

# Journal of EMERGENCY NURSING

OFFICIAL PUBLICATION OF THE EMERGENCY NURSES ASSOCIATION

- 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
- Effectiveness of Procedural Sedation and Analgesia in Pediatric Emergencies. A Cross-Sectional Study
- Creating a Rapid Assessment Zone with Limited Emergency Department Capacity Decreases Patients Leaving Without Being Seen: A Quality Improvement Initiative
- Evaluation of Care Outcomes of Patients Receiving Hyperkalemia Treatment With Insulin in Acute Care Tertiary Hospital Emergency Department
- 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
- The Effect of the Flipped Classroom Model on Teaching Clinical Practice Skills
- A Single-Center Prospective Study of the Effects of Different Methods of Phlebotomy in the Emergency Department on Blood Sample Hemolysis Rates
- Leadership Practices as Perceived by Emergency Nurses During the COVID-19 Pandemic: The Role of Structural and Psychological Empowerment





---

## Report Information from ProQuest

27 September 2023 06:51

---

## TABLE OF CONTENTS

---

Search Strategy.....	iv
1. Interprofessional In Situ Simulation to Identify Latent Safety Threats for Quality Improvement: A Single-Center Protocol Report: JEN.....	1
2. The Emergency Nurses Association Family Today: JEN.....	7
3. Leadership Practices as Perceived by Emergency Nurses During the COVID-19 Pandemic: The Role of Structural and Psychological Empowerment: JEN.....	9
4. Closing the Gap: The Role of Discharge Nurses in an Emergency Department: JEN.....	11
5. 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.....	17
6. Effectiveness of Procedural Sedation and Analgesia in Pediatric Emergencies. A Cross-Sectional Study: JEN.....	19
7. 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.....	33
8. 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.....	48
9. Table of Contents: JEN.....	61
10. Creating a Rapid Assessment Zone with Limited Emergency Department Capacity Decreases Patients Leaving Without Being Seen: A Quality Improvement Initiative: JEN.....	62
11. Implementing a Resilience Bundle for Emergency Nurses: An Evidence-Based Practice Project: JEN....	71
12. Information for Readers: JEN.....	82
13. Ovarian Hyperstimulation Syndrome: A Case Report: JEN.....	83
14. A Pilgrimage Under the Midnight Sun for a Cause: JEN.....	85
15. A Single-Center Prospective Study of the Effects of Different Methods of Phlebotomy in the Emergency Department on Blood Sample Hemolysis Rates: JEN.....	88
16. New Life and Tragic Loss: A Story of Resilience: JEN.....	95
17. Emergency Medicine Images: Headache After a Lumbar Puncture: JEN.....	99
18. 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.....	102
19. The Effect of the Flipped Classroom Model on Teaching Clinical Practice Skills: JEN.....	103
20. A Problem Well-Named is a Problem Half-Solved: Usefulness of Nursing Diagnosis as a Way to Teach Emergency Nursing: JEN.....	116
21. Emergency Nursing Review Questions: January 2023: JEN.....	120
22. Editorial Board: JEN.....	123

## TABLE OF CONTENTS

---

23. Board of Directors: JEN.....	124
24. 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.....	126
25. Evaluation of Care Outcomes of Patients Receiving Hyperkalemia Treatment With Insulin in Acute Care Tertiary Hospital Emergency Department: JEN.....	127
26. Making the Journal of Emergency Nursing POP!: JEN.....	129
Bibliography.....	133

## SEARCH STRATEGY

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

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

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

[ProQuest document link](#)

---

## 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.<sup>1</sup> 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.<sup>2</sup> Identifying LSTs can be a product of structured debriefs involving the interprofessional team.<sup>3</sup> In situ simulation has been found to improve clinical skills and teamwork<sup>4</sup> 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.<sup>5</sup> 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<sup>6</sup> and has further been used to detect and mitigate equipment-related, technical, and resource/system related threats in cardiac arrest scenarios.<sup>7</sup> Brazil et al<sup>8</sup> 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.<sup>9</sup>

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.<sup>10</sup> 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.<sup>11</sup> The program involves an on-site assessment including the use of in situ simulation and recommendations for QI initiatives.<sup>11</sup> 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.<sup>11,12</sup>

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<sup>13</sup> and SPIRIT statement<sup>14</sup> 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.<sup>15,16</sup> This report details the initial cycle and development of such a program, with supplementary content in the <sup>Supplementary</sup> 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.<sup>17</sup> 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.<sup>17</sup> 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 <sup>Supplementary Appendix</sup> 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 <sup>Supplementary Appendix</sup> 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.<sup>18</sup>

## 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 <sup>Figures 1</sup> and <sup>2</sup>. 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<sup>18</sup> 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**

We thank the Children's Dream Foundation for funding of pediatric equipment and the ImPACTS study for the propulsion of this program. We thank Dr Komal Bajaj for her assistance on incorporation of the SAFER Matrix and Dr Sadia Ahmed, Diana Zarowin, and Namal Seneviratne for their assistance with data organization.

### **Author Disclosures**

Conflicts of interest: none to report.

### **Supplementary Data**

**Supplementary Appendix 1** **Supplementary Appendix 2** **Supplementary Appendix 3** **Supplementary 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

<b>Business indexing term:</b>	Subject: Training Quality improvement
<b>Identifier / keyword:</b>	Simulation; Child; Patient harm; Emergency service; Hospital communication; Delivery of health care
<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	50-56
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Practice Improvement
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.09.007">https://doi.org/10.1016/j.jen.2022.09.007</a>
<b>ProQuest document ID:</b>	2758574045
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/interprofessional-situ-simulation-identify-latent/docview/2758574045/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/interprofessional-situ-simulation-identify-latent/docview/2758574045/se-2?accountid=211160</a>
<b>Copyright:</b>	©2022. Emergency Nurses Association
<b>Last updated:</b>	2022-12-28
<b>Database:</b>	Public Health Database

# The Emergency Nurses Association Family Today: JEN

[ProQuest document link](#)

## 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

Conflicts of interest: none to report.

## DETAILS

<b>Subject:</b>	Emergency medical care; Epidemics; Nurses; Emergency services; Acquired immune deficiency syndrome--AIDS; Nursing; Associations
<b>Publication title:</b>	Journal of Emergency Nursing:: JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	1-2
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	President's Message
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal

Language of publication: English

Document type: Commentary

DOI: <https://doi.org/10.1016/j.jen.2022.11.009>

ProQuest document ID: 2758574043

Document URL: <https://www.proquest.com/scholarly-journals/emergency-nurses-association-family-today/docview/2758574043/se-2?accountid=211160>

Copyright: Copyright Elsevier Limited Jan 2023

Last updated: 2023-01-03

Database: Public Health Database

Document 3 of 26

# 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

<b>Subject:</b>	Psychological empowerment; Leadership style; Hospitals; Perceptions; Empowerment; COVID-19; Questionnaires; Leadership; Nurses; Pandemics; Emergency services; Clinical leadership; Clinical nursing; Emergency medical care
<b>Business indexing term:</b>	Subject: Leadership
<b>Identifier / keyword:</b>	COVID-19; Structural empowerment; Psychological empowerment; Leadership practices; Nursing leadership; Nursing
<b>Publication title:</b>	Journal of Emergency Nursing.; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	140-147
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Research
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.10.003">https://doi.org/10.1016/j.jen.2022.10.003</a>

ProQuest document ID: 2758574035

Document URL: <https://www.proquest.com/scholarly-journals/leadership-practices-as-perceived-emergency/docview/2758574035/se-2?accountid=211160>

Copyright: ©2022. Emergency Nurses Association

Last updated: 2023-08-30

Database: Public Health Database

Document 4 of 26

# 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.<sup>1</sup> 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.<sup>2</sup>

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.<sup>2</sup> These care transitions can impart risk for patients when their follow-up is handed over from one setting to another.<sup>3</sup> 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.<sup>3</sup> 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.<sup>3</sup>

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.<sup>4-6</sup> Missed follow-up rates create premature discontinuation of treatment, lack of diagnosis or misdiagnosis, and disjointed long-term management of chronic issues.<sup>6</sup>

### **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.<sup>7</sup> 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.<sup>6</sup> Between 2014 and 2019, the emergency department reported a 14% increase in patient visits and a 7% increase in patients who require outpatient services.<sup>8</sup> 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.<sup>8</sup>

### **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.<sup>9</sup> 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.<sup>9</sup> 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 in the literature.<sup>3</sup>

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.<sup>10</sup>

## **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,<sup>10</sup> 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*.

### Acknowledgments

The authors would like to sincerely thank all the emergency nurses who have served in the ED discharge nurse role from its inception in 2019 to the present. Their diligence, advocacy creativity, and knowledge of our complex system have resulted in paving a smoother path for ED patients referred to outpatient clinics.

## DETAILS

<b>Subject:</b>	Workforce planning; Patients; Emergency medical care; Quality management; Outpatient care facilities; Discharge; Notification; Communication; Health care; Quality improvement; Hospitals; Navigation; Nurses; Emergency services; Outpatient clinics; Medical referrals; Clinical outcomes
<b>Business indexing term:</b>	Subject: Workforce planning Quality improvement
<b>Identifier / keyword:</b>	Emergency department; Follow-up care; Discharge care; Outpatient clinics; Missed appointments; Transitional care
<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	15-21
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023

<b>Section:</b>	Leadership Section
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.09.019">https://doi.org/10.1016/j.jen.2022.09.019</a>
<b>ProQuest document ID:</b>	2758574030
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/closing-gap-role-discharge-nurses-emergency/docview/2758574030/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/closing-gap-role-discharge-nurses-emergency/docview/2758574030/se-2?accountid=211160</a>
<b>Copyright:</b>	©2022. Emergency Nurses Association
<b>Last updated:</b>	2023-07-28
<b>Database:</b>	Public Health Database

Document 5 of 26

**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 <sup>Table 2</sup> was not displayed correctly in the above article. The corrected <sup>Table 2</sup> 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

## DETAILS

<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>First page:</b>	148
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Erratum
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia

Country of publication:	United Kingdom, Philadelphia
Publication subject:	Medical Sciences--Nurses And Nursing
ISSN:	00991767
e-ISSN:	15272966
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Corrections/Retraction
DOI:	<a href="https://doi.org/10.1016/j.jen.2022.09.016">https://doi.org/10.1016/j.jen.2022.09.016</a>
ProQuest document ID:	2758574018
Document URL:	<a href="https://www.proquest.com/scholarly-journals/erratum-emergency-nurse-consensus-on-most/docview/2758574018/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/erratum-emergency-nurse-consensus-on-most/docview/2758574018/se-2?accountid=211160</a>
Copyright:	©2022. Emergency Nurses Association
Last updated:	2023-01-17
Database:	Public Health Database

---

Document 6 of 26

# 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.<sup>1</sup> 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.”<sup>2</sup> According to the American Academy of Pediatrics,<sup>3,4</sup> 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).<sup>5-8</sup> However, despite the availability of international guidelines, pain experienced by pediatric patients in the emergency department is often inadequately managed.<sup>7,9,10</sup>

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.<sup>7</sup> 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.<sup>7</sup> Along similar lines, Whitley et al<sup>11</sup> 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<sup>9</sup> 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 Pediatría (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.<sup>12-15</sup> Relevant studies on this matter include those published by Míguez-Navarro et al<sup>16</sup> and Míguez-Navarro et al.<sup>17</sup> 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,<sup>18</sup> Schlegelmilch et al,<sup>19</sup> and Sirimontakan et al,<sup>8</sup> which observed a low incidence of adverse effects, even in children aged 8.<sup>18,20</sup> The low incidence of adverse events suggests that they could be safe in a 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.<sup>21</sup> 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.<sup>22</sup>

### **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)<sup>23,24</sup> 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.<sup>25</sup>

### **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).<sup>24</sup>

### **Wong-Baker FACES Face Scale**

The Wong-Baker FACES<sup>26</sup> 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).<sup>27</sup>

### **Likert Scale to Evaluate Satisfaction**

A 10-point Likert scale<sup>25</sup> 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.<sup>28</sup> The pharmacological strategy is usually performed according to our protocol (Table 1), based on recommendations of the SEUP.<sup>14</sup> 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"<sup>29</sup> 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.<sup>30,31</sup> 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 <sup>Table 2</sup>. 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 <sup>Table 3</sup>. 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 <sup>Table 4</sup>. 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 <sup>Table 5</sup>. 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 <sup>Table 6</sup>. 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% CI 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<sup>3,4</sup> and the SEUP.<sup>12,13,32</sup>

Our findings describe a wide variety of techniques, and in line with previous studies, midazolam together with ketamine was the most used drug combination.<sup>7,16,33</sup> 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<sup>16</sup> 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.<sup>14</sup>

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<sup>10</sup> and Rybojad et al<sup>9</sup> 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<sup>7</sup> and Rybojad et al,<sup>9</sup> and another might be the fear of certain adverse effects, as reported by Márquez et al.<sup>15</sup> 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.<sup>6</sup> 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.<sup>6</sup>

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

previous research.<sup>16</sup> 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.<sup>34,35</sup> 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.<sup>34,35</sup> 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.<sup>36</sup> 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.

**Author Disclosures**

Conflicts of interest: none to report.

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

This study was approved by the Ethics and Medicines Research Committee of Consorci Sanitari de Terrassa (CEIM Ref. 01-20-103-067).

Data are available upon reasonable request to authors.

**Acknowledgments**

Authors thank all professionals of the pediatric emergency department for their collaboration.

Protocol of sedation-analgesia in our pediatric emergency department			
Procedures	Not painful procedures Radiography (X-ray) Ultrasound scan	Moderate painful procedures Wound suture Lumbar puncture	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 <sup>†</sup>
		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 <sup>‡</sup>	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)		

Scale	FLACC	Ketamine IV + midazolam IV	Midazolam IN	FentaNYL IN	Nitrous oxide inh	ANOVA (F 4.60, df 3)		
n = 47						P value	R <sup>2</sup>	R <sup>2</sup> Adj
						.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		Pediatric ians	8.0	7.5-8.5
9.0	7-10		Rela tives	8.1
7.6-8.6	9.0	7-10		Satis facti on with seda tion- anal gesi a tech niqu es only
	m	95% CI	Md	P25-P75
	Nursing	8.1	7.6-8.7	9.0
7-10		Pediatric ians	8.3	7.8-8.8
9.0	7-10		Rela tives	8.4
7.9-8.8	9.0	8-10		Satis facti on with local anes thesi a tech niqu es only
	m	95% CI	Md	P25-P75
	Nursing	6.4	4.6-8.4	6.5

4-10				Pediatric ians	6.0		3.9-8.1
6.0	4-9					Rela tives	6.3
4.3-8.4	6.5			4-10			Inter rater agre eme nt. All tech niqu es
	Nursing vs ped vs relatives			Nursing vs ped		Nursing vs relatives	
Ped vs relatives			Coefficient	95% CI		Coefficient	95% CI
Coefficient	95% CI	Coeffi cient	95% CI	Percent agreeme nt	0.97	0.95-0.98	0.97
0.95 -1.00	0.95	0.94- 0.98	0.95	0.93- 0.98	Kripp endorf f'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	Krippendorff'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	Krippendorff'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

**Identifier / keyword:** Pediatrics; Emergency; Sedation; Effectiveness; Satisfaction

**Publication title:** Journal of Emergency Nursing;; JEN; Philadelphia

**Volume:** 49

**Issue:** 1

<b>Pages:</b>	75-85
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Research
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.10.004">https://doi.org/10.1016/j.jen.2022.10.004</a>
<b>ProQuest document ID:</b>	2758573947
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/effectiveness-procedural-sedation-analgesia/docview/2758573947/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/effectiveness-procedural-sedation-analgesia/docview/2758573947/se-2?accountid=211160</a>
<b>Copyright:</b>	©2022. Emergency Nurses Association
<b>Last updated:</b>	2023-08-04
<b>Database:</b>	Public Health Database

Document 7 of 26

# 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.<sup>1</sup> 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.<sup>2-5</sup> 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)<sup>6</sup> and the American Heart Association (Pediatric Advanced Life Support, Pediatric Emergency Assessment Recognition and Stabilization).<sup>7</sup> In addition, an increasing number of online asynchronous continuing education activities, such as those offered through ENA University, have been created for emergency nurses.<sup>8</sup> 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.<sup>9-11</sup> 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.<sup>12-15</sup> 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.<sup>16,17</sup> 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.<sup>18-21</sup>

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:<sup>22</sup>

#### **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.<sup>2,23</sup>

### **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.<sup>23,24</sup>

### **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).<sup>25</sup> These objectives align with the prior pediatric educational prioritization processes for emergency nurses including teamwork, clinical knowledge (triage, resuscitation protocols), and family-centered care.<sup>25</sup>

### **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.<sup>26</sup> 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.<sup>24,27</sup> 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.<sup>28-31</sup> 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.<sup>32</sup> The cases' critical action checklists were adapted from existing pediatric seizure guidelines.<sup>33,34</sup> 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,<sup>35</sup> the Promoting Excellence and Reflective Learning in Simulation blended framework,<sup>36</sup> and telesimulation debriefing best practices.<sup>37</sup> 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 <sup>Supplementary Appendices 1-3</sup>) 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.<sup>32,38</sup> 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.<sup>4,6,7</sup> 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.<sup>1-3</sup> 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.<sup>6</sup> 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.<sup>5,6</sup> 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.<sup>5</sup> After reviewing this, the project coordinator shared data on the association of designating a PECC with significant improvements in pediatric readiness.<sup>5,6</sup>

### **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 (<sup>Supplementary Appendix 4</sup>) and multiple-choice questions to measure knowledge (<sup>Supplementary Appendix 5</sup>). Responses were tracked via anonymous identifiers. Skills were measured using a 5-item critical action checklist of performance during the initial and final telesimulations (<sup>Supplementary Appendices 1 and 3</sup>).

## 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 (<sup>Figure 2</sup>) 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 <sup>Table 2</sup>. The postintervention nurse educator survey was completed by 10 of the 13 nurse educators who completed the curriculum (<sup>Table 3</sup>). 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 (<sup>Tables 2 and 3</sup>). Most PECCs would recommend the ImpACTS telesimulation nursing intervention (median of 9 on scale of 1-10, interquartile range [IQR] 8-10) (<sup>Table 3</sup>).

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.<sup>18</sup> 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.<sup>17</sup> 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.

### **Acknowledgments**

We thank the nurse educators and the nurse participants for engaging in this project with Improving Pediatric Acute Care through Simulation. We acknowledge the contributions of members of the International Network for Simulation-based Pediatric Innovation, Research, and Education who have helped to shape this project and the International Pediatric Simulation Society for providing International Network for Simulation-based Pediatric Innovation, Research, and Education with space at their annual meetings for our research group. We acknowledge the Emergency Nurses Association Pediatric Update Section and Pediatric Committee members who provided substantive input and feedback to this work. We also acknowledge the contributions of members of the American College of Emergency Physicians Sim Box team: <https://www.acepsim.com/about>.

### **Author Disclosures**

Conflicts of interest: none to report. This work was supported by the Rbaby Foundation for overall project support to Yale University: <https://www.rbabyfoundation.org> as well as the Indiana University Health Values Grant VFE-358, Riley Children Foundation, Department of Pediatrics Grant, and the American College of Emergency Physicians pediatric section grant for Sim Box support: <https://www.acep.org/how-we-serve/sections/sections-grants/>.

### **Supplementary Data**

**Supplementary Appendix 1**  
**Supplementary Appendix 2**  
**Supplementary Appendix 3**  
**Supplementary 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	<ul style="list-style-type: none"> <li>➤Verbally describe necessary staff, equipment, and resources to care for a seizing pediatric patient recognizing pediatric status epilepticus</li> <li>➤Demonstrate effective teamwork and communication</li> <li>○Shared mental model</li> <li>○Directed orders</li> <li>○Closed loop communication</li> </ul>
Family-centered care	<ul style="list-style-type: none"> <li>➤Demonstrate family-centered care via <ul style="list-style-type: none"> <li>○Obtain the appropriate history from a family member</li> <li>○ Address family concerns</li> <li>○Keep the family updated</li> </ul> </li> </ul>
Clinical knowledge	<ul style="list-style-type: none"> <li>➤Describe the initial management of an acutely ill pediatric patient</li> <li>○Prioritize airway, breathing, circulation</li> <li>○Describe first line diagnostics and therapies with alternate route (intranasal vs intramuscular)</li> <li>○State need for transfer to tertiary pediatric care center</li> </ul>

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 to adequately 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	%
7	54	8	100	2. Verbalize glucose check-in first 3 minutes

5	39	7	88	3.Ve rbali ze corre ct dose of LOR azep am IV/IO as first line agen t
9	69	8	100	4.Ve rbali ze corre ct dose of mida zola m
3	23	6	75	5.Ve rbali ze need for seco nd line agen t
10	77	8	100	TOT AL seiz ure scor e

Median = 60 IQR = 45-60	Median = 100 IQR = 85-100	P valu e
-------------------------	---------------------------	----------------

## DETAILS

<b>Subject:</b>	Emergency medical care; Intervention; Collaboration; Feasibility; Simulation; COVID-19; Curriculum development; Pandemics; Emergency services; Nurse tutors; Efficacy; Interdisciplinary aspects; Nurse led care; Polls & surveys; Distance learning; Enrolled nurses; Acute services; Curricula; Nurses; Pediatric nurses; Pediatrics
<b>Identifier / keyword:</b>	Pediatrics; Nursing education; Telesimulation; Simulation training; Emergency nursing
<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	27-39
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Clinical
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.09.001">https://doi.org/10.1016/j.jen.2022.09.001</a>
<b>ProQuest document ID:</b>	2758573944

**Document URL:** <https://www.proquest.com/scholarly-journals/feasibility-pediatric-distance-learning/docview/2758573944/se-2?accountid=211160>

**Copyright:** ©2022. Emergency Nurses Association

**Last updated:** 2023-01-04

**Database:** Public Health Database

---

Document 8 of 26

# 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.<sup>1</sup> The nonpharmacological methods applied in the pediatric emergency department (PED) aim to reduce fear and pain and keep the child active during the intervention.<sup>2,3</sup> 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.<sup>4,5</sup> These methods do not eliminate the pain but raise the pain threshold by increasing the child's tolerance to pain.<sup>5</sup> Nonpharmacological methods are recognized as reliable and inexpensive and are independent practices of the nurse.<sup>5,6</sup>

The combined or comparative use of pharmacological and nonpharmacological methods in studies conducted in the PED are limited.<sup>7-9</sup> 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, Atlanta, 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.<sup>3,9-11</sup> It was developed as a pain-blocker device for pain management in children.<sup>8</sup> In the study by Baxter et al,<sup>12</sup> 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.<sup>5</sup> 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.<sup>3</sup> Kearl et al<sup>8</sup> 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.<sup>8</sup> Canbulat Şahiner et al<sup>10</sup> found that the Buzzy group showed significantly lower pain and anxiety levels than the control group (no intervention) during immunization. Binay et al<sup>11</sup> found that Buzzy and blowing soap bubbles had a pain-relieving effect in children during phlebotomy. Bourdier et al<sup>7</sup> 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.<sup>7</sup>

Digital distraction also provides pain and distress reduction for children.<sup>13</sup> The VR distraction can be used to relieve pain during IV insertion and phlebotomy in children.<sup>14-17</sup> Dumoulin et al<sup>14</sup> 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.<sup>14</sup> In the systematic review of McCahill et al,<sup>18</sup> the use of VR was found effective in anxiety reduction in children aged 4 to 7 years. Caruso et al<sup>19</sup> 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.<sup>3,5,7-11</sup> The use of nonpharmacological methods may increase IV insertion success in children. In the study of Schlechter et al,<sup>20</sup> 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<sup>12</sup> 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.<sup>12,20</sup> 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.<sup>21,22</sup>

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.<sup>23</sup>

## 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,<sup>20</sup> the total sample size was calculated as 148 children. In the comparison of pain and anxiety scores in the study by Canbulat et al,<sup>24</sup> 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<sup>25,26</sup> 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<sup>22,27</sup> 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<sup>28</sup> and Color Analog Scale.<sup>29</sup> The procedure-related fear and anxiety was measured using The Child Fear Scale (CFS)<sup>30,31</sup> and The Children's Anxiety Meter.<sup>31,32</sup> 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.<sup>25</sup> The DIVA score with 4 parameters (visibility, palpability, age, and prematurity history) was found to be valid and reliable for Turkish children.<sup>26</sup> The vascular access is assessed as difficult with a 50% failure rate if the total score is 4 and above.<sup>25</sup>

## **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.<sup>22,27</sup>

## **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.<sup>28</sup>

## **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.<sup>29</sup>

## **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).<sup>30,31</sup>

## **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.<sup>31,32</sup>

### **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.<sup>11</sup> 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  $\geq 4$  points in 39.2% of the VR group, 42% of the Buzzy group, and 46.9% of the control group ( $\geq 4$  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.<sup>12,14,33-39</sup> Buzzy is used more frequently, and studies about Buzzy have generally focused on pain.<sup>3,7,8,10-12</sup> Studies carried out in PEDs about the effect of these technologies on IV insertion success are quite new.<sup>14,20,33</sup> Moreover, the number of studies assessing the effect of these methods on fear, anxiety, and distress in children is limited in the literature.<sup>3,5,34</sup> 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.<sup>30,35</sup> 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%).<sup>40,41</sup> 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<sup>20</sup> 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.<sup>20</sup> Similarly, we found no difference in first-attempt IV insertion success and IV insertion time. Potts et al<sup>33</sup> 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.<sup>33</sup> In another study, children's fear and anxiety before phlebotomy and difficult vascular access affected the first-attempt IV insertion success.<sup>42</sup> 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.<sup>43</sup> 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<sup>44</sup> found that the children in the Buzzy group experienced less pain during IV insertion than the children in the control group. Semerci et al<sup>45</sup> found that pain scores were  $3.40 \pm 3.56$  in the Buzzy group and  $3.76 \pm 3.06$  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.<sup>46</sup> Studies using VR in the emergency department are very limited.<sup>14,20,47,48</sup> Although first-attempt IV insertion success in another study<sup>40</sup> 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.<sup>24,39</sup>

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 Düzkeya et al,<sup>2</sup> the participants watched animations and cartoons before the procedure. A significant difference was found in blood pressure and pulse rates after the procedure.<sup>2</sup> 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

The authors thank the children and parents who agreed to participate in this study. They also thank pediatric emergency nurses in the unit.

### Author Disclosures

Conflicts of interest: none to report.

	VR group			Buzzy group			Control group			Test	P value
	Mean	SD	Min-Max	Mean	SD	Min-Max	Mean	SD	Min-Max		
Demographics											
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
	Mean	SD	Min-Max	Mean	SD	Min-Max	Mean	SD	Min-Max		
Demographics											
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			AN OV A Test	P valu e
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

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

**Subject:** Emergency medical care; Cold; Intervention; Pain; Anxiety; Chi-Square Test; Success; Nurses; Emergency services; Clinical trials; Fear & phobias; Facial expressions; Pediatrics; Virtual reality; Phlebotomy; Catheterization; Vibration; Talking; Distraction; Appearance; Children & youth; Attempted; Children

**Location:** Turkey

**Identifier / keyword:** Virtual reality; Cold vibration/Buzzy; Child; Peripheral intravenous catheterization; First-attempt IV insertion success; Pain

**Publication title:** Journal of Emergency Nursing.; JEN; Philadelphia

**Volume:** 49

**Issue:** 1

**Pages:** 62-74

**Publication year:** 2023

**Publication date:** Jan 2023

**Section:** Research

**Publisher:** Elsevier Limited

Place of publication:	Philadelphia
Country of publication:	United Kingdom, Philadelphia
Publication subject:	Medical Sciences--Nurses And Nursing
ISSN:	00991767
e-ISSN:	15272966
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Evidence Based Healthcare, Journal Article
DOI:	<a href="https://doi.org/10.1016/j.jen.2022.09.018">https://doi.org/10.1016/j.jen.2022.09.018</a>
ProQuest document ID:	2758573882
Document URL:	<a href="https://www.proquest.com/scholarly-journals/effect-virtual-reality-buzzy-on-first-insertion/docview/2758573882/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/effect-virtual-reality-buzzy-on-first-insertion/docview/2758573882/se-2?accountid=211160</a>
Copyright:	©2022. Emergency Nurses Association
Last updated:	2023-01-03
Database:	Public Health Database

Document 9 of 26

## Table of Contents: JEN

[ProQuest document link](#)

### FULL TEXT

\_TVM:UNDEFINED\_

### DETAILS

Publication title:	Journal of Emergency Nursing;; JEN; Philadelphia
Volume:	49
Issue:	1

<b>Pages:</b>	A1-A3
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Table Of Contents
<b>DOI:</b>	<a href="https://doi.org/10.1016/S0099-1767(22)00320-8">https://doi.org/10.1016/S0099-1767(22)00320-8</a>
<b>ProQuest document ID:</b>	2758573841
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/table-contents/docview/2758573841/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/table-contents/docview/2758573841/se-2?accountid=211160</a>
<b>Copyright:</b>	Copyright Elsevier Limited Jan 2023
<b>Last updated:</b>	2023-05-23
<b>Database:</b>	Public Health Database

Document 10 of 26

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

[ProQuest document link](#)

---

## 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%;  $\chi^2 = 258.13$ ;  $P < .01$ ), 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.<sup>1,2</sup> 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.<sup>3,4</sup> For these reasons, LWBS rates represent a key ED performance metric.

Nationally, LWBS rates vary substantially between hospitals<sup>5</sup>; 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.<sup>6,7</sup> 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.<sup>8,9</sup> 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.<sup>10</sup> 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.<sup>11</sup> 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.<sup>12</sup>

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 quickly 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.<sup>13</sup>

### **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.<sup>14</sup> 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%;  $\chi^2 = 258.13$ ;  $P < .001$ ; 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.<sup>8</sup> 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.<sup>15</sup> 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.<sup>16</sup> Having a provider assessment with orders initiated early in the visit is a key determining factor to reducing LWBS.<sup>17</sup> Patients experience an overall shorter LOS when cared for in a vertical model.<sup>18</sup> 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.<sup>19</sup>

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.<sup>10</sup> 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.<sup>7,8</sup> 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.<sup>20</sup>

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).<sup>7</sup> Multiple studies have examined other aspects associated with ED crowding and specifically focus on boarding as a key contributor.<sup>3</sup> 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.<sup>21</sup> 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**

We thank Maggie Kohl for her assistance in pulling the data.

The authors wish to acknowledge the following individuals for their roles in the development, implementation, support, and championing of the RAZ process: Daryl Collins, RN, ED Director; Suzanne Petit, RN, ED Manager; Amy Fink, RN, ED Educator; Stacy Prater, RN, ED Charge Nurse; Elizabeth Jennings, RN, ED Nurse; Laura Brown, RN, ED Nurse; Danielle Cahill, RN, ED Nurse; Kenneth Berg, MD, ED Assistant Medical Director; Alex Cook, PA-C, APP Director; Kristen Frazier, FNP, ED APP; BJ Wanninger, PA-C, ED APP. The success and sustainment of this work is a testament to your hard work and dedication.

### **Author Disclosures**

Conflicts of interest: none to report.

### **Supplementary Data**

**Online Supplement 1** **Online 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 <sup>2</sup> 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 <sup>2</sup> or Kruskal- Wallis value	P valu e

Point estimate or median	95% CI or IQR	Point estimate or median	95% CI or IQR			LW BS % (95 % CI)
5.64	5.33-5.97	2.55	2.34-2.77	258.13	<.01	Med ian arriv al to prov ider (IQR )
28	8-83	11	4-27	3278.6 6	<.01	Med ian LOS for disc harg ed pati ents (IQR )
205	133-304	163	102-243	990.51	<.01	Med ian LOS for adm itted pati ents (IQR )

## DETAILS

**Subject:** Patients; Emergency medical care; Quality management; Intervention; Length of stay; Visits; Urban areas; Initiatives; Triage; Implementation; Quality improvement; Community hospitals; Leadership; Nurses; Emergency services; Interdisciplinary aspects; Registration; Teams; Nursing; Phlebotomy; Business metrics; Evaluation

**Business indexing term:** Subject: Quality improvement Leadership Business metrics

<b>Identifier / keyword:</b>	Throughput; Crowding; Emergency department; Rapid assessment zone
<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	86-98
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Research
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.10.002">https://doi.org/10.1016/j.jen.2022.10.002</a>
<b>ProQuest document ID:</b>	2758573837
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/creating-rapid-assessment-zone-with-limited/docview/2758573837/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/creating-rapid-assessment-zone-with-limited/docview/2758573837/se-2?accountid=211160</a>
<b>Copyright:</b>	©2022. Emergency Nurses Association
<b>Last updated:</b>	2023-07-11
<b>Database:</b>	Public Health Database

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

[ProQuest document link](#)

---

## 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.<sup>1</sup> 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.<sup>2-4</sup> Interventions that focus on building resilience can mitigate nurse burnout, which can help to reduce compassion fatigue and nurse turnover.<sup>5-7</sup>

Burnout affects nurses around the world and is described as mental and physical fatigue<sup>8</sup> associated with decreased job satisfaction, depression, anxiety,<sup>9</sup> poor job performance, and nursing turnover.<sup>10</sup> 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.<sup>2</sup> Nurse burnout and stress negatively impact clinical outcomes, nurse turnover, and patient experience.<sup>11</sup> The International Council of Nurses<sup>12</sup> reported that 80% of nursing organization leaders are concerned about the burnout and exhaustion experienced by the nursing workforce. In addition, the Joint Commission<sup>13</sup> 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.<sup>13,14</sup> In nurses, increased burnout also is associated with higher levels of absenteeism and turnover, substance abuse disorders, and even suicide.<sup>13,14</sup>

Before the COVID-19 pandemic, about 40% of United States nurses reported experiencing burnout at some point in their career.<sup>6,15</sup> 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.<sup>16</sup> Foli et al<sup>16</sup> 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.<sup>16</sup> 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.<sup>17</sup> Repeated exposure to high stress and emotional exhaustion leads to compassion fatigue and burnout in emergency nurses.<sup>2</sup> 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.<sup>18</sup> Vicarious or secondary trauma is defined as the accumulation of acute and chronic trauma experienced through witnessing others trauma.<sup>16</sup> This trauma affects 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.<sup>13,16</sup>

### **Resilience**

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

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

### **Resilience Bundle**

Although a bundle strategy for enhancing resilience is a relatively new concept, several recent studies show promising results.<sup>15,25-28</sup> The evidence supports the use of multimodal approaches for increasing nurse resilience.<sup>13,25,29,30</sup> A single approach rarely benefits all nurses equally<sup>31</sup>; therefore, implementing a bundle of evidence-based interventions is considered most effective.<sup>32</sup> 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,<sup>2</sup> using structured debriefing,<sup>3</sup> and implementing a program of relaxation and mindfulness<sup>33</sup> 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.<sup>13,34</sup> 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.<sup>2,13</sup>

### **Debriefing**

The Emergency Nurses Association<sup>22</sup> 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.<sup>35</sup> Debriefing builds resilience through helping nurses to better understand their own emotions and experiences through social connectedness and group bonding.<sup>3</sup>

### **Mindfulness**

Mindfulness is defined as being present in the current moment<sup>36</sup> in mind and body to reduce stress and anxiety, improve focus, and decrease burnout.<sup>37</sup> Promoting positivity through mindfulness moments increases resilience.<sup>33</sup> 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.<sup>34</sup>

### **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,<sup>5-7</sup> 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,<sup>38</sup> as well as the *Mindfulness Game* by Innericons,<sup>39</sup> 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<sup>40</sup> 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 <sup>Figure</sup>). 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 <sup>Table 1</sup>. 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 <sup>Table 2</sup>), 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 ( $\alpha = 0.93$ )<sup>41,42</sup> 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 ( $\alpha = 0.81$ ) used to measure perceived stress.<sup>43</sup> 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.<sup>32</sup> 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 <sup>Table 2</sup>. 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 <sup>Table 3</sup> for results.

A total of 5 open-ended comments (56%) were favorable, and 44 open-ended comments (44%) were unfavorable (see <sup>Table 4</sup>). 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.<sup>25-27</sup> 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<sup>25</sup> implementation of a resilience bundle in a pediatric intensive care unit also showed enhanced resilience over 6 months. Mintz-Binder et al<sup>27</sup> 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.<sup>27</sup> Andersen et al<sup>26</sup> 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<sup>27</sup> and Andersen et al<sup>26</sup> 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.<sup>13</sup> 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.<sup>13,44,45</sup>

## 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.<sup>46,47</sup> 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.<sup>48</sup> 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.<sup>49</sup> Resilience can help build a bridge from burnout to wellness. With positive resilience interventions, burnout may be decreased, and wellness may be enhanced.<sup>28</sup> 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.<sup>13</sup>

### 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

Thank you to Dr. Tim Howell former Senior Vice President of Patient Care Services and the nursing leadership team at University Medical Center in Lubbock, TX for their support and encouragement. Mr. Dondie Ramos, Programmer Analyst at Texas Tech University Health Sciences Center for his support with the Qualtrics survey. Thank you to the fabulous nurses and nurse leadership of the University Medical Center Emergency Center for their support of and participation in this project.

### 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

<b>Subject:</b>	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
<b>Business indexing term:</b>	Subject: Burnout
<b>Identifier / keyword:</b>	Resilience; Bundle; Burnout; Stress; Emergency nursing
<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	40-49
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Clinical
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.08.009">https://doi.org/10.1016/j.jen.2022.08.009</a>
<b>ProQuest document ID:</b>	2758573681
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/implementing-resilience-bundle-emergency-nurses/docview/2758573681/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/implementing-resilience-bundle-emergency-nurses/docview/2758573681/se-2?accountid=211160</a>
<b>Copyright:</b>	Copyright Elsevier Limited Jan 2023

Last updated: 2022-12-28

Database: Public Health Database

Document 12 of 26

## Information for Readers: JEN

[ProQuest document link](#)

### FULL TEXT

\_TVM:UNDEFINED\_

### DETAILS

Publication title:	Journal of Emergency Nursing;; JEN; Philadelphia
Volume:	49
Issue:	1
First page:	A8
Publication year:	2023
Publication date:	Jan 2023
Publisher:	Elsevier Limited
Place of publication:	Philadelphia
Country of publication:	United Kingdom, Philadelphia
Publication subject:	Medical Sciences--Nurses And Nursing
ISSN:	00991767
e-ISSN:	15272966
Source type:	Scholarly Journal
Language of publication:	English
Document type:	General Information

DOI: [https://doi.org/10.1016/S0099-1767\(22\)00323-3](https://doi.org/10.1016/S0099-1767(22)00323-3)

ProQuest document ID: 2758573618

Document URL: <https://www.proquest.com/scholarly-journals/information-readers/docview/2758573618/se-2?accountid=211160>

Copyright: Copyright Elsevier Limited Jan 2023

Last updated: 2022-12-28

Database: Public Health Database

---

Document 13 of 26

# Ovarian Hyperstimulation Syndrome: A Case Report: JEN

[ProQuest document link](#)

---

## 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



<b>Subject:</b>	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
<b>Identifier / keyword:</b>	Case report; Ovarian hyperstimulation syndrome; Emergency nursing; Fertility treatment
<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	8-11
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Clinical Nurses Forum
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Case Study, Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.09.006">https://doi.org/10.1016/j.jen.2022.09.006</a>
<b>ProQuest document ID:</b>	2758573615
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/ovarian-hyperstimulation-syndrome-case-report/docview/2758573615/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/ovarian-hyperstimulation-syndrome-case-report/docview/2758573615/se-2?accountid=211160</a>
<b>Copyright:</b>	©2022. Emergency Nurses Association

Last updated: 2023-02-27

Database: Public Health Database

Document 14 of 26

# A Pilgrimage Under the Midnight Sun for a Cause: JEN

[ProQuest document link](#)

## 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 <sup>Figure 1</sup>). 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 <sup>Figure 2</sup>). 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 <sup>Figure 3</sup>).

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 <sup>Figure 4</sup>). 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

Conflicts of interest: none to report.

## DETAILS

<b>Subject:</b>	Emergency medical care; Fear & phobias; Pilgrimages; Educational materials; Health status; Pandemics; Emergency services; Nursing; Walking; Acute services; Nurses; Scholarships & fellowships
<b>Location:</b>	Sweden; Norway
<b>Identifier / keyword:</b>	Fundraising; International emergency nursing; Hiking
<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	22-26
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	International Nursing
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia

Publication subject:	Medical Sciences--Nurses And Nursing
ISSN:	00991767
e-ISSN:	15272966
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	<a href="https://doi.org/10.1016/j.jen.2022.10.009">https://doi.org/10.1016/j.jen.2022.10.009</a>
ProQuest document ID:	2758573613
Document URL:	<a href="https://www.proquest.com/scholarly-journals/pilgrimage-under-midnight-sun-cause/docview/2758573613/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/pilgrimage-under-midnight-sun-cause/docview/2758573613/se-2?accountid=211160</a>
Copyright:	©2022. Emergency Nurses Association
Last updated:	2022-12-28
Database:	Public Health Database

Document 15 of 26

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

[ProQuest document link](#)

## 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.<sup>1</sup> Hemolysis is the major cause of preanalytical errors.<sup>2</sup> 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.<sup>3</sup> 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.<sup>2,4</sup> In addition, blood sample hemolysis causes positive interference in troponin I tests but false negative results for troponin T.<sup>2</sup> 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.<sup>5</sup> In addition, blood sample hemolysis may lead to patient and nurse dissatisfaction.<sup>6,7</sup>

The high rates of blood sample hemolysis in the emergency department have been attributed to the frequent use of intravenous (IV) catheters.<sup>8</sup> 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.<sup>9</sup> In recent years, blood drawing devices such as S-Monovette tubing (Sarstedt, Nümbrecht, Germany) and Luer-Lock access device (Becton Dickinson, NJ) (<sup>Figure</sup>) have been used to reduce blood sample hemolysis during phlebotomy from IV catheters.<sup>9,10</sup>

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%.<sup>11</sup>

### **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 <sup>Table 1</sup>. 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) (<sup>Table 1</sup>). 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) (<sup>Table 1</sup>).

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) (<sup>Table 1</sup>).

The logistic regression analysis performed to determine the risk factors affecting blood sample hemolysis rates is summarized in <sup>Table 2</sup>. 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.<sup>8,12,13</sup> 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.<sup>8,14-16</sup>

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.<sup>8,17,18</sup> 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.<sup>16,19</sup> 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.<sup>20</sup> 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.<sup>9,13,21</sup> 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).<sup>10</sup> 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.<sup>4,11,19,22</sup> 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

An ethics approval was obtained for this study from the ethics committee of Ahi Evran University Faculty of Medicine (Approval numbered 2021-06/60 and approval date 23.03.2021).

#### Author Disclosures

Conflicts of interest: none to report.

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

## DETAILS

**Subject:** Laboratories; Patients; Emergency medical care; Medical diagnosis; Biochemistry; Catheters; Blood tests; Needlestick injuries; Emergency services; Hospitalization; Phlebotomy; Nurses; Catheterization; Access

**Location:** Germany

**Company / organization:** Name: Becton Dickinson &Co; NAICS: 339112, 339113

**Identifier / keyword:** Emergency department; Hemolysis; Phlebotomy

**Publication title:** Journal of Emergency Nursing;; JEN; Philadelphia

**Volume:** 49

**Issue:** 1

**Pages:** 134-139

**Publication year:** 2023

Publication date:	Jan 2023
Section:	Research
Publisher:	Elsevier Limited
Place of publication:	Philadelphia
Country of publication:	United Kingdom, Philadelphia
Publication subject:	Medical Sciences--Nurses And Nursing
ISSN:	00991767
e-ISSN:	15272966
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	<a href="https://doi.org/10.1016/j.jen.2022.08.005">https://doi.org/10.1016/j.jen.2022.08.005</a>
ProQuest document ID:	2758573611
Document URL:	<a href="https://www.proquest.com/scholarly-journals/single-center-prospective-study-effects-different/docview/2758573611/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/single-center-prospective-study-effects-different/docview/2758573611/se-2?accountid=211160</a>
Copyright:	©2022. Emergency Nurses Association
Last updated:	2022-12-28
Database:	Public Health Database

---

Document 16 of 26

# 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.<sup>2</sup> 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.<sup>3</sup> 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.<sup>5</sup> 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.<sup>1</sup> 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.<sup>2</sup> 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.<sup>3</sup> 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.<sup>4</sup> 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.<sup>5</sup> 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.<sup>6</sup> 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 open-door 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.<sup>7</sup>

### **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.

## **DETAILS**

**Subject:** Fetuses; Emergency medical care; Spirituality; Nursing care; Relaxation; Emotional support; Nurses; Nurse led services; Emergency services; Grief; Quality of care; Emotions; Resilience; Babies

**Publication title:** Journal of Emergency Nursing;; JEN; Philadelphia

**Volume:** 49

<b>Issue:</b>	1
<b>Pages:</b>	5-7
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Impressions
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.09.004">https://doi.org/10.1016/j.jen.2022.09.004</a>
<b>ProQuest document ID:</b>	2758573605
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/new-life-tragic-loss-story-resilience/docview/2758573605/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/new-life-tragic-loss-story-resilience/docview/2758573605/se-2?accountid=211160</a>
<b>Copyright:</b>	©2022. Emergency Nurses Association
<b>Last updated:</b>	2023-08-01
<b>Database:</b>	Public Health Database

Document 17 of 26

# 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.<sup>1-3</sup> 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.<sup>4-7</sup>

PDPH is a common clinical diagnosis (does not typically warrant imaging) occurring in up to 11% of cases after LP (Table 1)<sup>12</sup>; 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.<sup>1,15,16</sup>

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.<sup>1</sup> 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.

### Author Disclosures

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

## DETAILS

<b>Subject:</b>	Emergency medical care; Tomography; Hematoma; Lumbar puncture; Headaches; Epidural; Diagnostic tests
<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	12-14
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Images
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.11.003">https://doi.org/10.1016/j.jen.2022.11.003</a>
<b>ProQuest document ID:</b>	2758573604
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/emergency-medicine-images-headache-after-lumbar/docview/2758573604/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/emergency-medicine-images-headache-after-lumbar/docview/2758573604/se-2?accountid=211160</a>

**Copyright:** Copyright Elsevier Limited Jan 2023

**Last updated:** 2022-12-28

**Database:** Public Health Database

Document 18 of 26

# 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.

## DETAILS

**Publication title:** Journal of Emergency Nursing;; JEN; Philadelphia

**Volume:** 49

**Issue:** 1

**First page:** 149

**Publication year:** 2023

**Publication date:** Jan 2023

**Section:** Erratum

<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Corrections/Retraction
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.10.008">https://doi.org/10.1016/j.jen.2022.10.008</a>
<b>ProQuest document ID:</b>	2758573603
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/erratum-effects-motivational-messages-sent/docview/2758573603/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/erratum-effects-motivational-messages-sent/docview/2758573603/se-2?accountid=211160</a>
<b>Copyright:</b>	©2022. Emergency Nurses Association
<b>Last updated:</b>	2023-01-17
<b>Database:</b>	Public Health Database

---

Document 19 of 26

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

[ProQuest document link](#)

---

## 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.<sup>1</sup> Clinical skill is a complex action that requires a critical attitude by adapting theoretical knowledge to each patient and situation based on scientific evidence.<sup>2,3</sup> 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.<sup>4</sup>

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.<sup>5-7</sup>

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.<sup>6,8</sup> In addition, it has been reported that FCM can improve individual inquiry, collaborative effort, social interaction, and independent learning skills.<sup>9,10</sup>

Before technological innovations, traditional presentation methods such as textbook reading and slide shows were used widely.<sup>11-13</sup> However, it has been reported that this approach causes attention deficit in students and is insufficient in developing students' clinical practice skills.<sup>13,14</sup> 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.<sup>13</sup> 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.<sup>15</sup> 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.<sup>16,17</sup> 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.<sup>9,10,18</sup> 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.<sup>19,20</sup> 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.<sup>21,22</sup> 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.<sup>23</sup> 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.<sup>10,24</sup>

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.<sup>25</sup> There are also studies demonstrating the effectiveness of the FCM on clinical skills. In their study, Aksoy and Gurdogan<sup>17</sup> 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<sup>26,27</sup> knowledge and clinical practice skills. 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.<sup>18,24,28</sup> 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.<sup>29</sup> In another study, it was stated that statistically significant findings could not be reached, but students saw FCM as an acceptable approach.<sup>16</sup> 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.<sup>30-32</sup> Various international organizations have recommended using distance education programs and open access platforms to reduce disruption to the learning process.<sup>33</sup> In a study investigating the effect of FCM in online education, it was stated that the model was effective in learning.<sup>34</sup> 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

Clinical Trial Registration Number: NCT05402215. Clinical Trial Registration Name: The Effect of the Flipped Classroom Model on Teaching Clinical Practice Skills registration link:

<https://clinicaltrials.gov/ct2/show/NCT05402215?term=Ali+KAPLAN&draw=2&rank=3>.

#### Author Disclosures

Conflicts of interest none to report.

#### Acknowledgments

The authors thank all the students who participated in this study and the experts who supported the research.

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 <sup>*</sup>	.823	School they graduated from		
		Health vocational high school	4 (76.2)	5 (66.7)
0.141 <sup>†</sup>	.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 ± 0.86
20.07 ± 1.06	0.143*	.887	Grade point average	2.83 ± 0.50	2.87 ± 0.46
2.85 ± 0.48	-0.225*	.823	Gender		
			Female	16 (76.2)	14 (66.7)
30 (71.4)	0.467 <sup>†</sup>	.495	Male	5 (23.8)	7 (33.3)
12 (28.6)	Chronic disease				
	Yes	2 (9.5)	1 (4.8)	3 (7.1)	0.35 g <sup>‡</sup>
.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 <sup>‡</sup>	.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)	1.05 g <sup>†</sup>
.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
	Min	Max	Mean ± SD	Min	Max	IV categorization		
Mean ± SD						IV categorization	47.14 ± 3.18	39
53	45.71 ± 3.00	41	54	1.496	.142	IV blood collection	43.90 ± 2.02	40

46	42.76 ± 1.86	39	46	1.902	.064	Blood pressure measurement from the brachial artery	39.62 ± 2.87	32
44	39.61 ± 2.55	35	46	-0.284	.778	IM injection to the ventrogluteal region	51.22 ± 6.81	40
63	51.19 ± 7.36	34	62	-0.065	.948	Urinary catheterization in women	59.57 ± 7.89	46

Clinical practices	Experimental group (n = 21)	Control group (n = 21)
--------------------	-----------------------------	------------------------

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

**Business indexing term:** Subject: Professional ethics Professionals

**Location:** Turkey

**Identifier / keyword:** Education; Flipped classroom; Learning strategies; Nursing; Clinical practice skills

**Publication title:** Journal of Emergency Nursing;; JEN; Philadelphia



<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	124-133
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Research
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.09.005">https://doi.org/10.1016/j.jen.2022.09.005</a>
<b>ProQuest document ID:</b>	2758573597
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/effect-flipped-classroom-model-on-teaching/docview/2758573597/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/effect-flipped-classroom-model-on-teaching/docview/2758573597/se-2?accountid=211160</a>
<b>Copyright:</b>	Copyright Elsevier Limited Jan 2023
<b>Last updated:</b>	2023-06-21
<b>Database:</b>	Public Health Database

Document 20 of 26

# 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 Kautz<sup>1</sup> 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.<sup>2</sup> Although Hoyt and Cajon<sup>3</sup> 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.<sup>4</sup> Castner<sup>5</sup> 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,<sup>7</sup> trauma care,<sup>8</sup> and prehospital care.<sup>9,10</sup> 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,<sup>11</sup> and decreased cardiac tissue perfusion.<sup>12</sup> 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<sup>1</sup> 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.<sup>2</sup> Although Hoyt and Cajon<sup>3</sup> 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.<sup>4</sup> Castner<sup>5</sup> 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<sup>6</sup> 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,<sup>7</sup> trauma care,<sup>8</sup> and prehospital care.<sup>9,10</sup>

### **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,<sup>11</sup> and decreased cardiac tissue perfusion.<sup>12</sup> 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<sub>2</sub>) 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<sub>2</sub> 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<sub>2</sub> 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

<b>Subject:</b>	Emergency medical care; Intervention; Medical diagnosis; Conflicts of interest; Emergency services; Nursing; Evidence-based practice; Prehospital care; Gastroenteritis; Chronic obstructive pulmonary disease; Breathing; Nurses; Usefulness; Medical education; Electrolytes; Classification; Nursing care; Morality; Evidence-based nursing; Pain; Ventilation; Medical records; Education; Professional practice
<b>Identifier / keyword:</b>	Nursing education; Emergency nursing; Nursing diagnosis; Nursing assessment
<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	57-59
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Understanding Research
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.11.002">https://doi.org/10.1016/j.jen.2022.11.002</a>
<b>ProQuest document ID:</b>	2758573584

**Document URL:** <https://www.proquest.com/scholarly-journals/problem-well-named-is-half-solved-usefulness/docview/2758573584/se-2?accountid=211160>

**Copyright:** ©2022. Emergency Nurses Association

**Last updated:** 2023-06-21

**Database:** Public Health Database

---

Document 21 of 26

# 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.<sup>1</sup>

### 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.<sup>1-3</sup>

### 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.<sup>1,3-5</sup>

### 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.<sup>1,3,5</sup>

### 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.<sup>1</sup>

## DETAILS

<b>Subject:</b>	Fractures; Emergency medical care; Burns; Blood tests; Trauma; Infants; Chest; Injuries; Documentation; Lesions; Emergency services; Abusers; Thyroid gland; Liver; Nursing; Lower limbs; Legs
<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	60-61
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023

<b>Section:</b>	Emergency Nursing Review Questions
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.07.007">https://doi.org/10.1016/j.jen.2022.07.007</a>
<b>ProQuest document ID:</b>	2758573582
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/emergency-nursing-review-questions-january-2023/docview/2758573582/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/emergency-nursing-review-questions-january-2023/docview/2758573582/se-2?accountid=211160</a>
<b>Copyright:</b>	©2022. Emergency Nurses Association
<b>Last updated:</b>	2023-01-31
<b>Database:</b>	Public Health Database

Document 22 of 26

## Editorial Board: JEN

[ProQuest document link](#)

### FULL TEXT

\_TVM:UNDEFINED\_

### DETAILS

<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
---------------------------	--



<b>Volume:</b>	49
<b>Issue:</b>	1
<b>First page:</b>	A4
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	General Information
<b>DOI:</b>	<a href="https://doi.org/10.1016/S0099-1767(22)00321-X">https://doi.org/10.1016/S0099-1767(22)00321-X</a>
<b>ProQuest document ID:</b>	2758573580
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/editorial-board/docview/2758573580/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/editorial-board/docview/2758573580/se-2?accountid=211160</a>
<b>Copyright:</b>	Copyright Elsevier Limited Jan 2023
<b>Last updated:</b>	2022-12-28
<b>Database:</b>	Public Health Database

Document 23 of 26

## Board of Directors: JEN

[ProQuest document link](#)

## FULL TEXT

\_TVM:UNDEFINED\_

## DETAILS

<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>First page:</b>	A6
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	General Information
<b>DOI:</b>	<a href="https://doi.org/10.1016/S0099-1767(22)00322-1">https://doi.org/10.1016/S0099-1767(22)00322-1</a>
<b>ProQuest document ID:</b>	2758573573
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/board-directors/docview/2758573573/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/board-directors/docview/2758573573/se-2?accountid=211160</a>
<b>Copyright:</b>	Copyright Elsevier Limited Jan 2023
<b>Last updated:</b>	2023-01-05
<b>Database:</b>	Public Health Database

# 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

<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	109-123.e4
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Research
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.09.008">https://doi.org/10.1016/j.jen.2022.09.008</a>
<b>ProQuest document ID:</b>	2758573568
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/illuminating-emergency-nurses-perceptions-stigma/docv_iew/2758573568/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/illuminating-emergency-nurses-perceptions-stigma/docv_iew/2758573568/se-2?accountid=211160</a>
<b>Copyright:</b>	©2022. Emergency Nurses Association
<b>Last updated:</b>	2023-08-01
<b>Database:</b>	Public Health Database

Document 25 of 26

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



# Tertiary Hospital Emergency Department: JEN

[ProQuest document link](#)

## 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 hypoglycemia indicated the need for frequent and longer duration of monitoring for patients who were being treated for hyperkalemia with IDT.

## FULL TEXT

## DETAILS

<b>Subject:</b>	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
<b>Identifier / keyword:</b>	Hyperkalemia treatment; Blood glucose; Hypoglycemia
<b>Publication title:</b>	Journal of Emergency Nursing; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	99-108
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023

<b>Section:</b>	Research
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Journal Article
<b>DOI:</b>	<a href="https://doi.org/10.1016/j.jen.2022.09.009">https://doi.org/10.1016/j.jen.2022.09.009</a>
<b>ProQuest document ID:</b>	2758573561
<b>Document URL:</b>	<a href="https://www.proquest.com/scholarly-journals/evaluation-care-outcomes-patients-receiving/docview/2758573561/se-2?accountid=211160">https://www.proquest.com/scholarly-journals/evaluation-care-outcomes-patients-receiving/docview/2758573561/se-2?accountid=211160</a>
<b>Copyright:</b>	©2022. Emergency Nurses Association
<b>Last updated:</b>	2023-08-07
<b>Database:</b>	Public Health Database

Document 26 of 26

# 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.<sup>1</sup> I also partnered with the *Advanced Emergency Nursing Journal* to reprint a guest editorial focused on the 2021 emergency nurse practitioner competencies.<sup>2</sup> I look forward to reading about future partnerships yielding translatable content to the international audience of *JEN* readers. 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).<sup>3</sup> *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’s<sup>4</sup> article on a rapid assessment zone to reduce patients leaving without being seen and Thomas et al’s<sup>5</sup> article on a pediatric distance learning curriculum, both in the current January issue. As the Associate Editors, Annie Kelly, and I wrote in our September 2022 editorial,<sup>6</sup> *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.<sup>1</sup> I also partnered with the *Advanced Emergency Nursing Journal* to reprint a guest editorial focused on the 2021 emergency nurse practitioner competencies.<sup>2</sup> 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).<sup>3</sup> *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<sup>4</sup> article on a rapid assessment zone to reduce patients leaving without being seen and Thomas et al’s<sup>5</sup> 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,<sup>6</sup> *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<sup>7</sup> 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).<sup>8</sup>

### 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

<b>Subject:</b>	Emergency medical care; Publishing; Health care expenditures; Editors; Emergency services; Nursing; Distance learning; Curricula; Pediatrics; Memberships; Partnerships; Boards of directors; Professional practice
<b>Business indexing term:</b>	Subject: Boards of directors
<b>Publication title:</b>	Journal of Emergency Nursing;; JEN; Philadelphia
<b>Volume:</b>	49
<b>Issue:</b>	1
<b>Pages:</b>	3-4
<b>Publication year:</b>	2023
<b>Publication date:</b>	Jan 2023
<b>Section:</b>	Editorial
<b>Publisher:</b>	Elsevier Limited
<b>Place of publication:</b>	Philadelphia
<b>Country of publication:</b>	United Kingdom, Philadelphia
<b>Publication subject:</b>	Medical Sciences--Nurses And Nursing
<b>ISSN:</b>	00991767
<b>e-ISSN:</b>	15272966
<b>Source type:</b>	Scholarly Journal
<b>Language of publication:</b>	English
<b>Document type:</b>	Editorial



**DOI:** <https://doi.org/10.1016/j.jen.2022.11.011>

**ProQuest document ID:** 2758573560

**Document URL:** <https://www.proquest.com/scholarly-journals/making-journal-emergency-nursing-pop/docview/2758573560/se-2?accountid=211160>

**Copyright:** ©2022. Emergency Nurses Association

**Last updated:** 2023-08-25

**Database:** Public Health Database

## Bibliography

Citation style: APA 6th - Annotated with Abstracts - American Psychological Association, 6th Edition

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>

**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 ( $r = 0.65$ ;  $P < .001$ ) and psychological ( $r = 0.58$ ;  $P < .001$ ) empowerment. Structural empowerment 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.

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>

**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.

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>

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.

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>

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.

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>

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.

Table of contents: JEN. (2023). *Journal of Emergency Nursing*, 49(1), A1-A3. doi:[https://doi.org/10.1016/S0099-1767\(22\)00320-8](https://doi.org/10.1016/S0099-1767(22)00320-8)

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>

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%;  $\chi^2 = 258.13$ ;  $P < .01$ ), 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.

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>

**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.

Information for readers: JEN. (2023). *Journal of Emergency Nursing*, 49(1) doi:[https://doi.org/10.1016/S0099-1767\(22\)00323-3](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>

**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.

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>

---

Database copyright © 2023 ProQuest LLC. All rights reserved.

[Terms and Conditions](#) [Contact ProQuest](#)