sexual assault patients	Can you walk me through the protocol for when you have a sexual assault patient come into your ED?
What resources does your community have for follow-up services after the patient leaves the ED? Probing questions: Do you have a local rape crisis center? Do advocates (from rape crisis centers) attend the visits? What about local mental health care? What about local behavioral health care or substance use treatment?	Are sexual assault patients regularly referred to any of the above resources or services for follow-up care? Probing questions: If so, can you describe that process? If not, what gets in the way of referring patients to follow-up treatment?
mHealth utility and implementation facilitators and barriers	What is your first impression of the idea to use a web-app or website to provide follow-up mental or behavioral health screening or resources?
What types of support do these patients need after they leave the ED? Probing question: What types of topics should be covered?	To what extent do you think sexual assault patients would use this resource?
What do you think would get in the way of patients accessing/downloading the web-app? What would help patients to remember to download it? What would help patients to remember to use it?	Would you be willing to help your patients download an app or access the website for the first time, if one is available? What would help you remember to do this?
How would we get the word out about this mobile intervention as a resource for ED providers? How would we remind providers to refer patients to it?	Attitudes toward patient substance use and referral to substance use treatment

Can you walk me through the process of caring for a sexual assault patient that is under the influence of drugs or alcohol when they present in the ED? Probing questions: Is there ever a delay in their exam? Do you think that intoxication affects their ability to consent to the exam?	How common is it for sexual assault patients to present in the ED under the influence of drugs or alcohol?
Do you screen sexual assault patients for substance use disorders? Probing question: If so, what type of screening?	Do you discuss the sexual assault patient's drinking and/or drug use? Are you comfortable asking a sexual assault patient about their drug and/or alcohol use? Probing question: What would you need to feel more comfortable talking to sexual assault patients about substance misuse?
How do you personally feel about referring sexual assault patients to treatment for substance misuse? Probing questions: Would it be appropriate? Would it be helpful?	What gets in the way of referring patients to substance use treatment when needed? Is there a policy or procedure for referring sexual assault patients to services for SUD?

DETAILS

Expressions of Compassion Fatigue by Emergency Department Nurses Caring for Patients With Opioid and Substance Use Disorders: JEN

🔗ProQuest document link

ABSTRACT (ENGLISH)

Introduction

The misuse of and addiction to opioids are a national public health crisis. The complexity of delivering patient care in emergency departments exposes nurses to stressful work situations with complex patient loads and increasing levels of compassion fatigue. Emergency nurses were asked about their feelings of compassion fatigue while caring for patients with opioid use and/or substance use disorders.

Methods

Twenty-four focus groups with emergency nurses (N = 53) at a level I trauma center were conducted in late 2019 and early 2020 are used in this qualitative study using thematic analysis that identified 1 main theme of compassion fatigue with 3 subthemes (nurse frustration with addicted patients, emotional responses, and job satisfaction).

Results

Findings highlight that emergency nurses working with patients with opioid use and/or substance use disorders are dealing with a number of negative emotional stressors and frustrations, which in turn has increased their levels of compassion fatigue. These nurses repeatedly expressed feelings of increasing frustration with addicted patients, negative emotional responses, and decreasing levels of job satisfaction as components of their compassion fatigue.

Discussion

These emergency nurses identified 3 areas to improve their compassion: improved management support with encouragement across all work shifts, debriefing opportunities, and more education. Fostering a high level of self-awareness and understanding of how the work environment influences personal well-being are necessary strategies to avoid the frustrations and negative emotional responses associated with compassion fatigue.

FULL TEXT

Contribution to Emergency Nursing Practice

••The misuse of and addiction to opioids, including prescription pain relievers, heroin, and synthetic opioids, are a national public health crisis. As a result, emergency nurses in 1 Philadelphia, PA, hospital are experiencing work stress and higher levels of compassion fatigue related to care delivery issues.

••Findings support that emergency nurses working and providing care to patients with opioid and substance use disorder in this level I trauma center are experiencing compassion fatigue with related levels of frustration, negative emotional responses, and decreasing levels of job satisfaction. Managing compassion fatigue requires proactive assessment, education, and support.

••Areas identified by these emergency nurses to improve compassion levels included opportunities for debriefing, education, increased formal support systems, and management encouragement across all work shifts.

Introduction

The misuse of opioids affects thousands of people crossing all ages, genders, races, religions, economic groups, and geographic locations. In 2019, the Centers for Disease Control and Prevention (CDC) reported that in the United States opioids were involved in 49,860 overdose deaths accounting for 70.6% of all drug overdose deaths.[1] The abuse of and addiction to opioids, including prescription pain relievers, heroin, and synthetic opioids such as fentaNYL, have been identified as a national public health crisis. There is a growing body of evidence that nurses working with complex patient loads and long shifts in a fast-paced environment that can be emotionally and physically challenging are reporting increasing levels of compassion fatigue.[2-5]

Compassion Fatigue

Often referred to as the "Cost of Caring," the term compassion fatigue was first introduced in 1992 by Carla Joinson,[6] a nurse educator, to explain the "loss of the ability to nurture" in emergency nurses. Compassion fatigue is often defined as a gradual worsening of feelings of frustration with career responsibilities associated with high patient acuity, overcrowding, witnessing tragedy, and problems with administration.[7,8] Compassion fatigue results from the continuing stress of meeting or not meeting the frequently overwhelming needs of patients and their families.[9] Hunsaker et al[2] describe it as a state of exhaustion, including feelings of isolation, confusion, and helplessness encompassing one's physical, emotional, and spiritual states. Compassion fatigue often occurs in conjunction with or as a result of a loss of empathy, which is the inability to relate to what other people are feeling. Declining empathetic ability is also found from repeated exposure to others' suffering. Professionals who have low empathy may excessively criticize others or, in the case of addiction, blame the person for the addictive behaviors and actions.[10] Health care professionals are generally considered to be in one of the highest-risk groups for experience of compassion fatigue and loss of empathy, which is directly related to emotional strain and the stressful work

environment.[5] The impact of compassion fatigue on nurses can be profound, leading to decreased productivity, job dissatisfaction, job turnover, and high levels of frustration.[5,9] All nurses are at risk of compassion fatigue; however, emergency nurses are often found to have 25% higher levels than other groups.[11] Many emergency nurses are exposed to extremely stressful work situations involving high volume and acuity patients along with higher rates of violence and aggression.[4,11-13] Specific ED issues identified in the literature include a lack of resources, workload, no debriefing following challenging patient situations, inability to take breaks or rest periods, abusive patients, abusive families, violent patient situations, psychiatric presentations, and patients affected by alcohol and/or drugs.[3,10,11] Emergency nurses who work with patients with opioid use disorder (OUD) frequently report high levels of compassion fatigue and low levels of compassion satisfaction such as happiness or professional fulfillment.[14] The notion of offering care to patients who may not be willing or able to fully recover and who have high recidivism rates with poor follow-up often contributes to nurses' negative feelings.[14] In this opioid misuse crisis, emergency nurses across the country have been reporting intense and stressful work environments such as those currently being experienced in Philadelphia, PA.[15] In 2019, 1150 people died in Philadelphia from drug overdoses and more than 80% of those deaths involved opioids, a number nearly 4 times the city's homicide rate.[16] To gain insight and understanding about the perceptions and feelings of emergency nurses caring for patients with OUD and/or substance use disorder (SUD), a study was undertaken at 1 urban emergency department in Philadelphia. Most of the emergency nurses expressed feelings of compassion fatigue specific to working with this challenging patient population. The purpose of this paper is to report on the descriptive qualitative findings specific to the theme of compassion fatigue and its 3 subthemes of nurse frustration with addicted patients, emotional response, and job satisfaction.

Methods Design

This study used focus groups with emergency nurses at a level I trauma center located in Philadelphia. Before the beginning of data collection, permission from the first author's institutional review board was obtained to conduct this expedited study (IRB-FY2019-147). The use of focus groups with this emergency nurse population was to gather their opinions, ideas, and feelings specific to experiences of working with patients with OUD and/or SUD. Focus groups were used because they can provide an atmosphere where ideas are generated in a nonthreatening way with the facilitator who emphasized that all ideas were valuable and respected.[17]

Recruitment of emergency nurses for the focus groups was done by word of mouth, email blasts, posting of flyers, and reminders from the emergency nurse manager during shift change. Hospital administration provided access for 4 months to recruit and conduct the focus groups, which were all conducted on site at the hospital. Focus group sessions were confidential and held in a private room. Nurses were asked to protect any personal information discussed in the focus groups by not sharing with others after the group to protect confidentiality; additionally, all participating emergency nurse badges were replaced with a color badge so that no names were used. No nurse participated in more than 1 group and each group was led by an advance practice psychiatric nurse who had the expertise and skill set to manage group dynamics. The size of the focus groups was influenced by time, with those following a day shift (7 am to 7 pm) having the most participants, followed by the night shift (7 pm to 7 am) and the middle shift (11 am to 11 pm). Inclusion criteria were being a registered nurse (RN) currently licensed in Pennsylvania and a full-time employee working 90% or more of their time in the emergency department and at least 1 year of ED experience. Exclusion criteria were working part-time or as needed (temporary, per diem, or pool) in the emergency department and/or a member of the administration team (supervisor, management, or education). This study endeavored to maintain subject confidentiality and anonymity. Participation did not affect the nurses' work situations or involve any benefits or incentives.

Data Analysis

Focus group data were analyzed using the Braun and Clarke[18] qualitative methodology of thematic analysis. Reflexive thematic analysis is an approach to analyzing qualitative data (eg, focus group transcripts), to answer questions about people's experiences, views, perceptions, and representations of events.[18] This data analysis method involves 7 steps: transcription, reading and familiarization, coding, searching for themes, reviewing themes, defining, and naming themes and finalizing the analysis.[18] In our study, all focus groups were audio recorded and asked the same questions ([Box 1]). The focus groups lasted between 45 to 120 minutes, and following step 1, all of the recordings were transcribed verbatim using a professional service. Step 2, transcripts were then read in their entirety by the first 4 authors (EBD, SEA, NF, EH) to gain an overall impression with familiarization of the text. Step 3, data were then coded in a meaningful pattern in relation to the research question specific to compassion fatigue. For this, all transcripts were entered into the ATLAS.ti8 qualitative software package (Scientific Software Development GmbH), and the code function was used on each transcript to identify words that related to compassion fatigue, which were then pulled into a grid and highlighted. Step 4 involved searching for themes, reviewing themes, defining, and naming themes.[18] A theme was recognized when saturation or a redundancy in the data was found with more than 70% of the sample saying the word or combination of words (eg, "lack of compassion" or "frustration"). The same 4 authors followed recommended steps to ensure trustworthiness in the analysis process, including the preparation, organization, and reporting of results. These same individuals worked in pairs and evaluated the Atlas.ti8 coding for each theme and identified subthemes. Any differences were reconciled by consensus following discussion.

Trustworthiness was addressed by all authors through discussions about data credibility and confirmability to identify any biases that might have influenced the analysis process. Dependability and confirmability were supported by the maintenance of an audit trail through Outlines and Excel tables (Microsoft Office 365) using accessible Google Docs (Google) to assist in systematic comparisons of data.[18] During analysis and discussion, it became clear that there were a number of codes described by the emergency nurses that defined certain feelings or perceptions of compassion fatigue. The theme of compassion fatigue had more than 14 subcodes within this category and was reduced by clustering quotes into subthemes ([Table]). The 3 subthemes of frustration with addicted patients, emotional responses, and job satisfaction ([Figure]) were identified.

In this paper, we have chosen to focus on the expressions and perceptions of emergency nurses specific to the theme of compassion fatigue and its 3 subthemes. Expressions and feelings of compassion fatigue by these emergency nurses cannot be fully understood without considering the role of emotion, often overwhelmingly negative in this sample, associated with caring for patients with OUD/SUD. Direct quotes are used to support thematic findings, illustrate emergency nurse emotions, and demonstrate the findings of the analysis.

Results Sample

The level I trauma urban hospital used in this study is a large, more than 500 bed, teaching hospital that routinely sees and provides care to individuals who have health problems related to substance and drug abuse. For this study, there was a total of 24 focus groups that yielded 55 emergency nurses; however, 1 nurse did not talk in the focus group and 1 nurse left at the start of the group, leaving a final sample of 53 RNs. The response rate for this emergency department was found to be 54.6% (53/97). Of the emergency nurse sample, the majority (85%) identified as female (*n* = 45) with 8 males. The racial composition of nurses found that most were Caucasian (74%, *n* = 40), followed by African American (17%, *n* = 9), Asian, Biracial, or Latino (9%, *n* = 5). The emergency department used for data collection is a designated Magnet (American Nurses Credentialing Center) recognized hospital where most nurses reported having a BSN (73.5%, *n* = 39), a master's degree (13.2%, *n* = 7), or an associate degree

(9.3%, *n* = 5).

Theme: Compassion Fatigue

Subtheme 1: Frustration with addicted patients. All focus groups were asked "During the past 2 weeks, have you taken care of patients who have addiction or substance problems?" and 100% of this emergency nurse sample answered "yes." They all perceived and felt that they had taken care of at least 1 patient with a substance problem. Negative feelings of frustration related to anger, annoyance, being upset, and disappointment in the patients with OUD and/or SUD were voiced by the majority of nurses.

•RN #1: "I am frustrated with the whole [drug] ordeal. I feel frustrated. I feel aggravated. I feel disrespected and lied to."

•RN #25: "When they come in and they just want drugs, then it's exhausting."

Frustrations about the time spent, resources, and energy devoted to patients with OUD and/or SUD were frequently shared as contributing to the nurses' growing feelings of compassion fatigue. They perceived a high recidivism rate of patients, which when coupled with the needs of patients with OUD and/or SUD seemed to be significant factors that increased nurse feelings of physical and emotional exhaustion. Access to hospital records or statistics on recidivism of patients was unavailable; however, these emergency nurses felt that they were seeing the same individuals repeatedly whether it was true or not. Patients with OUD/SUD entering the emergency department must be treated for their priority problem(s), trauma, medical complication or disease process, opioid relapse, or impending death owing to overdose. Adding to nurse frustration is the feeling of exhaustion, physical and emotional, related to nurse perception that these patients are constantly in and out and returning repeatedly to the emergency department, sometimes multiple times per day.

•RN #24: "I think the opioid stuff probably gets me more than the traumas for the simple fact that it's exhausting. It's just exhausting. They come back and they come back and they come back."

•RN #42: "It's one thing for you to have someone that, like, overdosed, okay, but when you get the same person in day after day –I mean, literally there are people who come, it's like, morning, noon, and night, and they're here. It's a revolving door…"

•RN #4: "The first thought is, here we go again… So, you know, I hate to say it like this, but like it is a waste of our time and resources…"

Nurses also talked about feelings of frustration, a lack of empathy, and the resulting conflict when they have to choose between patients with OUD/SUD who are "high" and those with other emergencies.

•RN #45: "It's very frustrating when you have people with true cardiac emergencies, or any type of emergency and you have no time, because you are dealing with someone who is high."

•RN #39: "I have real sick patients out in the waiting room, and now I have to give a bed or a spot to somebody who chose to get high."

•RN #46: "And it's like you're babysitting them when there's other sick people who really need your attention."

Frustrations about drug-using behaviors also were found regarding treatment of patients with OUD with the administration of Narcan (naloxone), which is used to counter the effects of opioid overdose. The resulting withdrawal symptoms can lead patients to leave the hospital before discharge in search of opioids to alleviate their

acute distress. Nurses shared experiences of patients with OUD who were no longer "high" fleeing the hospital and the anger or concerns this caused.

• RN #44: "You know, heroin high, give the Narcan, save them and the next thing we know, they're eloping with two IV accesses, and they're gone. Then we have to call the police to get them, and you know where they're going to go. Go right outside to get high and then they come back, if they're not dead, you know?"

• RN #2: "I had a girl who was overdosing [gave treatment] and we discharged her. She was leaving, and I went to give her the nasal Narcan [part of discharge]…She said, 'What do I need that for? I have a whole purse of it.'…That was a slap in the face."

Subtheme 2: Emotional Response. Emergency nurses in the focus groups identified caring for the patient population with OUD and/or SUD as heavily emotional and not always positive.

• RN #26: "We can always relate it [feeling angry] back to the opioid patient and they need my emotion, they need my compassion, they need me to make those phone calls [to rehab, social work] and I just can't do it."

• RN #27: "I don't have any sympathy. You know I have no empathy at all for these people, now, none."

Negative or intentional emotional responses are viewed as a component of compassion fatigue.[7,19] Nurses in the focus groups who talked about their emotional response of feeling drained, overloaded, and angry from working with patients with OUD and/or SUD shared that these emotions increased their feelings of compassion fatigue. They shared how their growing levels of negative emotions were adding to a lack of feeling compassion. The need to feel and be seen as human also was identified as an important feeling in terms of how nurses deliver care and are treated by patients with OUD/SUD.

• RN #26: "I just want to be careful that it [having no compassion] doesn't, you know, change me in ways that I don't feel or know or want to see."

• RN #16: "I think we've all said fuck it at some point or thought it or like hear it or heard someone say it, because you're just frustrated at the time and we're human beings as well as nurses."

• RN #15: If someone's like coding [and dies], whether it's an overdose or whatever drug, sometimes we're so numb to it, we're like laughing and joking over the body. And I get it. They put a needle in their arm. They did it to themselves. But then some days I'm driving home and am like damn, I should have been a little bit more compassionate… And I think sometimes we forget, like when we're standing there, like, this is still a human being.

These nurses acknowledged the emotional toll and were fearful of how these negative emotional responses, especially after a major case involving drugs, such as a complex trauma or overdose case, made them feel. These feelings were cause for concern in terms of bringing work into their home by having displaced or projected their work feelings onto family members.

• RN #8: I'm taking care of a mom and her baby's brains were all over her hair [gunshot victim from a drug deal gone bad] and I just walked out of the room and I wanted to cry, and I had two new patients where I was and the doctor was like, that person needs to be seen right now. And I went home and I fought with my boyfriend and my 16-year-old son and I was like, I can't control my anger right now…then I realized it was all about that baby.

• RN #35: "The opioid stuff is exhausting. You go home and you're like, what is wrong with these people? It's just exhausting."

Subtheme 3: Job satisfaction. Job satisfaction was frequently discussed in terms of negative and positive feelings by these emergency nurses. Negative job satisfaction was the more common subtheme and related to the ED environment, dealing with nonemergency nurses, and a lack of recognition or support from management/administration.

•RN #26: "So no one makes emergency room nursing easy. Not the patients, not the hospital… We have to get these patients out [of the ED]. We have to move them [up to the floor or unit]. There are such fights on the phone from other nurses, who can't take that patient."

•RN #28: "It's money, it's volume, push them through… I don't know what happened to the compassion in medicine."

•RN #8: "I used to get a lot of satisfaction from being a nurse, but as of now I have zero." The lack of staff, time, and space for emergency nurses were tangible factors contributing to their compassion fatigue.

RN #1:But no one ever checks on the nurse to see if they're okay. The physicians can go on with their physician lounge and just take five minutes. We don't have a lounge. The physicians have a lounge. Our old walk-in clinic waiting room is their lounge. I'm talking carpet, computers, a couch for them to crash on weekends…there is no place for the nurses to go. We go in a dirty stairwell by the kitchen to talk or cry….

Nurses shared that the lack of space or a breakroom for nursing in this emergency department contributed to their feeling underappreciated by management and administration. In particular, they did not have a clean and dedicated space or room in or near the emergency department. Their previous breakroom was remodeled and given to the physicians, leaving nursing staff with no place or room, other than a dirty stairwell located off the emergency department, to gather to talk, debrief, or feel relaxed. Doing a job when they were understaffed or not recognized or appreciated by nursing management or hospital administration lowered levels of job satisfaction.

Discussion

The emergency department is a fast-paced clinical site that requires nurses to demonstrate communication, critical thinking skills, and leadership. Patients and families who come to the emergency department desire compassionate care from all the nurses and health care providers with expectations that the delivery of care will be consistent and of high quality. Emergency nurses in this study repeatedly expressed increasing frustration with addicted patients, negative emotional responses, and decreasing levels of job satisfaction. Intensifying these feelings were stressors such as being understaffed, having few available professional supports, and absence of recognition from management/administration. Although most of the feelings and perceptions shared by the emergency nurses in this study were negative, it is important to note that some nurses did share positive feelings. Most talked about having hope that change would happen in the emergency department, with staffing, management, and workload. This sense of hope for the future led emergency nurses in our study to identify 3 areas that would increase feelings of compassion and decrease their fatigue: improved management support with encouragement across all work shifts, debriefing opportunities, and more education.

Implications for Emergency Nurses Management Support With Encouragement

In the emergency department, there are demanding workloads and aspects of the work environment, such as poor staffing ratios, lack of communication between physicians and nurses, and lack of management or administrative leadership with support, that are associated with compassion fatigue and burnout in nurses.[5] Employees who feel valued and supported perform better at work. Support at work can be critical during stressful times, such was when short staffed or extremely busy, and although stress is a normal and unavoidable part of life, especially at work, too much stress can affect an individual's emotional and physical well-being.[20] Managerial support in the workplace is a

critical component of creating safe and healthy workplace environments. In the United States, federal law provides that each individual is entitled to a safe workplace that is free from hazards.[20] Safety involves effective communication between employees and managers that can help increase an employee's feelings of competence and productivity, which meets management goals of having a team full of exceptional employees.[20]

Research on compassion fatigue suggests that it is best managed by prevention through proactive assessment, education, and support both formal and informal.[7,9,21-23] For any ED or clinical setting, an essential component of a supportive, productive, and healthy work environment is having a nurse manager who is visible on the unit, promotes communication, validates employee concerns, and has strong leadership skills.[9,22] An essential component of inclusive leadership involves nurse managers and administrators who are able to develop positive relationships with open lines of communication.[5] Although nurses themselves need to identify their personal stressors, it is imperative that ED management and hospital administration also acknowledge these concerns and act on the workplace issues. The emergency nurses in this study felt that there was little support given from hospital administration.

In our study, emergency nurses shared that short staffing was a problem across all nursing specialties within their own hospital, but they felt it could be helped, if not solved, through realistic planning with hiring of additional staff and opportunities to debrief after major cases (overdose, trauma). The increases in the number of patients with OUD and SUD are not expected to stop any time soon, especially in Philadelphia.[16] Staffing in the emergency department needs to reflect this reality. Overstressed nurses often react by leaving a position when they believe they will not get relief. It is expensive to recruit, orient, and train new nurses to take the place of experienced nurses. Administrators and management need to balance the cost of doing this against providing debriefing, psychological or formal support, and education.

Management and administration also can use formal supports to help nurses with the negative feelings associated with compassion fatigue and work stress through a benefit program, often called an employee assistance program (EAP). An EAP is a voluntary, work-based program that offers free and confidential assessments, short-term counseling, referrals, and follow-up services to employees who have personal and/or work-related problems. Many individuals use EAPs to cope with workplace violence, trauma, and other emergency response or disaster situations. EAPs address a broad and complex body of issues affecting mental and emotional well-being, such as stress, grief, family problems, alcohol, other substance abuse issues, and psychological disorders.[24] In our study, we were surprised that there were nurses who stated that they were unaware that EAP services existed at their hospital. Nurses who were aware of or had used EAP for a work-related incident shared that they found the EAP response to be of no help, occurring too late after a crisis or trauma case happened. Not surprisingly, many of the nurses in our study turned to their peers for informal support. Peer support during the shift and often after work may provide the benefit of informal support based on an understanding that their peers have gone through similar situations with associated feelings. Social support and talking with colleagues have been found to be significant moderators between aggression/conflict situations and emotional exhaustion in addition to a useful self-care strategy supporting balancing work with a personal life.[13,22,25]

Opportunities For Debriefing

A successful evidence-based action to decrease compassion fatigue is the purpose of debriefing, which is defined as a session that involves sharing and examining information after a critical event to improve communication and review team performance, as well as provide emotional support.[26] Debriefing is not counseling, because it is a structured voluntary discussion aimed at putting an abnormal event into perspective.[21,26] Reviewing the positives and negatives of a difficult experience encourages communication with reflection on specific actions to incorporate

improvement into future performance. Allen and Palk[21] reported that debriefing was the most common action found to be beneficial to resilience and coping. The process of debriefing involves structured voluntary discussion aimed at putting an atypical, complex, challenging, or traumatic event into perspective.[26,27] In a perfect and well-staffed work environment, debriefing after a traumatic case or event should be provided immediately after the case or as soon as possible; some recommend no longer than the first 24 to 72 hours after the initial impact of the event.[26] Others have found that debriefing is effective when conducted within the first week after a difficult or traumatic case.[21,27] Further research on what timeline for debriefing works best for nurses, staff, and providers and how to implement in an ED setting is recommended.

Education

Debriefing also can include an educational component that focuses on learning about compassion fatigue, OUD/SUD knowledge, and self-care techniques to promote individual well-being. Specialty education programs can increase both knowledge and skill in the ED environment with a spotlight on how to identify, manage, and reduce stress in addition to the latest innovations in combating and preventing compassion fatigue. Trauma informed care, workplace violence identification, and reporting to enhance ED safety are other educational ways to prevent compassion fatigue. Understanding how to manage frustration with patients, negative emotional responses, and job dissatisfaction also can help nurses' professional and personal growth while providing better patient care. Education for nurses can be accomplished through modules, standard continuing education contact hours, courses, simulations, virtual conferences, or speakers. In our study, emergency nurses expressed a desire to receive education about providing care to individuals with OUD and SUD. Areas identified for education included the neurobiology of addiction to improve attitudes of working with patients with OUDs and SUDs, which may increase nurse knowledge to help separate the person from their addiction.

The Warm Handoff Program

In the Commonwealth of Pennsylvania and across the city of Philadelphia, there is a state-supported program called the Warm Handoff Program that was developed and implemented to better meet the needs of individuals with OUD/SUD diagnosis and their recidivism rates.[28] The program was designed to provide recognition and response to the need for improved OUD/SUD treatment access. The goal of the program is to directly transfer overdose survivors from the hospital emergency department to a drug treatment provider and recovery services.[28] The program provides support for the individual and staff given that patients with OUD/SUD entering the emergency department must be treated for their priority problem, trauma, medical complication or disease process, opioid relapse, or impending death owing to overdose. The emergency nurses in this study voiced frustration that these "high," "high care," and "needy" patients with OUD and SUD limited their capacity to care for other sick patients. Emergency nurses were frustrated and resentful when expected to provide care to someone with OUD/SUD over someone without it, especially if they perceived that the patient was someone they frequently saw in the emergency department. At the time of this study, the emergency department had not had a Warm Handoff drug/rehabilitation contact or a full-time social worker or psychiatric/mental health liaison for a number of months. This lack of a program designed to help ED staff by taking patients with OUD/SUD directly into rehabilitation or recovery may have been a factor in nurses' feelings of exhaustion and frustration surrounding perceptions of patient recidivism.

Limitations

Although this study provides strong support for emergency nurses having high levels of compassion fatigue related to their providing care to patients with OUD/SUD, limitations should be considered. First, the emergency nurses in this study were from a single, level I trauma center in Philadelphia and there was no comparison group, and all participants were from the same clinical unit, which limits generalizability and provides the greater threat to external

validity, meaning application of these findings to other settings may be limited. The sample size was small and included a range of ages, years of nursing and emergency nursing experience, in addition to the study occuring in late 2019 and early 2020, before the coronavirus pandemic. Because this study consisted of focus groups with emergency nurses who chose to participate (self-selection), their personal feelings and perceptions of experiences working with patients with OUD/SUD suggest that the transferability of the findings also may be limited. Although more than half of the full-time emergency nurses participated in this study, the small sample size may not be representative of other larger or smaller emergency or other nurse groups. There is also the possibility that some of the emergency nurses may have felt peer pressure to participate in the focus groups or to give similar answers as others in the group when faced with the moderator's questions. In addition, our sample was biased toward education with more than 73% being prepared at the baccalaureate level and all were working in a Magnet recognized hospital. Future research could focus on the impact of compassion fatigue interventions (management supports, education, consistent and timely debriefing, and/or huddles) in a more diverse range of emergency departments and with nurses such as those who are younger. Inclusion of more ethnically diverse and male nurses to determine the effectiveness of interventions designed to reduce compassion fatigue also must be included in the future.

Conclusion

Across the nation and in the city of Philadelphia, emergency nurses, providers, and staff witness devastating illness, suffering, and trauma on a daily basis. Adding to this workload are patients with drug and addiction issues that nurses in our focus groups shared were increasing their feelings of frustration, negative emotions, and job dissatisfaction. These feelings were found to interfere with nurses' well-being, job satisfaction, and ability to provide patient-centered quality care. Emergency nurses, providers, nurse managers, and hospital administrators must begin to understand the effects of compassion fatigue and recognize the signs and symptoms. Fostering a high level of management support with encouragement, self-awareness, and understanding of how the work environment influences personal well-being are suggested strategies to avoid the negative frustrations and emotional responses associated with compassion fatigue. Using formal support systems, debriefing, education, and recognition to prevent and address nurses' compassion fatigue must be prioritized.

Acknowledgments

Author Disclosures

1)Do you get satisfaction from being able to help people?2)How do you feel about working with opioid addicted patients?3)Do you feel like you receive adequate support from colleagues and supervisors regarding working with opioid addicted patients?4)Do you ever feel like you are taking your work home?5)What do you do to soothe or calm yourself when your anxiety level is high as a function of working with opioid addicted patients?a.What has worked for you?b.What has not worked for you?6)How do you view drug addiction–is it an acute or chronic disease?7)Are there any other areas that we have not covered that you would like to discuss?

Main themes No. of quotes	Subcodes No. of quotes	Subthemes No. of quotes
Compassion fatigue (148)	• Compassion fatigue and frustration with patients (88)	•Emotional responses (36)•Frustration with patients (24)
Frustration (96)	•Frustration with work stress or job (59)	•Job satisfaction (37)

DETAILS

Emergency Department Immersion: A Clinical Elective: JEN

🔗 ProQuest document link

ABSTRACT (ENGLISH)

The faculty members and management shared common ideas, such as a structure for the students during clinical experience, immersion in the emergency department's reality, and focused, high-quality, patient care. Previous literature has shown that providing additional opportunities strengthens relationships with practice partners, helps with the graduating students' job placement, and increases students' clinical judgment.3,4 Nursing electives allow students to explore nursing areas that may not be available during clinical rotations, such as hospice or palliative care, perioperative, rehabilitation, geriatrics, oncology, and global health.Goals for the Course The student learning outcomes for this nursing elective focused on students applying their previous knowledge, increasing hands-on skills, reinforcing professional behaviors and core values, and focusing on the safety of the patients and the students. The students also focused on delegation, leadership, communication, interprofessional collaboration, and applying evidence-based practice within the health care setting.Description of Course The faculty member planned the ED elective course in a 941-bed community hospital.

FULL TEXT

Contribution to Emergency Nursing Practice

•• Nursing schools are attempting to find creative ways to incorporate clinical rotations during the COVID-19 crisis. A creative way to incorporate clinicals is the use of electives in specialty areas.

•• This article explains how professional relationships between hospital management teams and nursing school faculty can help increase students' clinical experiences while immersing them into the world of the emergency department.

•• This elective provided unique opportunities for the students and allowed them to increase their clinical judgment and confidence in their skills. There were numerous opportunities to help the students improve on their career development skills.

Many scholars agree that clinical experiences are the best way to develop deep knowledge of nursing practice. Even though clinical hours are planned in the curriculum, students enjoy additional opportunities to prepare for graduation and career opportunities. This article explains how an elective ED course helped to enhance nursing students' clinical judgment, interprofessional collaboration skills, and technical nursing skills during the COVID-19 pandemic. Attempting to obtain clinical experiences during a time of crisis was hard for many nursing schools. Federal and state protective orders shut down many hospitals that students had attended.[1] Students had to adapt and learn through a new environment using video conferencing devices. However, this article focuses on creating an elective in an emergency department made possible by existing professional relationships between the management team and a faculty member from a prominent bachelor of science in nursing program.

Creating a trusting and supportive relationship with the hospital's management team made it possible for this elective to succeed during a crisis. The faculty members and management shared common ideas, such as a structure for the students during clinical experience, immersion in the emergency department's reality, and focused, high-quality, patient care. During the COVID-19 pandemic, hospitals became understaffed, and the staff was very stressed and tired. However, by allowing the students to participate in this ED elective, they could perform nursing procedures, learn how to communicate with patients and their families, and complete assessments.

The faculty member created an application to learn why students were interested in the course. The students were interviewed by faculty and offered acceptance to the most promising students. At the end of the process, 6 students were enrolled in the course. Students typically have a knowledge deficit in specialty areas,[2] and specialty electives help students strengthen knowledge deficits or focus on clinical interests to prepare for nursing practice. Previous literature has shown that providing additional opportunities strengthens relationships with practice partners, helps with the graduating students' job placement, and increases students' clinical judgment.[3,4] Nursing electives allow students to explore nursing areas that may not be available during clinical rotations, such as hospice or palliative care, perioperative, rehabilitation, geriatrics, oncology, and global health.

Goals for the Course

The student learning outcomes for this nursing elective focused on students applying their previous knowledge, increasing hands-on skills, reinforcing professional behaviors and core values, and focusing on the safety of the patients and the students. The participating students had completed third-semester courses, and this elective course helped them apply their knowledge to complex situations in the ED setting. The students also focused on delegation, leadership, communication, interprofessional collaboration, and applying evidence-based practice within the health care setting.

Description of Course

The faculty member planned the ED elective course in a 941-bed community hospital. In preparation for ED practice, the faculty member planned the first clinical day in the campus-based Learning Resource and Technology Center to practice using ventilators, hot-line tubing, warming blankets, and defibrillators; the students also reviewed skills with

the placement of intravenous catheters and urinary catheters. This experience exposed them to the equipment and skills that they would encounter in the emergency department, allowing them to practice with the equipment in a nonstressful environment. The students used case studies and ED protocols to help them learn to think through common emergent conditions.

Immersion Experience

Students immersed themselves in 10-hour days where they learned how to function in a complex, chaotic ED. They worked and interacted with nurses, physicians, respiratory therapists, radiology technicians, and many others who were part of the health care team. The students completed 90 hours. Students filled out an assessment form on their patients during their clinical and then reflected on their experiences throughout that day. Clinical experiences provided the students with opportunities to build their clinical judgment, interprofessional collaboration, and technical nursing skills. Students took care of patients involved in traumas, cardiac or respiratory arrest, shortness of breath, abdominal pain, and injuries, among many other issues. Students debriefed at the end of the clinical day to reflect on what they learned and connect disease processes to nurses' actions to care for their patients.

Clinical Judgment

The students developed their clinical judgment by applying the knowledge they had learned in their classes and putting it into practice. The students analyzed laboratory data, reviewed diagnostic studies, looked at prescribers' orders, and performed assessments. This experience increased their clinical judgment by linking different concepts and assessing how different disease processes affect one another.

Interprofessional Collaboration

The students learned to anticipate the client's needs by engaging with the health care team members. Students learned from physicians and interacted with them during their time in the emergency department. During these encounters, the students learned communication and professional skills that they did not have before this experience. Many students interacted with respiratory therapists while patients were on the ventilator and learned about the ventilator while helping perform nursing care on these patients. Students interacted with radiology technicians and learned the importance of monitoring the patient in radiologic procedures. Students collaborated with the pharmacists while they made their rounds consulting about medication. Pharmacists also were present during trauma codes and cardiac arrests, so the students observed the role of the pharmacists in the hospital in an emergent situation. This interaction with interprofessional teams allowed the students to understand how important it is for health care teams to work together.

Technical Nursing Skills

Many students are eager to perform skills during their usual clinical rotations. Students performed assessments, initiated intravenous placement, performed catheterizations, administered medications, and assisted health care providers with procedures, postmortem care, and many other nursing skills. Some students got to assist with level I or level II traumas. This experience allowed the students to practice chest compressions, watch chest tube placements, observe endotracheal intubations, and help with running a code on a patient. By the end of this ED elective, most students were proficient in starting intravenous placements, using infusion pumps, and performing assessments. Students assisted providers with procedures; they understood teamwork by helping with these patients during an emergent situation.

Career Development

This ED elective allowed the students to develop their future career and professional skills. The students learned how to manage patients, organize their time and care, prioritize patients for assessment, and communicate with other health care professionals. Through this elective, students gained more confidence in themselves and their

skills before participating in their preceptorship. Most students who participated in this elective stated that the emergency department was where they wanted to work after graduation, giving them an inside look at the work of an ED nurse.

Reflections from Students and Faculty

Students were eager to learn and take care of the patients. When the students met in the morning, they were eager for their assignments and to start the day. Students repeatedly said that they enjoyed this elective, and they were grateful for the opportunity to learn. Students commented, "I felt I had more opportunities to learn hands-on skills and what it is like to be a nurse during this summer's clinical than I have in all other clinical experiences. This elective was easily the most beneficial clinical I have had." Another student commented, "I learned so much and will be able to use the information I learned in next semester and my nursing career. I give this course a 10/10 recommendation." At the end of each 10-hour day, the students continued to smile and were excited to share their experiences.

This experience was very humbling as a faculty member because it is easy to get discouraged in times of crisis. It was re-energizing because of the students' dedication to learning and passion for caring. The students dealt with death, suicide, trauma, and very sick patients, but they provided care with poise and grace. They gave all they had to help patients and learn how to give their best to future patients. As the faculty member involved in this course, it is of recommendation that nursing schools provide more elective courses in specialty areas such as the emergency department, intensive care units, and the operating room.

Author Disclosures

Conflicts of interest: none to report

DETAILS

Subject:	Emergency medical care; Students; Ventilators; Collaboration; Oncology; Careers; Patients; Catheters; Community hospitals; Emergency services; Palliative care; Evidence-based practice; Pharmacists; Leadership; Professional relationships; COVID-19; Evidence-based medicine; Job placement; Clinical outcomes; Health care; Learning; Trauma; Teams; Knowledge; Pandemics; Nursing care; Nursing schools; Interagency collaboration; Electives; Evidence-based nursing; Rehabilitation; Interdisciplinary aspects; Nursing skills; Coronaviruses; Delegation; Clinical nursing; Clinical experience; Career development planning; Clinical decision making
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Listening to Emergency Nurses Association Members and Journal of Emergency Nursing Readers: JEN

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ABSTRACT (ENGLISH)

In this issue, you will find a Pediatric Update article detailing the new neonatal resuscitation guidelines, Geriatric Update article describing an innovative project to increase older adult driver safety, and Triage Decisions article reporting a clinical case for an adult with vision changes. From our readers, we learned that clinical practice guidelines and position statements are still valuable (Figure 3). While we will continue to publish quality research in JEN, we also will ensure that the research articles have relevance to the clinical practice of emergency nursing. [...]most importantly, we hope that readers will be able to apply JEN content to transform their clinical practice for the betterment of clinical outcomes.Author Disclosures Conflicts of interest: none to report.

FULL TEXT

Shortly after making the announcement to hire a new Editor-in-Chief for the *Journal of Emergency Nursing* (*JEN*), a readership survey was conducted to gauge readership habits and the satisfaction with and usefulness of various *JEN* features. Ultimately, the findings from this survey will be one element used by the new Editor-in-Chief to guide *JEN*'s strategic direction.

This summer, a random sample of 5000 Emergency Nurses Association members was surveyed by email for this purpose; 283 members responded. We learned that the leading reasons why members read *JEN* were to expand their knowledge (67%), become aware of new trends (51%), and learn about information important to practice (44%). [Figure 1] provides a listing of additional reasons for members reading *JEN*.

Overall, readers believed that the content and quality of *JEN* was very good to excellent rather than poor, fair, or good. The area reflecting a potential for improvement was the rating for sections and columns in *JEN*; only 69% rated this component as very good to excellent. We are pleased to announce that *JEN* is committed to bringing clinically oriented content back. In this issue, you will find a Pediatric Update article detailing the new neonatal resuscitation guidelines, Geriatric Update article describing an innovative project to increase older adult driver safety, and Triage Decisions article reporting a clinical case for an adult with vision changes. [Figure 2] provides a depiction of the ratings for additional content in the Journal.

From our readers, we learned that clinical practice guidelines and position statements are still valuable ([Figure 3]). We anticipate partnering with the Emergency Nurses Association to regularly publish priority documents in this area in the upcoming issues of *JEN*.

Popular sections that readers would like to read more of in the Journal include the Trauma Notebook (60%), Triage Decisions (59%), Case Reviews (50%), and Emergency Nursing Review Questions (50%). [Figure 4] indicates additional columns that readers would like prioritized in future issues of *JEN*. This list of priority sections reflects several comments that respondents provided such as "I like the CEs and CEN review questions" as well as "Bring back more clinical articles—things I can use in my day-to-day practice and when I educate the peers in my department." These comments resonate with the *JEN* Editorial Board, who is committed to increasing the clinical content in the Journal.

While we will continue to publish quality research in *JEN*, we also will ensure that the research articles have relevance to the clinical practice of emergency nursing. Including research is important to build the science for evidence-based emergency care. From our readers, we heard that many read *JEN* cover-to-cover but want the focus on clinical content. To further ensure that the clinical content going forward is highlighted, the front half of *JEN* issues will feature the section content most closely tied to daily clinical practice. Research will continue to be published but moved to the latter half of each issue.

We believe that the merits of the Journal will continue to meet our readers' desires and that they will continue reading *JEN* cover-to-cover. And most importantly, we hope that readers will be able to apply *JEN* content to transform their clinical practice for the betterment of clinical outcomes.

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Finding My Joy: Fighting Nurse Burn-out: JEN

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ABSTRACT (ENGLISH)

The responsibility of being a Director of Nursing in an emergency department amid a health care crisis was overwhelming but not more than what the emergency nurses, technicians, medical providers, and other ancillary personnel had to go through. All I could do was make rounds, check on the staff, order supplies, request more staffing help from the Incident Command, coordinate travel nursing coverage, handle family complaints, and act as a cheerleader and emotional support for the staff. [...]in my emails and our daily huddles, I talked about the nurse travelers coming in, the nonclinical activities, and nonemergent procedures that were put on hold to deploy the staff to the emergency department and other patient units. The outpouring of support from the community with unsolicited food deliveries, which fed both our bodies and our souls.

FULL TEXT

At the beginning of April 2020, the COVID-19 pandemic burned me out. I was ready to quit nursing. I wanted to run as far away as I could, away from dying patients, away from the heartaches.

I remember waking up in bed, physically drained from a fitful sleep, emotionally shattered by the friends and the patients we lost. I debated calling out sick that morning just because I dreaded hearing the frequent overhead pages for the code team.

The apex of this pandemic that we were preparing for came much too early. Physicians, nurses, and technicians were running around responding to calls for intubations, desperately trying to race against time. We were all covered from head to toe with impervious gowns, face shields, double gloves, boots, and surgical caps; the N95 masks would later leave marks on our faces. The scars in our hearts were unseen, and post-traumatic stress disorder, a

real threat.

We were protected, we assured ourselves, but how could you be confident about how safe you are when the COVID-19 fatalities keep on rising? The whole hospital (and all of New York City) was in a pandemic chokehold.

It took a few minutes of deep breaths before I could summon the courage to rise from my bed. For the first time in my long nursing career, I was at a crossroads I never thought I would be at. I had considered myself unshakable. "Been there, done that; nothing can ever make me turn away from nursing," or so I thought.

That morning, I felt burnt out, but I went to work. I could not abandon my staff. To fortify myself, I looked up onto the heavens and whispered, "My Lord God, take charge of my life."

On The Frontline

New York streets were empty. The "city that never sleeps" had been in total lockdown since March, and only essential workers were allowed to travel. Along the Cross Bronx Expressway on my way to work, what was once a traffic nightmare looked more like an apocalypse with nary a car nor truck in sight for miles on end. Times Square was a ghost town. The silence was both eerie and deafening. I felt as though I was going to war, but I was scared and helpless. I hated being vulnerable.

I was on the frontline but felt like a spectator. I was not actually at the bedside giving direct care as I wanted to be. The responsibility of being a Director of Nursing in an emergency department amid a health care crisis was overwhelming but not more than what the emergency nurses, technicians, medical providers, and other ancillary personnel had to go through. I can only imagine the enormous impact of the unending crisis on their psychological well-being when their best efforts sometimes failed.

My nurses forbid me to go into the rooms, even to help prepare the bodies for the morgue. They wanted me safe. I joked that I was not that old, that I could fight alongside them. As with imposter syndrome, I felt inadequate and that I was not quite pulling my own weight on the battlefield. I felt guilty that I was not at the bedside.

All I could do was make rounds, check on the staff, order supplies, request more staffing help from the Incident Command, coordinate travel nursing coverage, handle family complaints, and act as a cheerleader and emotional support for the staff. I followed up with my quarantined staff members for COVID-19 exposure and illness. It was difficult to hear their anxiety, and I feared that they could hear the quiver in my voice, so I preferred texting to phone calls.

I saw the patients come through the triage area with no family members to sit by their bedside. They were whisked directly to rooms and supplied with high-flow oxygen masks to aid in their breathing. I saw patients inside the isolation room as they lay with apprehensive eyes looking at their oxygen saturation numbers on the cardiac monitors. I also saw some patients lose the battle and die.

I remember the eyes of the ED staff beyond their masks and face shields. Eyes that were sad and worried. Eyes haunted by the final goodbyes between the patients and their loved ones on an iPad. Eyes filled with despair because of the unprecedented challenge wrought by the COVID-19 onslaught. These were our darkest times.

I tried to be transparent in providing information to the staff. But I grappled with what I could share. So, in my emails and our daily huddles, I talked about the nurse travelers coming in, the nonclinical activities, and nonemergent procedures that were put on hold to deploy the staff to the emergency department and other patient units. My news was as upbeat and hopeful as I could possibly communicate it to my already disheartened staff. I informed them of other surge capacity activities that the hospital leadership had initiated to accommodate the influx of patients with COVID-19.

I did not share my concerns about the grim statistics and the dwindling supplies and equipment (because we compete with other hospitals for resources). I did not share that the morgue was full and that there were medical examiner trailers on our campus. I did not confess that I wanted to quit nursing.

I did not want to stop and answer questions about my state of mind for fear that the tenuous hold on my fragile emotions would break. I did not want anyone to see me ugly-cry because of the sadness in my heart. So I cried behind the doors.

My priority was to have my staff feel supported so that they could take care of the patients who needed their expert

help. I had to be the leader they deserved. I learned how to appear confident on the outside while I was frazzled on the inside. I learned to hide my fear. I could not afford to be weak.

Epiphany: Self-Care

The staff needed a sort of personal protective equipment for our mental well-being. We corroborated with the mental health liaison psychologists, who offered counseling and other options for the team to de-stress, decompress, and start healing our broken hearts. The psychologists taught us to reach out and seek help.

My epiphany was that I had to do self-care. How could I help my staff when I was running on empty? In my personal life, through all of life's ups and downs, I relied on my family and friends, my church, and my writing to endure. I knew I was strong enough to survive my personal travails, but I was unsure if I could remain a nurse amid the challenges that had brought down my colleagues. I resolved to look for my joy triggers at work. I knew I had to heal myself before I could lead others.

One day, a nurse asked to speak with me. The nurse broke down crying as soon as we got into my office. Words of pain and despair poured out, and repressed emotions from the past months finally tumbled out. The nurse was not suicidal but was profoundly sad and depressed. We talked for a long time, but mostly I just listened. I called one of the mental health counselors and arranged an emergency visit. Then we hugged, and the nurse thanked me for listening and being there. I am glad to report that today that nurse is healthy and thriving.

Finding My Joy

I promised myself that COVID-19 would not be my downfall. Having witnessed the heroism and fortitude displayed by all health care personnel during these uncertain times made me realize how much I love the nursing profession. In my little way, I am privileged to have made a difference, and I wanted to continue to be a nurse.

That moment of indecision in my nursing career, that short period of burn-out, that temporary insanity is no longer. I have recovered my self-worth; I have found my joys and my "why."

What turned me around? What prevented me from leaving my profession?

My healing came as I continued working as a nurse. I poured out my emotions into my daily journal, a catharsis that helped me exorcise my negative feelings. My writing brought everything into perspective. Much as there were so many heartaches, I found comfort in our small triumphs. As a nurse, I was part of the army against this virus.

There were numerous things to celebrate. Let me recount the reasons I persevered:

•• The clapping and appreciation from the hospital neighborhood and other heroes such as the firefighters and police officers.

•• The outpouring of support from the community with unsolicited food deliveries, which fed both our bodies and our souls.

•• The staff working as a team and caring for one another.

•• The staff coming in extra days so that their peers did not work short-handed.

•• The deployed staff working in unfamiliar places and doing their very best to help.

•• Dancing to the music "Call on Me" each time a patient was discharged.

•• Receiving thank you's from the patients and their families.

•• The staff rising to the challenge, despite the threat of COVID-19.

•• The knowledge that every single hospital employee was doing their best under the most extreme circumstances.

•• The realization that we were doing God's work.

I created a Facebook photo album using pictures from the staff to celebrate the resilient group that they are. It was a way to pay tribute to and highlight this particular group on the frontlines of this war. I wanted to preserve in posterity the faces of the brave ones who had come to fight the battle against COVID-19.

The Facebook photo album grew into a photo journal. It chronicles the moments of levity captured in between the moments of heartbreak, those moments just before the staff rushes back to the unit to save more lives.

Frozen in time, the pictures capture the ED team taking a much-deserved break, a respite from the hard work–just a little breather. They show the spirit of our camaraderie, of having bonded as we worked together. As time went on, the staff started to "SMIZE" they smiled with their eyes.

These health care workers, heroes of my time, were simply inspiring.

Nurses' Month

In May 2020, the hospital managed to celebrate the "Year of the Nurse" creatively despite the constraints of social distancing and face masks. We danced in the streets, gave out cookies and cupcakes, published the emergency department's virtual nursing journal, enjoyed the gifts from numerous sponsors, and were treated to an aerial display from the US Air Force and Navy. The festivities were a harbinger of hope that we would survive. The end of the pandemic would come. And then we prayed for the vaccine, our fighting chance.

In 2022, the American Nurses Association chose the theme, "You Make A Difference." Nurses in all specialties and sectors truly matter as we give our patients a chance for a better life. Every day. Our strength is rooted in determination and dedication to serving those who need help, and is fortified by the challenges and disruptions of the past years.

Every single nurse affected by the pandemic crisis should be proud to be still standing. Bruised maybe, but still standing. Today, I am retired, but, one way or another, through my teaching and my writing, I am still a nurse.

DETAILS

Corrigendum to Pneumothorax [Journal of Emergency Nursing , Volume 46, Issue 6, November 2020, Page 895]Nana Ohene Baah, MD, and Ashwani Kumar Sharma, MD, Interventional Radiology, University of Rochester Medical Center, Rochester, NY: JEN

Nana Ohene Baah; Sharma, Ashwani Kumar

ProQuest document link

FULL TEXT

The authors regret that the clinical presentation of the case in the above article was incomplete. It should read:

A 40-year-old man was brought to the emergency department after a massive motor vehicle crash with a tractor trailer. He was resuscitated in the emergency department. A tracheostomy tube and left chest tube were placed. Because of severe symptomatic bradycardia, a pacemaker also was placed. Ultimately, the patient was transferred to the intensive care unit and recovering. Subsequently, on day 10 of admission, the patient complained of sudden onset of right-sided chest pain and dyspnea. Frontal chest radiograph was performed at the bedside (Figure). At the time, his vital signs were as follows: blood pressure, 110/60 mm Hg; heart rate, 94 beats per minute; respiratory rate, 18 breaths per minute; and oxygen saturation by pulse oximetry, 90% on room air.

The authors would like to apologize for any inconvenience caused.

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Guest Editorial: Collaboration Yields 2021 ENP Competencies: JEN

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FULL TEXT

The American Academy of Emergency Nurse Practitioners (AAENP) and the Emergency Nurses Association (ENA) are pleased to announce the publication of the 2021 Emergency Nurse Practitioner (ENP) competencies. These competencies represent the integration of previously published competencies from AAENP (2018) and ENA (2019) as delineated by representatives from both organizations. The Consensus Model for APRN Regulation places responsibility for the development and governance of nurse practitioner (NP) specialty areas, including competencies and standards, with professional organizations (Advanced Practice Registered Nurse Consensus Work Group &National Council of State Boards of Nursing APRN Advisory Committee, 2008).

The first set of ENP competencies was delineated in 2008 based on a national Delphi study and practice analysis (ENA, 2008). As ENP practice advanced and expanded, experts identified the need for updated competencies more reflective of current practice. These original competencies were first updated in 2018 when AAENP published ENP competencies, titled Practice Standards for the ENP Specialty, based on data from a 2016 ENP national practice analysis (American Academy of Nurse Practitioners Certification Board [AANPCB], 2016; Tyler et al 2018). Based on the findings of this research, the knowledge, tasks, and procedures associated with ENP practice were categorized into five domains: medical screening, medical decision-making/differential diagnoses, patient management, patient disposition, and professional, legal, and ethical practices (AAENP, 2018). The competencies can serve to differentiate entry level knowledge, skills, and abilities from advanced ENP specialty expertise within the broader framework of practice standards while carefully encompassing the comprehension, psychomotor capability, and acumen necessary to adeptly guide care for patients across the life span, including procedures most frequently utilized in emergency settings (Ramirez, Schumann, &Agan, 2018).

Also, in 2018, ENA President Jeff Solheim appointed content experts to the ENP Competency Revision Work Group to review and update the 2008 ENA Competencies for Nurse Practitioners in Emergency Care. Utilizing the framework from the 2008 ENP competencies, the workgroup met regularly over 2 years and created a grid to map the competencies with the AANPCB ENP certification examination blueprint, the Scope and Standards for Emergency Nurse Practitioners (AAENP, 2016), and the Practice Standards for the Emergency Nurse Practitioner Specialty (AAENP, 2018). Following a public comment period and resulting revisions, the revised competencies were submitted to the American Nurses Association (ANA) for endorsement and were approved in July 2020.

While ENA (2008, 2019) and AAENP (2016) competencies had many similarities, the existence of different ENP competencies published by the two organizations created confusion among the workforce and stakeholders. In 2021, AAENP and ENA Presidents charged the Emergency Nurse Practitioners Competencies Workgroup to align

the two sets of competencies. Using a grid-like framework to distinguish similarities and differences between the two documents, the workgroup identified, analyzed, and organized the competencies by theme. Whereas the AAENP competencies were broad, the ENA competencies were very detailed. There were no identified significant variances or gaps other than some terminology differences. Despite being originally derived from different studies, the two sets of competencies demonstrated similar competencies, lending validity to the final merged set of competencies. An agreement was made to use the AAENP core competency domains: medical screening, medical decision-making, patient management, patient disposition, and professional, legal, and ethical practices. Competencies from the AAENP and ENA documents were ultimately merged and arranged according to the appropriate corresponding domain.

Not only were the initial two sets of competencies aligned with each other but they were ultimately also aligned with other national initiatives and documents guiding NP education. Regardless of the population focus during academic education, all NPs are prepared with core competencies (National Organization of Nurse Practitioner Faculties [NONPF], 2017) as a basis for population and specialty-focused competencies. Specialty competencies are not considered entry level but rather demonstrate and incorporate higher levels of targeted knowledge and abilities. The ENP competencies build upon the Core NP Competencies (NONPF, 2017) and the advanced-level nursing competencies outlined in The Essentials: Core Competencies for Professional Nursing Education (American Association of Colleges of Nursing, 2021). In addition, the 2021 ENP competencies are congruent with The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity (National Academies of Sciences, Engineering, &Medicine, 2021).

Although it may appear to be a seemingly simple goal, merging this information was complex and involved deconstructing, analyzing, and synthesizing aspects of ENP practice, along with consensus-based decision-making that resulted in the desired outcome of improving the values, expertise, and quality in managing patient health care by the ENP. Through a collaborative work effort, the unified set of 2021 ENP competencies provides support for academic ENP programs as they move toward competency based education. In addition, the updated competencies demonstrate the alignment of evidence-based ENP practice in the delivery of safe, quality patient care to support regulatory frameworks, credentialing, and reimbursements.

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Understanding Research: The Importance of Research Mentors: JEN

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ABSTRACT (ENGLISH)

The Oncology Nursing Society developed a description of challenges and strategies for nurse researchers and identified mentoring as a key component for advancement of both the individual and the nursing discipline.1 Challenges that arise for novice researchers regarding development of the research plan and methodology, adhering to timelines, and increasing research responsibilities can be met using strategies such as training programs, formation of supportive cohorts, and a search for funding opportunities1 and experiential learning with targeted mentorship allowing the nurse to transition from novice to expert within their new and evolving role.2 Well-matched and engaged mentors can provide support to both those who are within academia and those at the stretcher side who want to explore and describe practice problems. Given the need for knowledge generation in emergency nursing practice, the role played by nurse researchers as mentors is critical to moving the profession forward in the academy and at the stretcher side.The Mentoring Relationship A novice researcher must gain competence in both research and dissemination skills,3,4 which can be developed through effective mentoring.5 Mentorship can be either transactional or translational in nature. The mentee must be able to develop skills in critical thinking and critical appraisal to develop research competency.9 Critical thinking is the ability to apply higher-order cognitive skills with deliberative thinking leading to actions that are appropriate and logical.10 This higher level of thinking is foundational in a mentor/mentee relationship, so that part of the joint work between mentor and mentee is to specifically develop those competencies, with the goal of becoming an independent researcher.

FULL TEXT

Mentoring in Nursing Research

Nurse researchers strive to improve the delivery of emergency nursing care through a wide range of activities such as documenting problematic issues in emergency departments, developing theories for why these problems are occurring, and testing interventions to produce a body of evidence; other activities may include implementation of evidence-based interventions or using evidence to support policy. Nurse researchers are dedicated to improving outcomes for patients, emergency nurses, their facilities, and the health care system. Just as it is necessary to develop stretcher-side nurses and emergency department leaders, nurse researchers with knowledge specific to the emergency department are essential to the advancement of the emergency nursing specialty. This column will address the usefulness of research mentors and the elements and goals of the mentor-mentee relationship for emergency nurses interested in research both at the bedside and in academia.

The Oncology Nursing Society developed a description of challenges and strategies for nurse researchers and identified mentoring as a key component for advancement of both the individual and the nursing discipline.[1] Challenges that arise for novice researchers regarding development of the research plan and methodology, adhering to timelines, and increasing research responsibilities can be met using strategies such as training programs, formation of supportive cohorts, and a search for funding opportunities[1] and experiential learning with targeted mentorship allowing the nurse to transition from novice to expert within their new and evolving role.[2] Well-matched and engaged mentors can provide support to both those who are within academia and those at the stretcher side who want to explore and describe practice problems. Given the need for knowledge generation in emergency nursing practice, the role played by nurse researchers as mentors is critical to moving the profession forward in the academy and at the stretcher side.

The Mentoring Relationship

A novice researcher must gain competence in both research and dissemination skills,[3,4] which can be developed through effective mentoring.[5] Mentorship can be either transactional or translational in nature. A transactional relationship focuses on the output of the researcher.[6] For example, a transactional relationship might focus on a mentor guiding the mentee through a grant application or providing feedback on a research proposal. The translational relationship focuses on developing the strengths of the mentee, allowing them to develop their own research trajectory, and is often achieved in a collaborative fashion.

Finding a Good Mentor

A good mentor is someone who has admirable qualities, acts as a guide but is purposeful in tailoring the support to each mentee, is available to meet with the mentee, supports the personal and professional balance of the mentee, and leaves a legacy through role modeling of the profession.[5] A good mentor for the novice nurse researcher must have both the technical skill in research and the psychosocial qualities of being a mentor.[7] This person will lead by example[8] rather than simply sending the researcher off to do the work, unguided and unassisted.

Many avenues exist for identifying a mentor. Professional organizations, such as the Emergency Nurses Association, provide a platform for novice researchers to reach out to experienced researchers to help develop emergency nursing research. In particular, the Academy of Emergency Nursing has a mentorship program that matches members with Fellows for either short-term (transactional) or long-term (translational) mentoring; this program is appropriate for both academically situated and clinically situated novice researchers. In addition, the Emergency Nursing Research Advisory Council is focused on developing new stretcher side–situated researchers through their Emergency Nursing Diverse Voices Research Fellowship program, supported by the Emergency Nurses Association Foundation.

Where else can mentors be found? Investigate whether your health care organization has a nursing research team. Your alma mater or a college or university regionally close to the emergency department also might provide a connection to research professionals. Beyond professional or academic organizations, search the literature. If there is a topic that you are interested in exploring, identify experts by investigating who has authored peer-reviewed publications on that topic. Journals typically provide the contact information of the authors; reach out and ask for assistance. Many researchers are eager to connect with those who share an interest in their program of work and may be able to serve as a mentor. Finding researchers that work in your field or with your preferred research methods can allow for collaborative efforts and strong mentoring relationships.

Being a Good Mentee

Communication is key to the establishment of a good mentoring relationship. Both parties must be able to set boundaries for expectations of the relationship, recognizing their limitations and expressing them to each other. Writing out the expectations of both the mentee and mentor can help clarify expectations and provide a roadmap for the collaboration. A mentee must be motivated to improve. The ability to take constructive feedback and apply it to change is critical in the growth and development process.

The mentee must be able to develop skills in critical thinking and critical appraisal to develop research competency.[9] Critical thinking is the ability to apply higher-order cognitive skills with deliberative thinking leading to actions that are appropriate and logical.[10] This higher level of thinking is foundational in a mentor/mentee relationship, so that part of the joint work between mentor and mentee is to specifically develop those competencies, with the goal of becoming an independent researcher.

Emergency nursing research needs to be conducted by those with intimate knowledge of research methods and strategies and familiarity with the challenges of the emergency care setting. An effective mentoring relationship supports the novice researcher in skill development and research expertise, with the goal of ultimately improving emergency nursing practice both in academia and at the stretcher side.

DETAILS

Bibliography

Interprofessional in situ simulation to identify latent safety threats for quality improvement: A single-center protocol report: JEN. (2023). Journal of Emergency Nursing, 49(1), 50-56. doi:https://doi.org/10.1016/j.jen.2022.09.007

In situ simulation has frequently been used to improve team performance and provide an opportunity for the practice of critical skills and identify latent safety threats, which are undetected risks that may lead to adverse outcomes. However, the use of known quality improvement tools to prioritize and mitigate these safety threats is an area requiring further study. Over the course of 9 in situ simulations of a pediatric shock case, postcase debriefs were held to identify latent safety threats in an emergency department and a mixed pediatric and adult inpatient unit. Latent safety threats identified included structure-related threats such as inability to locate critical equipment, knowledge-based threats relating to rapid intravenous fluid administration, and communication-based threats such as lack of role designation. Identification of latent safety threats in the health care environment may assist clinician leaders in mitigating risk of patient harm. The protocol described may be adopted and applied to other critical event simulations, with structured debriefing used as a tool to identify and mitigate threats before they affect the patient.

The emergency nurses association family today: JEN. (2023). Journal of Emergency Nursing, 49(1), 1-2. doi:https://doi.org/10.1016/j.jen.2022.11.009

The more experienced Emergency Nurses Association (ENA) members probably remember nursing before the AIDS epidemic. Throwing them to the wolves—that "way it was" is not a recipe for success in these modern times. Show them they belong to this family and are wanted in the emergency department.

Leadership practices as perceived by emergency nurses during the COVID-19 pandemic: The role of structural and psychological empowerment: JEN. (2023). Journal of Emergency Nursing, 49(1), 140-147. doi:https://doi.org/10.1016/j.jen.2022.10.003

IntroductionTo our knowledge, no studies have explored leadership practices in relation to structural and psychological empowerment among nurses during COVID-19. Therefore, the purpose of this study was to examine those relationships in Jordanian nurses working in emergency departments during the COVID-19 pandemic.MethodsA descriptive, correlational cross-sectional design was used in this study. The participants were emergency nurses working at 3 large hospitals in Jordan. The participants were surveyed via an online questionnaire between September 2021 and January 2022. A total of 3 valid scales were included in the questionnaire to assess the nurses' clinical leadership practices in relation to perceived structural and psychological empowerment.ResultsA total of 193 emergency nurses were surveyed, of which 116 participants (60.1%) were male, and their average age was 29.64 (SD 4.74) years. Nurses had a moderate level of clinical leadership practices 12.50 (SD 1.65), moderate level of perceived structural empowerment 3.67 (SD 0.44), and a high-moderate level of perceived psychological empowerment 5.96 (SD 0.65). Clinical leadership practices were shown to have a significant positive relationship with structural (r = 0.65; P 6 patients/nurse) was the lowest significant predictor.DiscussionAlthough structural and psychological empowerments play a pivotal role in predicting the leadership practices of the emergency nurses in Jordan, the nurses should enhance their leadership style for better management and effective communication during critical situations such as pandemics.

Closing the gap: The role of discharge nurses in an emergency department: JEN. (2023). Journal of Emergency Nursing, 49(1), 15-21. doi:https://doi.org/10.1016/j.jen.2022.09.019

IntroductionPatients discharged from the emergency department may require a follow-up appointment with an outpatient specialty clinic. Referral processes vary by clinic, some requiring faxed referrals, some providing appointments immediately, and others contacting the patients directly. The frequency with which patients are successfully connected with outpatient follow-up services is largely unknown.MethodsThe ED discharge nurse role was developed to facilitate the navigation of patient follow-up and confirm that patients successfully connect with specialty outpatient clinics. Eight emergency nurses were recruited into this position to study the problem using a

quality improvement approach. The ED discharge nurses reviewed referrals, contacted clinics and patients discharged from the emergency department, and intervened when barriers to transition occurred.ResultsThe ED discharge nurses were able to determine specific causes and themes of missed appointments experienced by patients. Systemic problems identified include lost faxes, illegible contact information, incomplete referrals, and referral refusals by the clinics without patient notification. Considering the variability of clinic processes outside the emergency department's control, the ED discharge nurse role became crucial in minimizing the risk of lost/unsuccessful follow-up for patients discharged from the emergency department.DiscussionImplementing the ED discharge nurse role created a contact for outpatient clinic referrals, patient inquiry, and a process to track errors and data to better understand the frequency of missed follow-up. In this quality improvement initiative, the role of the ED discharge nurse addressed the risk of patients falling through the cracks of a complex system.

Erratum to emergency nurse consensus on most effective and accessible support strategies during COVID-19: A delphi study [journal of emergency nursing , volume 48, issue 5, september 2022, pages 538-546] anna C. quon, MBA HM, BSN, RN, AMB-BC, wendy vanderburgh, MSN, RN, NREMT-P, FP-C, and andi foley, DNP, RN, APRN-CNS, EMT, CEN, FAEN, st. Luke's health system, boise, ID: JEN. (2023). Journal of Emergency Nursing, 49(1), 148. doi:https://doi.org/10.1016/j.jen.2022.09.016

Effectiveness of procedural sedation and analgesia in pediatric emergencies. A cross-sectional study: JEN. (2023). Journal of Emergency Nursing, 49(1), 75-85. doi:https://doi.org/10.1016/j.jen.2022.10.004

IntroductionPain is defined as an unpleasant emotional and sensory experience associated with bodily harm or with situations that cause fear and anxiety. However, it is often undertreated in pediatric emergency departments. This study aims to assess the effectiveness of sedation-analgesia techniques, level of satisfaction among health care professionals and relatives, and agreement between the satisfaction of health care professionals and relatives.MethodsA cross-sectional design was conducted. Sociodemographic and clinical variables were recorded, together with those for effectiveness using the Face, Legs, Activity, Cry, and Consolability scale and the Wong-Baker FACES scale, and the satisfaction using the 10-point Likert scale. Stata 16.1 was used for data analysis.ResultsA total of 94 procedures were registered. The results suggested that these techniques were effective or mildly effective in only half of the cases. Satisfaction was considered good across the board, and the agreement between health care professionals (ie, pediatric nurses and pediatricians) was considered substantial. However, the agreement between health care professionals and relatives was moderate.DiscussionOur results suggested that the adequate management of pain in pediatric emergency departments is still a challenge, despite the availability of international guidelines. Future research lines should be focused on analyzing possible causes of the inefficacy of some sedation-analgesia techniques and the causes of the differences between the perspectives of health care professionals and relatives. These research lines may be useful to improve quality of care and pediatric patient comfort.

The feasibility of a pediatric distance learning curriculum for emergency nurses during the COVID-19 pandemic: An improving pediatric acute care through simulation collaboration: JEN. (2023). Journal of Emergency Nursing, 49(1), 27-39. doi:https://doi.org/10.1016/j.jen.2022.09.001

IntroductionTo develop and evaluate the feasibility and effectiveness of a longitudinal pediatric distance learning curriculum for general emergency nurses, facilitated by nurse educators, with central support through the Improving Acute Care Through Simulation collaborative.MethodsKern's 6-step curriculum development framework was used with pediatric status epilepticus aimed at maintaining physical distancing, resulting in a 12-week curriculum bookended by 1-hour telesimulations, with weekly 30-minute online asynchronous distance learning. Recruited nurse educators recruited a minimum of 2 local nurses. Nurse educators facilitated the intervention, completed implementation surveys, and engaged with other educators with the Improving Pediatric Acute Care through Simulation project coordinator. Feasibility data included nurse educator project engagement and curriculum engagement by nurses with each activity. Efficacy data were collected through satisfaction surveys, pre-post knowledge surveys, and pre-post telesimulation performance checklists.ResultsThirteen of 17 pediatric nurse educators recruited staff to complete both telesimulations, and 38 of 110 enrolled nurses completed pre-post

knowledge surveys. Knowledge scores improved from a median of 70 of 100 (interquartile range: 66-78) to 88 (interquartile range: 79-94) (P = .018), and telesimulation performance improved from a median of 60 of 100 (interquartile range: 45-60) to 100 (interquartile range: 85-100) (P = .016). Feedback included a shortened intervention and including physician participants.DiscussionA longitudinal pediatric distance learning curriculum for emergency nurses collaboratively developed and implemented by nurse educators and Improving Pediatric Acute Care through Simulation was feasible for nurse educators to implement, led to modest engagement in all activities by nurses, and resulted in improvement in nurses' knowledge and skills. Future directions include shortening intervention time and broadening interprofessional scope.

The effect of virtual reality and buzzy on first insertion success, procedure-related fear, anxiety, and pain in children during intravenous insertion in the pediatric emergency unit: A randomized controlled trial: JEN. (2023). Journal of Emergency Nursing, 49(1), 62-74. doi:https://doi.org/10.1016/j.jen.2022.09.018

IntroductionDistraction methods such as virtual reality and cold vibration device are recommended during intravenous interventions. Few studies have focused on the impact of nonpharmacological interventions on intravenous insertion success.MethodsA randomized controlled study evaluated effect of virtual reality and cold vibration device application on first-attempt intravenous insertion success and procedure-related pain, fear, and anxiety during intravenous insertion in children. Children aged 4 to 10 years (N = 150) undergoing peripheral intravenous catheterization insertion in the pediatric emergency department were randomized to 1 of 3 groups: virtual reality, cold vibration (Buzzy), and control group. Distraction technique of talking and asking questions of children was used in control group. Primary outcome was first-attempt intravenous insertion success; secondary outcomes were procedure-related pain, fear, and anxiety. Study data were collected using Difficult Intravenous Access score, Emotional Appearance Scale for Children, Wong-Baker Faces Pain Rating Scale, Color Analog Scale, Children's Anxiety Meter-State, and Child Fear Scale. Data were analyzed using chi-square test, Fisher exact test, and Kruskal–Wallis test.ResultsThere were no significant differences in first-attempt intravenous insertion success rates (virtual reality = 47.2%, Buzzy® = 50%, control = 46.9%), preprocedural emotional appearance scores, and procedure-related pain and anxiety scores. There was no difference between groups for vital signs before, during, and at fifth minute of procedure.DiscussionVirtual reality and Buzzy may decrease procedure-related fear in children during intravenous insertion. This research has shown that pediatric emergency nurses can reduce pain and anxiety by talking to children, and simple distractions such as asking questions are as effective as more technological ones.

Creating a rapid assessment zone with limited emergency department capacity decreases patients leaving without being seen: A quality improvement initiative: JEN. (2023). Journal of Emergency Nursing, 49(1), 86-98. doi:https://doi.org/10.1016/j.jen.2022.10.002

IntroductionPatients leaving the emergency department before treatment (left without being seen) result in increased risks to patients and loss of revenue to the hospital system. Rapid assessment zones, where patients can be quickly evaluated and treated, have the potential to improve ED throughput and decrease the rates of patients leaving without being seen. We sought to evaluate the impact of a rapid assessment zone on the rate of patients leaving without being seen.MethodsA pre- and post-quality improvement process was performed to examine the impact of implementing a rapid assessment zone process at an urban community hospital emergency department. Through a structured, multidisciplinary approach using the Plan, Do, Check, Act Deming Cycle of process improvement, the triage area was redesigned to include 8 rapid assessment rooms and shifted additional ED staff, including nurses and providers, into this space. Rates of patients who left without being seen, median arrival to provider times, and discharge length of stay between the pre- and postintervention periods were compared using parametric and nonparametric tests when appropriate.ResultsImplementation of the rapid assessment zone occurred February 1, 2021, with 42,115 ED visits eligible for analysis; 20,731 visits before implementation and 21,384 visits after implementation. All metrics improved from the 6 months before intervention to the 6 month after intervention: rate of

patients who left without being seen (5.64% vs 2.55%; c2 = 258.13; P < .01), median arrival to provider time in minutes (28 vs 11; P < .01), and median discharge length of stay in minutes (205 vs 163; P < .01).DiscussionThrough collaboration and an interdisciplinary team approach, leaders and staff developed and implemented a rapid assessment zone that reduced multiple throughput metrics.

Implementing a resilience bundle for emergency nurses: An evidence-based practice project: JEN. (2023). Journal of Emergency Nursing, 49(1), 40-49. doi:https://doi.org/10.1016/j.jen.2022.08.009

IntroductionResilience bundles are designed to work within and enhance existing routines. In the wake of COVID-19, nurses are reporting high levels of burnout and are leaving the field at an alarming rate. Hospital system leaders across the country are working to develop wellness programs to improve nurse morale, decrease burnout, and enhance resilience. Resilience can help mitigate nurse burnout, and using a bundle of tools to help nurses develop resilience is more effective than a single strategy.MethodsUsing the Connor-Davidson Resilience Scale-10 and the Perceived Stress Scale 4, emergency nurses were surveyed to measure resilience and stress before and after implementation of a 3-strategy resilience bundle. We surveyed at baseline, phase 1 (6 weeks after implementation), and phase 2 (15 weeks after implementation).ResultsA statistically significant increase in the Connor-Davidson Resilience Scale-10 scores was identified between the baseline and phase 1 surveys. A measurable decrease in the Perceived Stress Scale 4 was found between the baseline survey and the phase 1 and phase 2 postintervention surveys.DiscussionAlthough evidence suggests a multifocal approach to improving resilience, use of resilience bundles is new. To enhance nurse resilience and mitigate burnout, nurse leaders may consider resilience bundles to prioritize the mental health and wellness of their staff.

Information for readers: JEN. (2023). Journal of Emergency Nursing, 49(1) doi:https://doi.org/10.1016/S0099-1767(22)00323-3

Ovarian hyperstimulation syndrome: A case report: JEN. (2023). Journal of Emergency Nursing, 49(1), 8-11. doi:https://doi.org/10.1016/j.jen.2022.09.006

BackgroundOvarian hyperstimulation syndrome is a rare, life-threatening obstetric emergency. Early recognition and prompt treatment of ovarian hyperstimulation syndrome are essential owing to the risk of long-term complications associated with this condition.Case PresentationA 30-year-old female presented to the emergency department with a chief complaint of abdominal pain. After assessment and diagnostic testing, she was diagnosed as having ovarian hyperstimulation syndrome. The patient was admitted for 24-hour observation. The patient was discharged home with instructions to follow up with an outpatient reproductive medicine clinic. One month after her visit to the emergency department, the patient has not had any complications related to the diagnosis.ConclusionThis manuscript outlines the case of a patient presenting to the emergency department with ovarian hyperstimulation syndrome that was promptly recognized and treated. It is important for emergency nurses to quickly identify the risk factors and clinical presentation of ovarian hyperstimulation syndrome to decrease the risk of long-term complications.

A pilgrimage under the midnight sun for a cause: JEN. (2023). Journal of Emergency Nursing, 49(1), 22-26. doi:https://doi.org/10.1016/j.jen.2022.10.009

In subsequent years, I became part of the International Advisory Council, and though heavily marked by the pandemic, it became a family for me. By donating through the ENA Foundation, there is a possibility to gift nurses access to important and lifesaving educational materials that could turn them into the nursing leaders within their own communities. Helping them become the leaders in their own lands is not only ideal but may be the necessary step to change the dire and present status of health care where they live and work. Many more interesting encounters dotted my trip that then inspired days dedicated to several groups of people: international emergency nurses and nurses providing acute care with extremely limited resources, nurses who are hurting in the different dimensions of life, nurses who have left emergency departments or the nursing profession itself, those who have gone before us, and those who provide amazing support systems that take care of us.

A single-center prospective study of the effects of different methods of phlebotomy in the emergency department on blood sample hemolysis rates: JEN. (2023). Journal of Emergency Nursing, 49(1), 134-139. doi:https://doi.org/10.1016/j.jen.2022.08.005

IntroductionHemolysis is more commonly seen in the emergency department and causes delays in diagnosis, hospitalization, discharge, and treatment of patients. The aim of this study was to determine the most appropriate phlebotomy method and device to reduce blood sample hemolysis in the emergency department.MethodsThis prospective, comparative descriptive study involved patients who presented to the emergency department with any medical condition and required blood sampling. Patients were divided into 6 groups according to the method of phlebotomy and the device used for phlebotomy. Data were analyzed with logistic regression.ResultsA total of 715 patients participated in the study. The blood sample hemolysis rate in the emergency department was 25.7%. When the hemolysis rates were compared with a steel straight needle or intravenous catheter, it was found that the use of steel straight needle significantly reduced hemolysis. Blood drawing through a 20 G intravenous catheter with Luer-Lock access device reduces the risk of hemolysis. Male sex and difficult blood collection also have been shown to increase the risk of hemolysis.DiscussionBlood should be drawn with a steel straight needle instead of an intravenous catheter. However, when that is not possible, we recommend the use of a 20 G intravenous catheter with Luer-Lock access device if a blood sample is to be drawn from intravenous line.

New life and tragic loss: A story of resilience: JEN. (2023). Journal of Emergency Nursing, 49(1), 5-7. doi:https://doi.org/10.1016/j.jen.2022.09.004

New life, tragic loss, faith, family, and resilience are key themes that abound in emergency nursing. Providing emotional support to new graduate nurses is important and has been shown to increase assurance and a sense of relaxation and safety.2 New nurses emulate the behaviors they observe modeled in front of them. Using the Married State Preceptor Model, my preceptee was able to work side by side with me during the code, which has been shown to reduce new graduate anxiety about independent practice.3 The "Married State" refers to the concept that 2 individuals work together as a single unit to achieve a common goal. Spiritual care has been shown to improve quality of care and benefit patients/families as well as provide spiritual wholeness and growth in nurses' personal and professional lives.5 Faith and spirituality offer a sense of hope amid situations that seem hopeless.

Emergency medicine images: Headache after a lumbar puncture: JEN. (2023). Journal of Emergency Nursing, 49(1), 12-14. doi:https://doi.org/10.1016/j.jen.2022.11.003

Erratum to the effects of motivational messages sent to emergency nurses during the COVID-19 pandemic on job satisfaction, compassion fatigue, and communication skills: A randomized controlled trial [journal of emergency nursing , volume 48, issue 5, september 2022, pages 547-558]sonay goktas, PhD, RN, elif gezginci, PhD, RN, and hilal kartal, RN, istanbul, turkey: JEN. (2023). Journal of Emergency Nursing, 49(1), 149. doi:https://doi.org/10.1016/j.jen.2022.10.008

The effect of the flipped classroom model on teaching clinical practice skills: JEN. (2023). Journal of Emergency Nursing, 49(1), 124-133. doi:https://doi.org/10.1016/j.jen.2022.09.005

IntroductionNo evidence was found in the literature for the use of the flipped classroom model in teaching clinical practice skills in paramedics. The study aimed to determine the effect of the flipped classroom model in teaching clinical practice skills to paramedic program students.MethodsThe study was a single-center, randomized controlled, single-blind parallel-group study. The research was carried out with a university's first-year paramedic program students in the 2021 to 2022 academic year. The students were divided into groups by stratified sampling (intervention group = 21, control group = 21). Five clinical skills practices at various times were explained to the intervention group with the flipped classroom model and to the control group with the traditional lecture method. The research data were collected with the Introductory Characteristics Information Form, Checklists, Time Tracking Form, and Students' Questionnaire for Evaluating the flipped classroom model.ResultsAlthough the students in the intervention group received a higher total score from all 5 clinical practice skills than the students in the control group, this difference was not statistically significant (P > .05). However, although the time allocated for applications

in the intervention group was 40 to 75 minutes longer than in the control group, most students stated that this model successfully taught skills and theory, increased their motivation during the application, and reduced application and exam anxiety.DiscussionThe flipped classroom model can be used as an alternative method to the traditional system in teaching clinical practice skills. This innovative educational approach can be recommended as a student-centered method in clinical skills teaching.

A problem well-named is a problem half-solved: Usefulness of nursing diagnosis as a way to teach emergency nursing: JEN. (2023). Journal of Emergency Nursing, 49(1), 57-59. doi:https://doi.org/10.1016/j.jen.2022.11.002

Van Horn and Kautz[1] recognized that the use of nursing languages such as North American Nursing Diagnosis Association, Nursing Interventions Classification, and Nursing Outcomes Classification in evidence-based practice promoted the retention of essential nursing practice rather than an immediate jump to the medical model for evidence-based practice.[2] Although Hoyt and Cajon[3] recommended the use of standard nursing language for emergency nursing, the environment of the emergency department is often offered as a reason why it is not used in nursing care or documentation, specifically the patient load, lack of a standardized model for use of nursing diagnoses, and lack of administrative support for their use, as well as a decided lack of theoretical or practical training in the use of nursing diagnosis.[4] Castner[5] suggested that nursing diagnosis is not as useful owing to the generally collaborative nature of emergency nursing and that nursing diagnoses be used in the pattern of "nursing care needed: system: clarifier" where the clarifier is left to nursing judgment. Use of nursing diagnoses are reported in general emergency nursing,[7] trauma care,[8] and prehospital care.[9,10]Usefulness of Nursing Diagnosis in Emergency Nursing Common nursing diagnoses used in emergency departments include impaired gas exchange, ineffective breathing pattern, impaired spontaneous ventilation, risk for infection, risk for impaired skin integrity, impaired tissue integrity, risk for falls,[11] and decreased cardiac tissue perfusion.[12] Other commonly seen problems are knowledge deficit, anxiety, and alterations in comfort. Emergency nursing education benefits from a focus on nursing diagnosis to give nurses new to the emergency department specifically a grounding in how medical problems affect humans, the resultant risks of those effects, and how to manage and evaluate interventions.Author Disclosures None to report.Conflicts of interest None to report.

Webb, S. (2023). Emergency nursing review questions: January 2023: JEN. Journal of Emergency Nursing, 49(1), 60-61. doi:https://doi.org/10.1016/j.jen.2022.07.007

What pattern of burns would you expect to see on the child? a.burns to lower body, sparing the buttocks, clearly demarcated burn lines b.irregular burn lines with burns on anterior legs and lower torso c.irregular burns to top of feet d.burns to anterior chest with a "splash" appearance 3) What studies are not part of a routine workup of a patient with suspected nonaccidental trauma? a.skeletal survey b.complete blood count c.thyroid studies d.liver function test 4) What fractures have been found to be highly specific for nonaccidental trauma? a.femur fracture in a 7-year-old ambulatory child b.classic metaphyseal lesion in a 1-year-old c.humerus fracture in a 6-year-old d.tibia/fibula fracture in a 10-year-old 5) Accurate and thorough documentation is often the key to holding abusers responsible. Which example of documentation is correct? a.Mom's boyfriend acted guilty so he must have caused their injuries. b.The patient had a hand print the size of mom's hand on her leg. c.George Smith, mother's boyfriend, stated baby "fell off of the changing table onto the floor." d.Father states that baby fell onto a carpeted floor and had no loss of consciousness. Liver function test will help to identify occult abdominal injuries and need for further abdominal imaging.[1,3-54] Answer: B Classic metaphyseal lesions (ie, bucket-handle fractures) are highly specific for nonaccidental trauma.

Editorial board: JEN. (2023). Journal of Emergency Nursing, 49(1) doi:https://doi.org/10.1016/S0099-1767(22)00321-X

Board of directors: JEN. (2023). Journal of Emergency Nursing, 49(1) doi:https://doi.org/10.1016/S0099-1767(22)00322-1

Illuminating emergency nurses' perceptions of stigma, attribution, and caring behaviors toward people with mental illness through the lens of individualized care: A cross-sectional study: JEN. (2023). Journal of Emergency Nursing,

IntroductionEmergency nurses' negative attitudes and lack of caring have been identified as factors affecting the experience of individuals with mental illness in emergency departments. This study examined the relationships between emergency nurses' perceptions of stigma, attribution, caring behaviors, and individualized care toward people with mental illness.MethodsA cross-sectional study was conducted among 813 nurses working in United States emergency departments. Data were collected using a demographic questionnaire; the Mental Illness: Clinicians' Attitudes Scale-4; the Attribution Questionnaire; 24-Item Caring Behaviors Inventory; and the Individualized Care Scale-Nurse version. Data analyses consisted of descriptive and correlation statistics and multiple linear regression.ResultsThe findings from the final regression analysis revealed that caring had a significant relationship with individualized care (version A: β = 0.70, P < .001; Version B: β = 0.73; P < .001). Stigma and attribution had significant inverse relationships with individualized care (β = −0.07, P < .01; β = −0.06, P < .05, respectively).DiscussionThe results of this study indicated that emergency nurses' perception of individualized care toward people with mental illness is mostly associated with the nurses' level of caring behaviors toward this population. Stigma and attribution had little to no effect. Findings from this study reinforce nurses' altruistic and caring qualities. The findings suggest the need for a possible paradigm shift from antistigma training to trainings that prioritize caring behaviors toward mental illness. This could ultimately improve health equity, safety, and overall outcomes for people with mental illness.

IntroductionTreatment of hyperkalemia using intravenous insulin can result in severe hypoglycemia, but regular blood glucose monitoring is not standardized. This study aimed to (i) explore the demographics of adult patients receiving hyperkalemia treatment and (ii) identify the incidence rate of hypoglycemia and associated demographic or clinical characteristics.MethodsA descriptive design with prospective data collection was used. This study recruited 135 patients who received hyperkalemia treatment in the emergency department. Structured blood glucose monitoring was conducted at 1, 2, 4, and 6 hours after receiving intravenous insulin. Univariate analyses of association between demographic and clinical variables and hypoglycemia outcome were performed.ResultsThere were 31 hypoglycemic events, with 11.9%, 7.4%, 2.2%, and 1.5% occurring at the 1, 2, 4, and 6 hours after treatment. The logit regression showed no significantly increased risk of hypoglycemia in terms of the demographic and clinical variables.DiscussionThe variation in blood glucose response observed in this study combined with the high incidences of hypolycaemia indicated the need for frequent and longer duration of monitoring for patients who were being treated for hyperkalaemia with IDT.

Based on these interactions, I recognized that JEN needed to POP! during the transition period between Editors-in-Chief. In my final editorial as the interim Editor-in-Chief, I'd like to highlight a few achievements of JEN that were accomplished during this transition period with the support of JEN's Editorial Board (Susan Barnason, Mohamed El-Hussein, Patricia Normandin) and Managing Editor (Annie Kelly).Partnerships To maximize the relevance of content for JEN readers, I partnered with the American Academy of Pediatrics and American College of Emergency Physicians to copublish a policy statement on pediatric safety in the emergency care setting.1 I also partnered with the Advanced Emergency Nursing Journal to reprint a guest editorial focused on the 2021 emergency nurse practitioner competencies.2 I look forward to reading about future partnerships yielding translatable content to the international audience of JEN readers.Opportunities Opportunities have been made available for authors to publish projects with the potential for impacting the triple aim of health care, specifically "improving the experience of care, improving the health of populations, and reducing per capita costs of health care" (p. 759).3 JEN is perfectly situated as the premiere emergency nursing journal to afford these opportunities for both novice and expert authors. Examples of articles with relevance to the triple aim and emergency nursing practice include Faber et al's4 article on

a rapid assessment zone to reduce patients leaving without being seen and Thomas et al's5 article on a pediatric distance learning curriculum, both in the current January issue.Performance As the Associate Editors, Annie Kelly, and I wrote in our September 2022 editorial,6 JEN is committed to publishing content that gets back to the roots of emergency nursing practice.

Emergency nursing review questions: November 2022: JEN. (2022). Journal of Emergency Nursing, 48(6), 650-651. doi:https://doi.org/10.1016/j.jen.2022.07.004

A.Brown recluse spider B.Scorpion C.Black widow spider D.Fire ant 5. A.Distal capillary refill of 2 seconds B.Compartment pressure of 70 mm Hg C.Palpable radial pulse D.Arterial pressure of 90 mm Hg Answers Correct answer: B If a patient is unable to see the largest print on an eye chart, 20/200, the next option would be to ask the patient whether they can perceive hand or finger motion, followed by the ability to see light (B). A brown recluse spider bite is cytotoxic, causing local tissue damage (A).

Quality improvement: Implementing nurse standard work in emergency department fast-track area to reduce patient length of stay: JEN. (2022). Journal of Emergency Nursing, 48(6), 666-677. doi:https://doi.org/10.1016/j.jen.2022.07.009

IntroductionThe average length of stay of a fast-track area of a large urban hospital was excessively long, which affected the patient experience and the rate at which patients left without being seen. One approach to reducing average length of stay is to create nurse standard work. Nurse standard work was a defined set of process and procedures that reduce variability within a nurse's workflow.MethodsNurse standard work was created by a team of nurses assisted by management engineering using lean methodology and A3 problem solving. Data were gathered about average length of stay and left without being seen for patients in the emergency department fast-track area of an urban emergency department from October 2018 to June 2020. This period includes 5 months before the intervention start, 4 months during nurse standard work implementation, 9 months using nurse standard work before the unit was repurposed during COVID-19, and 3 months during COVID-19.ResultsNurse standard work helped reduce average length of stay in the emergency department fast-track area from 205 minutes before project initiation to 150.4 minutes in the 7 months after implementing nurse standard work. The time spent walking for supplies was reduced from 422 and 272 seconds before nurse standard work to 25 and 30 seconds for the nurse technician and nurse, respectively, after nurse standard work. Left without being seen was decreased from 4.7% in October of 2018 to 0.7% by March of 2020.DiscussionNurse standard work reduced the amount of time that nurses spent performing support tasks and reduced delays in providing patient care, which then allowed more time for nurses to interact directly with patients. Nurse standard work provides a clear task sequence that eliminates delays in treating patients, but it also allows for fast identification of delays that do occur and simplifies problem solving to eliminate reoccurrence of delays. Therefore, nurse standard work is an essential component of efforts to reduce patient average length of stay in health care processes and reduce left without being seen to the national standard of less than 2%.