

# Journal of EMERGENCY NURSING

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## THE GATHERING



**Terry M. Foster, MSN, RN, CCRN, TCRN, CPEN, CEN, FAEN**

For as long as I can remember, the premiere event for Emergency Nurses Association (ENA) has been the annual conference. You will find that long-term ENA members will often refer to this annual conference as “the gathering,” and it truly is just that, a gathering of our ENA family, many of whom we have known for many years. It is an event that many of us look forward to every year. One of the best things about this global conference is seeing old friends in the ENA, yet there never seems to be enough time to completely catch up.

This year’s Emergency Nursing 2023 Conference, scheduled for September 21-24, 2023, in beautiful San Diego, California, promises to be another memorable event. Your 2023 Emergency Nursing Conference Education Planning Committee, along with most of the ENA staff, have been busy working on this since the previous year’s conference. Our theme, Level Up, is intended to pair with my presidential theme of Inspire. Emergency Nursing 2023 will be full of inspirational sparks, combined with big moments of energy and excitement. Be recharged and ready to reconnect with your passion and purpose. The term “level up” in life means to advance or improve, to make a move in your life or career for the better.

As we are coming out of this dreadful pandemic, we are once again reminded of the sacredness of life. I do not think we will ever again not value the power of

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the human connection, of just being together. No technology can ever take its place. Last year’s conference in Denver was record setting, and San Diego promises to be as well.

If you are new to the ENA General Assembly or the conference, plan to be acknowledged and embraced. We love our new members and new attendees! There are experiences specifically designed for emerging professionals and first-time attendees.

We all have our favorite things about the conference. For me, the professional networking is by far one of the best things about the conference. This can be a more formal scheduled information-gathering session, or it can be a more informal or even quite accidental connection. You might just be sitting down to lunch in the Exhibit Hall next to a couple of emergency nurses whom you have never met before. It has always amazed me to see the similarities we all face in emergency nursing. It creates an immediate and constant bond. I am convinced our patients’ situations are so similar even though our emergency departments are miles and miles apart!

At the conference you can learn as much as you would like to in practically any education format you prefer. There are numerous educational sessions almost around the clock offering quite a variety of ways to learn—pre-sessions, roundtables, deep dives, and breakout sessions—you name it.

I also love the shorter sessions, as we all know that emergency nurses tend to have a short attention span. Just walking through the Experience Hall is a learning experience in itself! You may learn something brand new or perhaps receive some gentle reassurance that your practice and your facility are keenly up to date.

The positive energy in the conference rooms is often palpable, even during spirited debates at the general assembly, as well as the always energetic and thought-provoking opening and closing sessions. And be careful, for once you have attended an ENA conference, you are “hooked” for life. Find what will inspire you to take back to your emergency department.

Since 1986, I have attended every annual meeting except one, owing to a death in my family. Every year after attending, I came away with the feeling that I can do this again for another year. It was always a shot in the arm and really refueled my soul. I used to think, “If these other emergency nurses can keep doing it, so can I!” And many years later, I still feel that way!

Most of us return home ready to tackle our home emergency nursing world (although we will also come back more than a little sleep deprived!). I sincerely hope that you can join us for “the gathering” this year. There is nothing else like it in the world.

**Author Disclosures**

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# PROTECTING LIVES AND PRESERVING DIGNITY: EMOTIONAL SAFETY IN EMERGENCY NURSING



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Emergency nurses work in complex, overcrowded, and often chaotic environments where creating safe spaces for patients, families, visitors, and staff can be challenging.<sup>1</sup> Despite the challenges associated with emergency care delivery, emergency nurses are tasked with prioritizing patient safety, but what does it really mean to provide safe care? Health care quality and safety are commonly measured using physical indicators of safety.<sup>2-5</sup> For emergency nurses, patient safety may include making the right decision in triage, safe medication administration, adherence to treatment protocols, frequent reassessments, preventing falls or hospital-acquired infections, and protecting people from violence. However, it is crucial to understand that patient safety is more than physiological stability and physical safety. Patient safety must include emotional safety and person-centered care.

A recent study by Barrow et al<sup>3</sup> found that health care professionals view patient safety as “being safe,” whereas patients experience safety as “feeling safe.” This finding highlights that the current patient safety indicators are inadequate and limit opportunities for addressing and preventing harm. When emergency nurses have a narrow view of patient safety, it creates the opportunity for patients to experience significant unresolved harm despite the outward appearance that they are receiving safe care.

Lyndon et al<sup>2</sup> recently authored an editorial discussing emotional safety as a fundamental part of patient safety. When I read their editorial, I was struck by how much the message resonated with me as an emergency nurse and health care consumer. The authors described how physical outcome measures traditionally used as patient safety indicators fail to address the patient experience and feelings of safety. Ultimately, focusing only on physical indicators of safe care creates a dynamic where people can experience profound and unrecognized harm during their care. It also emphasizes the observations and experiences of health care professionals over the experience of people seeking care.<sup>2</sup>

Emotional harm in health care is a common threat to patient safety and significantly affects the patient experience and health outcomes.<sup>2-5</sup> By its very nature, the emergency care setting exposes patients and their loved ones to an array of stressors—the urgency of their condition, an unfamiliar and noisy environment, and the uncertainty of what might happen to them. Being a patient or family member in an emergency setting often activates a range of emotions, including fear, anxiety, mistrust, and feeling a loss of control. Furthermore, the risk for emotional harm in the emergency department may be heightened by various factors, including the rapid pace of care, the care environment, and provider attributes, including the provider’s use of dehumanization strategies to cope with bearing witness to human suffering shift after shift.<sup>1</sup>

Beyond the common aspects of emergency care that can cause emotional harm to patients, the current sociopolitical landscape adds another layer of potential fear and suffering. Laws across the United States are being enacted that limit access to care and criminalize gender-affirming care and the full spectrum of reproductive health care.<sup>6,7</sup> The patients and families most affected by these laws already experience discrimination, bias, and fear when engaging with health care professionals.<sup>2,6</sup> Now, more than ever, emergency nurses must safeguard the dignity, privacy, confidentiality, and emotional safety of emergency patients.

Addressing emotional safety in health care requires health care professionals to engage in person-centered care while ensuring the patient is treated with dignity and respect. This type of patient safety is about preventing emotional harm and fostering feelings of “being safe”.

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TABLE

**Examples of behaviors and facilitators of emotional safety**

<b>Harmful behavior</b>	<b>Type of emotional harm</b>	<b>Facilitators of ES</b>
Unnecessarily interrogating patients about personal matters unrelated to CC	Invasion of privacy	Encourage a nonjudgmental and empathetic approach when questioning patients. Avoid asking unnecessary questions. See “Trans Broken Arm Syndrome.”
Unwarranted searches of a patient's belongings or removal of personal items	Invasion of privacy Feeling of powerlessness	Provide clear policies on when and how searches should be conducted, if at all, and ensure patient's consent when possible.
Not following the standard of care due to assumptions about a patient's background or lifestyle; conveying impression that the patient is not being honest or does not warrant care	Stigmatization Fear	Emphasize person-first treatment policies, ensuring all patients receive appropriate care regardless of personal characteristics. Establish trust. Listen to and believe patients and families.
Overly strict or biased enforcement of hospital policies	Fear and intimidation Isolation	Consistent application of hospital policies to ensure person- and family-centered care. Create inclusive policies that promote emotional safety and family-centered care.
Unnecessarily restraining or isolating patients	Feelings of powerlessness Isolation and fear	Provide education on proper use of restraints and isolation, and promote use of alternative, person-centered interventions.
Making derogatory or judgmental comments about patients with colleagues or including judgmental or biased and unnecessary statements in the medical record	Emotional abuse Stigmatization	Establish and enforce policies requiring that patients are treated with dignity and respect, including training on professionalism. Educate on identifying and interrupting bias. Provide staff education and monitor for non-biased EHR and report communication.
Questioning the validity of a patient's symptoms or pain	Fear and anxiety	Educate on the importance of taking all patient complaints seriously and responding with empathy; reflexivity and self-awareness

This is not an inclusive list. It serves as examples only. It should be noted that some of these behaviors can also result in adverse physical and physiological harm. CC, chief complaint; ES, emotional safety; EHR, electronic health record.

Sokol-Hessner et al<sup>5</sup> stated that emotional harm can be defined as “harms to a patient’s dignity caused by failure to demonstrate adequate respect for the patient as a person.” The authors further defined dignity as “the intrinsic, unconditional value of all human beings that makes them worthy of respect” and respect as “the sum of the actions we take to protect, preserve and enhance the dignity of our patients.”<sup>4</sup> The concepts of human dignity and respect are essential in providing emotionally safe care.

I understand that within the chaos of the emergency department attending to the emotional needs of patients or families may be overshadowed by the need to stabilize critically ill or injured people. I worked for 20 years full time as a stretcher-side emergency nurse. I know what it is like to have no place to put sick patients and not have enough hands or time to meet everyone’s needs. However, spending time on the other side of the stretcher rails has taught me that neglecting the emotional and cultural

dimensions of care jeopardizes patient well-being, fosters mistrust, and impedes the provision of person and family-centered care. As a patient, I care about health care professionals' clinical knowledge and skills, but I also care about being seen and treated with dignity and respect.

Several studies have identified the vital role that emotional safety has in achieving optimal health outcomes,<sup>1,2,4</sup> yet quality and safety indicators in health care remain focused on objective measures of physical harm. This emphasis on physical safety, as a primary indicator of quality care, fails to address that safety is multidimensional and results in missed opportunities to prevent and address patient harm.<sup>2,5</sup> Harm is not limited to physical and physiological outcomes. Focusing solely on physical indicators of safe care creates a false sense that people are not being harmed when the evidence clearly demonstrates this is not the case.<sup>1,3,7</sup>

Notably, a vast amount of evidence demonstrates the harm historically minoritized and marginalized populations experience within health care systems.<sup>8,9</sup> For example, the evidence is clear that implicit and explicit biases, including but not limited to, racism, homophobia, ableism, and transphobia, result in adverse patient experiences and outcomes.<sup>8-11</sup> Patients who experience bias are likely to delay or avoid seeking health care because they feel unsafe.<sup>2</sup> Patients who are not being listened to or treated with respect may experience adverse health outcomes even though they are perceived as receiving safe care by the health care team. Feeling unsafe has a profound impact on well-being.<sup>2,5</sup> For examples of behaviors that foster emotional safety, see [Table](#).

Emergency nurses must understand that keeping patients safe includes caring for the whole person; ensuring they are seen, heard, and respected; and providing culturally informed and affirming care. Furthermore, emotional safety must be regarded as an integral aspect of patient care, acknowledging and respecting the diverse backgrounds, beliefs, and values of individuals seeking emergency care. Regardless of personal ideologies, emergency nurses must safeguard all patients, and safe care must include emotional safety, advocacy, and respect for those we are entrusted to accompany in care. In the September issue of the *Journal of Emergency Nursing* "On the Other Side of the Rails" blog, I wrote a story about the critical role that emotional safety played in the care of my brother before he passed away. It illustrates the significant positive impact that nurses have on emotional safety for patients and families.

## Author Disclosures

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### Leveraging Large Language Models to Improve Triage Accuracy in Emergency Departments



Dear Editor:

Large language models (LLMs), such as OpenAI's Generative Pretrained Transformer series, are trained on vast amounts of text data and have demonstrated remarkable capabilities in understanding and generating human-like text.<sup>1</sup> These models can be adapted to various tasks, including triage, by fine-tuning them with domain-specific data and designing specialized algorithms to address specific challenges.

When applied to triage, LLMs can process and analyze patients' medical history, vital signs, reported symptoms, and any additional information provided by health care professionals.<sup>2</sup> By leveraging their ability to understand natural language, LLMs can quickly and accurately assign an appropriate triage level to patients, helping to prioritize the most critical cases (see [Figure 1](#)).

LLMs can analyze vast amounts of diverse data forms and draw from their extensive knowledge base to make informed decisions about patient prioritization. This increased accuracy can lead to a more efficient allocation of resources, ensuring that patients receive appropriate care promptly. Factors such as fatigue, stress, and cognitive biases can influence human-made triage decisions.<sup>2</sup> LLMs, conversely, are more immune to these factors and can consistently provide objective assessments of patient conditions. LLMs can help to streamline the triage process by automating the initial assessment and documentation of patients. This can reduce the administrative workload for health care professionals, allowing them to focus on providing direct care to patients. LLMs can be easily scaled to handle large volumes of

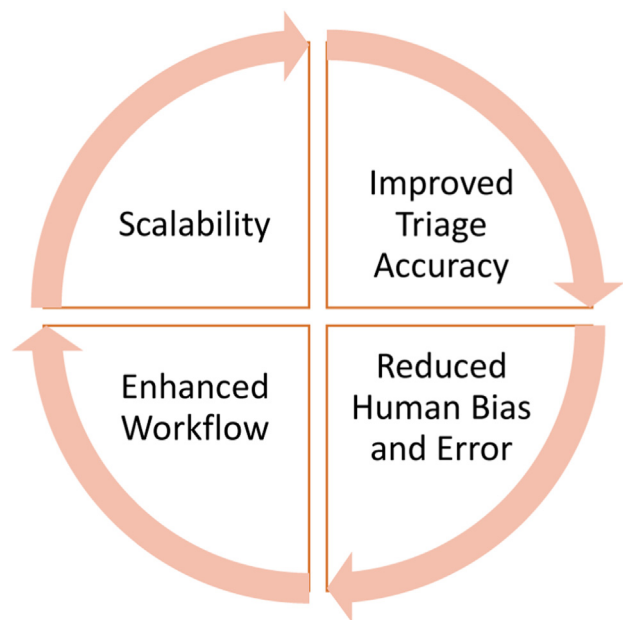


FIGURE 1

Benefits of using LLMs in emergency departments. LLM, large language model.

patients, making them particularly useful in mass casualty incidents or during increased patient influx.

Integrating LLMs in ED triage processes has substantial implications for nursing practice. Nurses can improve patient prioritization by enhancing collaboration with LLMs while maintaining clinical judgment.<sup>3</sup> This necessitates ongoing skill development, training, and workflow adjustments to accommodate technology integration. Nurses also play a critical role in upholding ethical standards and transparency in AI-driven triage systems while preserving the essential human touch in patient care.<sup>4</sup> By addressing these implications, nurses can maximize the benefits of LLMs in emergency departments, leading to better patient outcomes and resource allocation.

Although artificial intelligence (AI) has the potential to revolutionize disease diagnosis, treatment, and prevention in health care, there is a growing consensus among scholars that its implementation is associated with a number of risks.<sup>5</sup> In the emergency department, implementing AI-assisted triage may raise concerns related to data privacy and security. The use of sensitive patient data to train and fine-tune AI models requires anonymization and protection against unauthorized access (see [Figure 2](#)). While AI models can improve triage accuracy, they are not infallible, and misdiagnoses or incorrect triage decisions can lead to legal

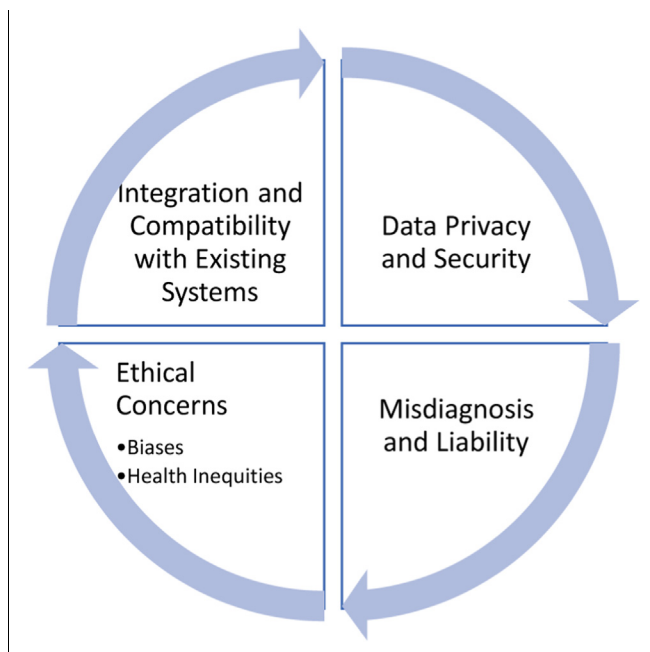


FIGURE 2  
Challenges and considerations.

liability and negative patient outcomes.<sup>6</sup> To mitigate these risks, AI models should be used as a decision-support tool rather than replacing human judgment. Ethical guidelines must be strictly adhered to when developing and deploying AI models in health care settings. This includes ensuring that the models are unbiased, transparent, and accountable for responsible use in triage. Integrating AI models in emergency departments requires seamless integration with existing health care systems and workflows. This may require significant investment in infrastructure and staff training. By addressing these risks and considerations, the potential benefits of AI in health care can be realized while protecting patient privacy, ensuring accuracy, and minimizing legal liabilities.

Expanding on the potential risks associated with AI in health care, biases and health inequities are a critical concern that must be addressed. As highlighted in the previous example, the use of AI in emergency departments for triage raises concerns about data privacy and security, accuracy, legal liability, and patient outcomes. However, it is equally important to recognize that biases can be perpetuated by AI algorithms, and these biases can exacerbate health inequities based on social factors such as sex, race, and certain economic factors.<sup>5,7,8</sup> The development and application of AI algorithms could introduce biases, especially if the data

used to train them are biased. If an algorithm is trained on a historical data set that is biased toward a particular group, the resulting algorithm may not provide accurate diagnoses for other groups. Similarly, if algorithms are developed by a homogenous group of developers who may not account for the needs of diverse patient populations, this can result in biased algorithms. Furthermore, AI in health care has the potential to amplify existing biases in health care systems.<sup>8</sup> Racial and gender disparities in access to care, diagnosis, and treatment can be reinforced by biased AI algorithms.<sup>9</sup>

To address the risks associated with AI in health care, health care professionals, AI developers, and policy makers must share a great responsibility. On one hand, health care providers and AI developers must ensure that the data sets used to train AI algorithms are diverse and representative of all populations and that they are trained to recognize and address potential biases in the data sets they use and algorithms they develop. On the other hand, policy makers must promote transparency, accountability, and diversity in AI development and implementation by developing policies that require AI systems used in health care to undergo regular audits and evaluations to identify and address biases. They could also require that AI development teams include diverse perspectives and experiences and provide funding and support for multicenter research to facilitate experience sharing, diverse and representative data sets, and minimizing bias in AI systems. By taking these steps, we can ensure that AI in health care is developed and deployed in a fair and equitable manner, ultimately promoting better health outcomes for all.

Overall, LLMs hold great promise for improving triage accuracy in emergency departments. By leveraging their natural language processing capabilities, LLMs can help prioritize patients based on the severity of their conditions, leading to better patient outcomes and more efficient use of resources. However, to realize their full potential, addressing the challenges and concerns associated with their implementation is crucial. Ensuring data privacy and security, addressing the potential for misdiagnosis and liability, adhering to ethical guidelines, ensuring representing data sets, facilitating multicenter research collaboration, and integrating LLMs seamlessly with existing systems are all crucial factors that must be considered. Involving health care professionals, particularly nurses, in developing and deploying LLMs is essential for their successful integration. By providing adequate training, fostering collaboration, and maintaining a balance between technology and the human touch, nurses can play a pivotal role in harnessing the potential of LLMs in emergency departments. Ultimately, the responsible and thoughtful implementation of LLMs in triage processes can lead to improved patient care, more accurate prioritization, and better utilization of limited health care

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# SUPPORTING EMERGENCY CARE DELIVERY THROUGH UPDATED EMERGENCY NURSE PRACTITIONER COMPETENCIES



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## Abstract

As multidisciplinary emergency care becomes increasingly complex, all team members must be aware of their respective roles and responsibilities. In the emergency department, nurse practitioners are integral members of the team. They possess a wide range of clinical and leadership competencies that allow them to perform specific and differentiated tasks within the emergency department. A well-defined competency not only contributes to the promotion of a positive work culture but also clarifies performance expectations, identifies skill gaps, and supports team development. Furthermore, it allows the nurse practitioner to

adapt to changing conditions while maintaining patient safety. The competencies of emergency nurse practitioners have evolved over the past 2 decades. The authors discuss the importance of establishing clear expectations for emergency nurse practitioner practice in this article and the alignment of competencies with organizational culture and objectives.

**Key words:** Nurse practitioner; Emergency nurse practitioner; Competencies; Education

As multidisciplinary emergency care becomes increasingly complex, all team members must clearly understand their roles and responsibilities. The knowledge, skills, abilities, values, and behaviors that support individual performance are reflected in competencies that are unique to each discipline and reflect success in practice.<sup>1</sup> A nurse practitioner (NP) is an essential member of the ED team, possessing a broad range of clinical and

leadership competencies that enable them to handle specific and differentiated tasks within the team. In addition to contributing to the promotion of a positive work culture, well-defined competencies can also clarify the performance expectations of each individual, identify skill gaps, and support the development of a team that is capable of adjusting to changing conditions with patient safety as the priority. This article provides an overview of how

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emergency NP (ENP) competencies evolved over the past 2 decades, discusses establishing clear expectations for ENP practice, and examines the application of competencies and how they align with organizational culture and goals in various settings.

## Background

The ENP competencies in the first set were delineated in 2008 based on a national Delphi study and practice analysis.<sup>2</sup> As ENP practice grew and the role evolved, experts identified the need for updated competencies reflective of current practices that would move toward a health equity-centered approach to the care of patients.<sup>3</sup> These original ENP competencies were first updated by the American Academy of Emergency Nurse Practitioners (AAENP) in 2018 in a document entitled Practice Standards for the ENP Specialty.<sup>4</sup> Derived from the data in the 2016 ENP national practice analysis data, these competencies associated with ENP practice were arranged within 5 domains: medical screening, medical decision making/differential diagnoses, patient management, patient disposition, and professional, legal, and ethical practices.<sup>4</sup> The competencies identified clinical practice advancement from practice entry to expert ENP within the broader framework of practice standards while carefully encompassing the comprehension, psychomotor capability, and acumen necessary to adeptly guide care for patients across the lifespan, including procedures most frequently used in emergency care settings.<sup>5</sup>

The following year, the Emergency Nurses Association (ENA) released the “Emergency Nurse Practitioner Competencies”<sup>6</sup> using the same framework used for the 2008 competencies. These 2019 competencies were organized into both general (eg, professional role) and itemized competencies (eg, medical screening and patient management). The existence of multiple versions of ENP competencies from different organizations began to create confusion within regulatory frameworks, credentialing bodies, and ENP academic programs.<sup>5</sup> Recognizing the need for a singular version of ENP competencies, in April 2021 the presidents of both AAENP and ENA appointed an expert panel of individuals, 3 from each organization, to collaborate on merging the 2 existing sets of competencies into one. A comparison crosswalk analysis was used to identify similarities, differences, and overlaps within each of the documents. Ensuring alignment between existing core NP competencies and ENP practices was considered meticulously.<sup>5</sup>

Consideration was given to the level of depth included, and the language within the 2021 competencies was ultimately broadened to ensure consistency with other sets of competencies.<sup>7</sup> The last step in alignment with the 2021 ENP competencies was to ensure that the resulting competencies were congruent with the National Task Force Standards for Quality Nurse Practitioner Education and the 2021 American Association of Colleges of Nursing Essentials.<sup>8,9</sup> The resulting 2021 ENP competencies were jointly published by AAENP and ENA with subsequent endorsement by the National Organization of Nurse Practitioner Faculties.<sup>10</sup>

## Application of ENP Competencies Within the Educational System

Multiple organizations broadly accredited academic nursing programs based on academic preparation level (undergraduate vs graduate). Graduate nursing program accreditation may also focus on the academic degree (eg, MSN, DNP, PhD), role preparation of a particular nursing program (eg, NP, clinical nurse specialist, nurse midwife, nurse anesthetist), and specific patient population (eg, acute care, family, pediatric, psychiatric). Validation of optional and more focused specialty NP areas of preparation and practice (eg, ENP, oncology NP, orthopedic NP) signifies additive knowledge and expertise in addition to and founded upon population-based NP accreditation and falls under the purview of specialty nursing organizations.<sup>11,12</sup>

Advanced practice education is intended to ensure that an individual develops and refines clinical skills that will enable them to provide safe and competent care throughout the course of their professional career. Professional competence has been defined as using communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice to benefit individuals and communities.<sup>13</sup> NP educational programs are constructed on foundations of competency-based education and curricula that are outcomes based.<sup>14</sup> Learners are expected to attain and demonstrate predetermined essential advanced knowledge and skills to successfully complete NP educational programs.<sup>13</sup> The knowledge essential to all NPs, regardless of population foci, is identified within the National Organization of Nurse Practitioner Faculties (NONPF) Nurse Practitioner Core Competencies.<sup>15</sup> The competencies for the ENP delineate further specialty expertise that builds upon these foundational, entry-level knowledge, skills, and abilities.

The alignment of the 2021 ENP competencies with the NONPF core NP competencies and “The Essentials” assists

ENP educators in developing curricula and complying with accreditation standards.<sup>16</sup> In conjunction with the ENP Scopes and Standards, exemplar frameworks, and identified ENP procedures commonly performed in practice, graduate and postgraduate ENP academic programs are equipped with the tools to appropriately prepare NPs for ENP specialty practice.<sup>17</sup> As the tools and guidelines have all been recently updated, educators are poised to offer timely educational innovations aligned with the current emergency care landscape and health care system demands. A visual alignment with NONPF core competencies and the 2021 ENP competencies is presented in [Table 1](#).<sup>10</sup>

As the tools and guidelines have all been recently updated, educators are poised to offer timely educational innovations aligned with the current emergency care landscape and health care system demands. A visual alignment with NONPF core competencies and the 2021 ENP competencies is presented in [Table 1](#).<sup>10</sup>

TABLE 1  
Alignment with NONPF core competencies<sup>\*,†</sup>

NP Competency Area: Independent Practice			
NP Core Competencies	Curriculum Content to Support NP Core Competencies <i>Neither required nor comprehensive, this list reflects only suggested content specific to the core competencies (NONPF, 2017)</i>	Emergency NP Competencies	Curriculum Content to Support Emergency NP Competencies <i>Neither required nor comprehensive, this list reflects only suggested content specific to the ENP competencies</i>
1. Functions as a licensed independent practitioner.	Clinical decision making based on evidence and patient/provider partnership	1.1 Performs a medical screening exam for all patients presenting for care	Screening strategies for availability of patient and family social needs/resources
2. Demonstrates the highest level of accountability for professional practice.	Current and emerging professional standards	1.2 Obtains an appropriate history pertinent to the presenting complaint	Skills to perform Diagnostic & Therapeutic Procedures
3. Practices independently managing previously diagnosed & undiagnosed patients. —3.a Provides the full spectrum of health care services to include health promotion, disease prevention, health protection, anticipatory guidance, counseling, disease management, palliative, and end-of-life care. —3.b Uses advanced health assessment skills to differentiate between normal, variations of normal and abnormal findings. —3.c Employs screening and diagnostic strategies in the development of diagnoses. —3.d Prescribes medications within scope of practice. 3.e Manages the health/illness status of patients and families over time.	Novice to expert continuum of clinical practice  Political, policy and regulatory issues regarding licensure, national certification, and scope of practice  Leadership approaches for employment contract negotiation, networking, and advancing professional standards and roles  Application of select sciences to practice  Specific areas of assessment  Screenings  Diagnostics (tests, labs) Specific procedures  Health promotion, prevention, and disease management	1.3 Performs a pertinent, developmentally appropriate physical examination  1.4 Identifies differential diagnoses according to chief complaint which require immediate intervention  1.5 Identifies the potential for rapid physiologic and/or mental health deterioration or life-threatening instability (e.g., suicidal risk, infectious disease/sepsis, shock)  1.7 Evaluates assigned	Interpretation of imaging studies  Best practices for safe patient management, including pharmacologic, therapeutic, and behavioral interventions  Risk Assessment of physiological and psychological conditions which impact care delivery  Documentation techniques to support safety and reimbursement  Emergency Preparedness & Response <ul style="list-style-type: none"> <li>• Nuclear/Biological/Chemical</li> <li>• Natural Disasters</li> <li>• Civil Unrest</li> <li>• Mass Casualty</li> </ul>

NONPF, National Organization of Nurse Practitioner Faculties; NP, nurse practitioner.

\* American Association of Emergency Nurse Practitioners (AAENP) and Emergency Nurses Association (ENA) (2021).<sup>10</sup>

† National Organization of Nurse Practitioner Faculties (NONPF) (2022).<sup>15</sup>

Educational preparation often includes simulation-based experiences and/or skills/procedural workshops to prepare ENPs to work in interprofessional teams, provide compassionate care, address social determinants of health, and remove barriers to quality health care. Utilization and incorporation of the ENP competencies provide academicians with the framework for the development of educational pedagogies that best prepare learners for relevant clinical practice. Given that the competencies outline all aspects of professional ENP practice, rather than simply procedures, their use supports the comprehensive preparation of competent clinicians and leaders who possess the necessary knowledge, skills, and behaviors to provide safe, high-quality health care to patients.

### **Application of ENP Competencies Within the Clinical System**

Following the completion of academic preparation, NPs transition into various clinical practice roles. Within the clinical system, providers must demonstrate initial and ongoing competencies. The ENP competencies offer utility throughout the full spectrum of employment; they may define expectations during job searches and clarify clinical roles with facilities and employers.

### **Facility Credentialing**

To provide care within any hospital setting in the United States, providers must complete a credentialing process.<sup>18</sup> Credentialing is based on established guidelines to ensure an NP has the required education, competencies, and skills to perform the duties they have been hired to perform. The credentialing process is used to determine whether an NP is competent and qualified to practice and holds all NP applicants to the same standard. Health care agencies are required to have medical bylaws that delineate minimum credentialing requirements for the institution, often further defining requirements and privileges for specialty areas.<sup>19</sup> It is used to verify that the NP meets specified requirements and to grant privileges within an organization. The purpose of credentialing is to protect the public, guarantee entry-level competency, reward excellence, and promote professional fulfillment for nurses, employers, patients, and other stakeholders.<sup>20</sup>

Competencies for the specialty are often broad and applicable to a variety of practice settings. Hoyt et al<sup>21</sup> noted confusion and misconceptions regarding ENP's scope of

practice due in part to state boards of nursing composing opinion statements. Additional confusion occurs owing to the lack of routine communication with the specific specialty organizations, such as ENA and AAENP, by ENP employers about their scopes, standards, certification, and competency information that would help to clarify this ongoing issue. To write organizational- and setting-specific job qualifications and define minimum competency levels, health care institutions can use the ENP competencies. For example, the setting-specific job competencies for an NP practicing in an urgent care setting are vastly different from the NP working in an emergency department with trauma designation. Using the ENP competencies as a guide, facilities may delineate representative duties and responsibilities, special skills required to perform the job, and accountabilities as a component of credentialing processes.

Adherence to competency-based credentialing practices is one option to lower risks to employers hiring NPs into emergency care settings. Credentialing based on competencies documents an NP's mastery of those competencies specific to their credentials that will improve the health of populations and the health care system's needs. Hiring and credentialing NPs to work in emergency care settings that have not met these competencies may risk litigation for negligent credentialing practices.

### **Facility Onboarding**

Once credentialed to provide emergency care services, an onboarding program supports long-term success and productivity for the NP.<sup>18</sup> During this process, the ENP competencies can be used to develop organizational-specific orientation plans. Although various methods of onboarding may be used, the adaptability of the ENP competencies offers targeted goals for orientation checklists, mentorship, and/or formal educational programs included in the onboarding process.

### **Focused Professional Practice Evaluation/Ongoing Professional Practice Evaluation**

Through formal education and continuing education, ENPs are prepared and maintain their skills/procedures competencies as they work in the emergency care setting. All new providers within facilities must undergo a Focused Professional Practice Evaluation initially and then an Ongoing Professional Practice Evaluation routinely after the initial



evaluation (most often every 2 years). The basis for credentialing of ENP privileges in each of these evaluations is most appropriate based upon the ENP competencies. The ENP

competencies may serve as a foundation for building additional competencies specific to emergency care settings as NPs advance in their clinical practice.

TABLE 2  
ENP competencies as they relate to leadership<sup>\*†</sup>

NP Competency Area: Leadership			
NP Core Competencies (NONPF, 2017)	Curriculum Content to Support NP Core Competencies <i>Neither required nor comprehensive, this list reflects only suggested content specific to the core competencies (NONPF, 2017)</i>	Emergency NP Competencies	Curriculum Content to Support Emergency NP Competencies <i>Neither required nor comprehensive, this list reflects only suggested content specific to the ENP competencies</i>
1. Assumes complex and advanced leadership roles to initiate and guide change.	Content related to: • Crisis management and leadership • Stress management (for staff and patient/family) • Teams and teamwork, including team leadership, building effective teams, and nurturing team	3.7 Optimizes patient-centered care through interprofessional partnerships and communication	Tools for standardized communication into interactions with other healthcare team members
2. Provides leadership to foster collaboration with multiple stakeholders (e.g., patients, community, integrated health care teams, and policymakers) to improve health care.	Leadership, change, and management theories with application to practice	5.10 Functions as leader, mentor, educator, and/or policy developer to support emergency care	Leadership skills & interprofessional team dynamics within emergency care & across transitions of care
3. Demonstrates leadership that uses critical and reflective thinking.	Political processes, political decision-making processes, and health care advocacy		Impact of participation in professional organizations to: • Influence health policy • Promote access to emergency care • Advocate for the emergency NP role
4. Advocates for improved access, quality and cost-effective health care.	Problem solving		
5. Advances practice through the development and implementation of innovations incorporating principles of change.	Business development		Strategies to function as change agent and champion
6. Communicates practice knowledge effectively, both orally and in writing.	Communications		
7. Participates in professional organizations and activities that influence advanced practice nursing and/or health outcomes of a population focus.	Peer review		
	Leadership styles & development		
	Concepts of strategic planning process		
	How to lead change in practice, manage practice changes		

ENP, emergency nurse practitioner; NP, nurse practitioner.

\* American Association of Emergency Nurse Practitioners (AAENP)<sup>25</sup> and Emergency Nurses Association (ENA) (2021).<sup>10</sup>

† National Organization of Nurse Practitioner Faculties (NONPF) (2022).<sup>15</sup>

## Application of ENP Competencies for Leaders

Malloch<sup>22</sup> noted that ensuring professional integrity and alignment of the profession with the system is important, especially as health care systems continue to adapt to the changing complex environment. Within the ED setting, care is often led by an interdisciplinary team of advanced practice providers and physicians.<sup>23</sup> Also noted, within this team, ENPs are strategically positioned to collaboratively lead quality improvement efforts and improve patient care. These competencies are illustrated in Table 2, which outlines the ENP competencies as they relate to leadership. Institutional and agency leadership must welcome the ENP specialty as a unique health care workforce. Organizations must effectively deploy and fully leverage the unique skills of ENPs recognizing their contributions to the efficiencies of emergency care across the nation. These skills affect patient access to care, and quality indicators improve that lead to increased efficiency, timeliness, and effectiveness of care, all while improving patient outcomes.<sup>24</sup>

Recent years have highlighted potential opportunities for leaders to improve emergency care across the country.<sup>26</sup> The coronavirus disease 2019 pandemic offered ENPs the ability to demonstrate improved quality of care outcomes when allowed to practice to the full scope of education, training, and licensure for specific NP practice.<sup>27</sup> In addition, they noted that, despite these successes, barriers exist despite evidence that limit NPs from practicing to the full scope of their education and training. These limitations are largely caused by federal, state, and organizational policies, insurance, and reimbursement issues that NPs work to overcome. Despite the ongoing evidence demonstrating that NPs improve quality indicators that lead to better care, these barriers still exist.<sup>27,28</sup> In addition to demonstrating the benefits of the ENP specialty role, there is an opportunity to advocate for permanent legislative changes. A study by Mafi et al<sup>29</sup> found that “U.S. NPs/Physician Associates (PAs), vs. NP/PA/physician combinations resulted in similar diagnostic tests, procedures, time per visit, and hospitalizations” (p.6). They also noted that “NPs/PAs may use more services and low-value diagnostic imaging than physicians in managing more complex cases” (p. 8). As a result of these findings, some insight can be gained into current debates among United States policy makers and health system leaders regarding how best to incorporate NPs and PAs into ED care settings. For ENPs to do this, they must find ways to deliver quality, efficient emergency care and rethink their approach to increasing the number of NPs to decrease waiting times and decrease the cost of emergency care.

## Conclusion

ENP specialty competencies describe practice expectations and provide clarification of the role of NPs in emergency settings, contributing to a positive work culture and facilitation of highly effective multidisciplinary emergency care teams.

## Author Disclosures

Conflicts of interest: none to report.

Nancy Denke is associated with The Emergency Nurses Association and the American Association of Emergency Nurse Practitioners.

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# HELMET CONTINUOUS POSITIVE AIRWAY PRESSURE IN THE EMERGENCY DEPARTMENT: A PRACTICAL GUIDE



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## Contribution to Emergency Nursing Practice

- Helmet continuous positive airway pressure is usually performed using a flow of fresh gas (>60 L/min) supplied through a continuous flow generator. Heat and moisture exchanger filters are often used to reduce the noise level inside the helmet and to reduce the viral spread.
- The interactions among filters, flow generators, and positive end-expiratory pressure valves may modify flow and fraction of inspired oxygen delivered. Knowing their effects is essential to guarantee the correct performance of helmet continuous positive airway pressure.
- Correctly assembling the breathing circuit for the helmet continuous positive airway pressure can improve patient comfort and reduce treatment failure. For every nurse, it is fundamental to know each component needed to deliver a continuous positive airway pressure with a helmet.

## Abstract

Helmet continuous positive airway pressure is a simple, noninvasive respiratory support strategy to treat several forms of acute respiratory failure, such as cardiogenic pulmonary edema and pneumonia. Recently, it has been largely used worldwide during the COVID-19 pandemic. Given the increased use of helmet continuous positive airway pressure in the emergency department, we aimed to provide an updated practical guide for nurses and clinicians based on the latest available evidence. We focus our attention on how to set the respiratory circuit. Moreover, we discuss the interactions between flow generators, filters, and positive end-expiratory pressure valves and the consequences regarding the delivered gas flow, fraction of inspired oxygen, positive end-expiratory pressure, and noise level.

**Key words:** Continuous positive airway pressure; Noninvasive ventilation; Respiratory insufficiency; Noise; Flow; Emergency department

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## Background

Continuous positive airway pressure (CPAP) is widely used in the acute care setting for the treatment of hypoxemic respiratory failure due to acute cardiogenic pulmonary edema<sup>1-4</sup> and pneumonia.<sup>5-7</sup> Moreover, in the last 3 years of the COVID-19 outbreak, CPAP played a pivotal role in treating patients with viral pneumonia and respiratory failure.<sup>8,9</sup> To date, in the acute care setting, CPAP is delivered mainly through a helmet or a face mask.<sup>8,10,11</sup> Helmet CPAP (H-CPAP) is broadly used in southern Europe and particularly in Italy, mainly for the treatment of hypoxemic respiratory failure and acute cardiogenic pulmonary edema.<sup>12</sup> Recently, the helmet has also been introduced in emergency departments and wards to support patients with acute respiratory failure.<sup>8,10,11</sup>

The helmet is a soft, nonextensible, transparent hood that fits over the patient's head, usually anchored to a soft, extensible collar around the patient's neck.<sup>13</sup> It is a reusable, single-patient interface equipped with 2 ports: a gas flow inlet and outlet. The hood is often equipped with an anti-asphyxia valve to open the circuit in case of sudden flow drop.<sup>14</sup> This safety system is particularly important for its use outside of the intensive care unit.<sup>14</sup>

Compared to a face mask, the hood reduces the risk of facial pressure lesions and could decrease viral spread in the case of contagious disease.<sup>15,16</sup> In addition, a recent randomized controlled trial demonstrated that in patients presenting to the emergency department with acute cardiogenic pulmonary edema or decompensated chronic obstructive pulmonary disease, H-CPAP was noninferior to face mask CPAP, resulting in greater comfort and lower intubation rates.<sup>17</sup> In contrast, it is characterized by higher noise levels, potentially limiting patients' comfort.<sup>18</sup> Given its relatively new use in these settings, it is useful for emergency nurses and physicians to be aware of H-CPAP functioning, equipment, and management.

Based on the latest scientific evidence, the aim of this article is to describe how to correctly choose the equipment, assemble the H-CPAP circuit, and evaluate its proper functioning.

## How to Perform H-CPAP

### PATIENT MANAGEMENT

Clinical (eg, respiratory rate and pattern) and instrumental (eg, pulse oximetry and blood gas analysis) evaluation of the respiratory function is the first assessment that emergency nurses and physicians perform to define indication for H-CPAP and, subsequently, to monitor the response to CPAP treatment over time.<sup>8,11,19</sup> Moreover, arterial blood pressure should be measured before and after H-CPAP is started. Indeed, the application of positive end-expiratory pressure (PEEP), reducing the venous return, may have a hypotensive effect.<sup>20</sup>

During H-CPAP treatment, nurses and physicians should pay attention to accidental gas flow drops delivered inside the helmet. Flow drops can be caused by circuit obstruction, disconnection, or leaks, and generate helmet depressurization with the risk of patients' rebreathing and asphyxia.<sup>21</sup> The sudden interruption of the noise generated by the gas flowing through the expiratory PEEP valve is a warning signal indicating a sudden depressurization of the helmet.

Compared to face masks, the removal of the helmet requires 2 persons and a slightly longer time. To overcome this limit, in the case of urgent need, the front port of the helmet allows access to the patient and quick interruption of the treatment.

### FUNCTIONING AND EQUIPMENT

To perform H-CPAP, a fresh gas flow is delivered inside the helmet, and a PEEP is generated through an expiratory valve placed at the outlet port.<sup>22</sup> When H-CPAP is delivered, 3 variables have to be set: gas flow rate, fraction of inspired oxygen (FiO<sub>2</sub>) of the gas mixture, and PEEP. Moreover, to improve patients' comfort, further attention should be paid to reduce the noise inside the helmet and to find the most comfortable fixing systems.<sup>23</sup> Thus, the correct choice and use of flow generators, PEEP valves, filters, circuits, and fixing systems are essential to deliver H-CPAP properly and increase patients' tolerance.<sup>24</sup>

#### *Gas Flow and Flow Generators*

For 2 reasons, it is important to use a high gas flow rate to perform H-CPAP. First, it is important to overcome the patient's peak inspiratory flow, thus ensuring a continuous and stable positive airway pressure during the entire respiratory cycle. Second, this prevents carbon dioxide rebreathing,<sup>25</sup> increasing the efficacy of the respiratory support. Indeed, due to its high instrumental dead space, the helmet has a higher risk of carbon dioxide rebreathing than a face mask, and therefore, higher gas flows are required for an adequate carbon dioxide washout.<sup>25</sup> Generally, 60 L/min of flow is considered adequate,<sup>26</sup> but higher flows may be required for patients with severe acute respiratory failure and for high-minute ventilation.<sup>27,28</sup> In the absence of a flow meter for a precise gas flow measurement, the flow delivered can be titrated until the helmet reaches the desired pressurization and no PEEP drop is observed during the patient's inspiration.<sup>29</sup> The presence of pressure swings during the patient's respiratory cycle points toward an insufficient gas flow rate.<sup>30</sup> For this purpose, helmets are often equipped with an integrated spring pressure gauge that allows monitoring of the PEEP inside of it.

Three different types of flow generators can be used to generate gas flow for H-CPAP: air-oxygen blenders, turbines, and Venturi systems.<sup>31</sup> All of these have different performances regarding flow delivery and the noise produced both inside and outside of the helmet, with additional

differences according to the manufacturer.<sup>32</sup> Among these, turbine-driven systems may be preferred because they are associated with the lowest noise level inside the helmet and allow the precise setting of gas flow and FiO<sub>2</sub>. In contrast, it is the most expensive system and needs a power source instead of a simple oxygen port.

#### *Noise and Inlet Port Filter*

The noise inside the helmet is the most frequent cause of patients' intolerance and can lead to treatment failure.<sup>33</sup> Different types of flow generators produce different levels of noise inside the helmet. Air/O<sub>2</sub> blenders are the loudest flow generator, followed by Venturi, whereas turbine-driven systems are the least noisy.

To improve patients' comfort, a heat and moisture exchanger filter (HMEF) is often interposed in clinics along the circuit at the inlet port of the helmet to muffle the noise inside of it.<sup>18,34</sup> When air/O<sub>2</sub> blenders and Venturi systems are used, the application of HMEF significantly reduces the noise level inside the helmet. When a filter is used, attention should be paid to its effect on delivered gas flow and FiO<sub>2</sub>, which may change according to the type of flow generator used. Of note, with air/O<sub>2</sub> blenders, a stable flow and FiO<sub>2</sub> are guaranteed after HMEF application. On the contrary, when Venturi systems are used, together with the noise reduction, the application of a filter generates a significant drop in the gas flow delivered and slightly increases the FiO<sub>2</sub> as a consequence of the gas mixture variation.<sup>32</sup> Thus, attention should be paid to guarantee an adequate gas flow and the preset FiO<sub>2</sub>, which should be checked by connecting an oximeter along the circuit.<sup>18</sup> Compared to air/O<sub>2</sub> blender and Venturi systems, turbine-driven systems do not require filter application because without it they are also the least noisy, thus being the most comfortable system for the patient.<sup>32</sup>

#### *PEEP and PEEP Valves*

Several types of PEEP valves are commercially available: water-sealed valves, precalibrated fixed PEEP valves, and adjustable PEEP valves. Among these, adjustable valves have shown a variable degree of flow dependency, potentially leading to a higher-than-expected PEEP.<sup>22</sup> On the contrary, fixed PEEP valves have a flow-independent behavior even at the highest tested gas flows, thus being reliable and safe and therefore preferable. Adjustable PEEP valves can be used when a filter is placed in the outlet port. Indeed, the filter increases the PEEP inside the helmet, and adjustable valves allow better PEEP regulation.

Regardless of the chosen valve, close monitoring of the pressure inside the helmet is mandatory.<sup>22,30</sup>

#### *Viral Spread and Outlet Port Filter*

The application of a filter at the outlet port before the PEEP valve is recommended in the case of contagious diseases, because it can reduce environmental viral spread (Figure). However, electrostatic or HMEF filters placed at the outlet port increase the flow resistance, thus generating a pressure inside the helmet higher than the selected PEEP. Therefore, monitoring the pressure inside the helmet is again fundamental, and it may be necessary to adjust the PEEP valve to reach the target pressure.<sup>30,35</sup>

#### *Fixing the System*

Both standard armpit straps and counterweights can be used to fix the helmet to the patient. The armpit straps are quick and easy to use but can cause pain and pressure ulcers if used for a long time, whereas the counterweights guarantee better comfort and are usually better tolerated. Therefore, we suggest using standard armpit straps when the H-CPAP is started in an emergency setting, and then applying counterweights as soon as possible to improve patients' comfort.<sup>23</sup>

### **Implications for Emergency Nurses**

The emergency nurse must choose an appropriate interface that provides adequate patient comfort, which often determines the success of CPAP. In addition to equipment and staff experience, the choice of interface is determined by facial anatomy, breathing pattern, and patient preference. Moreover, increasing knowledge can help to increase the comfort of patients treated with H-CPAP and improve their long-term treatment compliance.

### **Conclusion**

To perform H-CPAP properly, an adequate flow and a preset FiO<sub>2</sub> and PEEP should be guaranteed. Filters are useful to reduce the noise inside the helmet and should be used to improve patient comfort. In the case of known or suspected contagious diseases, filters can be applied to the outlet port to reduce viral/bacterial spread. When managing patients with H-CPAP, clinicians and emergency nurses should be aware of the interactions between the circuit components,

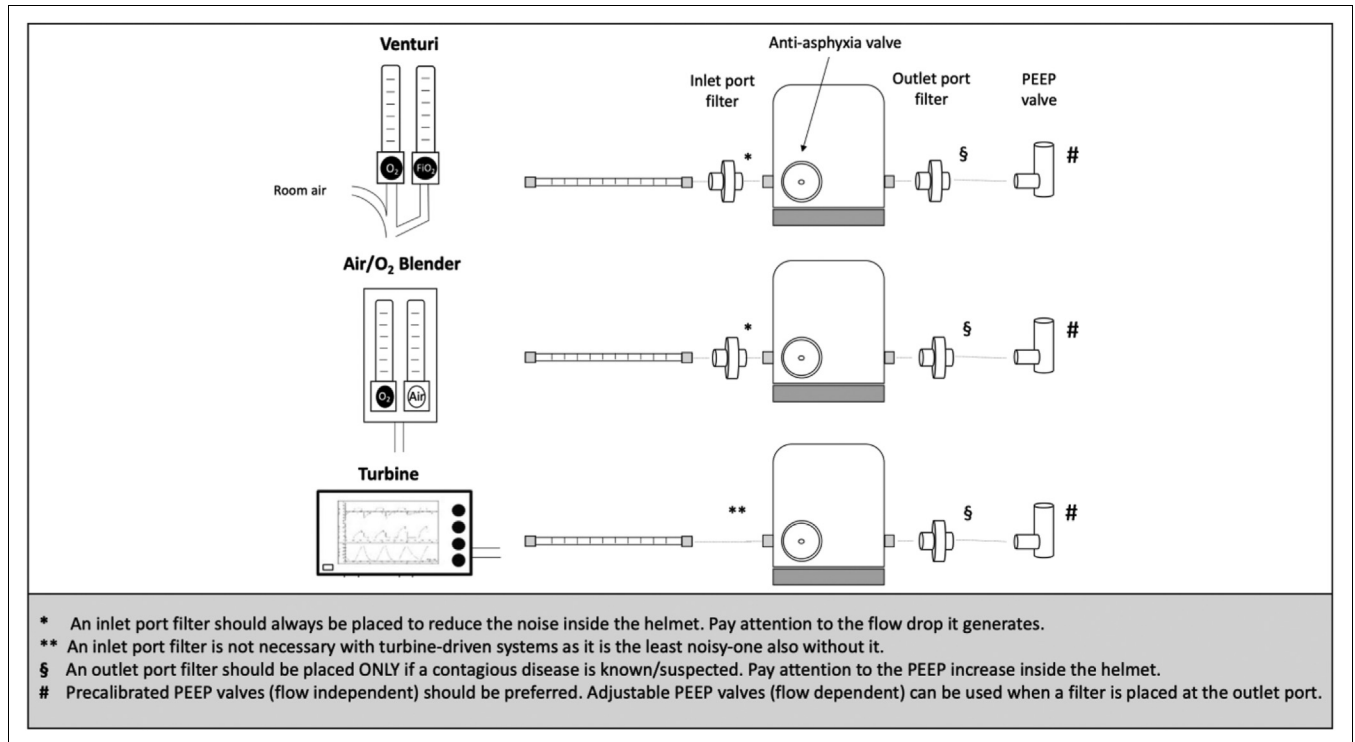


FIGURE  
Assembling the H-CPAP breathing circuit. H-CPAP, Helmet continuous positive airway pressure; PEEP, positive end-expiratory pressure.

because they can reduce the flow and increase FiO<sub>2</sub> and PEEP.

**Author Disclosures**

Conflicts of interest: none to report.

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# THE PATH TOWARD FELLOW DESIGNATION IN THE ACADEMY OF EMERGENCY NURSING: UNDERSTANDING AND NAVIGATING THE PROCESS TO ENSURE YOUR SUCCESS



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## Abstract

The Academy of Emergency Nursing was established to honor emergency nurses who have made enduring and substantial contributions that have had significant impact and continue to advance the emergency nursing specialty. Nurses who have been recognized as having made enduring and substantial contributions to emergency nursing achieve fellow status in the Academy of Emergency Nursing and are conferred the credential, Fellow of the Academy of Emergency Nursing. Academy of Emergency Nursing Board Members want to dismantle any structural barriers, clarify any misunderstandings or mysteries, and support diverse candidates by providing clear and equitable

resources about the path toward fellow designation and the application process. Therefore, the purpose of this article is to support interested persons in their path toward Academy of Emergency Nursing fellow designation and give explicit details of each section of the application to develop a shared understanding among potential applicants, sponsors, and Fellows of the Academy of Emergency Nursing.

**Key words:** Academy; Fellowship; Emergency nursing; Fellow of the Academy of Emergency Nursing; Shared mental model

## Background

The Academy of Emergency Nursing (AEN) was established on September 28, 2004, to honor emergency nurses who have made enduring and substantial contributions that

have had significant impact and continue to advance the emergency nursing specialty.<sup>1</sup> In addition, AEN provides visionary leadership to the Emergency Nurses Association (ENA).<sup>2</sup> The mission of AEN is to recognize and promote significant and sustained excellence in emergency nursing

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in collaboration with ENA.<sup>2</sup> The vision of AEN is a dynamic, collaborative partnership fostering excellence, advocacy, and research in emergency nursing and promoting the development of nursing leaders.<sup>2</sup> Nurses who have been recognized as having made enduring and substantial contributions to emergency nursing achieve fellow status in the AEN<sup>1</sup> and are conferred the credential, Fellow of the Academy of Emergency Nursing (FAEN).

For some professionals, an ultimate career accomplishment is to achieve fellow designation in their profession and/or specialty.<sup>3</sup> The designation of “fellow” should not be confused with the concept of a “fellowship program” or “fellowships.” Fellowships are time-limited learning experiences in areas such as clinical practice, research, or teaching, yet to further add to the confusion, the participants in these learning experiences are referred to as “fellows.”<sup>3</sup> The path toward fellowship can be confusing or mysterious. AEN Board Members want to dismantle any structural barriers, clarify any misunderstandings or mysteries, and support diverse candidates by providing clear and equitable resources about the path toward fellow designation and the application process. Rossiter et al<sup>4</sup> proposed a process for fellow designation in the American Association of Nurse Practitioners that was helpful and serves as a blueprint for this article. The purpose of this article is to support interested persons in their path toward AEN fellow designation and give explicit details of each section of the application to develop a shared understanding among potential applicants, sponsors, and FAENs. This article does not provide all the technical details of the application—the applicant and the sponsors should refer to the most recent version of the AEN Application Manual<sup>5</sup> that can be found on the ENA website for the latest information.

## AEN Guidelines

The AEN is governed by publicly accessible guidelines and policies that detail the composition, activities, roles, and responsibilities of the academy and the AEN Board of Directors.<sup>2,6</sup> There are 4 categories of AEN fellows: fellows, honorary fellows, emeritus/emerita fellows, and posthumous fellows.<sup>2</sup> This article will focus on the fellow category. For more information about the honorary and posthumous fellow categories, please visit the AEN website.<sup>1</sup>

## The AEN Shared Mental Model for Fellowship

In preparation for the 2021 AEN fellowship application cycle, the AEN Board of Directors released the shared mental model for fellowship<sup>5</sup> to clearly articulate the criteria for successful applications. The concept of a shared mental model

TABLE 1  
Shared mental model

Influence	The applicant influences emergency nursing at local/state, regional, national, and/or international levels
Enduring and substantial contributions to the emergency nursing specialty	Enduring and substantial contributions that advance emergency nursing exhibit the following qualities: <ul style="list-style-type: none"> <li>✓ Broad influence</li> <li>✓ Impact that is wide reaching and clearly articulated</li> <li>✓ Exhibits outstanding leadership</li> <li>✓ Leaves a legacy</li> <li>✓ Beyond ENA roles and responsibilities*</li> </ul>
Sustained contributions to emergency nursing and AEN	The plan for sustained contributions to emergency nursing and AEN should be articulated by: <ul style="list-style-type: none"> <li>✓ Describing a current or future issue that is confronting emergency nursing</li> <li>✓ Describing how building on sustained contributions will address the identified issue</li> </ul>

AEN, Academy of Emergency Nursing; ENA, Emergency Nurses Association. Academy of Emergency Nursing. (2022, May). AEN Fellowship Application Manual. p.4 [https://www.ena.org/docs/default-source/about-us/academy-of-emergency-nursing/fellowship-application-resources/aen-fellowship-application-manual.pdf?sfvrsn=f29a482\\_14](https://www.ena.org/docs/default-source/about-us/academy-of-emergency-nursing/fellowship-application-resources/aen-fellowship-application-manual.pdf?sfvrsn=f29a482_14).

\* “Beyond ENA roles and responsibilities” means that activities associated with ENA should meet the other qualities listed above for enduring and substantial contributions. Being in an elected, appointed, or ENA-associated position or contributing to ENA to advance the association’s mission, vision, and values at the chapter, state, national, or international levels in and of themselves does not qualify a person for induction.

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is to create a shared understanding of a concept or phenomenon so that knowledge, beliefs, presuppositions, or biases are made public for potential applicants, applicants, sponsors, FAENs, and the AEN Board of Directors. Shared mental models improve team communication, coordination, reasoning, and decision making.<sup>7,8</sup>

For example, if you were to visualize in your mind the concept of “chair,” each 1 of us will have a different chair in mind. Some chairs will be 4 legged whereas others are 3 legged. Some will have a high back whereas others may have a low back. Some will have arm rests whereas others will not. However, if someone were to say, “think of a chair

that is pink and fuzzy,” there is a likelihood that our shared understanding of a chair is going to be much more similar. Although there will be variations of the color pink and how fuzzy the chair actually is, our shared understanding of “pink, fuzzy chair” will be much closer than the concept of just the word “chair.” Therefore, the AEN Shared Mental Model described below is intended to create a shared understanding among all stakeholders about what is being sought in the AEN application. An overview of the Shared Mental Model for AEN applications is presented in [Table 1](#).<sup>5</sup>

The concept of “influence” is defined as the way that the applicant influences emergency nursing at the local/state, regional, national, and/or international level. When describing influence of the applicant, being clear about the spheres of influence as defined below is important to convey to the reviewers.

The concept of “enduring and substantial contributions to the emergency nursing specialty” has multiple subconcepts: broad influence, impact that is wide reaching and clearly articulated, exhibits outstanding leadership, leaves a legacy, and is beyond ENA roles and responsibilities. Perhaps thinking about the question words of “who,” “what,” “where,” and “how” may help further explicate the subconcepts. One very important note about the subconcepts listed here is that the application should read in a narrative style, meaning that the subconcepts should not be separated out into sections and then described under headings. These subconcepts are often intertwined; therefore, a narrative approach to describing the enduring and substantial contributions will help the AEN reviewers appreciate the applicant’s work.

The term “broad influence” is defined as who and what has been affected by, benefited from, and/or changed by the enduring and substantive contributions. Strong applications will be able to articulate a large, wide, and/or varied influence that advances the emergency nursing specialty. Broad influence can affect emergency nurses or emergency nursing or be interdisciplinary in the advancement of or make a difference in populations or communities.

The subconcept of “impact that is wide reaching and clearly articulated” has 2 parts. First, the impact has to be wide reaching. This can be defined as going beyond one’s usual sphere of influence or local colleagues/institutions and expanding into different and potentially novel areas that have not been previously considered. Wide reaching also means that the enduring and substantial contribution has scaled up, has spread beyond, and has had an impact beyond the direct involvement of the applicant. Imagine the contributions being a pebble that is dropped into a

still pond. The ripples expand outward and continue to reach new frontiers. The second part of clearly articulated means that the impact and/or outcomes can be directly traced back to the enduring and substantial contributions of the applicant. The clear articulation should also describe how the impact has clarified, improved, and advanced emergency nursing. The applicant and sponsors should magnify and clearly articulate the link in the application. For example:

- If the applicant is describing original research as their enduring and substantial contribution, the applicant might describe examples of how their research has been translated into practice. This might also include the number of times their research has been subsequently cited in other publications. Special note: unless an applicant’s contributions are in the pillar of research, there is no requirement for an applicant to publish as a condition of becoming an FAEN.
- If the applicant’s contributions are in the area of public policy, the applicant might articulate the new legislation or regulation that was enacted as a result of their leadership in the initiative, along with the impact the law or legislation had in the desired/affected population.

When describing the impact, if using future tense, it may be possible for the applicant to describe how the future of emergency nursing has, could, or will be changed.

Leadership is required in order for enduring and substantial contributions to be made within the specialty of emergency nursing. The subconcept of “exhibits outstanding leadership” refers to how the applicant overcame challenges, served as a visionary leader, motivated others, provided direction, demonstrated collaboration, created positivity in teams, and/or used leadership styles to achieve the enduring and substantial contributions. Using the words “helped” or “assisted” does not describe and demonstrate leadership roles. Clear descriptions of outstanding leadership should be included in the applicant’s narrative and amplified in the sponsors’ letters.

“Leaving a legacy” means that the applicant’s work endures beyond the applicant, which could mean that there is a time element but is not required. Some enduring and substantial contributions have been made over time whereas others have been created recently but the broad influence and impact are so significant that the legacy will endure. In either case, the enduring and substantial contribution should have a legacy that will exist into the future. The

applicant and sponsors should clearly articulate how emergency nursing has changed and how that change will exist in the future possibly supporting future generations of emergency nurses.

The AEN was created to honor nurses who have made enduring and substantial contributions to the emergency nursing specialty.<sup>1</sup> The intent of the 2004 ENA Board of Directors was that this honorific recognition was not to be conferred to those nurses who contributed significantly to ENA. Activities that are part of the usual role functions of ENA volunteers to support, advance, or expand the association, state councils, or chapters are valued activities to ensure a strong association. There are many other awards that were created to celebrate the contributions to further the association, such as, but not limited to, the Judith Kelleher Award, the Behind the Scenes Award, the Clinical Nurse Specialist Award, the Frank L. Cole Nurse Practitioner Award, the Gail Lenehan Advocacy Award, the Media Award, and the Rising Star Award. Therefore, the last subconcept of “beyond ENA roles and responsibilities” is to clarify that the FAEN designation is for the emergency nursing specialty and not for ENA contributions. There must be a clarification made that the work of ENA is to also advance emergency nursing. Perhaps said a different way, service to ENA by participating, leading, or serving on an ENA board, committee, work group, state council, or ENA chapter is not sufficient or required for a successful application to AEN. However, if there are work products of the ENA board, work group, state council, or chapter that meet the enduring and substantial contributions, then those contributions would be considered for evaluation by the AEN Fellow Selection Committee. For example, the Trauma Nursing Core Course (TNCC) and the Emergency Nursing Pediatric Course (ENPC) are educational programs of ENA. ENA does convene experts in trauma and pediatric nursing, respectively, to work on revisions of TNCC and ENPC. The applicant should emphasize their contributions to TNCC or ENPC as part of their pillar or content area of expertise rather than focusing the application on the fact that they participated in an ENA board, committee, work group, state council, or chapter. Explanations of a “pillar” and “content area” are in the next section.

Having a detailed narrative description that incorporates these subconcepts written in the applicant’s responses to the answers and sponsors amplifying the enduring and substantial contributions will give the reviewers a strong sense of the applicant and will help in determining whether the application meets the criteria for acceptance into AEN.

## Beginning the Journey Toward Fellowship

Being inducted into the academy represents a significant professional recognition and is not associated with someone who has yet to establish enduring and substantial contributions to the emergency nursing specialty. For most, the journey of fellowship takes many years to achieve. Some applicants may have built a body of work that has made enduring and substantial contributions without preplanning and then come to the realization that they may be ready to apply. The decision to apply is both personal and professional. Building a program of research, practice expertise, education, leadership, or policy—what the academy has termed the 5 “pillars”—that will make enduring and substantial contributions to the specialty of emergency nursing takes the resources of time, energy, perseverance, and passion. In addition to the pillars, successful applicants commonly specialize in a particular content area of emergency nursing. Examples of content areas include, but are not limited to, productivity metrics in emergency nursing operations, disaster care, triage, health equity advancements, transgender health, pediatric care, trauma, forensic care, or advanced practice in emergency care. The journey is different for each emergency nurse and often requires support from family, friends, colleagues, and mentors. AEN recommends future applicants find a strong mentor who is an expert in their pillar early to help guide, support, and build their program of research, education, leadership, policy, or practice expertise. This mentor may or may not be an AEN fellow.

### SELF-ASSESSMENT

In 2020, AEN created the AEN Fellowship Application Manual (the manual) to help applicants and sponsors understand the criteria of the application process and give detailed instructions.<sup>5</sup> Subsequent collateral has been created to both amplify and clarify the application process in diverse formats including podcasts,<sup>9,10</sup> presentations, and case studies.<sup>11,12</sup> The manual is updated when needed and thus serves as the source of truth with respect to the application process. The manual has a self-assessment readiness checklist designed to help the applicant and sponsors engage in a dialogue in pursuing fellowship and also understand the components of the application when the applicant is ready to submit their application. The self-assessment requires an honest, objective, and realistic evaluation of the applicant’s body of work to determine whether the applicant has made enduring and substantial contributions to the emergency nursing specialty.<sup>5</sup> The self-assessment may lead to a crucial conversation with the sponsor around readiness.

The applicant and sponsors also need to evaluate if they can put the time and effort into the application process. It takes months to create a compelling and cohesive application that has a higher likelihood of acceptance. The information about AEN and the application are available year-round so an applicant and sponsors can start the process well in advance of the open period for applications.

As an applicant is reviewing their portfolio of work, the AEN encourages the applicant to consider the full spectrum of contributions that were made during paid and volunteer work. There is no requirement that the enduring and substantial contributions were made outside of paid work time. Please review the Shared Mental Model in the manual, with specific attention to being “Beyond ENA Roles & Responsibilities,” for additional information specifically regarding ENA volunteer work.<sup>5</sup>

The applicant must be a voting-eligible member of ENA and have been a voting-eligible ENA member continuously for 3 calendar years before the time of the FAEN application.<sup>1</sup>

#### FINDING A SPONSOR

The path to fellow designation starts with finding a primary sponsor, although a total of 2 sponsors are required. Primary sponsors must be an active FAEN whereas the secondary sponsor must be an ENA member who could also be an FAEN, although fellowship is not required for the second sponsor. Sponsor names and identifiers are blinded in the review processes to minimize implicit bias of the reviewers, so there is no particular advantage to finding 2 FAEN sponsors. In addition, applicants do not need to find an FAEN sponsor from their own geographic area. The most important considerations in seeking sponsors are that the sponsor must (1) be able to honestly review the self-assessment for readiness to apply; (2) identify specific strategies or create a plan in developing the applicant’s areas to improve for maximal success, if needed; (3) deeply understand the enduring and substantial contributions; and (4) compellingly articulate and amplify the applicant’s work in the letter of recommendation (more about this later in the article).

Potential applicants frequently ask how to find sponsors. There are many ways to find sponsors. As mentioned earlier, AEN recognizes 5 pillars (research, practice expertise, education, leadership, or policy) in which enduring and substantial contributions are made by FAENs. Some applicants identify FAEN and sponsors who are an expert in 1 of those 5 pillars and develop a professional relationship through networking events such as attending conferences or meetings or working on projects such as a research study or

an educational initiative. For instance, there is an applicant who states their enduring and substantial contributions are in the pillar of practice by authoring and editing emergency nursing textbooks and is the Triage Section Editor in the *Journal of Emergency Nursing*. The sponsor could be an expert in practice by developing and implementing tools for triage. Although the applicant and sponsor have different enduring and substantial contributions (ie, publishing clinical references and developing/implementing triage tools), they are both in the practice expertise pillar and can appreciate the impact and magnitude of the contributions.

Other applicants identify FAEN sponsors through a specific content area even when the work is not in the same pillar. One example could be that an applicant who conducts research on emergency nursing palliative care may identify the FAEN sponsor who is an expert in education in emergency nursing palliative care. The applicant whose pillar is research should be aware of the educational work of the FAEN sponsor in emergency nursing palliative care. Thus, by developing a professional mentoring relationship, the educator FAEN sponsor whose pillar is education could write a support letter amplifying the value of the research and how it can be translated into practice for better outcomes, better compliance, or other ways the work has had an enduring and substantial contribution to the emergency nursing specialty. In this example, the FAEN sponsor who focuses on the education pillar can certainly understand the enduring and substantial contributions of the researcher because both are in the content area of emergency nursing palliative care.

It is ultimately an applicant’s responsibility to locate an FAEN as their sponsor. Current FAENs have knowledge of other fellows’ accomplishments and can serve as a resource in connecting a potential applicant’s expertise with a fellow aligned with their expertise pillar and/or content area. FAENs can be reached through ENA’s online community, ENA Connect, the Directory of Fellows on the AEN website, and other professional networking sites.

The AEN Application Manual and AEN’s Policies have details of sponsors’ responsibilities and recommendations for writing letters of recommendation.<sup>2,6</sup> Applicants and sponsors should review the most recent version of the AEN Application Manual on the ENA website.<sup>5</sup>

#### PREAPPLICATION PREPARATION AND POTENTIAL TIMELINE

Preparing for application to the AEN can take 1 or more years. Developing a portfolio of work that is cohesive and has made enduring and substantial contributions to the

specialty of emergency nursing takes time. The preapplication phase includes conducting a self-assessment, securing the 2 sponsors, and creating the narrative that strongly conveys to the fellow selection committee the information required in the application. The timeline may be extended if a sponsor or applicant determines a plan of action is required to create a strong, cohesive, and compelling application.

#### APPLICANT—SPONSOR DISCUSSIONS

The applicant and primary sponsor should engage in honest conversations about the applicant's readiness for applying. Discussions between the applicant and primary sponsor should focus on the cohesiveness and activities found in the curriculum vitae (CV) that illustrate the enduring and substantial contributions in the pillar or content area. Sponsors are responsible for performing due diligence in assessing the applicant's readiness to apply. The applicant and sponsor should be able to evaluate the contributions to the advancement of emergency nursing through the appropriate pillar and content area, coherently synthesize those contributions, and amplify the outcomes and impact of the enduring and substantial contributions. If honest, supportive, and open discussions are not held between the applicant and sponsor, the applicant could be at risk of having an underdeveloped portfolio of enduring and substantial contributions and therefore an unsuccessful application submitted to AEN.

#### The AEN Application

The AEN application consists of 3 components: applicant questions and responses, sponsor letters, and the CV. The fellow selection committee considers all 3 components as a comprehensive whole when evaluating the application. Therefore, AEN strongly recommends that the applicants and sponsors do not repeat information that can be found in the CV but rather focus on explicating and amplifying the information to help the reviewers understand the impact and outcomes of the enduring and substantial contributions.

#### APPLICANT QUESTIONS AND RESPONSES

This component of the application has 3 sections: (1) a summary statement, (2) describing the enduring and substantial contributions that advance the emergency nursing specialty, and (3) potential for sustained contributions to the emer-

gency nursing specialty and AEN. The AEN reviewers only review information provided in the application, which includes the CV; any information not listed in the application is not considered in the review.

The summary statement is a short paragraph that articulates the applicant's pillar and potentially the content area. The summary statement is intended to help the reviewers understand the focus of the application. Clearly and succinctly describing the enduring and substantial contributions will serve as a guide to the reviewers in reviewing the application. This statement is not scored; however, the application will be scored for overall cohesiveness, typographical errors, poor grammar, or other errors.

The description of the enduring and substantial contributions that advance the emergency nursing specialty is the largest portion of the application and represents the section of the application that is weighted the most heavily. As mentioned earlier, this section should be written in a narrative style and clearly incorporate the subconcepts of the Shared Mental Model for fellowship clarified earlier. Applicants are encouraged to focus on describing 1 or 2 contributions in depth and not restate a comprehensive list of activities/accomplishments; the comprehensive list should already exist in the CV, which is reviewed and considered part of the application itself.

The section on potential for sustained contributions to the emergency nursing specialty and AEN has 2 parts. First, it asks the applicant to identify a current or future issue that is confronting emergency nursing. This issue should be connected to and a logical extension of the enduring and substantial contributions. This is an opportunity for the applicant to explain and detail the current or future issue given the applicant is likely an expert in their pillar and content area. The second part asks the applicant to describe how building on the applicant's enduring and sustained contributions will address the identified issue. The applicant can be creative, innovative, and futuristic, or the applicant can be concrete and prescriptive. The AEN reviewers look for cohesion, innovation, and direction in the answer.

#### SPONSOR LETTERS

Sponsor qualifications have been described earlier. The purpose of the sponsor letters is to amplify the application without repeating examples and content already provided by the candidate in their application narrative and CV. "Amplifying" means providing a more detailed analysis and expanding details of the applicant's response to give more context and explanation of the magnitude and meaning of the impact or outcomes of the enduring and



TABLE 2

**Themes of unsuccessful AEN fellowship applications**

## Enduring and substantial contributions section

- Application was philosophical and not focused on actual contributions that had a wide-reaching impact.
- Applicant provided list of multiple different contributions rather than doing a “deep dive” in 1 or 2 areas to tell a story of the significant and enduring contributions.
- Both applicant responses and support letter spent time stating multiple different initiatives rather than telling 1 story and seeing it through.
- Used verbs such as “help” or “participated” that do not substantiate leadership.
- The described contributions lacked specific evidence of outcomes (ie, impact) and sustainability (ie, legacy).
- Essay responses did not clearly address each of the criterion when describing significant and enduring contributions.
- Broad influence was limited both in terms of the size of the impact and the variety of dissemination forums.
- For applicants with research pillar contributions, the impact was not articulated by either:
  - describing how the research has been translated into practice
  - quantifying and/or qualifying how the work has been subsequently referenced in other publications
- No leadership demonstration
  - Leadership role in the contributions was not described.
  - Only evidence of hard work on delegated tasks is listed.
- Enduring and substantial contributions were limited.
- Lacked clarity, specificity, and clear articulation. Unclear what the enduring and substantial contributions and impact/outcomes of the contributions were.
- Compelling articulation of independent leadership or advocacy contribution is not evident.
- Clear articulation of impact and relevance to emergency nursing specialty is not well described.
- No clear articulation of enduring and substantial contributions beyond ENA-related duties.
- ENA contributions were not “above and beyond” and therefore should be left to the CV to save space for other contributions.
- Responses did not answer the question being asked.

## Sustained contributions to emergency nursing and AEN section

- No real plan or vision described.
- No plan articulated for sustained contributions.
- Plan for sustainment not clearly linked to description of contributions.
- The future contributions section did not clearly answer the question.

## Sponsor letters

- Sponsor letter repeated the answers written in the applicant’s section or just listed activities found in the CV.
- Sponsor letters did not “amplify” the evidence of the applicant’s body of work or facilitate illustration of the applicant’s accomplishments and impact according to the subconcepts of the Shared Mental Model. Amplify means providing a more detailed analysis and expanding details of the applicant’s response to give greater context and explanation of the magnitude and meaning of the impact or outcomes of the enduring and substantial contributions.

## CV

- Required CV format was not followed.
- The CV was not consistent or cohesive with the responses to the application questions and sponsor letters.

AEN, Academy of Emergency Nursing; CV, curriculum vitae; ENA, Emergency Nurses Association.

substantial contributions. More information can be found in the most recent version of the AEN Application Manual.

## CV

The CV is provided as a way to give details of the enduring and substantial contributions and enhances the overall application. There are CV guidelines that are clearly articulated in the AEN Application Manual. The AEN reviewers look to the CV for supporting documentation of the enduring and substantial contributions; therefore, it is essential that the applicant reviews and follows the AEN CV formatting guidelines to concisely provide details that highlight and enhance the enduring and substantial contributions.

## Application Review Process

Before the end date of the open application period for submissions, the AEN Board Members, ENA Board Liaison, and ENA staff participate in an implicit bias training and review previous applications as a group to establish inter-rater reliability.<sup>6</sup> Once the application submission period ends, the ENA staff reviews the application for completeness and meeting all eligibility requirements. The ENA staff also redacts the identifying information of the sponsors. A list of the applicants is generated and sent to the AEN Board to identify any actual or perceived conflicts of interest. Once a conflict of interest by an AEN Board Member is identified, they are recused from the review of that applicant.<sup>6</sup> Assignments for review and the applications are sent to the AEN Board Members for review. Once the reviews are completed, the AEN Board, ENA Board Liaison, and ENA staff meet to review and make final decisions on the applications. The final slate of successful applications is sent to the ENA Board of Directors for ratification. All applicants are notified by the AEN Chairperson regarding the final decision.

## UNSUCCESSFUL APPLICATIONS

A list of common themes among unsuccessful applications is presented in [Table 2](#). Beginning in 2022, feedback regarding unsuccessful applications has been provided in the collegial interest of mentorship, professionalism, and promoting a shared understanding of the Academy's Shared Mental Model of Fellowship. The AEN Board, which also serves as the AEN Fellow Selection Committee, identifies areas of improvement, in alignment with the Shared Mental Model, where the qualities/criteria were not clearly articulated in the application. Applicants receiving this feedback

are encouraged to share it with their sponsors and also use it to make improvements before considering any resubmission in a future application cycle.

## Conclusion

AEN encourages applicants from all aspects of diversity to understand the application process and consider applying. This article reviews important information and explicates the AEN Shared Mental Model for fellowship and other parts of the application to maximize success for applicants and sponsors. FAEN selection is an honor and privilege recognizing emergency nurses through their past and potentially future enduring and substantial contributions in an emergency nursing content area and the pillars of research, practice expertise, education, leadership, or policy. Planning for an AEN application takes time, effort, and mentorship. Starting the discussions early and working together to create a cohesive and compelling application are essential for success in the application process. FAENs are change agents who make an enduring and substantial impact on patients, populations, and communities. We hope to welcome you into the AEN someday!

## Author Disclosures

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# THE GENDER-DIVERSE AND TRANSGENDER PATIENT: A SPECIAL POPULATION IN TRAUMA CARE



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## Introduction

Injury affects all populations regardless of age, ethnicity, or gender. Examples of special populations in trauma include the pediatric patient, older adult patient, and the pregnant patient. Although the lifesaving priorities and overall approach are the same for these populations, as it is for all trauma patients, additional considerations must be taken based on the specific population to ensure safe care and optimal outcomes. Patients who are transgender and gender diverse (TGD) are a special population of trauma patients who require consideration of specific needs when injured.

Gender diverse is a term used to describe people whose gender identities and expressions differ from cultural and social expectations associated with their sex assigned at birth. Examples include people who identify as nonbinary, gender nonconforming, or gender expansive.<sup>1</sup> Transgender (or trans) refers to people whose gender identities and expressions are not expected for their sex assigned at birth.

TGD patients often avoid health care encounters due to fear of discrimination and previous negative health care encounters.<sup>2</sup> Other barriers to health care include financial barriers, limited access to health care, and lack of knowledge and experience by health care team members on gender-diverse care.<sup>3</sup> One study showed that 50% of transgender individuals reported having to educate their own health care providers about gender-diverse care.<sup>2</sup>

Gender-related medical misattribution and invasive questioning, also known as the “trans broken arm syn-

drome,” is a term that describes provider misperceptions as to the cause of a transgender patient’s health problem.<sup>4</sup>

Gender-related medical misattribution and invasive questioning can take on 2 forms. Causal misattribution aspect is when the patient’s gender identity or medical affirmation is incorrectly presumed to be the cause of a medical complaint.<sup>4</sup> The invasive questioning aspect refers to questions about a patient’s gender identity or medical affirmation that are invasive or not necessary in making a medical diagnosis based on the patient’s chief complaint.<sup>4</sup>

Effective communication is foundational in providing safe, quality care to the TGD patient. Effective approaches include asking the patient their name and pronouns and providing as much privacy as possible. Addressing the patient by their chosen name and pronouns establishes a sense of trust, care, and respect. One cohort study showed that collecting and using chosen name and pronouns reduced depressive symptoms, suicidal ideation, and suicidal behavior among transgender youth.<sup>5</sup>

## Transgender Population

Approximately 7.1% of the United States population identify as lesbian, gay, bisexual, transgender, questioning, intersex, or asexual.<sup>6</sup> Of that population, 1.6 million people at the age of 13 years and older identify as transgender,<sup>7</sup> and this number continues to grow. A recent survey found that 1.8% of United States high school students identified as transgender, and 10% of high school students identify as gender diverse.<sup>8</sup> The most common cause of traumatic injury within the TGD population is violence, and TGD individuals are more likely to be victims of assaults, intimate partner violence, and suicide. More than 60% of the transgender population have been subjected to assault.<sup>9</sup> The TGD population is also among the highest at risk of suicide.<sup>10</sup> Recent data show that 82% of transgender individuals have considered suicide, whereas 40% have attempted suicide.<sup>10</sup> This can have an impact on trauma care depending on the mechanism of the suicide attempt.

In the next section, considerations for the TGD trauma patient will be discussed, with a goal to improve patient

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outcomes and patient experience. An approach using the Trauma Nursing Core Course primary and secondary surveys<sup>11</sup> will be used.

### Considerations Related to Trauma Care

As with any injured patient, the priorities of resuscitation and trauma-related care are no different in the TGD patient. The prioritizations of external hemorrhage control, airway, breathing, circulation, disability, exposure, and environmental control do not change. However, there are aspects of gender-affirming care that must be considered including gender-affirming surgeries and gender-affirming hormone replacement. Interpretation and understanding of these factors may influence patient outcomes.<sup>12</sup>

### Considerations for the Initial Assessment

#### PRIMARY SURVEY

##### *Airway and Breathing*

Patients who are assigned female at birth (AFAB)<sup>1</sup> are more likely to develop tracheal stenosis than patients who are assigned male at birth.<sup>1</sup> This is caused by having a narrower tracheal lumen and estrogen receptors that can increase the risk of fibrotic scarring to the trachea, leading to tracheal stenosis.<sup>13</sup> This can make intubation difficult in the transgender man. A smaller endotracheal tube may need to be used to prevent tracheal damage.<sup>13</sup>

Another airway consideration is the transgender woman who has undergone a chondrolaryngoplasty procedure, or “tracheal shave,” to reduce the amount of thyroid cartilage (or “Adam’s apple”) in the neck. Complications related to this procedure include odynophagia (painful swallowing), hoarseness, and laryngospasm.<sup>14</sup> Gender-affirming hormone therapy (GAHT) can also have an effect on the patient’s airway and breathing. Testosterone has been shown to cause sleep apnea in transgender men.<sup>15</sup>

##### *Circulation*

Considerations for circulation in transgender patients are largely related to GAHT. Both estrogen and testosterone can cause increased blood clotting. However, studies show that transgender women are more at risk of complications such as venous thromboembolism, pulmonary embolus, myocardial infarction, or ischemic stroke.<sup>16</sup>

If the TGD trauma patient needs type-specific blood products, it is important to get an accurate history of whether or not the patient still has their reproductive organs. If the patient was AFAB and is in their childbearing years, O-negative blood would be indicated if the pregnancy status was unknown. Nurses should provide as much privacy for patients when asking about reproductive organs and pregnancy status, which may be challenging especially in a trauma resuscitation room with several people present. The use of O-negative blood products within a massive transfusion protocol should not be a concern given that uncross matched O-negative blood products would most likely be used. In less emergent situations when time is not as critical a factor, type-specific blood products should be used.

##### *Disability*

As with circulation, TGD patients undergoing GAHT, especially transgender women, are at risk of thromboembolic events such as ischemic stroke.<sup>16</sup> Acquiring pertinent health information from a patient who arrives unconscious or semi-conscious can present a challenge. Important information such as the patient’s name and pronouns can be difficult to obtain, as well as knowing whether or not the patient still has their reproductive organs. Past medical records may be helpful. Use caution when asking family for this information. It is important to protect the privacy of the TGD patient.

##### *Exposure and Environmental Control*

Exposure of the TGD patient undergoing gender-affirming care such as surgery can be extremely stressful to the patient, especially in a trauma bay in front of several people. It is important to understand this population’s significant fear of discrimination and stigma during health care encounters by explaining to the patient why their clothes need to be removed, treating the patient with dignity and respect, and providing as much privacy as possible.

Findings on exposure may include surgical scars from top surgeries such as a mastectomy or bottom surgeries such as a hysterectomy. A patient going through gender-affirming surgeries may have a skin graft scar on 1 of the forearms and/or 1 of the inner thighs from where skin was grafted to use for procedures such as a phalloplasty or vaginoplasty.

##### *Full Set of Vital Signs and Family Presence*

It is important to note that baseline vital signs such as blood pressure and heart rate are often different between an assigned male at birth and AFAB. GAHT can have an effect

on baseline blood pressure. A transgender woman may have a lower blood pressure, whereas a transgender man may have a higher blood pressure.<sup>17</sup>

The presence of family at the bedside may also be a source of stress for the patient if there is a history of family dissension. It is important to ask the patient whether they want family members present and respect their decision. Family members and loved ones may not be biological family. It is important to honor the patient's decision about who they want present during their hospital stay, which may not be a biological family member. It is also important to ensure that the patient's partner can be present. Partners should not be excluded when allowing "family presence" during trauma care and recovery. If the patient's injuries are the result of violence, visitors or family members wanting to see the patient should be screened and limited to ensure the patient's and staff's safety.

#### *Get Monitoring Devices and Give Comfort*

**Laboratory Studies.** A transgender man undergoing gender-affirming care may still have their reproductive organs and require a pregnancy test. It is important to explain the rationale for pregnancy testing in trauma care. An additional consideration would be that a transgender man may be menstruating, which could result in blood in the urine.

**Cardiac Monitor.** Mastectomy scars may be noted on the chest during lead placement.

**Nasogastric or Orogastric Tube.** There are no special considerations for this section.

#### *Oxygenation and Ventilation*

There are no special considerations for this section.

#### *Pain Assessment and Management*

Transgender people often experience bias from health care providers that could result in inadequate pain management. A recent study concluded that health care professionals should educate themselves on sensitive issues, increase self-awareness, put the TGD patient in charge during patient care interactions, and adhere to the principles of advocacy, confidentiality, autonomy, respect, and disclosure.<sup>18</sup> It is important for trauma team members to be aware of biases

and ensure that pain management is appropriate and consistent with the standard of care.

#### SECONDARY SURVEY<sup>11</sup>

##### *History and Head-to-Toe Assessment*

Obtaining an accurate medical and surgical history is crucial in planning care for the TGD patient. A medication history, including GAHT, and a surgical history, including gender-affirming surgery, are important to obtain and may affect care given. If the patient's gender-affirming status or gender-affirming medical history will not directly affect the patient's injuries or care, obtaining this information is unnecessary and should be avoided. For example, if the patient's primary injury is a minor fracture, gender-affirmation history and related medical care may be irrelevant information. However, if the patient is a transgender man who was AFAB with multiple injuries and complains of abdominal pain, then asking about reproductive organs would be important. Knowing the patient's pregnancy status is also important and should be considered for imaging purposes and potential preparation for surgery.

Assessment findings during the head-to-toe assessment may include the following:

**Head and Face.** There are no special considerations for this assessment.

**Neck.** If the patient underwent a recent tracheal shave procedure, there may be a scar.

**Chest.** If the patient underwent a recent mastectomy or mammoplasty, 1 or more scars may be present.

**Abdomen and Flanks.** If the patient underwent a recent hysterectomy, 1 or more scars may be present. This would be important information regarding whether or not the patient still has their reproductive organs. A suprapubic tube is often inserted during a phalloplasty procedure and left in place for several weeks. This would be important information to know whether the patient sustained any significant trauma to the abdomen, flanks, or pelvis.

**Pelvis.** A significant pelvic fracture can result in a urethral injury. Patients who have recently undergone a phalloplasty or vaginoplasty are at a higher risk of this type of injury, which could lead to potential worsening of gender dysphoria.

**Perineum.** Patients who have undergone gender-affirming surgery have unique anatomy that must be considered in the resuscitation and acute care phase.<sup>12</sup> Insertion of a urinary catheter may be contraindicated if the patient had a recent phalloplasty or vaginoplasty. Urethral stricture is a common complication after a phalloplasty,<sup>19</sup> and the patient may have a temporary suprapubic catheter in place.

**Extremities.** Skin grafts used for phalloplasty are often taken from the patient's forearm or inner thigh, leaving a distinctive scar.

### *Inspect the Posterior Surfaces*

There are no special considerations for this assessment.

### *Just Keep Reevaluating*

In addition to frequent reassessments of the patient's physical status, assessing and addressing psychosocial status are crucial in the TGD population. Gender dysphoria refers to feelings of distress or discomfort because a person's gender identity differs from that which is attributed to their sex assigned at birth, both physically and socially.<sup>1</sup> If not fully resolved, gender dysphoria can lead to depression and possible thoughts of suicide. Suicide screening is important, and precautions may need to be initiated based on screening results. Not all TGD people experience gender dysphoria, but for those who do, it is important that health care team members establish a continuity of care, both in the trauma bay and on the inpatient unit. Creating and maintaining an inclusive, supportive, and caring environment are key.

Considerations should include<sup>20</sup>:

- Understanding and respecting the patient's privacy
- Communicating in a way that demonstrates respect and compassion
- Making note of the patient's chosen name and pronouns
- Being mindful when filling out health care forms
- Providing care for the whole person
- Advocating on behalf of the patient and their loved ones

### **Implications for Emergency Nurses**

The most common cause of injury in the TGD population is violence. Emergency nurses should ensure a safe and supportive environment for the patient, family and visitors, and staff.

The TGD population are among the highest at risk of suicide. Suicide screening should be done, and precautions initiated as needed to ensure patient safety, especially on an inpatient unit. Effective communication is a key factor when caring for the TGD patient in the emergency department. Emergency nurses need to approach TGD patients with the same dignity and respect as any other patient. Asking the patient their name and pronouns is a simple and effective approach in establishing trust. The term "preferred pronouns" should not be used. To the patient, the term "preferred" invalidates the patient's identity. A trauma resuscitation often includes removing all the patient's clothes in front of a group of strangers. This can be a devastating experience for the TGD patient, who may already have feelings of anxiety and fear just being in a health care encounter. The emergency nurse should provide as much privacy as possible for the patient while providing emotional support. Many TGD patients may not have access to needed health care and resources upon discharge from the emergency department. It is important to make sure they are given the referrals and resources needed for follow-up and ongoing care.

### **Conclusion**

Trauma care for special populations often requires us to take a slightly different approach to meet the patient's physical and psychosocial needs, and the TGD patient is no exception. This population requires the same dignity and respect as with any other patient. Trauma team members must be educated and maintain competency in both the physical and psychological needs of this vulnerable population. Effective communication and a caring approach are key factors in providing safe, quality trauma care and improving patient outcomes.

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# IMPROVING SAFETY AND QUALITY WITH AN EMERGENCY DEPARTMENT OVERCROWDING PLAN



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## Abstract

**Introduction:** Emergency department overcrowding is a concern that predates the recent coronavirus disease pandemic. Overcrowding in the emergency department continues to worsen internationally. There are multiple combined strategies that help to maintain quality and safety by reducing patient wait times, left-without-being-seen rates, and the length of time a patient stays in the emergency department. The objective of the project was to use an interdisciplinary team to strengthen and revise the emergency department overcrowding plan to reduce the patient wait times, length of stay, and the left-without-being-seen rates.

**Methods:** The quality improvement team used interprofessional collaboration to focus on 3 areas of the emergency response plan. The team automated an instrument to measure overcrowding in the emergency department, developed a tiered response plan to overcrowding, and implemented a standardized multidisciplinary paging protocol.

**Results:** The emergency department overcrowding plan resulted in a 2.7% decrease in the left-without-being-seen rates, a 42-minute (14.5%) decrease in median emergency department length of stay, and a 3.56-hour (33.3%) decrease in daily overcrowding.

**Discussion:** Emergency department overcrowding is influenced by a multitude of factors. The development and implementation of an efficient and effective overcrowding plan have significant value for patient quality and safety as well as health system planning. An effective response to emergency department overcrowding is a pre-established plan that incrementally uses system-wide resources to support emergency department functions as the census and patient acuity fluctuate.

**Key words:** Hospital emergency service; Surge capacity; Crowding; Quality improvement; Ambulance diversion

ED overcrowding is a widespread global issue that is being caused by the growing utilization and dependence on ED services.<sup>1,2</sup> In an overcrowded state, ED staff cannot provide adequate patient care, resulting in the development of quality of care and patient safety concerns.<sup>3</sup> The problem of overcrowding is not a departmental

problem but rather a health system and community problem.<sup>4</sup> ED overcrowding is associated with higher staff turnover, increased violence toward staff, delayed patient treatment, increased patient mortality, and increased medication and specimens errors.<sup>2,3,5</sup> Over a 3-year span, ED overcrowding can increase costs related to boarding patients in the emergency department by \$6.8 million.<sup>2</sup> Within the health system, the solution to ED overcrowding does not lie solely with the emergency department; it relies heavily on the organization as a whole.<sup>3,5</sup> Without adequate plans to address overcrowding, it can be expected that quality of care, patient safety, and health care costs in the emergency department will continue to be suboptimal.<sup>1,3,5</sup>

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## Background

There is no quick and easy answer for ED overcrowding.<sup>5</sup> To address overcrowding, a multifaceted approach using house-wide resources is necessary.<sup>6</sup> There are 3 essential components to consider when developing a plan for ED overcrowding. These include abstracting measurable data, identifying actionable solutions, and effective communication.

## ABSTRACTING MEASURABLE DATA

An accurate, objective, and reliable method for measuring ED overcrowding is imperative to a successful ED overcrowding plan (EDOP). Nearly 2 decades ago, Weiss and others<sup>7</sup> described the work of the National ED Overcrowding Study (NEDOS). The NEDOS was conducted in 2 phases at 8 different sites with the purpose to validate a model to predict ED overcrowding.<sup>7</sup> A 23-question instrument to predict ED overcrowding evolved to a 5-question instrument, the current National Emergency Department Overcrowding Scale (NEDOCS) instrument.<sup>7</sup> The NEDOCS instrument seeks information related to the following 5 items: (1) the total number of ED patients, (2) the number of patients ventilated in the emergency department, (3) the total amount of patients known to need admission, (4) the longest time an admitted patient has been waiting for a bed, and (5) the waiting room time for the patient who was most recently placed in an ED bed.<sup>7</sup> NEDOCS is available to hospitals worldwide. It has been validated for accurately predicting ED overcrowding and in some cases is more advanced than other measures that aim to evaluate ED overcrowding.<sup>8,9</sup> NEDOCS accounts for many complexities related to ED overcrowding such as the number of hospital beds, admitted patients in emergency department, wait times in the emergency department, and the number of critical patients in the emergency department.<sup>8,9</sup> ED overcrowding measures are not one-size-fits-all. One measure may be better suited at predicting overcrowding than another measure depending on the ED and the organization the emergency department is operating within.<sup>8,9</sup>

## ACTIONABLE SOLUTIONS

Reviewing the available hospital resources and identifying any that could help improve ED throughput provide the foundation for the EDOP. To effectively address ED overcrowding, collaboration throughout the hospital is necessary.<sup>4</sup> Each health system will be different and must be assessed for resources that support ED throughput.<sup>10</sup> It is imperative that all hospital resources that have an impact on ED throughput are identified, and the roles and responsibilities related to the EDOP are well defined. The roles and responsibilities should not completely pull the hospital resource to the emergency department but allow for a small adjustment in daily activities that would aid the emergency department when in an overcrowded state. These resources might include laboratory, radiology, patient transport services, housekeeping, bed coordination, inpatient providers, and many other positions depending on their job function within the organization and the relationship it has to ED

throughput.<sup>3,5,11,12</sup> The identified roles and responsibilities need to remain within the resource's scope of practice and similar to their normal job duties.

## COMMUNICATION

To effectively communicate the need for hospital resources, the EDOP is supported by an efficient method with which all stakeholders can be notified of the overcrowded state. A standardized paging protocol has been identified as an effective and efficient way of improving communication within health care systems.<sup>13,14</sup> Pagers have dominated communication in health care since the 1950s and are still used by health care organizations across the nation.<sup>5,15</sup> Alpha-numeric paging to a device is an effective and efficient form of communication.<sup>15</sup> Smartphones are considered a better tool for 2-way communication due to the added capability of a phone call, return text, and web access.<sup>14,15</sup> For purposes of the EDOP, 2-way communication is not necessary.

## RATIONALE

In 2021, the emergency department had a median length of stay (LOS) of 315 minutes for all ED patients, with a left-without-being-seen (LWBS) rate of 5.3% (1141 patients), and was in an overcrowded state for an average of 8.88 hours/day. The emergency department's variance from the LWBS national benchmarks was a big indicator of the need to revise the plans associated with ED overcrowding. In addition, there is a potential of >\$1.5 million in revenue that could be secured by merely lowering the LWBS rate to the national benchmark of 2%.<sup>16</sup> An updated EDOP had the potential to improve quality, safety, and financial stewardship for the organization. The update must include a more efficient way to communicate the need for assistance and clarify the roles and responsibilities of house-wide resources that respond.

Fortunately, an EDOP had already been established at this organization. The EDOP was established in March 2018 and identified some of the available house-wide resources to support the emergency department. Its effectiveness had declined since 2018 and it was no longer an effective tool. One of the main faults of this plan was that the original EDOP centered around the emergency charge nurse having to reach out to house-wide resources directly using multiple phone calls. Although this decreased the likelihood of pulling resources from the organization that the emergency department did not need at the time, this became a daunting task for an emergency charge nurse

whose department was overwhelmed. There are technological solutions to make this communication more effective.<sup>5</sup> Another identified fault of the original EDOP was the unclear expectations and roles for the identified resources. Many times, resources would arrive at the emergency department after being contacted, only to hover around the central station asking how they could be helpful. In other instances during the 2021 pandemic, resources were contacted but could not assist due to inadequate staffing levels. These faults led to a distrust in the EDOP, and the emergency department quit using the plan altogether.

## THE PURPOSE

The purpose of this quality improvement (QI) initiative was to improve the median LOS and LWBS rate for patients in the organization's emergency department by establishing a functional and effective EDOP. The aim was to decrease the emergency department's LWBS rate to the national benchmark levels of 2% and decrease the median LOS for all ED patients by at least 10% within 3 months of implementation.<sup>16</sup> To accomplish this aim, the project focused on 3 objectives. The first objective was for an interdisciplinary team of key stakeholders to meet biweekly for the duration of the project to discuss data, revisions, and the overall implementation of the EDOP. This objective supported developing a house-wide plan that worked for the whole organization, not just the emergency department. Objective 2 was for a decrease of at least 25% of the median time it takes for an admitted patient to move to their inpatient bed after the decision to admit, within 3 months of implementation. Improving inpatient capacity is outside the scope of this QI project but inpatient capacity issues and admitted patient LOS have a direct impact on ED overcrowding. Objective 2 focused on decreasing the LOS for all ED patients, discharged and admitted, by moving ED admissions to their appropriate inpatient areas as quickly as possible. ED admissions that cannot move to their inpatient areas tie up ED resources and slow the treatment of other patients. The final objective was for the emergency department to activate the house-wide communication system at least 90% of the time the department was in an overcrowded state within 3 months of implementation.

## Methods

The participants in this project were all patients who presented to the organization's emergency department. Between May 2, 2022 and August 31, 2022, there were

11,015 patients who presented to the organization's emergency department. Of the 11,015 patients who were seen, 624 patients, 5.67%, were younger than the age of 18 years. Three frameworks underpinned the development and implementation of the project: the Six Sigma model, the Johns Hopkins EBP model, and Marilyn Ray's Theory of Bureaucratic Caring. The QI project was reviewed by a university institutional review board before initiation and was determined to be a QI project and did not meet the definition of human subjects research.

## SETTING

The setting in which this QI project took place was a 16-bed emergency department. The emergency department is attached to a regional referral center hospital that is licensed for 392 beds. The hospital was recognized as the region's only 5-star hospital by United States Centers for Medicare and Medicaid and the number 1 hospital in the region between 2015 and 2021 by United States News and World Reports. The hospital has just completed its fourth Magnet Designation for Nursing Excellence. The patient population that is typically seen at this organization's emergency department are patients older than the age of 18 years with a multitude of medical complaints. There is a designated pediatric hospital in the area and a designated trauma hospital, so these patients represent a small portion of the overall patient population.

## INSTRUMENTS

The project used NEDOCs to identify ED overcrowding during this project. Consent to use the standardized NEDOCs instrument for this QI initiative was obtained. The NEDOCs instrument that was used is software based and pulls the necessary information for the NEDOCs calculation from the organization's electronic medical record (EMR) system. The NEDOCs pulled the necessary information automatically from the EMR every 15 minutes, 24 hours a day. The only input required from frontline staff was to help the EMR identify the patients who were defined as critical care patients. This was done as soon as frontline staff identified these patients. The emergency department considers any 1:1 patient, ICU admission, or step-down admission as a critical care patient who requires more resources than the typical ED patient. As soon as this input was completed in the EMR, it was automatically communicated to the NEDOCs software for calculation purposes.

## INTERVENTIONS

The interventions in this project are an updated EDOP (Table 1, Table S1) to include additional hospital resources and a standardized paging protocol. The inclusion of the new resources and their specific roles was discussed with the appropriate hospital leadership and departmental stakeholders. The current resources included in the EDOP were reviewed to ensure their roles were still appropriate. An interdisciplinary team was established for the project that included leadership and stakeholders from the laboratory, radiology, switchboard, patient transport services, environmental services, house supervisors, resource nurses, house secretaries, hospitalists, intensivists, emergency department, emergency medical services, and the inpatient units. After the revisions were finalized, additional meetings were scheduled to discuss outlining the paging protocol.

For the development of the paging protocol (Table 2, Table S2), key stakeholders and hospital leadership reviewed the EDOP and their specific roles to identify at which level of overcrowding each resource would be most effective. During the development of the EDOP, the focus was on a tiered approach that uses frontline staff in the early stages and pulls in leadership support as overcrowding worsens. The first level that was paged is code Alpha, which notifies the house supervisor and environmental services that the emergency department was getting busy. At code Bravo, multiple house-wide resources are notified including house supervisor, house secretary, house orderly, radiology, all inpatient units, and emergency medical services charge medic. Code Charlie is the next level and includes multiple members of leadership, the hospitalists and intensivist teams, and the administrator on call. The last level to be paged out is code Delta and includes all directors and the administrator on call. Multiple presentations with hospital leadership and stakeholders were held to communicate the changes to the EDOP and expectations. Implementation of the revised EDOP took place on May 2, 2022.

The discretion for activating the EDOP paging protocol rests with the emergency charge nurse on duty. The paging system is to be activated by the emergency charge nurse when the emergency department sustains an overcrowding level for at least 1 hour. The reason the emergency department was to wait for sustainment of at least an hour was to allow the emergency charge nurse to adjust ED operations to address the overcrowded state. If these adjustments were successful, then hospital resources did not need to be pulled to the emergency department for assistance. Each

overcrowding level builds on the next so the levels must be paged in sequence or a key member to the EDOP will not get notified.

The interdisciplinary team met biweekly for the duration of this project. The team discussed barriers to implementation and current QI measures and suggested adjustments to the EDOP or paging protocol. The EDOP was not a new concept to the organization. However, there were still barriers related to frontline staff buy-in. Creating buy-in for ancillary departments and inpatient units was the responsibility of their direct leadership. The interdisciplinary team understood that the EDOP was not going to solve every situation and had to remain flexible enough to allow for variabilities in staffing, capacity issues, and other daily variances. These variances required leadership support, which is reflected in the EDOP implementation plan. The interdisciplinary team meetings were integral to the change management process and the EDOP's success. These meetings allowed a free flow of ideas ranging from frontline staff to senior leadership that allowed the EDOP to evolve to a sustainable plan for the entire organization.

## DATA COLLECTION

Baseline data were collected before the implementation date from the organization's established software. The overcrowding data come from AcmeWare that has specifically tailored the software to calculate, display, and track NEDOCS for the organization's emergency department. The other quality metrics were obtained from Meditech Business and Clinical Analytics Software. Data were collected weekly from both programs.

## DATA ANALYSIS

Data analysis for this project was completed using Excel (Microsoft Corporation, Microsoft Excel) and IBM SPSS (IBM). During the implementation phase, Excel was used to store, organize, and display data. Once in Excel, data were shared among ED leadership members to be validated and analyzed. The specific data focus for this project was ED overcrowding, LOS, LWBS, and throughput measures. After validation and analysis, visual representations of historical data and current data were created for the interdisciplinary team and stakeholders to review. The project implementation timeline was from May 2, 2022 to August 31, 2022. Data were entered into IBM SPSS Statistics 28.0.0.0 for further statistical analysis. Descriptive

TABLE 1  
ED overcrowding plan

**NEDOCS - National Emergency Department Overcrowding Score – Updated Every 15min in ACMEWARE**

Normal Operations	CODE ALPHA Busy/Extremely Busy	CODE BRAVO Overcrowded	CODE CHARLIE Severely Overcrowded	CODE DELTA Dangerously Overcrowded
0-50	51-100	101-140	141-180	>180

**Emergency Department Overcrowding Team and Considerations**

ED Charge Nurse Providers	ED Charge Nurse Triage Team Providers	House Supervisor ED Charge Nurse Triage Team Providers	House Supervisor ED Charge Nurse Triage Team ED Manager ED Medical Director	House Supervisor ED Charge Nurse Triage Team ED Director ED Medical Director Administrator On Call
<ul style="list-style-type: none"> <li>Consider the pace new patients are arriving.</li> <li>Review LOS of patients in rooms.</li> </ul>	<ul style="list-style-type: none"> <li>Are there situational changes occurring that could lead to a surge?</li> <li>Evaluate the pace new patients are arriving.</li> <li>Review LOS in the waiting room</li> <li>Review LOS of patients in rooms.</li> </ul>	<ul style="list-style-type: none"> <li>Review LOS in the waiting room</li> <li>Review LOS of patients in rooms.</li> </ul> <p>What is preventing the disposition of patients in rooms? (LOS &gt; 180 Mins)</p> <ul style="list-style-type: none"> <li>Are there delays in lab results or imaging testing/results?</li> <li>Are there patients with discharge dispositions that could be expedited?</li> <li>Is ED space being used to its full capacity?</li> </ul>	<ul style="list-style-type: none"> <li>Review LOS in the waiting room</li> <li>Review LOS of patients in rooms.</li> </ul> <p>What is preventing the disposition of patients in rooms? (LOS &gt; 180 Mins)</p> <ul style="list-style-type: none"> <li>Are there delays in lab results or imaging testing/results?</li> <li>Are there patients with discharge dispositions that could be expedited?</li> <li>Is ED space being used to its full capacity?</li> <li>Are ED Staffing Resources needed (Nurse, Providers, Support Roles)?</li> </ul>	<ul style="list-style-type: none"> <li>Are there patients that may come out of rooms and wait in the consult room or waiting room?</li> <li>Consider: Lead Attending reviewing patients in the waiting room; are there any additional orders that could be started?</li> <li>Consider: utilizing ITC for additional ED treatment space or boarding patients.</li> <li>Consider: other options for boarding patients.</li> </ul>

*continued*

TABLE 1  
Continued

**Emergency Department Overcrowding Team and Considerations**

<b>ED Charge Nurse Providers</b>	<b>ED Charge Nurse Triage Team Providers</b>	<b>House Supervisor ED Charge Nurse Triage Team Providers</b>	<b>House Supervisor ED Charge Nurse Triage Team ED Manager ED Medical Director</b>	<b>House Supervisor ED Charge Nurse Triage Team ED Director ED Medical Director Administrator On Call</b>
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**OVERCROWDING ACTION ITEMS**

<ul style="list-style-type: none"> <li>■ Normal Operations</li> </ul>	<p><b>Emergency Department CN</b></p> <ul style="list-style-type: none"> <li>■ Notify operator of ED Overcrowding-Code Alpha.</li> <li>■ Notify the House Supervisor of delays in admissions that are impacting patient flow.</li> <li>■ Ensure discharges to home are occurring timely.</li> </ul> <p><b>House Supervisor</b></p> <ul style="list-style-type: none"> <li>■ Work with specific patient care areas to timely accept ED Admissions – If patients have clean beds, assigned patients should move within 30 minutes of the ready-to-move indicator.</li> <li>■ All ED admissions assigned to dirty beds are STAT cleans- notify Environmental Services Senior Tech of these beds directly.</li> </ul>	<p><b>Ensure all Alpha Action items have been implemented</b></p> <p><b>Emergency Department CN</b></p> <ul style="list-style-type: none"> <li>■ Notify operator of ED Overcrowding -Code Bravo.</li> <li>■ Notify Lab</li> </ul> <p><b>House Supervisor</b></p> <ul style="list-style-type: none"> <li>■ Notify inpatient charge nurses when an ED admission is assigned to their unit.</li> <li>■ Target ED admissions to appropriate units STAT.</li> </ul> <p><b>House Secretary</b></p> <ul style="list-style-type: none"> <li>■ Vocera broadcast to all units ED Overcrowding-Code Bravo</li> <li>■ All extra float pool resources are offered to ED before down staffing.</li> </ul>	<p><b>Ensure all Bravo Action items have been implemented</b></p> <p><b>Emergency Department CN</b></p> <ul style="list-style-type: none"> <li>■ Notify operator of ED Overcrowding-Code Charlie</li> <li>■ If needed, Page ED Staff for Surge Staffing-Everbridge or PCSS.</li> <li>■ If needed, notify Customer Relations for service recovery.</li> </ul> <p><b>ED Manager</b></p> <ul style="list-style-type: none"> <li>■ Touch base with ED to help identify and correct barriers to throughput.</li> <li>■ Ensure staffing resources and physical capacity are being maximized.</li> </ul> <p><b>ED Medical Director</b></p> <ul style="list-style-type: none"> <li>■ Consider bringing in additional provider(s).</li> </ul>	<p><b>Ensure all Charlie Action items have been implemented</b></p> <p><b>Emergency Department CN</b></p> <ul style="list-style-type: none"> <li>■ Notify operator of ED Overcrowding-Code Delta</li> <li>■ Consider expanding into ITC if staffing resources allow.</li> <li>■ Maximize use of all staffing resources and physical capacity in the ED.</li> <li>■ Consider the need for ambulance diversion.</li> </ul> <p><b>House Supervisor</b></p> <ul style="list-style-type: none"> <li>■ Are there any staffing resources that could be redirected to ED?</li> <li>■ Consider the need for ambulance diversion.</li> </ul> <p><b>House Secretary</b></p> <ul style="list-style-type: none"> <li>■ Vocera broadcast to all units ED Overcrowding-Code Delta</li> </ul>
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continued



TABLE 1  
Continued

**Emergency Department Overcrowding Team and Considerations**

<b>ED Charge Nurse Providers</b>	<b>ED Charge Nurse Triage Team Providers</b>	<b>House Supervisor ED Charge Nurse Triage Team Providers</b>	<b>House Supervisor ED Charge Nurse Triage Team ED Manager ED Medical Director</b>	<b>House Supervisor ED Charge Nurse Triage Team ED Director ED Medical Director Administrator On Call</b>
	<p><b>Triage/Pivot Nurse</b></p> <ul style="list-style-type: none"> <li>■ Round and reassess patients in the waiting rooms</li> <li>■ Perform vital signs as necessary for Med/Surg condition following ESI reassessment guidelines: ESI 2: Every 60 mins ESI 3: Every 120 mins ESI 4: Every 240 mins ESI 5: Every 240 mins</li> </ul> <p><b>EVS Senior Tech</b></p> <ul style="list-style-type: none"> <li>■ ED admission STAT cleans are given priority-House Sup will notify EVS Senior tech.</li> <li>■ Isolation STAT cleans related to ED admissions are closely assessed for bleach cleaning vs UV treatment needs.</li> </ul>	<p><b>Patient Transport</b></p> <ul style="list-style-type: none"> <li>■ Transport all Med/Surg level ED admissions.</li> <li>■ Prioritize transports/transfers to optimize ED throughput.</li> <li>■ Go to ED to help identify any equipment needs (wheelchairs, stretchers, O2, etc.)</li> </ul> <p><b>Patient Care Leaders</b></p> <ul style="list-style-type: none"> <li>■ Evaluate delays in receiving patients from ED.</li> <li>■ ED patients should move within 30 minutes of the Ready to Move notification.</li> <li>■ Charge RN or Clinical Sup takes patient reports from ED if receiving RN is not available within 30min.</li> </ul>	<ul style="list-style-type: none"> <li>■ Consider the change of shift provider staying to help cover the surge.</li> </ul> <p><b>House Supervisor</b></p> <ul style="list-style-type: none"> <li>■ Go to ED to discuss barriers to throughput and availability of resources.</li> <li>■ Contact specific organizational leadership regarding continued throughput issues in their units.</li> </ul> <p><b>House Secretary</b></p> <ul style="list-style-type: none"> <li>■ Vocera broadcast to all units ED Overcrowding-Code Charlie</li> </ul> <p><b>Resource RN</b></p> <ul style="list-style-type: none"> <li>■ Go to ED to assist with patient care and transporting ICU/SDU admissions as appropriate.</li> </ul>	<p><b>Administrator On Call (AOC)</b></p> <ul style="list-style-type: none"> <li>■ AOC will consider activation of Command Center if Code Delta lasts longer than 2 hours.</li> <li>■ Notify the Executive Team including Directors if they are needed to come in.</li> <li>■ Consider the need for ambulance diversion.</li> <li>■ Consider debriefing the next day after the Safety Huddle.</li> </ul> <p><b>Directors</b></p> <ul style="list-style-type: none"> <li>■ Touch base with your departments.</li> <li>■ Review delays affecting ED throughput.</li> <li>■ Review delays in discharges/transfers.</li> </ul>

*continued*

TABLE 1  
Continued

**Emergency Department Overcrowding Team and Considerations**

<b>ED Charge Nurse Providers</b>	<b>ED Charge Nurse Triage Team Providers</b>	<b>House Supervisor ED Charge Nurse Triage Team Providers</b>	<b>House Supervisor ED Charge Nurse Triage Team ED Manager ED Medical Director</b>	<b>House Supervisor ED Charge Nurse Triage Team ED Director ED Medical Director Administrator On Call</b>
		<ul style="list-style-type: none"> <li>■ No Dirty Beds should be assigned to ED admissions unless no available clean beds on the unit.</li> <li>■ Notify House Supervisor if a dirty bed is assigned to an ED admission.</li> <li>■ Facilitate transfers to other departments.</li> <li>■ Contact physicians to facilitate discharges or transfers.</li> </ul> <p><b>Imaging</b></p> <ul style="list-style-type: none"> <li>■ Radiology staff will come and get ED patients for Imaging.</li> <li>■ Notify ED of any Imaging delays.</li> </ul> <p><b>Laboratory</b></p> <ul style="list-style-type: none"> <li>■ Lab Associate will respond to ED to help with specimen collection.</li> </ul>	<p><b>Patient Care Managers</b></p> <ul style="list-style-type: none"> <li>■ Evaluate delays in receiving patients from ED to your assigned unit.</li> <li>■ Expedite discharges or transfers</li> <li>■ Maximize staffing resources and physical capacity.</li> </ul> <p><b>Imaging, Laboratory, &amp; EVS Leadership</b></p> <ul style="list-style-type: none"> <li>■ Evaluate department operations.</li> <li>■ Consider reallocating or calling in additional staff.</li> </ul> <p><b>Administrator On-Call (AOC)</b></p> <ul style="list-style-type: none"> <li>■ Assist with correcting ED throughput barriers upon request.</li> <li>■ Consider moving ED patients to patient care unit hallways.</li> </ul>	<p><b>Intensivist Medical Director</b></p> <ul style="list-style-type: none"> <li>■ Touch base with your team to review delays affecting ED throughput (admissions, discharges, transfers).</li> </ul> <p><b>Hospitalist Medical Director</b></p> <ul style="list-style-type: none"> <li>■ Touch base with your team to review delays affecting ED throughput (admissions, discharges, transfers).</li> </ul> <p><b>EMS Manager</b></p> <ul style="list-style-type: none"> <li>■ Consider the availability of EMS resources to help in ED.</li> </ul>

continued

TABLE 1  
Continued

**Emergency Department Overcrowding Team and Considerations**

<b>ED Charge Nurse Providers</b>	<b>ED Charge Nurse Triage Team Providers</b>	<b>House Supervisor ED Charge Nurse Triage Team Providers</b>	<b>House Supervisor ED Charge Nurse Triage Team ED Manager ED Medical Director</b>	<b>House Supervisor ED Charge Nurse Triage Team ED Director ED Medical Director Administrator On Call</b>
		<ul style="list-style-type: none"> <li>■ Lab will communicate directly with the Lab Associate for specimen collection needs.</li> <li>■ Notify ED of any testing delays</li> </ul> <p><b>EMS Charge Medic</b></p> <ul style="list-style-type: none"> <li>■ Contact ED CN to discuss potential transfers out of the ED.</li> </ul>	<ul style="list-style-type: none"> <li>■ Consider house-wide bed “huddle” to evaluate options to open beds.</li> </ul> <p><b>Hospitalist/Intensivist</b></p> <ul style="list-style-type: none"> <li>■ Respond to ED pages right of way.</li> <li>■ Expedite IP discharges or transfer orders.</li> <li>■ Expedite ED admissions</li> <li>■ Additional testing is done after the patient is on the floor.</li> </ul>	

CN, charge nurse; ED, emergency department; emergency medical services; ESI, emergency severity index; IP, inpatient; LOS, length of stay; ITC, Infusion and Treatment Center; PCSS, Patient Care Staffing Services; RN, registered nurse; STAT, immediately.

TABLE 2  
EDOP paging protocol

**NEDOCS Score - National Emergency Department Overcrowding Score – Updated Every 15min in ACMEWARE**

Normal Operations	CODE ALPHA Busy/Extremely Busy	CODE BRAVO Overcrowded	CODE CHARLIE Severely Overcrowded	CODE DELTA Dangerously Overcrowded
0-50	51-100	101-140	141-180	>180
<b>Emergency Department Overcrowding Paging Protocol</b>				
<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<p>Emergency Department CN will notify the operator of ED Overcrowding-Code Alpha.</p> <p>The operator will page out “<b>ED Overcrowding- Code Alpha</b>” to the following individuals:</p> <ul style="list-style-type: none"> <li>■ House Supervisor</li> <li>■ Environmental Services Senior Tech</li> </ul> <p>The individuals paged should reference the EDOP chart to make adjustments to their normal operations to support ED throughput.</p>	<p>Emergency Department CN will Notify the operator of ED Overcrowding-Code Bravo.</p> <p>The operator will page out “<b>ED Overcrowding- Code Bravo</b>” to the following individuals:</p> <ul style="list-style-type: none"> <li>■ House Supervisor</li> <li>■ House Secretary</li> <li>■ House Orderly Pager</li> <li>■ Imaging</li> <li>■ EMS Charge Medic</li> </ul> <p>The individuals paged should reference the EDOP chart to make adjustments to their normal operations to support ED throughput.</p>	<p>Emergency Department CN will Notify the operator of ED Overcrowding-Code Charlie.</p> <p>The operator will page out “<b>ED Overcrowding- Code Charlie</b>” to the following individuals:</p> <ul style="list-style-type: none"> <li>■ House Supervisor</li> <li>■ House Secretary</li> <li>■ ED Manager</li> <li>■ ED Medical Director</li> <li>■ House Orderly Pager</li> <li>■ Resource RN Pager</li> <li>■ All Patient Care Managers</li> <li>■ Radiology Leadership</li> <li>■ Laboratory Leadership</li> <li>■ EVS Leadership</li> </ul>	<p>Emergency Department CN will Notify the operator of ED Overcrowding-Code Delta. The operator will page out “<b>ED Overcrowding- Code Delta</b>” to the following individuals:</p> <ul style="list-style-type: none"> <li>■ House Supervisor</li> <li>■ House Secretary</li> <li>■ ED Manager</li> <li>■ ED Director</li> <li>■ ED Medical Director</li> <li>■ House Orderly Pager</li> <li>■ All Patient Care Managers</li> <li>■ All Inpatient Directors</li> <li>■ Radiology Leadership</li> <li>■ Laboratory Leadership</li> <li>■ EMS Manager</li> </ul>

*continued*

TABLE 2  
Continued

Normal Operations	CODE ALPHA Busy/Extremely Busy	CODE BRAVO Overcrowded	CODE CHARLIE Severely Overcrowded	CODE DELTA Dangerously Overcrowded
			<ul style="list-style-type: none"> <li>■ AOC</li> <li>■ Hospitalist</li> <li>■ Intensivist</li> </ul> <p>The individuals paged should reference the EDOP chart to make adjustments to their normal operations to support ED throughput.</p>	<ul style="list-style-type: none"> <li>■ AOC</li> <li>■ Hospitalist Medical Director</li> <li>■ Intensivist Medical Director</li> </ul> <p>The individuals paged should reference the EDOP chart to make adjustments to their normal operations to support ED throughput.</p>

The emergency CN or a delegated member of the ED staff will notify the BHC operator of the overcrowded state. The ED caller will ask the operator "Will you page out code \_\_\_\_\_ (Alpha, Bravo, Charlie, Delta) in the ED?" The BHC operator will use the above lists to page the appropriate parties. The scripting for the page from the operator will read "ED Overcrowding-Code \_\_\_\_\_ (Alpha, Bravo, Charlie, Delta). Please reference the ED overcrowding plan for roles and responsibilities." AOC, administrator on call; CN, charge nurse; ED, emergency department; EMS, emergency medical services; RN, registered nurse.

statistics, Pearson correlation coefficient, and paired-sample *t* test were performed.

### Results

During the implementation phase and biweekly stakeholder meetings, there were minor adjustments made to the EDOP and paging protocol. The initial focus was to limit paging to prevent desensitizing recipients. The interdisciplinary team meetings unveiled that stakeholders did not feel there was enough communication. The paging protocol was modified based on that feedback. The number of recipients and the frequency of paging were increased. At the conclusion of the project, stakeholders agreed that no further changes were necessary to the EDOP or paging protocol.

The evaluation of the overall project goal was based on a comparison of pre- and post-implementation data (Table 3, Figures S1-S6). Pre-implementation data were considered from May 2021 to August 2021. Post-implementation data were considered from May to August 2022. The average overcrowding time for the emergency department decreased from 10.69 hours to 7.13 hours per day. Median time from decision to admit to completion of patient admission decreased from 105 minutes to 88 minutes. The median overall ED LOS decreased from 289 minutes to 247 minutes. The LWBS rate decreased from 6.4% to 3.7%.

### STATISTICAL FINDINGS

Pearson correlation coefficient and paired-sample *t* test were performed on the project data. To begin with, a 2-tailed Pearson correlation coefficient was calculated using only 2021 data to identify any linear relationships among the variables. There was a strong linear relationship found between the following variables: admission rate and decision to admit to admission completed ( $r(4) = -0.989, P < .05$ ) and the total number of discharges and average daily overcrowding ( $r(4) = 0.998, P < .05$ ). The same was done for the 2022 data. There was a strong linear relationship found among the following variables: ED census and average daily overcrowding time ( $r(4) = 0.981, P < .05$ ), ED census and LWBS rate ( $r(4) = 0.986, P < .05$ ), median LOS and average daily overcrowding ( $r(4) = 0.971, P < .05$ ), average daily overcrowding and LWBS rate ( $r(4) = 0.991, P < .01$ ), average daily overcrowding and admission rate ( $r(4) = -0.982, P < .05$ ), and average daily overcrowding and the total number of discharges ( $r(4) = 0.970, P < .05$ ). A 2-tailed Pearson correlation coefficient was performed on the data without separation by year to reveal a strong linear relationship among the following variables: median LOS and the median decision to admit to admission completed

TABLE 3  
Comparison of ED data pre- and post-implementation of the revised overcrowding plan

ED metrics	May to August 2021 data	May to August 2022 data
Total ED patient visits	9457	11,015
Average monthly ED patient visits	2364	2754
Total admitted ED patients	2075	2131
ED patient admission rate	21.9%	19.3%
Left-without-being-seen rate	6.4% (607 total patients)	3.7% (413 total patients)
ED admitted patient median length of stay	326 min	287 min
ED discharged patient median length of stay	268 min	228 min
All ED patient median length of stay (Combined admitted and discharged)	289 min	247 min
Average time the ED was in an overcrowded state	10.69 h	7.13 h
Daily ED overcrowding range	0-21 h	0-14 h
Percentage of days with inpatient capacity issues	69.92%	61.79%
Median time from decision to admit to completion of patient admission	105 min	88 min
Median X-ray turnaround time for ED patients	50 min	39 min
Median computed tomography scan turnaround time for ED patients	51 min	35 min

( $r(8) = 0.906, P < .05$ ), median LOS and LWBS rate ( $r(8) = 0.949, P < .001$ ), average daily overcrowding and median LOS ( $r(8) = 0.853, P < .05$ ), and average daily overcrowding and LWBS rate ( $r(8) = 0.806, P < .05$ ).

A paired-sample  $t$  test was calculated to compare the pre- and post-implementation variables. ED census indicated a significant increase in 2022 ( $t(3) = -9.153, P < .001$ ). Median LOS indicated a significant decrease in 2022 ( $t(3) = 7.679, P \leq .05$ ). There was a significant decrease in the LWBS rate in 2022 ( $t(3) = 4.381, P < .05$ ). Average daily overcrowding indicated a significant decrease in 2022 ( $t(2) = 3.555, P \leq .05$ ). There was a significant decrease in the decision to admit to admission completed in 2022 ( $t(3) = 8.649, P \leq .05$ ). X-ray turnaround time indicated a significant decrease in 2022 ( $t(3) = 4.091, P \leq .05$ ). Computed tomography scan turnaround time indicated a significant decrease in 2022 ( $t(3) = 34.990, P \leq .001$ ). The paired-sample  $t$  test calculations identified no significant change in the number of admitted patients ( $t(3) = -1.169, P > .05$ ) or bed capacity issues ( $t(3) = 1.079, P > .05$ ).

## Discussion

After the implementation of the EDOP and paging protocol, there was a significant decrease in the median LOS, LWBS rate, average daily overcrowding, radiology turnaround times, and decision to admit to admission time. During the same time period, the ED census also reflected a significant increase.

After the implementation of the new EDOP, the LWBS rate decreased by 2.7%, the median LOS decreased by 14.5%, and the average time the emergency department was in an overcrowded state decreased by 33.3%. Objective 1 of the initiative was met with interdisciplinary team meetings held biweekly with key stakeholders between May and August 2022. There was a decrease of 16.2% in the median time it took for an admitted patient to be moved to their inpatient bed after the decision to admit had been made. This was below the 25% goal established by objective 2. However, the decreased time to move an ED patient to an inpatient bed in the presence of the volume growth of the

emergency department is clinically significant. Objective 3 was met by the emergency department successfully activating the house-wide communication system at least 90% of the time the department was in an overcrowded state between May and August 2022.

### Limitations

The organization recently transitioned to an independent stand-alone structure after being part of a large health care system, which brought unique challenges. There was no method of tracking overcrowding data between May 2, 2021, and June 12, 2021, because that process had not been developed. A further limitation would be that smaller facilities may lack the flexibility of resources to implement all aspects of the EDOP structure. A larger facility with the ability to measure ED overcrowding and more resources to redistribute during an overcrowded state would have the capability to magnify the improvements seen in this project.

### Implications for Emergency Nurses

Overcrowding of the emergency department is a concern that has been discussed for decades. Efforts to consistently measure overcrowding and implement sustainable solutions have challenged health care leadership. The ED census nor acuity is predictable. It is not financially sustainable for institutions to staff the emergency department in anticipation of an influx of patients. However, the ED patient population deserves to have quality, safe, and timely emergency care. The only way to address ED overcrowding in a responsible manner is to collaborate, communicate, automate, and plan for the efficient use of staffing resources across the facility. Emergency departments are not able to solve overcrowding as a stand-alone problem, but a sustainable solution is possible. The solution will be unique to each health care system and can be developed only through respectful interprofessional collaboration with all stakeholders.

### Conclusions

The solution to ED overcrowding is to focus on improving throughput by maximizing efficiency in processes and space utilization. Having an EDOP establishes clear roles and responsibilities for system-wide resources but must be updated periodically to maintain its effectiveness. Seeking the engagement of an interprofessional team in maintaining the EDOP provides hospital-wide support to ED overcrowding solutions. Consideration should be given to auto-

rating the processes surrounding the measurement, tracking, and communication of ED overcrowding to assure consistency in evaluating the need to support ED throughput. An organization that fails to plan for ED overcrowding and throughput issues is accepting inadequate quality of care and unsafe conditions for their ED patients.

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### Author Disclosures

Conflicts of interest: none to report.

### Supplementary Data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.jen.2023.06.002>.

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# UTILIZING CLINICAL MICROSYSTEMS TO IMPROVE MISLABELED SPECIMEN OCCURRENCES IN THE EMERGENCY DEPARTMENT



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## Contribution to Emergency Nursing Practice

- Mislabeled specimens from the emergency department is a widespread problem that can affect patient safety, clinical outcomes, and hospital efficiency.
- The current literature on quality improvement efforts to improve mislabeled specimen in emergency departments is limited.
- This article contributes information about how one ED achieved sustainable reductions in mislabeled specimen over a >3 year time frame.
- Key implications for emergency nursing practice found in this article are quality improvement methods, improved patient safety, and lessons in emergency nursing leadership.

## Abstract

**Introduction:** Mislabeled specimen collection in the emergency department has the potential to significantly harm patients. Studies suggest that improvement efforts can reduce

specimen rejection from the laboratory and reduce mislabeled specimens in emergency departments and hospital-wide.

**Methods:** The clinical microsystems approach was used to understand the problem of mislabeled specimens in an emergency department that is part of a 133-bed community hospital in Pennsylvania. Plan-Do-Study-Act cycles were implemented with the help of a clinical microsystems coach.

**Results:** Significant reductions in mislabeled specimen collection were observed over the study period ( $P < .05$ ). Sustainable improvements were achieved over the >3 years since the improvement initiative began in September 2019.

**Discussion:** Improving patient safety in complex clinical settings requires a systems approach. Using the established framework of clinical microsystems, along with a tenacious and persistent interdisciplinary team, helped create a reliable process for minimizing mislabeled specimens in the emergency department.

**Key words:** Quality improvement; Patient safety; Clinical microsystems; Mislabeled specimen

## Introduction

### MEDICAL ERROR

Preventable medical errors (PMEs) within hospitals are a leading cause of death in the United States.<sup>1</sup> Safety experts rely on Leape's<sup>2</sup> definition of medical error, "An unintended

act (either of omission or commission) or one that does not achieve its intended outcome." This definition focuses on system-based blame rather than individual blame.

The complexity and fast pace of health care delivery, particularly in an emergency department, make the consistent and reliable identification of PMEs difficult. Often times there is more than 1 cause or more than 1 set of

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circumstances that create an opportunity for a PME to occur. Developing a team culture that expects all team members to participate in implementing solutions to improve safety is part of the global solution of reducing PME.<sup>3</sup>

Within hospitals, PMEs are estimated to cost \$20 billion per year<sup>3</sup> and account for >400,000 premature deaths per year.<sup>1</sup> Within emergency departments, it is estimated that PMEs occur with 8.6% of patient visits, and this number increases substantially with ED crowding.<sup>4</sup>

Mislabeled specimen collection is one type of PME that occurs hospital-wide, including the emergency department,<sup>5</sup> and has the potential to affect diagnostic and treatment decision making.<sup>6</sup> The type of potential harm varies and may include the failure of reporting accurate test results that could lead to misdiagnosis or no diagnosis or the potential for repeat specimen collection resulting in burden to the patient and inefficiency in time and money for the clinical team and hospital. There is limited research that examines the extent of the problem of mislabeled specimens in emergency departments and hospital-wide<sup>6</sup>; however, there are studies to suggest improvement efforts can reduce specimen rejection from the laboratory<sup>6</sup> and reduce mislabeled specimens in emergency departments and hospital-wide.<sup>5,7</sup>

## QUALITY IMPROVEMENT FRAMEWORK

Clinical microsystems (CMs) is an established improvement framework that, as its name implies, focuses on the system and environment that produces an outcome in a clinical space.<sup>8</sup> The use of CM has led to improved outcomes in clinical settings worldwide including decreased hospital-acquired infections,<sup>9-11</sup> decreased primary cesarean section rates, and decreased admission rates to the neonatal intensive care unit.<sup>12</sup> CM has been applied to acute<sup>13</sup> and long-term care<sup>12</sup> and inpatient<sup>9-13</sup> and outpatient care.<sup>12,14</sup>

The CM framework includes the use of several improvement methods, including the Purpose, Professionals, Patients, Process, and Patterns (5Ps), Plan-Do-Study-Act (PDSA) cycles, and tools to promote effective meetings. The CM framework does not provide guidance for the team about what improvement area to focus on or what should be done; rather, the CM framework helps the team understand the context of their work in a new way. The 5Ps can be used to walk the team through the essential aspects of their work and invites meaningful conversation about the team's work setting, which elicits common understanding about what improvement opportunities are most relevant. When the team identifies a focus area, the PDSA method is used to conduct small tests of change. Tools to

promote effective meetings, such as identifying meeting roles at the beginning of each meeting, are used throughout the improvement initiative.

## LOCAL PROBLEM AND PURPOSE

At the project hospital emergency department, mislabeled specimens from the emergency department to the laboratory were a consistent source of error for many years despite best efforts to address the problem (refer to [Figure 5](#) for historical data). The local clinical team was fully aware of the problem and worked to find a solution to ensure highest levels of patient safety, yet outcomes were not improving. In September 2019, an improvement coach with CM training was able to guide the team to a systems solution that resulted in sustainable improvements in mislabeled specimens. The purpose of this paper is to describe the quality improvement initiative that reduced mislabeled specimens from the emergency department.

## Methods

### SETTING

The project hospital is a rural 133-bed community hospital in Pennsylvania that is part of a larger health system. The project emergency department is a 21-bed unit that sees >32,000 visits a year, a certified primary stroke center, and level 4 trauma center.

### INTERVENTION—PLANNING PHASE

A CM coach was assigned to work with an interdisciplinary team at project site, which was identified by the ED operations manager. The team consisted of an operations manager, an administrative team coordinator, an ED technician, a lead phlebotomist, and a registered nurse. The CM coach served a dual role on the team, which included teaching and coaching CM and ED data collection and analytics.

The work consisted of a planning phase followed by multiple iterations of PDSAs that allowed the team to monitor and measure tests of change before making additional changes. The planning phase lasted 3 months (October-December 2019) and consisted of weekly, 1-hour, in-person meetings.

A meeting schedule was established and meeting rules were reviewed. The meeting rules assigned roles to each person at each meeting: a leader, a facilitator, a time

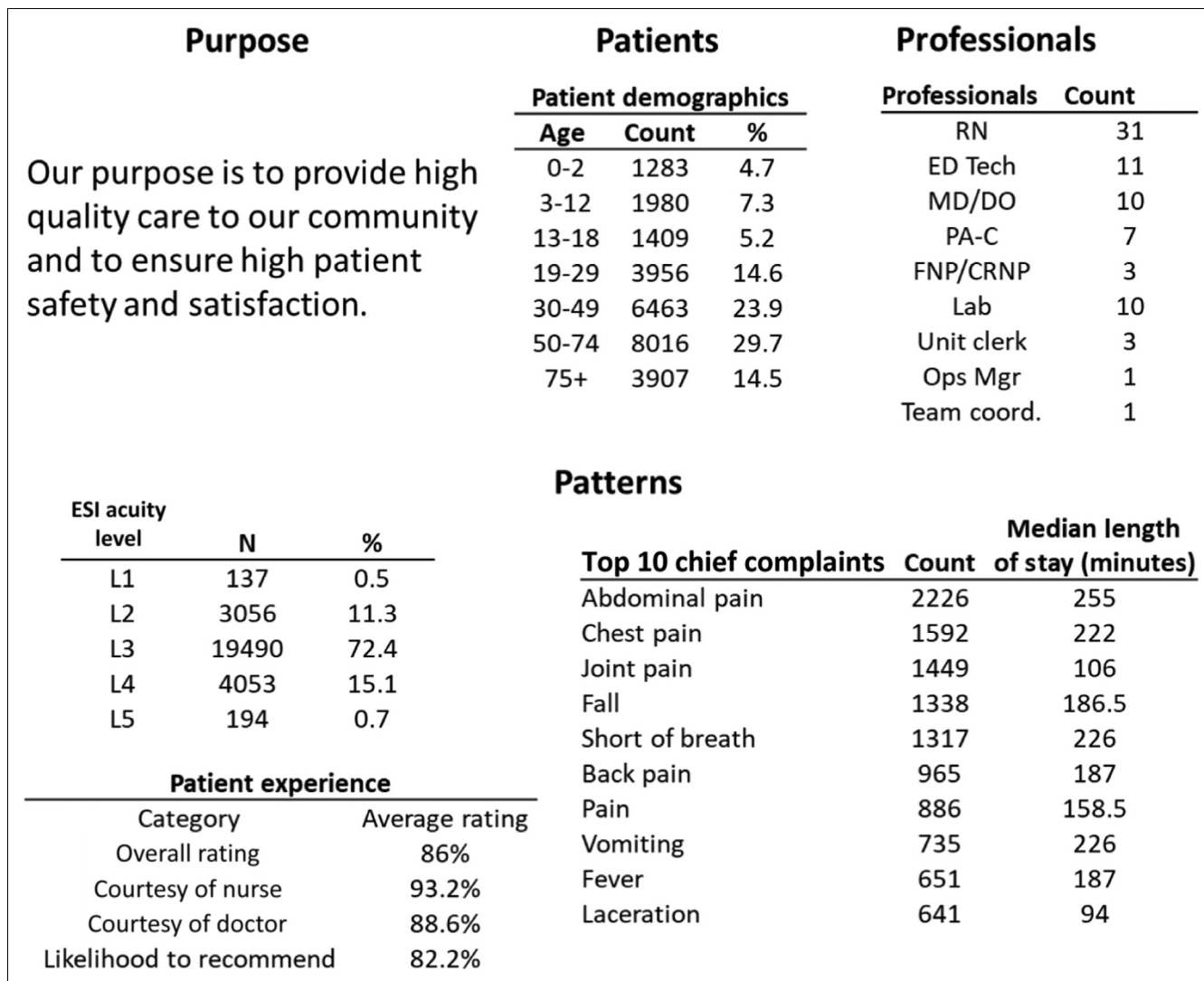


FIGURE 1

The 5Ps were described and placed in a poster that was hung in the emergency department. Below is information about the emergency department’s purpose and examples of descriptions of patients, professionals, and patterns. Process is described in the flowchart in Figure 2. ESI, Emergency Severity Index.

keeper, and a recorder. The highly structured nature of the rules created efficiency and clear expectations for each meeting.

Meeting agendas were guided by the CM 5P framework.<sup>8</sup> The 5P framework elicits common understanding of team identity and how the team does their work. The 5Ps can be framed as questions: what is the purpose of our microsystem? Who are the professionals in our microsystem? Who are the patients we care for? What are our processes? What are our patterns? The 5P framework can be used at a high level, intended to elicit broad conversation,

which can then be used to dig deeper. The 5Ps can also be used if a particular area of focus is already known, as in the case for the mislabeled specimen improvement initiative. When a focus area is already known, it is critical to go through each step of the 5P framework without jumping to a solution. The 5Ps are used to better understand the problem and local context. Deeper understanding of the context can help identify different solutions and avoid the trap of jumping to solutions that may not work well. Figure 1 demonstrates the emergency department’s use of the 5P framework.

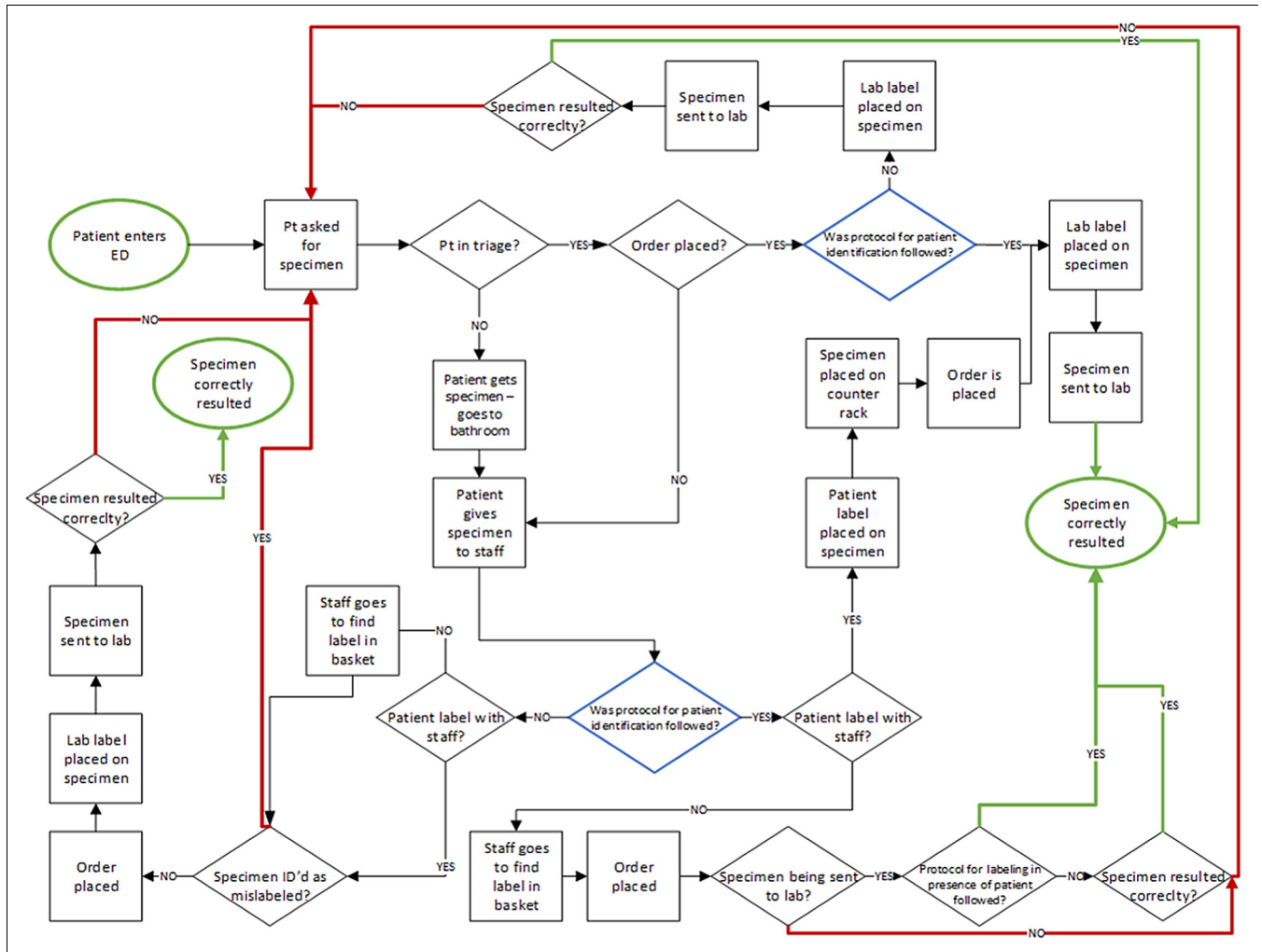


FIGURE 2  
Urine specimen collection process flowchart that informed PDSA 1. ED, emergency department; PDSA, Plan-Do-Study-Act.

Based on the data collected during the 5Ps assessment, the team chose to focus on urine collection, given that abdominal pain was the most common chief complaint in the emergency department. Figure 2 provides a detailed map of this process, which illuminated multiple opportunities for inefficiencies and mistakes before the implementation of PDSA 1. Each process step is shown in a box, a decision point in the process is shown in a diamond, and the start and end points are shown in an oval. Each decision point highlighted in blue was where the team identified the greatest opportunities for intervention. The greatest problem point was patient verification once the specimen was collected, as indicated by the blue diamond in Figure 2.

INTERVENTION—ACTION PHASE

Several steps were enacted to better follow patient identification protocol. A commitment form was given to and signed by each emergency nurse to assure they understood the correct identification protocols (Figure 3). It was important to confirm each team member was in alignment around the goal of this work and around how it would be performed. Signs were created and posted in patient rooms, around the emergency department, in hallways, and in bathrooms (Figure 4).

The last month of the planning phase was used as a beta test to allow time for staff to adjust to the new processes. At

<p style="text-align: center;"><b>Emergency Department Labeling of Specimens</b></p> <p>My signature represents the following:</p> <ol style="list-style-type: none"> <li>1. I received, reviewed and understand policy 2.03 Patient Identification</li> <li>2. I will label all specimens in the presence of the patient using two patient identifiers.</li> <li>3. I will adhere to the no labeling zone.</li> </ol> <p>My failure to do the above could result in disciplinary action.</p> <p>_____</p> <p>Employee Signature/Date</p> <p>_____</p> <p>Operations Manager—Emergency Services/Date</p>	<p style="text-align: center;"><b>Mislabeled Specimen Reflection Form</b></p> <p>You unfortunately had a mislabeled specimen. Our goal is to provide the best care possible to our patients. When mislabeled specimens occur, it affects the care we give for multiple reasons. Please fill out the following questionnaire and return form to Bonnie.</p> <p>What went wrong in the process?</p> <p>What could you have done differently?</p> <p>What do you plan to do in the future to avoid mislabeling specimens?</p> <p>Do you think our current process failed you or did you fail the process?</p>
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FIGURE 3 A commitment form and reflection form were given to staff, ensuring everybody understood the improvement initiative.

the end of this month, an anonymous survey was completed by staff and the information was used to make adjustments to the initiative before the implementation of PDSA phase 1.

Discussion of the goals and status updates was provided at each team huddle. Data were shared and discussed as they came in from staff and from the system data tracker. Monthly meetings by the interdisciplinary team continued throughout the first 5 months of the action phase. Then the meetings were scheduled on an as-needed basis as the system became reliable and communication could be disseminated among the CM coach and team via email. This work was completed in the PDSA 1 phase.

The second improvement cycle, PDSA 2, involved the implementation of an electronic scanner that communicated with the electronic health record. The utilization of the scanner was based on a system-wide implementation that was not available to the team before the larger organization making the decision to use scanners. The team treated the implementation of the scanners as another PDSA cycle because this was different than PDSA 1. This scanner served as an electronic verification that the patient name aligned with the specimen label. After the nurse verifies the patient using 2 identifiers, the specimen is collected, and the patient’s wrist band and the specimen label are scanned by



FIGURE 4 Two examples of signs that were hung throughout the emergency department as reminders to staff about the improvement initiative. One was directed to the patient and the other to staff.

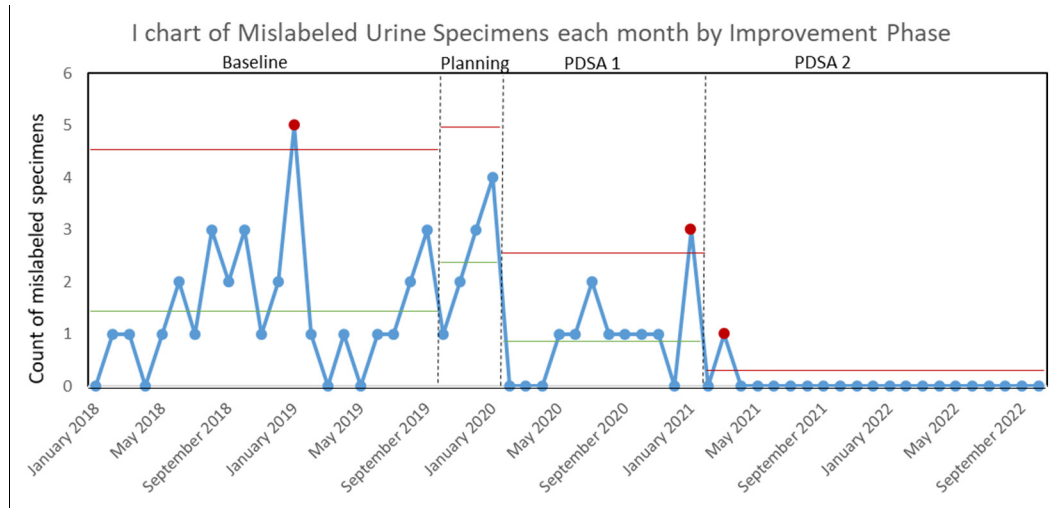


FIGURE 5

Statistical process control chart (SPC I-chart) of mislabeled specimens per month by improvement phases. Blue dots indicate the process exhibits normal variation. The red dots indicate a statistically significant deviation from expected variation.

the electronic scanner. Data continued to be shared and discussion about mislabeled specimens continued within the department throughout PDSA 2 and to date.

#### STUDY OF THE INTERVENTION

Various measures were used throughout the intervention. First, the count of mislabeled specimen occurrences were tracked via the Market Information Data Analytics System (MIDAS), a quality management platform widely used in hospitals to monitor and analyze undesirable outcomes. Laboratory personnel generated MIDAS reports when something was amiss about the received specimen. The MIDAS occurrences relevant to the current intervention included wrong patient label, wrong specimen, and no label. Data were collected on a monthly basis.

Data were broken down into 4 phases: baseline, planning, PDSA 1, and PDSA 2. The baseline phase included all data collected before the planning stage, from January 2018 to September 2019. The planning stage included the time spent mapping out the current process, identifying the team's "pain" points, designing the intervention, and completing a 1-month beta test. PDSA 1 represents the initial implementation of the new process and PDSA 2 was the introduction of bedside scanners. Progress was continually tracked through MIDAS reports from the laboratory. Statistical process control charts and *t* tests were used to evaluate changes in the process. A significance level of .05

was set for all statistical tests. Data were tracked with a statistical process control chart (I-chart) through Minitab (Version 19.0) [Computer software]. State College, PA: Minitab, Inc. ([www.minitab.com](http://www.minitab.com)) and Microsoft Excel (Professional Plus 2016) [Computer software]. Microsoft Corporation.

Supplemental information to the MIDAS data started with an anonymous staff survey that was deployed after 1 month of the beta test intervention. This provided feedback as to how the process was working, how the current process could be improved, and how staff felt about the initiative. In addition, employees who failed to follow the identification protocol were required to complete a reflection form (Figure 3). This form provided real-time information about the error and provided an opportunity for meaningful dialogue between the operations manager and staff. Ethical aspects of implementing process changes and measuring and disclosing progress were deemed minimal to non-existent with respect to staff distress, privacy, and cost.

#### Results

Results from the 1-month (beta test) survey indicated that the process was not working as planned (Figure 6). This information prompted a change from the original protocol. That is, the language of the patient identification protocol

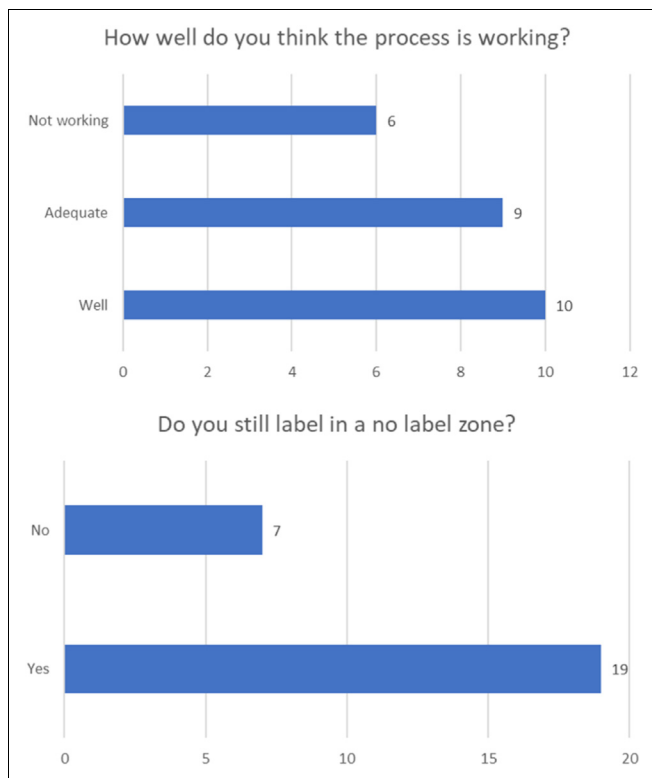


FIGURE 6

Results from a survey taken 1 month after implementation (March 2020) indicating that staff did not think the process was effective and many were not adhering to the process.

was changed from labeling at the bedside to labeling in the presence of the patient.

The I-chart (Figure 5) includes 4 phase lines that reflect different parts of the improvement initiative. The baseline phase indicates 1 outlier in January 2019. A significant increase occurred during the planning phase compared with baseline, with an increase from 1.5 mislabeled specimens per month during baseline to an average of 2.5 mislabeled specimens per month during the 3.5-month planning phase ( $P < .05$ ). Upon implementation of PDSA 1, the count of mislabeled specimens dropped to 0 for 3 consecutive months and had an average of  $<1$  mislabeled specimen per month over the 12-month period. PDSA 1 shows both a decrease in mislabeled specimens and an increase in consistency over baseline and planning phases ( $P < .05$ ). After implementation of PDSA 2, another decrease in mislabeled specimens and increase in process consistency resulted ( $P < .001$ ).

## Discussion

Findings from this project indicated that, early in the improvement initiative, staff were not on board with the process changes the team implemented. The information from the anonymous survey results was critical to the success of the initiative. The improvement team, which included local leadership, took the seemingly disheartening information and listened to staff voices. Changes were made before the PDSA 1 go-live date, and the ensuing results were positive. PDSA 1 resulted in significant reduction of mislabeled specimens. When electronic scanners were made available, PDSA 2 was deployed and resulted in further decrease of mislabeled specimens.

Improvement work in a busy clinical setting is difficult. It is easy to see how clinical teams, who know their processes well and whose intention is to ensure patient safety, get worn down by grappling with the same problem for years without a change in results. The project ED team approached the problem of mislabeled specimens head-on for years before finally improving outcomes through the aid of a CM coach who helped them see the problem from a systems lens.

The CM framework facilitates understanding the real-life, complex workflows that occur in the clinical setting versus those that are spelled out in a policy or textbook. When we understand what actually happens and can look at it through a shared picture, for example, a flowchart, we gain common understanding of pitfalls and opportunities for improvement. The CM framework provided a path to improve the process by decreasing the number of mislabeled occurrences well before the electronic scanner was implemented.

The significant increase in mislabeled specimens during the planning phase of intervention was not surprising. It is possible this increase is related to heightened awareness of the problem given the renewed focus of mislabeled specimens with the CM coach. Perhaps staff were more inclined to report issues during this phase or perhaps it is simply a continuation of the baseline phase that was highly variable.

The 1-month postimplementation survey provided important information that the initiative was not working as planned. Staff were not following the new process and these data were critical to figure out how to move forward. Although this information was frustrating and disheartening, it was necessary to learn staff's honest opinions. The team made adjustments to the policy based on feedback from staff, and the process resulted in improved outcomes. Approximately a year after PDSA 1 began, scanners were introduced through a system-wide implementation (PDSA



2). This resulted in a decrease in mislabeled specimens as seen in [Figure 5](#).

### Limitations

Limitations to the generalizability of this work may exist. Specifically, the interdisciplinary team was highly engaged with this work, as were the ED staff. The level of detail and continuous dialogue about the problem and intervention was needed in order to achieve positive results. Implementing any kind of improvement initiative may be limited if staff are not engaged. Another limitation may be internal validity of measuring mislabeled specimens. The MIDAS tracking system relies on voluntary staff reporting when mislabeled specimens occur. Although relying on such systems is common practice, it is possible that voluntary systems produce an underestimate of the problem. Efforts to adjust for measurement limitations were made by collecting data in a consistent manner that had been in place by the larger system for a long time prior to the beginning of this initiative. This measurement is the best available and is industry standard, yet poses potential limitations.

### REFLECTIONS FROM THE CM COACH

Coaching a team through an improvement project that they have been working on for years was intimidating, daunting, and exciting. I had to trust the CM framework and I had to convince the team that the pedantic work of consistent meetings and process flow mapping would be worthwhile. The team decided to trust me and give it a shot.

Implementing meeting roles was both necessary and awkward. Although it took the team some getting used to, it made the meetings more focused and streamlined. At the end of each meeting, we would also perform a quick evaluation: how do we feel this meeting went? What could we do better for next week? What did we do well?

The most difficult part as a coach was the process map. This took approximately 4 to 5 meetings to get correct. It was a tedious task to ask the team—who knew this process as second nature—to walk through every small detail, every move they make in the process. During the first meeting, the team talked me through the process as I took notes and continuously asked questions. I then took those notes and compiled them into an initial rough map of approximately 12 steps. As a team, we refined this and created a completed map of 31 steps. The team then used this map to identify where to make process changes and what those changes would be.

### REFLECTIONS FROM THE ED OPERATIONS MANAGER AND ADMINISTRATIVE TEAM COORDINATOR

Staff often know what needs to be improved and their expertise is needed for identification of the problem and motivation to find and implement a solution.

Process flowcharts are important for staff to complete because they see a picture and can identify aspects of the workflow that are overlooked or taken for granted. In our case, the team knew what to focus on because we had been doing this work for so long, but we spun our wheels because we overlooked the fundamental processes that create the problem.

Having the right people at the table is critical for success. Our interdisciplinary team consisted of key stakeholders from within the emergency department and laboratory. We could not have done this work without voices from people who are part of the process we wanted to change.

Finally, as nursing leaders, it is essential that we establish accountability for performing the new process. We must speak the importance of this work, disseminate information from the team's meetings, share data updates, and hold staff accountable when they do not follow through. At the same time, we must be willing to learn from the staff's experiences with the process and know when it may be necessary to make modifications to support the team's success.

The reflection form created during this project is still in use today for mislabeled specimens in the emergency department. The commitment form that was created has been applied to other quality improvement initiatives (such as stroke and trauma) and is part of new-staff orientation.

### Implications for Emergency Nurses

This study showed that a systems thinking approach using the Clinical Microsystems framework successfully reduced mislabeled specimens even before an electronic scanner to verify patient identification was an option for this ED. It is necessary for the improvement team to consist of staff involved in the care process and for this team to take time to understand the nuances of their work flows to assure everybody is on the same page when proposing improvement plans. The broader ED staff must be regularly updated and made aware of process changes and outcomes. Since these are the people carrying out the work, their opinions about the improvement work must be considered as vital to the overall improvement initiative. It is critical for ED

nursing leadership to support the team and hold staff accountable to improvement plans.

## Conclusion

Improving patient safety in complex clinical settings requires a systems approach. Using the established framework of CM, along with a tenacious and persistent interdisciplinary team, helped create a reliable process for minimizing mislabeled specimens in the emergency department.

## Author Disclosures

Conflicts of interest: none to report.

This study was deemed exempt by the institutional review board, and all data were aggregated and stored in a deidentified manner.

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# THE MANAGEMENT OF CHILDREN AND YOUTH WITH PEDIATRIC MENTAL AND BEHAVIORAL HEALTH EMERGENCIES



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## Abstract

Mental and behavioral health (MBH) emergencies in children and youth continue to increasingly affect not only the emergency department (ED), but the entire spectrum of emergency medical services for children, from prehospital services to the community. Inadequate community and institutional infrastructure to care for children and youth with MBH conditions makes the ED an essential part of the health care safety net for these patients. As a result, an increasing number of children and youth are referred to the ED for evaluation of a broad spectrum of MBH emergencies, from depression and suicidality to disruptive and aggressive behavior. However, challenges in providing optimal care to these patients include lack of personnel, capacity, and infrastructure, challenges with timely access to a mental health professional, the nature of a busy ED environment, and paucity of outpatient post-ED discharge resources. These factors contribute to prolonged ED stays and boarding, which negatively affects patient care and ED operations. Stra-

tegies to improve care for MBH emergencies, including systems level coordination of care, is therefore essential. The goal of this policy statement and its companion technical report is to highlight strategies, resources, and recommendations for improving emergency care delivery for pediatric MBH.

**Key Words:** emergency department; mental health; behavioral health; school and community mental health services; medical home; emergency medical services for children; telepsychiatry; primary care provider; whole person care

## Abbreviations:

CBAT, community-based acute treatment; ED, emergency department; EMS, emergency medical services; EMS-C, Emergency Medical Services for Children; MBH, mental and behavioral health; LGBTQ+ youth, lesbian, gay, bisexual, queer or questioning

Emergency department (ED) visits by children and youth with mental and behavioral health (MBH) emergencies in the United States have been increasing over the last decade.<sup>1</sup> At the same time, there has been an increased prevalence of depression and suicide in pediatrics, which for the purposes of this statement, refers to children, adolescents, and young adults.<sup>2,3</sup> In response to this, the American Academy of Pediatrics and the American Foundation for Suicide Prevention created “Suicide: Blueprint for Youth Suicide Prevention” to be a resource for

health professionals caring for youth at risk for suicide.<sup>4</sup> Racial disparities exist in mental health, with increased rates of suicide in Black school-aged children.<sup>5-7</sup> In a study analyzing suicide rates in US youth from 2001 to 2015, among children 5 to 12 years old, the suicide rate was approximately 2 times higher for Black children compared with white children.<sup>8</sup> Since 2010, there have been increased rates of Black high school students with suicide attempts and injury after a suicide attempt in the United States.<sup>7</sup> Overall, American Indian/Alaska Native high school students have the highest rates of suicide and suicidal ideation.

Acknowledging these inequities in MBH outcomes is an essential part of the efforts toward behavioral health equity. The Substance Abuse and Mental Health Services Administration (SAMHSA) defines behavioral health equity as “the right to access quality health care for all populations

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regardless of the individual's race, ethnicity, gender, socioeconomic status, sexual orientation, or geographical location. This includes access to prevention, treatment, and recovery services for mental and substance use disorders."<sup>9</sup>

For children and youth with MBH conditions, there are often limited resources in the community and on the institutional level (prehospital to ED to inpatient) to provide optimal care.<sup>10-12</sup> As a result, EDs have become a critical access point and safety net for those requiring acute and subacute MBH care.<sup>13</sup> There are also disparities in access to care based on race, ethnicity, insurance status, gender identity, language preference, and the geographic location of mental health specialists and inpatient psychiatric units.<sup>14-16</sup> In addition, there may be patient and family barriers to obtaining care, including the potential stigma of a mental health disorder diagnosis and treatment.<sup>17</sup> Models of community-based care to triage and manage acute MBH emergencies can be considered to broaden resources to care for these patients.<sup>18,19</sup>

In addition to these challenges, EDs have a wide variation in their capability to care for pediatric patients with MBH conditions.<sup>20</sup> Physicians, physician assistants (PAs), and nurse practitioners (NPs) working in EDs may experience challenges caring for pediatric patients' MBH conditions.<sup>21,22</sup> Children and youth with intellectual disabilities, autism spectrum disorders, and behavioral dysregulation; immigrant children and those with specific cultural and language preferences; children in the child welfare system; youth in the juvenile justice system; and lesbian, gay, bisexual, queer, transgender or questioning youth (LGBTQ+) may have additional challenges, which need to be addressed.<sup>14,23-25</sup> Because of the diversity of the populations and the high prevalence of trauma and adversity among ED patients, organizations/ED leadership should provide resources for physicians, PAs, NPs, and nurses about trauma-informed relational care as a universal approach to care.<sup>26</sup>

There is often inconsistent screening for self-harm risks and substance use in patients presenting for both mental health concerns and other complaints.<sup>27</sup> Furthermore, pediatric patients with mental health conditions may experience prolonged ED lengths of stay while awaiting appropriate placement for a higher level of psychiatric care (eg, inpatient psychiatric unit, community-based acute treatment [CBAT]).<sup>28,29</sup> There are also challenges in organizing outpatient mental health care after ED discharge. The ultimate goal in the ED is to provide optimal and equitable care for children and youth with MBH emergencies. This policy statement aims to provide guidance on evidence-based best practices with resources and references

(Table) to emergency physicians, PAs, and NPs for the management of MBH emergencies in children and youth.

## Recommendations for Optimizing and Improving Care of Pediatric Patients with Mental Health Emergencies

### PREHOSPITAL

- Develop ED facility transfer protocols involving emergency medical services for children (EMS-C), such as appropriate referrals to psychiatric crisis units within psychiatric facilities or community mental health centers, where available (eg, Pittsburgh and San Francisco).<sup>30,31</sup> These centers could provide short-term stabilization and referrals (eg, Northwell System).<sup>32</sup>
- Develop telehealth emergency psychiatric medical control (through emergency medical services [EMS] and schools) to identify and divert low-acuity patients to facilities equipped to manage MBH conditions.
- Activate existing mental health mobile crisis teams to be able to respond to schools, physicians' offices, and homes (eg, South Carolina and Georgia).<sup>33,34</sup>
- Provide resources for prehospital personnel in acute management of pediatric MBH emergencies.
- Advocate for the implementation of crisis response teams as an alternative to having law enforcement respond to an MBH emergency in the community. Unnecessary contact with law enforcement should be limited or avoided, if possible, during MBH emergencies, as the presence of trained individuals who can provide trauma-informed relational care is recommended, if available.<sup>26,35</sup>

### ED

- Provide resources for ED staff related to recognition and provision of initial care to children and youth with potentially increased risks of MBH concerns including LGBTQ+ youth; victims of maltreatment, abuse, or violence, including physical trauma, mass casualty incidents, and disasters; and those with substance use-related problems (eg, acute intoxication and overdose), preexisting conditions (eg,

TABLE

**Strategies and resources for EDs, health systems, and communities in the management of children and youth presenting with MBH emergencies.**

#	Strategy	References
1	<b>Prehospital preparedness strategies</b>	54-56
a.	EMS systems response and diversion*	18,19,57-60
	School-based interventions	61
	Mobile MBH crisis response teams	62
	Community-based MBH crisis response teams	
2	<b>ED strategies</b>	
a.	Develop systems to respond to MBH crises and ensure equitable care	63-68
	Establish best practices and professional standards for ED mental health care for children	4,69-77
	Embed within EDs specialized teams and models of children's MBH care	46,47,50,51,53
	Create ED culture that embraces care of children with mental health conditions	28,47,76,78-82
	Design ED physical environment that facilitates children's mental health care	45,48,49,52
2.1	<b>ED preparedness strategies</b>	
a.	Critical crossroads	20
	ED clinical pathway for children and youth with mental health conditions	83
2.2	<b>Virtual and digital innovative strategies and approaches for delivering children's MBH care in EDs</b>	84-91
2.3	<b>Targeted ED intervention strategies for managing acute MBH crises</b>	54,92-95
2.4	<b>Robust ED follow-up strategies and programs</b>	
a.	Community MBH connections and partnerships	96-98
	ED discharge and acute follow-up programs for children	99-101
b.	Digital follow-up strategies	86,102-104
2.5	<b>Medical education strategies to improve MBH diagnoses, practices, and care</b>	105-107
a.	Educate ED staff about the needs and care of children with MBH conditions, as well as safety screening, safety planning, and lethal means counseling	26,108,109
	Train staff in de-escalation strategies and techniques and in trauma-informed relational care	110,111
	Educate medical and nursing students and trainees in children's MBH diagnoses and care; Develop medical school, residency, and nurse education curriculum	112
	Develop medical competencies for medical practitioner certification in pediatric MBH care	112,113
2.6	<b>National professional medical organization strategies to improve access and acute care of children with MBH conditions</b>	
a.	Develop quality standards and metrics for acute pediatric MBH care	114
	Support research development and funding to improve acute diagnosis, treatment, and care for children and youth with MBH conditions	
	Support the development and funding of national efforts to improve ED/EMS readiness and access to pediatric MBH	
	Spearhead advocacy and support legislative efforts that support and promote efforts to improve diagnosis, care, and follow-up and the social safety net to promote pediatric MBH	

\* Diversion refers to a temporary closure of EMS transport to an ED.

autism spectrum disorder, developmental delay, and intellectual disability), posttraumatic stress, depression, children in the child welfare system, youth in the juvenile justice system, and suicidality.

- Explore development of expanding telehealth consultations (telepsychiatry), particularly in resource-limited areas, or during pandemics and disease outbreaks such as coronavirus disease 2019 (COVID-19), including provision for documentation, compensation for such services, and considering best practices for pricing (ie, payment bundled for multiple consults for ED patient with prolonged length of stay). Access to broadband internet for telehealth services must also be considered. In addition, strategies to improve mental health specialist continuity of care for the same patient during the same encounter should be developed.
- Advocate for 24-hour access to professional interpreter services, including for American sign language and/or interpreters trained in crisis management for patients and families with limited English proficiency.
- Develop standards and systems to establish consultation and acute referral networks within hospitals and communities.
- Develop systems for care linkages and follow-up to help patients navigate the complex mental health system, including referral to outpatient and community behavioral health centers.
- Leverage technology, including electronic apps and social media, for safety planning to improve follow-up/contact (eg, ED-SAFE, Tennessee program for treatment/supplement treatment interventions, for accessioning help; Colorado Suicide app for teens).<sup>36-41</sup>
- Ensure an appropriate and safe environment for patients with MBH disorders (eg, quiet environment and schedule for children with autism spectrum or developmental disorders, safe shower facilities with no hanging cords for patient presenting with suicidal ideation or attempt).
- Provide resources for ED staff to deliver culturally appropriate care with a trauma-informed approach. This should include considerations for addressing systemic racism and implicit bias.

## COMMUNITY

- Advocate for community-based behavioral services using a culturally sensitive, patient-centered approach to

identify and manage behavioral health concerns prior to development of an emergency condition.

- Develop school-based screening and provide resources for staff to recognize special MBH issues related to children and youth who are victims of bullying, abuse, domestic violence, sexual violence, racism, and trauma. This should also include early identification and referral to appropriate resources, previously identified.
- Address behavioral health equity in the community for MBH disorders, including prevention, treatment, and recovery programs for substance use disorders, particularly in vulnerable populations affected by poverty, racism, violence, and food/housing insecurity.<sup>9</sup>

## SYSTEMS OF CARE

- Advocate for adequate pediatric MBH resources in both inpatient and outpatient settings, including the availability of prompt psychiatric consultation and interpreter services for the ED, as well as school and community screening resources.
- Establish standards for documentation, communication, and appropriate billing and payment for inpatient and outpatient psychiatric care by mental health specialists consulting on ED patients (including telemedicine consults), as well as for emergency and prolonged ED care for psychiatric borders.
- Create interfacility transfer agreements, including simplification of psychiatric bed search for patients requiring further care as inpatient, to help limit ED boarding.
- Advocate for referral networks with inclusive mental health coverage, including for those who may be uninsurable (eg, undocumented immigrant children).
- Recognize the medical home as a critical component of MBH in a whole-person care approach for primary care physicians, PAs, and NPs. Advocate for enhancing residency education in pediatrics, medicine-pediatrics, and family medicine related to pediatric MBH conditions. Primary care physicians, PAs, and NPs should be provided with resources to provide psychiatric care as part of the medical home and to receive appropriate payment for these services.
- Optimize and expand insurance coverage for MBH coverage to overcome limitations of service to children with MBH conditions. Provider networks should include adequate pediatric-trained mental

health specialists to serve their patients. Insurance should cover access to pediatric mental health care and case management programs for those with chronic mental illness, high-risk conditions, developmental disabilities, and substance use disorders.

- Advocate for increased funding for the training and compensation of a diverse population of pediatric mental health specialists to help address inadequate access secondary to the shortage of qualified mental health care specialists.
- Include MBH topics in the educational curriculum of prehospital personnel, emergency physicians, PAs, NPs, staff, nurses, and trainees, including emergency medicine residents and pediatric emergency medicine fellows, to provide patient-centered, trauma-informed, and culturally appropriate care.
- Identify current gaps, barriers, and opportunities to improve the current state of MBH care, including supporting programs to increase the diversity of MBH specialists caring for patients in the emergency setting.
- Establish models for improving capacity at the systems level for MBH care services in the entire emergency care spectrum, including those awaiting transfer to higher levels of psychiatric care (eg, inpatient psychiatric hospital beds, CBAT placement).
- As there are trends of increasing numbers of patients with MBH conditions boarding in both the ED and inpatient units, provision of mental and behavioral care is critical for some level of ongoing care.<sup>28,42-44</sup> This model may include initiating/titrating psychiatric medication for medication management, ED environmental modifications, individual and family therapy, and development of coping skills.<sup>44,45</sup>

## RESEARCH

- Increase MBH research funding for EMS-C strategies to screen, identify, and connect to appropriate resources.
- Support the research and development of evidence-based guidelines and best practices for ED screening tools, assessment, consultation, acute management, and follow-up care related to children's mental health crises.
- Advance research related to the acute management of pediatric MBH disorders and potential prevention strategies for MBH emergencies (eg, acute psychiatric care models in the ED and inpatient units, psychiatric telehealth consultations for the ED, role of

mass media in teen suicidality and depression, implementation of community mobile crisis teams responding to multiple settings).

- Expand research efforts focused on reducing risk factors for youth and examine health inequities related to MBH presentations and management with the goal of addressing and eliminating these disparities. These risk factors include those unique to certain populations, including but not limited to historically marginalized and racial and ethnic groups, LGBTQ+ youth, immigrants and refugees, children in the welfare system, youth with substance use disorders, intellectual disability, low socioeconomic status, history of exposure to trauma or violence, involvement in the child welfare system, involvement in the juvenile justice system, and limited English proficiency. These research efforts should include the epidemiology of MBH presentations of children and youth to the ED and interventions focused on mental health-related inequities in care and outcomes.
- Advance research to better understand the effects of racism and its effects on MBH. This research should include interventional studies to address inequities in mental health care access and outcomes and care of children and youth of historically disadvantaged racial and ethnic groups.

## FUTURE DIRECTIONS

- Develop and validate quality indicators and metrics to improve and standardize ED care of children and youth presenting with MBH concerns. These quality indicators and metrics must also include a health equity lens, examining disparities in care based on race or ethnicity, sexual orientation, gender identity, chronic conditions, socioeconomic status, limited English proficiency, and other factors.
- Assess the readiness of EDs in the United States to care for children's mental health emergencies to help identify gaps, needs, and innovations in care.
- Develop models to incorporate MBH evaluation and treatment areas in the ED, where feasible (Table). This can include specifically designated spaces. These models have demonstrated improvement in patient and family experience for conducting confidential evaluation and treatment and have allowed more efficient use of psychiatric consultant time.<sup>45-53</sup>



- Support development of up-to-date, easily accessible, and searchable online inventories of community mental health referral networks.
- Develop national professional standards for children's mental health consultations.
- Develop mental health support networks that minimize reliance on acute crisis management.
- Advocate for optimizing and expanding insurance coverage, especially for states that have not expanded Medicaid, to improve mental health care screening and treatment for children and youth.

## Conclusions

MBH emergencies are increasing in children and youth. EDs have been seriously affected by the increases as the safety net for a system with critical shortcomings. The time has come to address this health care crisis through the following methods: addressing MBH inequities; increasing screening of ED patients for MBH conditions; identifying, treating, and referring children and youth with MBH emergencies; improving access to resources for patients and staff; using standardized treatment protocols; and optimizing the use of telehealth in the treatment of pediatric patients with MBH emergencies. A dedicated multi-pronged, multidisciplinary approach will be necessary to provide patient-centered, trauma-informed services to improve the care of children and youth with MBH emergencies.

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# WHAT IF IT WERE ME? A QUALITATIVE EXPLORATORY STUDY OF EMERGENCY NURSES' CLINICAL DECISION MAKING RELATED TO OBSTETRICAL EMERGENCIES IN THE CONTEXT OF A POST-ROE ENVIRONMENT



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## Contribution to Emergency Nursing Practice

- There is no information in the literature about how emergency nurses manage obstetrical emergency care in care-limited environments.
- This is the first paper to describe emergency nurses' decision-making experiences in the context of care-limiting legislation.
- Appropriate care and advocacy for the pregnant or post-partum patient, especially in states with care-limiting laws, carry with them clinical, ethical, and legal implications that should be addressed head on by both individual nurses and by professional organizations.

## Abstract

**Introduction:** Previous research describes a significant knowledge deficit in obstetrical care in emergency settings. In a post-Roe environment, additional medicolegal challenges are documented across the obstetrics and gynecology landscape, but an understudied care setting is the emergency department, where patients may present to a practice environment where there is limited or no obstetrical care available. It is

unknown how emergency nurses make decisions around these types of presentations. The purpose of this study was to explore the clinical decision-making processes of emergency nurses in the care of patients with obstetrical emergencies in the context of limited or absent access to abortion care and the impact of those processes on patient care.

**Methods:** Qualitative exploratory approach using interview data ( $n = 13$ ) and situational analysis was used.

**Results:** Situational mapping uncovered human elements comprised nurses, providers, pregnant people, and families; nonhuman elements comprised legislation, education, and legal understanding. Social worlds mapping included challenges of inexperience, conflict about clinical responsibility, uncertainty about the meaning of legislation, and passivity around implications for patient care. Positional mapping yielded both the overlapping discourses around the phenomenon of interest and the area of silence around abortion-limiting legislation.

**Discussion:** We found that emergency nurses in states with abortion care-limiting laws had significant self-reported deficits in both education and training around the management of obstetrical emergencies. In this sample, there was a surprising lack of

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awareness of care-limiting legislation and the clinical, ethical, and legal implications for both emergency care staff and for patients.

**Key words:** Emergency nursing; Obstetrical nursing; Abortion care; Clinical decision making; Situational analysis

## Introduction

Between 1987 and 2018, maternal mortality in the United States increased overall from 7.2 per 100,000 live births to 17.3 per 100,000<sup>1</sup>; it increased to 41.4 per 100,000 for Black women and 26.5 per 100,000 for American Indian or Alaska Native women. The risk of death reflects several factors including access to care, quality of care, prevalence of chronic diseases, structural racism, and implicit biases.<sup>1</sup> Causes of maternal death include cardiovascular disruptions, sepsis, cardiomyopathy, hemorrhage, pulmonary embolus, and hypertensive disorders of pregnancy.<sup>1</sup> Pregnancy-related death is higher in rural areas, potentially reflecting access to obstetrical (OB) care.<sup>1</sup>

The March of Dimes' Maternity Desert Report<sup>2</sup> found a 2% increase in maternity care deserts (areas where there is limited or absent perinatal care) since 2020, affecting 1119 counties (35.6% of all United States counties) and affecting an additional 16,000 women with no access to maternity care. In areas where OB services are not available, emergency departments often become the default for unplanned OB care, yet emergency nurses are not universally trained in the identification and treatment of OB emergencies. In particular, pregnant patients may travel to the nearest emergency department for care for conditions such as premature rupture of membranes, abdominal pain, vaginal bleeding, shortness of breath, headache, or chest pain. In 2020, Wolf et al<sup>3</sup> reported findings from a mixed methods study and concluded that there are significant knowledge deficits in the emergency nursing care of patients presenting with high-risk conditions associated with pregnancy.

Compounding this problem, since the Dobbs decision in June of 2022 that essentially overturned *Roe vs Wade*, providers have been practicing in an environment of uncertainty with regard to the medicolegal implications of the ruling. Currently, in the United States, approximately half of the states have limitations or total bans on abortion, but it is a shifting medicolegal landscape, with old bans going into effect in some states and new bans or other limitations happening in others. It is not always clear which pregnancy-ending interventions are banned and under what circumstances the conditions of "life or health of the pregnant person" can be invoked.<sup>4</sup> Providers routinely face problems in cases of previsible premature rupture of membranes or other pregnancy emergencies, given that the medications or treatments are often the same as those used in elective abortions, and state laws do not recognize

the difference. These situations have been playing out across the obstetrics and gynecology landscape, but an understudied care setting is the emergency department, where patients may present with OB emergencies in a practice environment where there is limited or no OB care available. The combination of knowledge deficit around OB care in states where abortion care is limited or banned, even in cases of maternal emergency, and the uncertainty of the circumstances under which any intervention can occur in the current legislative environment may result in significant increases in maternal morbidity and mortality. It is unknown how emergency nurses make decisions around these types of presentations.

The purpose of this study was to explore the clinical decision-making processes of emergency nurses during the care of patients with OB emergencies in the context of limited or absent access to abortion care and the impact of those processes during the care of patients presenting to emergency departments with OB emergencies and previsible pregnancies.

## Methods

This study used a qualitative exploratory approach using situational analysis, a type of grounded theory methodology as described by Clarke.<sup>5</sup> This method is appropriate for this question, given that the situational analysis approach assumes that reality is created through interactionality and is socially constructed. The Consolidated Criteria for Reporting Qualitative Studies checklist was used in the reporting of this study.

### SAMPLE

A sample of emergency nurses was recruited using social media and networking. Inclusion criteria comprised emergency nurses older than the age of 18 years, fluent in English, and who worked in emergency departments located in states with abortion bans. Although the initial contacts were known to the research team, almost none of the study participants had any professional or personal relationship to the research team.

### DATA COLLECTION

Institutional review board (University of Massachusetts, Amherst) approval was obtained before the recruitment for participants to the study. A Certificate of Confidentiality

was obtained from the National Institutes of Health, given the sensitive nature of the discussion and the likelihood that disclosure of care practices might occur during the data collection process. A \$50 gift card was offered to eligible participants who completed the survey and participated in an interview.

Demographic information was collected about individual participants (eg, age, gender, education, general nursing experience, specific emergency nursing experience) and the practice settings in which they work (eg, type of emergency department, number of annual patient visits, geographic location) using online survey software (Qualtrics, Provo, UT). Data were collected during individual interviews conducted between February 20 and March 17, 2023, via Zoom that lasted from 30 to 45 minutes. Every 3 to 4 interviews, the data were assessed for saturation or the need for further explication. Several questions were added to the interview guide based on information uncovered during interviews (see below). Saturation was reached after the 11th interview, with the last 2 interviews conducted for completeness. The interviews were conducted by 2 members of the research team (L.W., H.S.N.) and transcribed in their entirety and, along with researcher notes, served as the data set. To answer the research question What are the clinical decision-making processes used by emergency nurses in providing care in obstetric emergencies when the fetus is previsible in the medicolegal context of abortion bans? the interviews were semistructured using the following questions as a guide:

- What is the clinical understanding of OB emergencies (ie, training or experience informing urgency)?
- What is the participant's understanding of their role in the care trajectory for the pregnant person and the fetus?
- What are the participants' perceptions of their role in patient outcomes under these conditions?
  - Added February 28, 2023 (after interview 5)
- What is the understanding about reportable situations (ie, if a patient reports an abortion or miscarriage, does anyone feel they need to report that to someone)?
  - What actions do emergency nurses take when they have concerns about the care of the pregnant patient with a life-threatening complication?
    - Added February 23, 2023 (after interview 3):
- Is there currently an informal or formal policy or directive to manage care in these situations?
  - What guides them in those decisions?
    - Added February 23, 2023 (after interview 3):

TABLE 1  
Respondents' demographics

Characteristic	
Gender	n = 13
Male	15%
Female	85%
Age	n = 13
25-34	15.4%
35-44	30.1%
45-54	38.5%
55-64	15.4%
Highest level of nursing education	n = 13
ADN	15%
BSN	70%
MSN	15%
Primary role in the ED	n = 13
Staff nurse	61.5%
Charge nurse	23.0%
Educator	15.4%
Years of experience (mean)	n = 13
As a nurse in all areas	16 (range 5-34)
As an emergency nurse only	11.3 (range 4-26)
In current ED	5.25 (range 1-11)
Postlicensure training in obstetrical care	n = 13
Yes, in my current ED	15.4%
No prior training in OB care	84.6%

AND, Associate Degree in Nursing; BSN, Bachelor of Science in Nursing; MSN, Master of Science in Nursing; OB, obstetrical.

- Do you feel supported in your decision making (ie, is there group cohesiveness)?
- Does the length of tenure in your emergency department affect that?
  - What concerns do emergency nurses have about providing care to pregnant people with a life-threatening complication in the context of abortion bans?
    - How do they resolve those concerns?

#### DATA ANALYSIS

Demographic data were exported to an SPSS database and descriptive analyses were performed (see Table 1). The transcribed interview data were analyzed using situational

TABLE 2

**Facility demographics**

<b>Sample demographics</b>	<b>% of sample</b>
Facility size ( <i>n</i> = 13)	%
Average yearly volume	
5001-10,000	7.0
10,000-20,000	7.0
20,000-30,000	0.0
30,000-40,000	15.0
50,000-75,000	0.0
75,000-100,000	23.0
>100,000	31.0
Number of ED beds	48.8 (average)
Geographic location ( <i>n</i> = 13)	%
Urban	69.2
Suburban	30.8
Rural	0.00
ED patient population ( <i>n</i> = 13)	%
General ED	92.3
Adult only ED	7.3
Pediatric only ED	0
Geriatric only ED	0
Facility type ( <i>n</i> = 13)	%
Nongovernment/not for profit	53.8
Investor owned/for profit	23.0
State/local government	23.0
Federal government/military	0
	%
Academic medical center	30.7
Community hospital	69.2
Critical access hospital	66.7
Freestanding ED	25.0

analysis as described by Clarke,<sup>5</sup> which seeks to interpret and uncover the social embeddedness of the phenomenon and the situational attributes that affect it. Using Clarke<sup>5</sup> mapping technique, the research team developed situational maps that delineated the human and other elements in the research situation of interest that provoke the analysis, social networks maps that lay out the actors and elements that interact to form the phenomenon of interest, and positional maps that describe areas of overlap and dissent around issues in the phenomenon of interest. Most significantly, the positional maps describe so-called “areas of silence” that can be critical to understanding what is not openly acknowledged

in the discussion of the phenomenon of interest. Data were analyzed by each investigator and then theoretical meaning was agreed upon. This method is more closely aligned with ethnography than process-oriented grounded theory and highlights situational relationships and context of the inquiry. Members of the research team who are expert in situational analysis (L.W.) and in ethnography (H.S.N., L.W.) guided the analysis. To ensure trustworthiness,<sup>6</sup> credibility was supported via investigator, theoretical, and environmental triangulation and through member checking. Nine of the 13 participants responded to our request to review the findings; all 9 confirmed that we had accurately captured the phenomenon as they understood it. Transferability was supported via thick description, and dependability was supported by having a larger team of both emergency nurses (3) and perinatal nurses (2) not associated with the study read and comment on the findings as proposed by the core research team.

## Results

The final sample comprised 13 registered nurses working in general emergency departments (92.3%) with >75,000 patient visits per year (54%), located in nongovernment, not-for-profit hospitals (53.8%) in urban areas (69.2%) in Texas, Alabama, and Kentucky (see Tables 1 and 2 for the sample demographics).

### SITUATIONAL MAPS

Human elements that contribute to the understanding of managing OB emergencies in the context of abortion bans included emergency nurses and physicians, clinicians in OB emergency areas (on-site or remote), and patients and their families presenting to the emergency department with an OB emergency or concern. Our participants specifically reported a general discomfort with obstetrics in an ED environment in which greater numbers of pregnant patients presented. In addition, inexperienced nurses expressed difficulty identifying OB emergencies.

We’re scared of pregnancies, and we’re scared of babies. We don’t like them, so when they come in at [hospital], at least when they would come in, the first thing we would do is call L&D [Labor and Delivery], or something like that. But, hey, we don’t want to deal with this...we try to pass the buck, try to pass them all. Um, just so we don’t have to handle it. (OBP2)

...[T]he new ones, the new graduates, let's say, halfway there yet. So, they may have an understanding, but...they, they still lack education, or hands-on experience on how to effectively deal with this obstetrical patient, the situation, how to manage. (OBP6)

Participants reported the goal of identifying OB patients is to get them out of the emergency department.

The goal is to get them out of the emergency department. Because we have, like I said, our—our gaps in our training to take care of those patients are—are pretty big. Because in one way we're crippled by those specialty areas that we have that allow us to transfer those patients there. So we don't have a lot of exposure to them, and while we have the numbers to support it, the typical interaction with—with a pregnant patient is in the triage area, and then that patient is triaged to an alternate treatment area like our women's emergency area or L&D upstairs. So I would definitely say, the goal is to move them on to the next place. (OBP9)

The themes that arose from the situational mapping were getting them out, relationships in physician-driven spaces, and there is just a lot more.

Relationships in physician-driven spaces affect the management of OB emergencies as well. Participants reported variable relationships with emergency providers and OB providers; in general, their perception was that emergency physicians were focused on transferring the patient to OB, whereas OB providers tended to resist transfer.

Well... I mean time is wasted while we try to figure out whose responsibility it is. Lots of time. I think the, the mom probably feels...like she's not wanted, [laughter] you know? Because everyone's trying to...push her off somewhere else. It's terrible [increasing laughter] when I think about it that way. But it's, it's—that's not the reason, the reason we truly are terrified something's going to happen to her and the baby and we don't know enough about it to...to deal with it. (OBP11)

This dynamic between the emergency providers and OB providers resulted in delays in care.

So like, there is a delay of care with some of those things... And those physicians...who typically act like we're making a big deal out of nothing. Until it's something, you know. (OBP4)

But there are still situations that OB are hesitant to assist, and to provide treatment. They will send them home, some of them, and say, observe for a day or two, and they'll be back, and they're like...sick and septic. (OBP6)

There was some discussion around the ways in which the personal beliefs of physicians could impact patient care. The personal beliefs identified tended to focus on the role of nursing within the health care team in addition to patient treatment decisions. Participants also reported unclear protocols for transfers within and between institutions. In physician-driven spaces, participants reported feeling left out of decision making and unable to advocate for patients.

I am super uncomfortable speaking to the process of which they [the physicians] follow in our emergency area, but I am comfortable in saying that they have their own triage system whenever the patients are transferred to them [OB, ED]... But I don't know what those deciding factors are for them. (OBP9)

We are a very physician-driven facility. We are not a nursing-driven facility. A lot of the stuff that we deal even with, like, even within basic ED protocols. Still, a lot of it's left up to a provider. Not a lot of it, it's just because we've always had—we've had a lot of, of old-school docs. That, you know, "Nursing can't make those decisions. That's not within their scope." (OBP8)

Because really you walk into an emergency department, you trust everything that the physician says. And that's a position has their own views and beliefs that they're imposing on—which they shouldn't, but it happens, that they're imposing on the patient. I would love to be able to empower them. (OBP9)

Finally, human elements included patients and their families presenting to the emergency department for care. Most participants reported an increase in pregnant patients and the attendant complications and emergencies that accompany pregnancy.

I feel like I've seen more...uh...miscarriages in this setting than I have in any other. Um, I don't know if it's just location...just happens to be what I've encountered in these last 120 days. I-I feel like I've

seen a ton more, and maybe it's because we're so close to the rural communities that...there's a lot of non-resource patients coming in with early [miscarriage]. Like 8, 12, 4-14 week. (OBP4)

"Yeah, there's a big increase in the number of OB patients. I just sent like 11 or 15 upstairs last night. It's a matter of like 12 hours." (OBP6)

Yes. Yes, it—it appears that you know, and—and we get a lot of females coming in, in their very few weeks of pregnancy due to vaginal bleed... I haven't run the numbers. It appears that I have seen an escalation in that. (OBP7)

Nonhuman elements included legislation around abortion care, legal implications for the emergency department, and health care structures, including geographic and spatial elements comprising OB deserts. Themes that arose were: nothing in between, what shall we do? and reluctance to disclose. Discourse around these elements acknowledged the distances patients had to travel to access care, as well as focusing on uncertainty around decision making and edges of the laws limiting or banning abortion care. Many of the participants were acutely aware of the OB deserts that exist within their respective states and the implications this had for providing quality OB care.

"Once you're past Fort Worth it's—I mean, you're—you're an hour and a half to Waco. And there's—there's nothing in between." (OBP4)

"And so they [the patients] just get scared and go to the closest ER, thinking they can get the proper care, and it's not always the proper care." (OBP10)

Collectively, all 13 participants reported that there did not seem to be any official or unofficial discussion by nurses or by administration around concrete actions or processes/protocols, specifically, what is allowable, what is reportable, and by whom. Participants reported uncertainty about what they could tell patients about access to care and reported a reluctance from patients to disclose pregnancy status if it was unrelated to their presenting concern.

The daughter was 16 years old. She was raped and pregnant. And they wanted an abortion...the mother said, 'Unless we can—we can get an abortion here, I'm not gonna check in—check in my daughter.' So

because I'm a SANE nurse I get the call... And they're [the staff] asking me, 'What shall we do?' You know, what—what can we tell them? (OBP7)

Yes, there are some [patients]...who are very reluctant [to disclose pregnancy], especially if they come here for what you're saying. The fast-track or minor issues going on. Like, let's say, finger pain, hand pain, or...basic other stuff. It's like they—they find it redundant, like, 'Why are you asking me this question? I'm only here because I'm having this, this...so-and-so pain.' So yeah...if you ask them you have any chance of being pregnant, then they will tell to you, 'It's not...necessary to answer that.' (OBP6)

#### SOCIAL WORLDS MAPS

Participants' understanding of the provision of abortion-related care reflected themes of uncertainty in that neither nurses nor physicians are reported as having clarity around the legal implications of pregnancy termination (for any reason) and passivity in that there was no collective discussion around protocols or procedures or the edges of the law in terms of what patients are allowed to hear/be informed of.

You know, do you let the patient sit there and rupture and bleed to death before you get them to the operating room? Or do you use your common sense and know that this baby can't live regardless, and take the mother to the operating room before it gets to that point. She should not have to lay there and go through that, knowing there's no way a baby's gonna survive. It's not possible for that baby to—to progress. (OBP2)

Yeah. I mean we have—we as an emergency department have not been educated as to what we can and cannot say, what we can or cannot do. You know, how do we treat these patients? And nothing has been spoken to us about that in regards to the laws. (OBP7)

Uh, but, um. I don't know if there's a legality of us even telling them...where they could—what states are available to that? You know what I mean. So I—I—I try to avoid that. As much as possible... And I'm sure

from an administration standpoint it's hugely uncomfortable but also from a nurse's standpoint, you're not giving me any guidance and I'm—I'm still expected to care for the patient and...be an advocate, right? ...It's like, how do you advocate if you don't really know what to advocate? (OBP4)

## POSITIONAL MAPS

Positional maps note both the overlapping discourses around the phenomenon of interest and the area of silence or the elephant in the room that is ignored but is nevertheless obviously and painfully present.

Nurses participating in this study reported personal perspectives and experiences on the problems of reproduction and bodily autonomy, and how that informed their practice. Many participants focused on the care of the pregnant person, regardless of circumstance.

But you know, in my opinion you gotta protect the Momma, I mean the Momma is first. I mean, that's just—that's just me... I don't know what I would do until I'm in that situation. I—I like to think I know what I would do. But I don't. If it were me, and it was my body? You know, you don't even know that baby. You know, take care of that Momma first, but not everyone may feel that way. I don't know, I haven't been—I haven't been in that situation yet. (OBP2)

Emergency nurses in this study universally stated that they would not report a patient for a self-managed abortion or a miscarriage, regardless of their personal views on abortion. The theme that arose from these data was, What if it were me?

...[W]hen you hear patients ask for a—abortion, it—you know on a personal level that could affect you as a person, but also like—we had that discussion like. Yeah, we—we don't personally agree with it. It sucks. But I'm not here to impress my own views on somebody, um, you know. In—in my personal situation I'm—I'm thankful that I am in a state that—that you know isn't necessarily supporting that all the way. And—but I'm not gonna, you know, chastise somebody for asking that question, either. I—but as a person that believes in maybe that side of the—or that position—or how to... Like, I'm not giving any advice on the other way, either. Like, what are your choices? Where do you go? (OBP4)

What if somebody turned me in? You know it's—it's tough, and you know I—and I have heard from my fellow nurses that have told me once this law was passed, that they went out and bought a ton of Plan B. Because, you know... Yeah, you just never know. (OBP7)

No. Definitely no. Definitely no, we're not—we don't do that [report a patient]. No. No, I think most nurses I know...we're angry, about the—the bill that was passed. We—we feel like it's putting more people's lives in danger. Whether we agree with abortion or not. That—that is not right. (OBP11)

I would—I would almost feel like personally, it would be kind of like those who come in who have done drugs. You know we don't call the police and say, 'Hey, so-and-so has meth in their system.' We don't care. We want to treat them and make sure that they're okay. (OBP12)

A key area of silence consistently identified in the interview data centers around the almost universal ignorance of the impact of SB8 or other care-limiting or restricting legislation on emergency nursing practice. Some participants saw this as a way to not engage with the legal aspects of care, as long as there was no explicit discussion around it. The themes here were: nothing has changed, and waiting for the other shoe to drop.

"Nothing has changed in my practice. So...yeah. I just—I don't know that it's been as drastic of an adjustment in the emergency world." (OBP1)

...[Y]ou know I don't know what, I don't even know what the laws are, as far as like pre-making the woman go into labor like. Can they even do that? You know, say she is eclamptic and it's past—whatever week, can they put them into labor? Or is that being considered violating the law as well? (OBP2)

And I've had a lot of...like with the Plan B pill, like people are like, 'Can we even give that anymore?' And I'm like, 'What are you talking about?' and they're like, 'Well, the law and dadadada,' and I'm like, 'I have no

idea.’ In the past year nobody has brought it up or said anything about it, or...nothing. (OBP10)

That’s what we—but—but it’s like you’re just waiting for the other shoe to drop. I mean, we know something will happen at some point, but we’re not acknowledging it. I would, I guess you could say. It didn’t affect the way we care for people. So far, I mean. Eventually I think it will. But as of now, we haven’t changed. (OBP11)

## Discussion

The purpose of this study was to explore the clinical decision-making processes of emergency nurses in the care of patients with OB emergencies in the context of limited or absent access to abortion care and the impact of those processes on the care of patients. Participants in this study described a significant lack of information, education, and training about OB presentations and emergencies. This aligns with previous work on this phenomenon by Wolf et al,<sup>3</sup> which described the very limited OB education in emergency departments as reactive and incident specific. Emergency nurses in this study reported that inexperienced nurses, especially, have significant challenges in identifying and communicating pregnancy-related emergencies; they describe this as being exacerbated by a general knowledge deficit in the care of the OB population, fear of the pregnant or postpartum patient, and a lack of structure to deal with this influx of OB patients. Texas specifically reported 15,540 fewer abortions after the Dobbs decision than pre-Dobbs,<sup>7</sup> which may translate into the increased numbers of pregnant patients reported by our participants. Although our participants reported a noticeable increase in pregnant patients, the birth rate has increased only slightly in 2023, by 0.09%.<sup>8</sup>

Contributing to the challenges of care, participants described situations in which emergency providers were eager to transfer patients to an OB service, but that there was some confusion over who “owned” the patient, and what emergency nurses described as a reluctance to treat on the part of the OB providers. Although emergency nurses in this study report a lack of awareness about laws restricting or banning abortion care, it is possible that this “reluctance to treat” suggests acute awareness on the part of the OB team about these laws.

Of note, care was evaluated in Texas after the passage of SB8 in September 2021; in 2 Texas hospitals,

state-mandated “expectant management” of OB complications in the previable period was associated with significant maternal morbidity, resulting in 57% of patients having serious maternal morbidity compared with 33% who elected immediate pregnancy interruption under similar clinical circumstances reported in states without such legislation.<sup>9</sup> Some participants described situations where patients were sent home to complete a miscarriage and reported that they would come back “sick and septic”; this aligns with Arey et al<sup>10</sup> findings that patients with premature rupture of membranes and a previable fetus were instructed to go home and deliver the fetus on their own and to return to the hospital if they developed signs of sepsis.

Emergency nurses in this study universally discussed having no administrative guidance on what they could discuss with patients. Arey et al<sup>10</sup> report that Texas SB8 challenges appropriate and accepted OB care including providing information about out-of-state abortion facilities or directly contacting out-of-state clinicians to transfer patient information, leaving patients to find services on their own. Although Arey et al<sup>10</sup> interviewed obstetrician-gynecologists and maternal-fetal medicine physicians, but not emergency physicians, our findings suggest that the impingement on medical dialogue with patients is similarly compromised in the emergency care environment.

Nurses occupy a strategic position that allows them to act (or not) as agents of the state<sup>11</sup>—they practice at the flexing point of the state’s requirements in the context of the nurse-patient relationship. Although participants were consistent across facilities and states that there was no administrative guidance as to how to inform patients of their options for treatment of their pregnancy-related emergency or any requirements to report patients, they maintain that they would not report a patient for any pregnancy-related situation. A recent discussion piece in the *Annals of Emergency Medicine*<sup>12</sup> suggests that emergency physicians are also struggling with a lack of clarity around when and how they can treat patients with OB emergencies and previable pregnancies. The lack of clarity as to content or even awareness of care-limiting laws seems to reflect an unwillingness on the part of the nurses who participated in this study to enter into what is considered a “political” discourse. This is possibly caused by a more neoliberal political environment that impedes explicit discussion of political engagement for nurses<sup>13</sup> or may also be linked to Barbee<sup>14</sup> description of nursing as focused on the nurse-patient relationship and as conflict avoidant. Our findings also align with the work of McLemore et al,<sup>15</sup> who describe nursing clinical decision making specifically in areas not focused on abortion and reported that nurses’ decision making

involved their beliefs around bodily autonomy, comparing themselves with other women, and judgment of women seeking abortions. We noted that emergency nurses describing their experiences to us, involving patients with viable pregnancies and an emergency in which ending the pregnancy may be clinically indicated, seem to invoke a similar process in their care of the OB patient in this setting.

### Limitations

Limitations of these data include self-selection bias and nursing roles (staff nurses) that may have precluded knowledge of legal implications of limited access to abortion care.

### Implications for Emergency Nurses

OB care in emergency settings is becoming more common as OB deserts expand and options for controlling reproduction decrease. Training and education in the care of the OB patient are a critical educational gap for emergency nursing; the lack of both knowledge of and direction in addressing OB emergencies is dangerous for both patients and nurses. Appropriate care and advocacy for the pregnant or postpartum patient, especially in states with care-limiting laws, carry with them clinical, ethical, and legal implications that should be addressed directly by individual nurses. Although not mentioned by any participants, we suggest this is an opportunity for professional nursing organizations to facilitate both education and policy.

### Conclusions

We found that emergency nurses in states with abortion care-limiting laws had significant self-reported deficits in both education and training around the management of OB emergencies. In this sample, although there was a clear ethical commitment to the patient, there was a surprising lack of awareness of care-limiting legislation and the clinical, ethical, and legal implications for both emergency care staff and for patients. Future work should examine the interplay of personal and professional ethics and further explore the participation of emergency nurses in patient advocacy on

both unit-based and community levels in environments where care is limited by legislation.

### Author Disclosures

Conflicts of interest: none to report.

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# ASSESSMENT OF EMERGENCY DEPARTMENT HEALTH CARE PROVIDERS' READINESS FOR MANAGING INTIMATE PARTNER VIOLENCE AND CORRELATION WITH PERCEIVED CULTURAL COMPETENCE



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## Contribution to Emergency Nursing Practice

- Despite the high prevalence of intimate partner violence among individuals who seek medical care in the emergency department, identification by emergency nurses and other health care providers remains low (approximately 5%). Targeting health care providers' readiness to manage intimate partner violence significantly improves rates of intimate partner violence detection and response.
- Readiness to manage intimate partner violence and cultural competence were relatively low among emergency nurses and other providers. Numerous associations were found between perceived intimate partner violence readiness and cultural competence, indicating the interrelationship of these 2 concepts and supporting the need to improve both simultaneously in future interventions.
- Our findings suggest that intimate partner violence readiness education should be standardized, interprofessional, and delivered within a culturally competent framework.

## Abstract

**Introduction:** Intimate partner violence is a public health problem, and emergency departments are often a victim's

only contact with health care providers. Despite this, recognition of intimate partner violence within emergency departments remains low owing, in part, to barriers experienced by providers. To better understand these barriers, this study examined relationships between readiness for managing intimate partner violence and cultural competence among emergency department health care providers.

**Methods:** A cross-sectional, correlational study was conducted in 3 emergency departments. Eligible participants included registered nurses, physicians, physician assistants, nurse practitioners, and residents. Data were collected through an anonymous online self-report survey. Descriptive statistics and correlation analyses were conducted to answer study aims.

**Results:** Our sample included 67 respondents. More than one-third (38.8%) reported no previous intimate partner violence training. Those with previous training had higher readiness scores. Physicians were found to have higher intimate partner violence knowledge scores than registered nurses. Cultural competence scores were generally positive across domains. Aspects of intimate partner violence readiness were associated with culturally competent behaviors, communication, and practices.

**Discussion:** Overall, participants were found to have low perceived readiness scores. Those with previous intimate

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partner violence training were found to have greater readiness in practice, suggesting that standardization of screening practices and intimate partner violence-related training should be the standard of care. Our data also suggest that perception of culturally competent behaviors and communication are

learned skills that can increase screening rates within the emergency department.

**Key words:** Intimate partner violence; Readiness; Mass screening; Cultural competence

## Introduction

Intimate partner violence (IPV), defined as “any behavior perpetrated against a current or former intimate partner that causes physical, psychological, or sexual harm, including physical violence, emotional abuse, sexual violence, and controlling and coercive behaviors,”<sup>1</sup>(p. 489) is a preventable public health crisis. IPV often has long-term adverse effects on an individual’s health and downstream societal and economic consequences.<sup>1</sup> In the United States, approximately 41% of women and 26% of men have experienced sexual violence, physical violence, and/or stalking by an intimate partner during their lifetime.<sup>2</sup> IPV victims are at increased risk of long-term negative health outcomes, such as chronic musculoskeletal pain, reproductive issues, and mental health disorders.<sup>3</sup> IPV and other types of trauma can also result in neurobiological consequences that affect brain processes including how people perceive potential threats, regulate arousal and emotional responses, make decisions, and store memories.<sup>4</sup> IPV-related economic consequences include loss of job productivity and increased health expenditures, estimated to cost nearly \$3 trillion over the lifetime.<sup>3</sup> Given the devastating health and financial impact of IPV, it is imperative for nurses and other health professionals to identify victims at their earliest possible interaction with the health care system.

Individuals who experience IPV are more likely to access health services than those with no history of violence.<sup>5</sup> Because the emergency department is often IPV victims’ first or most consistent contact with health care providers, this setting provides a critical opportunity for identifying and responding to IPV.<sup>6</sup> Despite the high prevalence of IPV among individuals who seek medical care in the emergency department, identification by ED health care providers remains low (approximately 5%).<sup>6</sup> The majority of research into this discrepancy focuses on barriers and facilitators to screening and disclosure.<sup>6,7</sup> This research has shown that targeting health care providers’ readiness significantly improves rates of IPV detection and management.<sup>6,8</sup> Readiness is a multifaceted concept that includes both the physical and emotional preparedness to do work.<sup>7,9</sup> It involves creating positive changes to improve self-efficacy, emotions, motivations, and attitudes.<sup>7,9</sup> A provider’s readiness to manage IPV may be affected by numerous factors

including their own experiences, knowledge, previous training, and organizational characteristics.<sup>7,9</sup>

Patient characteristics may also affect readiness to manage IPV, although this has been less studied. Although IPV does not discriminate globally, established gender roles and perceptions of violence vary between cultures, leading to the need for culturally informed IPV screening tools and interventions.<sup>10-12</sup> Cultural competence is a set of behaviors, attitudes, and policies that come together in a system or agency or among professionals that enables effective work in cross-cultural situations.<sup>13</sup> Within the health care framework, cultural competence increases the quality of services, improving patient outcomes and patient satisfaction.<sup>13</sup> The emergency department increasingly serves as a primary source of care for people who are minoritized based on racial/ethnic identities and other historically marginalized groups as a result of rising health care costs and declining access to care.<sup>14,15</sup> Ensuring that culturally competent health care providers work in the ED setting is crucial to addressing and minimizing the existing inequities in their care and health outcomes, including those related to IPV.

Given the pervasiveness of IPV and other forms of violence, a growing number of health care organizations have begun adopting a trauma-informed care approach to better address the needs of patients who have experienced violence.<sup>16,17</sup> Trauma-informed care is a framework developed to help health care providers understand, recognize, and respond to the effects of trauma and is based on principles that acknowledge the pervasive impact of trauma on individuals.<sup>16,17</sup> IPV readiness and cultural competence are both important aspects of a trauma-informed care approach, acknowledging the overlap and negative impact that both interpersonal and institutional trauma can have on a person’s health. Applying a culturally competent lens to health care provider readiness to manage IPV is a strategy to improve trauma-informed care and avoid retraumatization of those patients already disadvantaged by the institutional trauma that affects minoritized populations.<sup>16,17</sup> By exploring the intersectionality of IPV readiness with cultural competence, we hope to guide the conversation regarding more inclusive IPV management strategies that meet the rapidly diversifying needs of the patient population served in the emergency department. The purpose of our study is to (1) explore overall readiness to manage IPV among ED

health care providers at 3 urban North Carolina hospitals, (2) assess their perceived cultural competence, (3) and examine whether cultural competence is associated with readiness to manage IPV.

## Methods

### DESIGN OVERVIEW

A cross-sectional, correlational survey design was used to meet the objectives of this study. Data were collected through an anonymous online self-report survey distributed at 3 emergency departments in central North Carolina.

### ETHICAL CONSIDERATIONS

This study was reviewed by the institutional review board at Duke University and determined to be exempt from institutional review board review (Pro00107202). Risks to participants included breach of confidentiality and emotional distress from answering IPV and culture-related questions. Privacy and confidentiality were maintained through an anonymous survey and by instructing participants to take the survey in a private location. A disclaimer at the beginning of the survey notified participants that they could skip any questions that made them uncomfortable, and we provided a list of mental health and community resources at the end of the survey.

### SAMPLE

Convenience sampling was used to recruit participants via departmental email listservs. Recruitment emails were sent 3 times over the course of 6 weeks. To be eligible to participate in the study, participants had to be a health care provider with a primary position at one of the ED study sites. Health care providers included registered nurses; physicians, including faculty/staff physicians and resident physicians; and advanced practice providers, including physician assistants, nurse practitioners, and physician assistant residents. Health care providers who were contracted/temporary employees at the time of survey distribution were excluded.

### SETTING

The study was conducted in 3 urban emergency departments in central North Carolina. The first ED site is part of an academic tertiary care level 1 trauma center hospital with an approximate yearly ED census of > 78,000 visits. The hospi-

tal has 1124 inpatient beds and the emergency department admits 25% of the patients seen. The emergency department includes 64 bed spaces. It employs 72 physicians and 11 advanced practice providers. A total of 135 registered nurses staff the adult and pediatric emergency department. The second site is a 27-bed community emergency department, employing 18 physicians, 11 advanced practice providers, and 69 registered nurses. The third site is a 24-bed emergency department employing 18 physicians, 6 advanced practice providers, and 67 registered nurses.

### DATA COLLECTION

A link to the online survey was distributed via email to eligible health care providers. The email described the general purpose of the study and expectations for participation. The first screen of the survey described the purpose and aims of the study in more detail and reiterated participant expectations and risks and benefits of participation. The first screen also included a statement informing participants that proceeding to the survey would indicate their voluntary consent to partake in the study and that they could stop taking the survey at any time. The survey was composed of 115 items. Alerts were programmed to notify participants of missing item responses; however, participants were allowed to skip any question they chose not to answer. The survey and research data were stored on a secure, password-protected multiuser database with access granted to the study team only.

### STUDY INSTRUMENTS

The study used 2 validated self-report instruments: the Physician Readiness to Manage Intimate Partner Violence Survey (PREMIS)<sup>9</sup> and the Healthcare Provider Cultural Competence Instrument (HPCCI).<sup>18</sup> PREMIS is a comprehensive instrument designed to measure health providers' readiness to manage IPV. The instrument was originally validated in a sample of physicians<sup>9</sup> and has since been translated into several languages and validated for use within a wide range of other health care providers and student populations.<sup>19-23</sup> These studies provide evidence for the construct, predictive, and external validity and the internal consistency and test-retest reliability of the PREMIS across health care provider groups.<sup>9,19-23</sup>

PREMIS is composed of 4 domains: (1) background, (2) IPV knowledge, (3) opinions, and (4) practice issues.<sup>9</sup> The background domain comprised 2 scales measuring perceived preparation and perceived knowledge. The knowledge domain comprised one scale measuring actual knowledge. The opinions domain includes 6 scales

TABLE 1  
**Definitions for the Physician Readiness to Manage Intimate Partner Violence Survey domains<sup>9</sup> and study sample mean scores (N = 67)**

PREMIS domain	Definition	Number of items (possible range)	Mean (SD)
Background			
Perceived preparation	How prepared respondents feel they are to work with IPV victims	12 (1-7)	3.35 (1.23)
Perceived knowledge	How much respondents feel they know about IPV	16 (1-7)	3.54 (1.10)
Actual knowledge			
Actual knowledge	Knowledge questions based on findings from the IPV literature	38 (0-38)	28.55 (3.61)
Opinions			
Preparation	Adequacy of preparation for working with IPV victims	5 (1-7)	3.94 (1.15)
Legal requirements	Awareness of legal requirements when working with victims	4 (1-7)	4.59 (1.20)
Workplace issues	Adequacy of the workplace environment for providing care to IPV victims	6 (1-7)	4.17 (1.03)
Self-efficacy	Respondent's confidence in being able to provide care to IPV victims	3 (1-7)	3.70 (1.13)
Alcohol/drugs	Opinions regarding the role of alcohol/drugs in IPV	3 (1-7)	4.16 (.71)
Victim understanding	Attitudes regarding IPV victims	6 (1-7)	4.95 (.87)
Practice issues			
Practice issues	Respondent's and workplace's actual practices and policies related to IPV	13 (2-61)	23.07 (7.89)

IPV, intimate partner violence; PREMIS, Physician Readiness to Manage Intimate Partner Violence Survey.

measuring preparation, legal requirements, workplace issues, self-efficacy, alcohol/drugs, and victim understanding. Finally, the practice issues domain includes one scale assessing provider and workplace policies and practices. Definitions for these domains are presented in Table 1. Mean scores are calculated for each scale based on criteria established by the original developer.<sup>9</sup> In general, higher mean scores reflect more positive attributes. Scales demonstrated good internal consistency reliability in this study (Cronbach's  $\alpha \geq 0.72$ ).

The HPCCI is a 48-item survey designed to measure health providers' cultural competence across 5 domains: (1) awareness/sensitivity toward cultural competence, (2) behaviors demonstrated by health care providers regarding cultural competence, (3) patient-centered communication, (4) practice orientation, and (5) self-assessment of cultural competence.<sup>18</sup> Definitions for these domains are provided

in Table 2. The awareness/sensitivity and behaviors scores were based on a 7-point Likert scale. The remaining 3 scales were scored on a 5-point Likert scale. The validity and reliability of the HPCCI were established in a diverse sample of health care providers (n = 242) drawn from a large midwestern hospital.<sup>18</sup> The validity of the 5 scale structure was established through factor analysis and found to align with components of cultural competence identified in previous research. Reliability was tested by examining the internal consistency of each scale and found to be sufficient (Cronbach's  $\alpha = 0.72$ -0.93). Internal consistency was examined in the current study and also found to be acceptable (Cronbach's  $\alpha = 0.65$ -0.88).

Demographic data (gender, profession, number of years in profession, previous IPV training, and previous cultural competence training) were collected at the beginning of the survey.

TABLE 2

Definitions for the Healthcare Provider Cultural Competence Instrument domains<sup>18</sup> and study sample mean scores (*N* = 67)

Domain	Definition	Number of items (possible range)	Mean (SD)
Awareness/sensitivity	Provider knowledge, awareness, and sensitivity to cultural expressions, attitudes, and behaviors of various patient groups	11 (1-7)	4.67 (.411)
Behaviors	Behaviors demonstrating beliefs and attitudes related to culture	16 (1-7)	4.51 (.719)
Patient-centered communication	The extent to which providers incorporate patients' feelings, beliefs, and expectations into clinical care	3 (1-5)	4.17 (.812)
Practice orientation	Attitudes related to the power/control relationship between providers and patients	9 (1-5)	2.28 (.341)
Self-assessment of cultural competence	Reflecting on one's own beliefs, values, and attitudes	9 (1-5)	4.49 (.414)

## DATA MANAGEMENT AND ANALYSES

Data were downloaded from the online survey platform at the conclusion of data collection, imported into IBM SPSS Statistics version 28 (Armonk, NY), and stored on an encrypted, password-protected computer. Data were examined for missingness and outlier responses. Preliminary analyses were conducted to examine distributions and frequencies. Scales were calculated based on the instructions provided by the instrument developers.<sup>9,18</sup> We examined correlations among variables to identify instances of multicollinearity and potential demographic confounders. No instances of multicollinearity were found. To address aim 1 (overall readiness for managing IPV among ED health care providers) and aim 2 (cultural competence among ED health care providers), descriptive statistics (ie, mean scores, frequencies, and percentages) were calculated for all variables included in the PREMIS and HPCCI. One-way analysis of variance with Tukey post hoc tests was conducted to examine differences in PREMIS and HPCCI scores (dependent variables) by provider type (eg, registered nurse, physician; independent variable) and independent samples *t* tests were used to examine differences in the dependent variables by gender and previous IPV training. These tests were appropriate given the categorical nature of the independent variables and continuous nature of the dependent variables. To address aim 3 (associations between cultural competence and IPV readiness), Pearson correla-

tions were used to examine relationships between PREMIS and HPCCI variables. Pearson correlations were appropriate for this set of analyses given the continuous nature of PREMIS and HPCCI variables.

## Results

### PARTICIPANT CHARACTERISTICS

A total of 111 individuals participated in the survey, with an average completion time of 25.2 minutes. Forty-four participants were excluded due to missing data, resulting in the final sample size of 67. The average age of participants was 34.29 years (*SD* = 8.47) and 64.2% were female. Nearly half were registered nurses (49.3%), followed by physicians (43.3%) and advanced practice providers (7.5%). On average, participants had 6.93 years (*SD* = 7.50) of clinical experience. More than one-third of respondents (38.8%) stated they had no previous IPV training. Additional participant characteristics are presented in [Table 3](#).

### HEALTH PROVIDER READINESS TO MANAGE IPV

To understand provider readiness to manage IPV, mean scores were calculated for each PREMIS scale ([Table 1](#)). Scores in the background and opinions domains were

TABLE 3  
Participant characteristics (N = 67)

Characteristic	Mean (SD) or n (%)
Age	34.29 (8.47)
Sex	
Male	24 (35.8)
Female	43 (64.2)
Other/not reported	0 (0)
Professional role	
Physician	29 (43.3)
Registered nurse	33 (49.3)
Advanced practice provider	5 (7.5)
Years practicing	6.93 (7.50)
Previous intimate partner violence training	
Yes	41 (62.2)
No	26 (38.8)
Average number of patients seen per wk	
Not seeing patients	2 (3.0)
< 20	24 (36.4)
20-39	21 (31.8)
40-59	19 (28.8)

relatively low (means ranging from 3.35 to 4.95), reflecting that participants felt “slightly prepared” to “somewhat well prepared” to manage IPV. Participants were somewhat knowledgeable about IPV, with a mean actual knowledge scale score of 28.55 (SD = 3.61) of a total 38 points (75.1%). The practice issues scores ranged from 2 to 43.7 with a mean of 23.07 (SD = 7.89) indicating wide variability in practices and policies related to IPV.

Physicians had significantly higher actual knowledge scores than registered nurses. Physician assistants had significantly lower opinions domain scores than physicians and registered nurses. There were no notable differences in PREMIS scores based on stated sex. Respondents who had undergone previous IPV training were found to have higher scores for perceived knowledge ( $t = -2.16, P = .035$ ), preparation ( $t = -2.66, P = .010$ ), legal requirements ( $t = -2.24, P = .029$ ), self-efficacy ( $t = -2.86, P = .006$ ), and victim understanding ( $t = -3.60, P < .001$ ). No significant differences were found for previous IPV training based on type of health care provider or gender.

## HEALTH PROVIDER CULTURAL COMPETENCE

To understand providers’ perceived cultural competence, mean scores were calculated for each HPCCI scale (Table 2). Overall, scores indicated moderate levels of cultural competence. On average, respondents reported practicing culturally competent behaviors “half” to “more than half” of the time, using patient-centered communication was used “most of the time,” and they “agreed” with their cultural competency proficiency in the self-assessment. Respondents were more “neutral” when reporting their awareness/sensitivity and practice orientation beliefs. No differences were found in cultural competence scores by provider type or sex.

## RELATIONSHIPS BETWEEN CULTURAL COMPETENCE AND READINESS TO MANAGE IPV

Pearson correlations were conducted to examine associations between perceived cultural competence (HPCCI scales) and perceived readiness to manage IPV (PREMIS scales) (Table 4). Perceived preparation, perceived knowledge, and self-efficacy were related to higher reported use of culturally competent behaviors. Opinions related to adequacy of preparation and the role of alcohol/drugs in IPV were related to higher endorsement of patient-centered communication. Endorsing more understanding attitudes toward IPV victims was associated with endorsing more egalitarian practice orientations. No associations were found between perceived readiness to manage IPV variables and awareness/sensitivity or self-assessment of cultural competence scores.

## Discussion

Despite an abundance of recommendation statements and guidelines regarding IPV screening and response by organizations such as the Emergency Nurses Association,<sup>24,25</sup> the American College of Emergency Physicians,<sup>26</sup> and the United States Preventive Services Task Force,<sup>27</sup> screening rates in emergency departments remain low.<sup>6,28</sup> Our study demonstrated that providers across 3 emergency departments reported relatively low readiness to manage IPV regardless of provider type or sex. This is consistent with a previous study that found an interprofessional team (nurses, physicians, and behavioral health specialists) in multiple nonemergency outpatient clinics were vastly unprepared to screen for IPV.<sup>29</sup>

There was high variability of practice issues scores, reflecting a lack of awareness of IPV management practices



TABLE 4  
Correlations between IPV readiness and cultural competence ( $N = 67$ )

IPV readiness domains	Cultural competence domains				
	Awareness/sensitivity	Behaviors	Patient-centered communication	Practice orientation	Self-assessment of cultural competence
Perceived preparation	-.040	.284*	.073	.113	.021
Perceived knowledge	.050	.298*	.126	-.013	.028
Actual knowledge	.236	-.079	.236	.015	.124
Preparation	-.048	.114	.258*	-.058	.043
Legal requirements	-.171	.152	.243	.101	-.080
Workplace issues	.056	.170	.048	.118	.042
Self-efficacy	-.070	.252*	.128	.089	-.054
Alcohol/drugs	.008	.000	.251*	.070	-.083
Victim understanding	.127	-.085	.198	-.289*	.074
Practice issues	-.048	.127	-.004	-.060	-.071

IPV, intimate partner violence.

\*  $P < .05$ .

and policies. This demonstrates the need for organizational-level involvement in the individual provider's training in the future.<sup>6,8,28</sup> As management of IPV requires an interdisciplinary approach, this education should be standardized for all emergency nurses, physicians, and advanced practice providers. Given that emergency nurses routinely spend significantly more time at the patient's bedside than their counterparts in this study, greater emphasis should be placed on including this screening in triage and the nursing initial assessment. The perception of low readiness to manage IPV found in the present study coupled with highly variable practice patterns suggests potential barriers to IPV screening in the study sites and areas of potential focus for future improvement.

Important correlations were found between those with previous IPV training and those without. Previous training positively affected the participants' perceived knowledge, adequacy of preparation, awareness of legal requirements, self-efficacy, and victim understanding. This is consistent with previous evidence from Lee et al<sup>8</sup> that showed a significant increase in readiness when health care providers were given screening strategies and education around IPV. Although we cannot say that previous training caused a sense of improved readiness in this cross-sectional study, it provides some preliminary support for the role of training that should be investigated in future studies. Ahmad et al<sup>6</sup> also stated that screening rates have been shown to vary based on the health care provider's knowledge. However, our data suggest that knowledge alone does not affect practice, further supporting readiness as a multifactorial concept.

Despite physicians having significantly higher scores on the actual knowledge scale than registered nurses and advanced practice providers, it did not translate into any significant differences in perceived IPV practice patterns.

Levels of perceived cultural competence were relatively low across our participants, highlighting the need for improvement. Health care provider congruence between IPV readiness and cultural competence is critical to promote health equity when providing IPV-related health care services.<sup>29</sup> It has been suggested that a providers' attributes (race, sex, cultural identity) are integral to establishing trust within the patient-provider relationship<sup>30</sup>; however, we found no significant differences in perceived cultural competence between participant type and sex. Although it would be worthwhile to collect more expansive demographic data on participants in the future, our study suggests that a health care provider's perceived preparation and self-efficacy are more important to the nuances of the screening itself, with positive impacts on culturally competent behavior and communication observed. According to Renner et al,<sup>29</sup> health care providers are currently not prepared to address IPV among racial and ethnic minorities. There is a lack of research into the correlation between culturally competent providers and patient outcomes; however, our data show a positive correlation between endorsement of culturally competent behaviors and perceived preparation, knowledge, and self-efficacy, suggesting an area of significance for future research.<sup>30</sup>

Perhaps the most interesting finding when looking at the data from our current study was the lack of

relationship between a participant's perceived cultural awareness/sensitivity and IPV behaviors. In fact, there were no significant correlations between cultural awareness/sensitivity and any IPV subscales found within our data, suggesting that culturally competent behaviors and communication are learned skills, regardless of participants' intrinsic qualities.

### Limitations

The results of this study should be interpreted in light of its limitations. A major limitation was the use of self-report tools to measure readiness to manage IPV and cultural competence. Although the PREMIS and HPCCI are validated tools, they are susceptible to recall and social desirability bias. We attempted to limit this bias by ensuring the responses were kept anonymous. For future research, behavioral observation could be used when describing the nuances of IPV management and cultural competence within patient interactions. Patients' assessment of health care providers' cultural competence could also be included for corroboration of the health care provider self-report. The smaller sample size also reduces generalizability of results.

### Implications for Emergency Nurses

Our study highlights the importance of skills training regarding IPV practices rather than just increasing IPV-related knowledge. Emergency nurses provide care to survivors and perpetrators of violence. As frontline staff members within the emergency department, nurses may be the first to interact with IPV patients in triage and oftentimes are responsible for any level of IPV screening performed. Furthermore, the relationship they develop with the patients through longer interaction times and their responsibility to care for many sensitive needs allows for greater trust in the provider-patient relationship and places them in a unique position to identify IPV. This acknowledgment requires that the focus of emergency nursing care for IPV victims shifts from the identification and treatment of physical injuries alone to the identification of patients as potential victims of violence or trauma. Given the comprehension of the widespread nature of violence and victimization, it also requires the implementation of a trauma-informed care approach to all patient interactions. Emergency nursing leadership and educators may use the results of this study to develop and implement standardized training related to culturally competent behaviors and communication strategies to help improve readiness to screen for IPV and imple-

ment trauma-informed care in a high-impact setting. Standardization of this education will require additional translational research.

### Conclusions

Our study contributes to the limited research examining the correlation between health care provider perceived readiness to manage IPV, being one of the first United States-based looks at using PREMIS solely within the ED setting. Furthermore, by combining the HPCCI and PREMIS instruments, it was the first to explore possible correlations between health care provider readiness and perceived cultural competence. Overall, participants were found to have low readiness scores regardless of provider type. Those with previous IPV training were found to have a greater sense of readiness in practice. This suggests that IPV-related training and standardization of screening practices should be the standard of care in all emergency departments, regardless of profession. Given that our data also suggest that culturally competent behaviors and communication are learned skills that can increase screening and response within the emergency department, this standardized education should be delivered within a culturally competent framework.

### Author Disclosures

Conflicts of interest: none to report.

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# “IF I CAN’T DO IT, WHO WILL?” LIVED EXPERIENCES OF AUSTRALIAN EMERGENCY NURSES DURING THE FIRST YEAR OF THE COVID-19 PANDEMIC

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## Contribution to Emergency Nursing Practice

- The current literature on ED nursing experiences during COVID-19 indicates varied mental and physical impacts on the individual and the workforce.
- The article contributes knowledge to the Australian ED nurse experience during the first year of the COVID-19 pandemic.
- Key implications for emergency nursing practice found in this article include recognizing the impact of COVID-19 on the ED nursing workforce, providing individuals and organisations with an understanding of how to better support and maintain their nursing workforce for future pandemic and epidemic events.

## Abstract

**Introduction:** The World Health Organization estimates that approximately 180,000 health care workers have died in the fight against COVID-19. Emergency nurses have experienced relentless pressure in maintaining the health and well-being of their patients, often to their detriment.

**Methods:** This research aimed to gain an understanding of lived experiences of Australian emergency nurses working on the frontline during the first year of the COVID-19 pandemic. A qualitative research design was used, guided by an interpretive hermeneutic phenomenological approach. A total of 10 Victorian emergency nurses from both regional and metropolitan hospitals were interviewed between September and November 2020. Analysis was undertaken using a thematic analysis method.

**Results:** A total of 4 major themes were produced from the data. The 4 overarching themes included mixed messages, changes to practice, living through a pandemic, and 2021: here we come.

**Discussion:** Emergency nurses have been exposed to extreme physical, mental, and emotional conditions as a result of the COVID-19 pandemic. A greater emphasis on the mental and emotional well-being of frontline workers is paramount to the success of maintaining a strong and resilient health care workforce.

**Key words:** Emergency department; Coronavirus disease 2019; Pandemic; Lived experience; Qualitative; Nursing; Australia

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## Introduction

The World Health Organization declared coronavirus disease 2019 (COVID-19) a global pandemic on March 11, 2020. The virus was formally recognized as severe acute respiratory syndrome coronavirus 2, identified in 114 countries, and COVID-19 is the first known pandemic caused by a coronavirus.<sup>1</sup> Globally within weeks, hospitals and urgent care facilities were overrun by an influx of patients requiring acute care management, with field hospitals and semitrailers converted into refrigerated morgues to assist when existing facilities reached capacity.<sup>2</sup> Within a year of the COVID-19 pandemic, the virus had resulted in 82,659,573 cases and 1,872,945 deaths globally.<sup>1</sup>

Locally, Australia did not see the rapid increase in COVID-19 cases at the beginning of the pandemic, with emergency departments paradoxically experiencing a decrease in hospital presentations early in 2020.<sup>3,4</sup> However, these presentations rebounded and significantly exceeded prepandemic levels, further increasing pressure on the health professionals and the health care system itself.<sup>5</sup> Australia continued to face a steady increase in COVID-19 case numbers, and death rates became a daily staple. Many uncertainties persisted in areas of health system management and available treatment solutions and their subsequent success, leading to social unrest.<sup>3</sup> In an effort to meet the expected demand for overwhelming numbers of acutely unwell patients, conversations were had about the retraining of recently retired nurses, recruitment of registered nurses working outside of their routine clinical environment, and fast-tracking final-year nursing students into hospitals to assist clinically in the increasing demands on the health care system.<sup>6</sup> Across the pandemic, emergency departments serve as gateways for the severely unwell, creating a tension in responding to rapidly developing information about the seriousness of the virus in the face of providing time critical care for patients.<sup>7,8</sup> The World Health Organization estimated that by October 2021, 180,000 health care workers had died in the fight against COVID-19.<sup>9</sup>

A comprehensive literature review was undertaken to demonstrate the impact of the first 6 months of the pandemic on frontline nurses.<sup>10</sup> Findings suggested that the frontline nurse population have experienced fear for their own safety and that of their loved ones, ethical and moral challenges in the face of prioritizing resources, injuries from the wearing of personal protective equipment (PPE), and negative effects of physical and mental exhaustion as a direct result of the pandemic.<sup>10</sup> Within a year of COVID-19 onset, emergency nurses expressed greater intent to leave

the profession within 5 years.<sup>11</sup> Typically, the emergency department is renowned for high and complex workloads within a very dynamic environment, all exacerbated in the face of the pandemic and creating a tipping point for many nurses who sought to leave the profession.<sup>11,12</sup> Although research has examined the impact of COVID-19 on the well-being of frontline nurses through studies of psychometric measures such as satisfaction<sup>13,14</sup> and fear,<sup>15-17</sup> there remains a gap in our understanding on the specific effects to the emergency nurse population. It is paramount that investigation into the experiences and needs of the emergency nurse workforce continue to better understand and improve the working conditions for critical members of our society and workforce.

## Methods

### AIM

This research project aimed to gain an understanding of lived experiences of Australian emergency nurses working on the frontline during the COVID-19 pandemic.

Research questions that were addressed included:

1. What are the lived experiences (eg, feelings, attitudes, and perceptions) of Australian nurses working in the emergency department during the COVID-19 pandemic?
2. What perceived impact does working in the emergency department during a global pandemic have on nurses?

### DESIGN

The study used a qualitative research design, informed by an interpretive hermeneutic phenomenological approach.<sup>18</sup> Data collected in this study were interpreted using the hermeneutic circle of questioning. As outlined by Gadamer,<sup>18</sup> the researcher comes with their own preunderstandings that should not be neutralized, but recognized in the research process as providing context to the person's lifeworld. The "fusion of horizons" between participants and researcher provides the rich new understandings presented. In using a qualitative research method incorporating an emergent design, it allowed for reflection, learning, and ongoing decision making to be applied throughout the data collection process, ultimately leading to 3 stages of data collection using the same sample of 10 emergency nurses.<sup>19</sup> This paper will explore findings from 2020, the first of 3 stages of

data collection in a larger PhD research project. This longitudinal PhD project explored emergency nurse experiences through the duration of the COVID-19 pandemic, with data collection occurring in 2020, 2021, and 2022. Each emerging year of the pandemic brought new challenges and perspectives within global societies and workforces: therefore, it was crucial to represent each year, captured in its entirety.

## POPULATION

The study population comprised 10 Australian emergency nurses residing in Victoria, with 4 from regional hospitals and 6 from metropolitan hospitals (Table 1). As per the study inclusion criteria, all participants were registered nurses having worked clinically in a publicly funded emergency department after the announcement of COVID-19 in Australia on January 22, 2020. Participants were recruited from the state of Victoria only; nurses from other states were excluded. Participants ranged from 23 to 58 years of age and varied from newly graduated nurses to nurse unit managers, having 1 to 38 years of clinical experience.

## RECRUITMENT

Recruitment was undertaken using a snowballing methodology. Advertisements in the form of status posts and flyers were posted on social media websites Facebook, Instagram, and LinkedIn. Participants expressed interest by contacting the research team for more information. Participant eligibility was screened by the research team, where study inclusion criteria were reiterated to interested participants. Once study details were outlined and eligibility criteria were confirmed, participants were provided with the plain language information statement and consent form to return before their scheduled interview session. The relevant university human research ethics committees granted ethical approval for this project.

## DATA COLLECTION PROCEDURE

Data were collected using individual semistructured interview sessions to ensure privacy and depth of discussion. Owing to COVID-19 restrictions and the safety of the research team and participants, all interviews were conducted virtually through Microsoft Teams and Zoom, with audio recording undertaken through the software. Interviews were conducted by the lead author, a PhD candidate and registered nurse with experience in emer-

gency nursing who was not currently working in a clinical capacity. Guided by hermeneutic data collection methods, participants were asked a series of open-ended questions regarding their emotional responses, attitudes, and experiences during their time working during the COVID-19 pandemic. In addition, verbal consent was recorded before proceeding with the interview. Data collection was undertaken in September to November 2020, with interviews ranging from 32 to 103 minutes in duration. Data saturation was achieved by the eighth interview, with 2 additional interviews undertaken to confirm this theory. Saturation occurred when no new information and themes were presented in interviews, and it was identified that there were sufficient data to appropriately replicate the study.<sup>20</sup>

Example of participant questions:

- Tell me about some of the experiences and observations you made at work during the COVID-19 pandemic.
- What were your feelings toward coming to work during the pandemic?
- As more time passed and the pandemic progressed, how did your feelings and attitudes change about the pandemic and your working environment?
- Were there any challenges throughout your shifts during the pandemic?
- Thinking about your experiences, what benefit, if any, did this clinical environment give to you?

## DATA ANALYSIS

Data were transcribed verbatim and underwent thematic analysis using the Braun and Clarke<sup>21</sup> 6-step approach to thematic analysis. Data analysis occurred over 3 days with members of the research team involved in the creation of codes. Step 1 involved distributing de-identified transcripts randomly among the research team, drawing out codes individually to avoid bias in results. During steps 2 and 3 of analysis, authors 1 and 2 collaboratively refined the codes to generate themes. In steps 4 and 5, robust discussion within the research team of the appropriate codes to include and exclude was undertaken to ensure an accurate representation of participant responses. Step 6 of analysis, documentation of findings, was then undertaken. To avoid biases and premature assumptions imparted on future data collected in this longitudinal study, analysis of each stage of data collection was delayed until all data were collected. A preliminary review of research findings including transcripts, field notes, and observations after each data collection stage was

undertaken by the research team to maintain a reflexive approach and inform questioning in interview sessions.

## RIGOR

Trustworthiness in qualitative research must be addressed to ensure the reliability and validity of the data and findings. Criteria of credibility, dependability, confirmability, transferability, and authenticity assist in indicating the rigor of the project and the chosen methods.<sup>19,22-24</sup>

Credibility was achieved in the study through peer debriefing with senior members of the research team and a methodological expert helped to ensure consistency between the method and hermeneutic foundations. Dependability was realized through research process logs, documenting meetings and research activities that are traceable and confirmed by all members. Confirmability was accomplished in the collation and review of the aforementioned process logs and debriefing process, in addition to using a tested and confirmed methodology. Although specific findings may not be generalizable to other populations, effort to achieve transferability for this research was demonstrated through the documented robust methods, processes, and rich portrayal of study outcomes. Finally, authenticity for this project was maintained in the detailed representation of participant responses, who varied in skill level, age, and demographics.

## Results

Data analysis resulted in a total of 4 major themes being extracted from the data (Figure). These themes represent those attitudes, emotions, and experiences for emergency nurses during the first year of the pandemic. Major themes included mixed messages, changes to practice, living through a pandemic, and 2021: here we come.

### MIXED MESSAGES

The first major theme “mixed messages” embodied the tension emergency nurses experienced with receiving a multitude of messages from media and government while they rapidly prepared for the unknown. The images coming from overseas of the destruction COVID-19 had caused in a few short months left emergency nurses feeling uncertain as to how Australia might be affected. Nurses outlined their fears, coming to terms with the gravity of the situation:

“I was glued to the news...what was evolving and what was happening overseas, then what was happening here, sort of that hunger for information.” P5

The influence of the media was soon realized within nursing teams, affecting staff behavior:

“[The media] increased anxieties and frustrations through staff worrying about things and hearing different stories and nothing really aligning that respect. I found it hard to switch off because of the media.” P10

Nurses were grateful for the portrayal of health care workers through media being “from a kind perspective” (P6). The world now had a greater understanding of the important, rewarding, and often challenging work emergency nurses do, regardless of a global pandemic. However, emergency nurses were met with both positive and negative experiences with patients at the beginning of the pandemic. Public reactions were often endearing, with the offerings of “free coffee” (P6), meals, and public cheers in the community. Conversely, on the frontline, nurses were facing violence and distrust:

“We’re being physically and verbally abused out there. And I guess it makes you really tired and really jaded about the public. They’re really ungrateful.” P7

There was difficulty in getting patients to adhere to government guidelines such as mask wearing, with emergency nurses facing backlash owing to “conspiracies” (P3) and lack of personal responsibility.

The physical changes that took place within the department to manage the virus were immense, often resulting in strained relationship between staff and executive management of the hospitals. Workplace configurations were changed to separate COVID and non-COVID patients, with procedures and protocols developed to protect staff and patients during this time:

“I think every shift you’d turn up, things would be different. Different protocols that have been put in. Sometimes hour by hour things would change.” P5

Emergency nurses described the wave of “rapid-fire sequence” (P10) directives received from the Department of Health and Human Services as overwhelming. The impact the pandemic had on the health system did not go unnoticed by the emergency nurses, which caused fear and distress:

That is the biggest fear I think for me, is just watching the health system, which was already pretty rooted to start with, just completely collapse. And watching workmates who I love...have to deal with that. P9



Throughout the planning process, senior nursing staff were concerned about the capacity of the health care system to potentially manage the cases that were being recorded overseas:

When New York was being hit, they had all these refrigerated morgues outside the hospital. Those were some of the discussions we had that, God forbid if we go into a similar state, do we have the resources? Do we have the capacity? P2

There was a desire to change the “them and us” (P6) relationship between staff and executive management, with staff believing fears and concerns may have been mitigated if management had consulted with them earlier in the progression of the pandemic.

#### CHANGES TO PRACTICE

The second major theme “changes to practice” outlined the transformations that took place within acute care during the first year of the pandemic and how the emergency nurses prepared for these changes both mentally and physically. Changes to clinical procedure and protocol were required to combat COVID-19 safely within the emergency department, with ethical concerns that came with these changes. Aerosol generating procedures were particularly high risk owing to the danger of spreading the virus to staff and other patients:

“We have to put a plastic bag over your head...it just feels, just wrong, and very confronting for the staff, family, patients, everybody.” P9

Nurses battled with their employers regarding PPE, with their organizations trying to “conserve PPE for when they really needed it” (P6). The effort of wearing PPE for long hours took its toll on ED staff, developing pressure sores, and missing toilet and water breaks to conserve PPE supply:

“I’m just a ball of sweat all the time... Sometimes I don’t even know where the sweat’s coming from, so it’s been very physically uncomfortable.” P9

Emergency nurses highlighted that their focus had always been on their patients; however, they were now having to “rewire ourselves” (P5) and put their own personal safety above all else.

A lack of resources, staffing, and treatments increased uncertainty for emergency nurses, further exacerbating the ethical dilemmas they faced daily

I think that was a bit of a daunting experience...- that thought of potentially we’re gonna be the ones

that have to make decisions of...who we are going to try and help and who we are just going to have to make comfortable. P5

With the changes to clinical practice guidelines, emergency nurses felt that their patients were receiving “sub-standard care” (P8). This went against the foundations of nursing practice, leaving staff feeling frustrated with the loss of small personal touches normally achievable in nursing. Refusing entry to families was highlighted as one of the greatest ethical and moral dilemmas for staff, who were trying to understand the frequently changing directives while simultaneously relaying this to their patients:

Nobody really explained to them [the patient] that they weren’t allowed to have any visitors, and that they were going to be transferred to a department where they were basically in lockdown. P8

This refusal of entry exacerbated the concerns of staff, particularly when their patients were unstable in their condition or likely to die. Normal conversations around death and dying had become more difficult owing to the COVID-19 conditions:

This man was doing very poorly...and the family couldn’t come in straight away... And I just felt like that robbed him of an opportunity to see his wife, then when he did see his wife, he was unconscious. I just thought that was really devastating. P6

When reflecting on and managing the varied emotions that emergency nurses experienced at this time, they described the lack of clear debriefing opportunities and emotional support available during the first year of the pandemic. Nurses described the pain they felt not being able to provide comfort to their colleagues owing to PPE and physical distancing restrictions:

“I just wanted to give her [junior staff member] a hug, and I couldn’t...it was really terrifying.” P9

Newly graduated nurses outlined their feelings of isolation from other nurses, with no other graduating class having faced a first year like 2020. In the chaos of preparing for each new wave of the pandemic, their opportunities for debriefing diminished:

“We weren’t supported as a graduate nurse in the way that we probably should have been. It wasn’t a priority, sort of left a little bit fending for yourself.” P4

Formal department debriefings occurred after critical events; however, informal debriefing with colleagues

provided the most benefit to emergency nurses well-being and reflective practice.

Preparedness of the nurses and their emergency departments differed from a junior and senior perspective. Senior staff were involved in conversation on how to use ventilators in innovative ways from a resource-saving perspective. Concerns were raised about the preparedness of physical environments, with the lack of single positive pressure rooms:

“I think that’s one of the things that scared me the most, is performing procedures in areas that weren’t designed to do so.” P10

Senior staff recognized how crucial it was to have an awareness of their behavior and emotions while on the floor, because junior staff looked up to them as a “voice of reason” (P6) in times of need. Both junior and senior staff realized that teamwork played a vital role in how they managed their workloads:

It’s [the pandemic] made people work better together, because you really do have to rely on someone else when you’re looking after patients like that. It makes you work as a team. P1

The pandemic had provided the opportunity to make the department more “collegial” (P9), sharing knowledge, skills, and support both internally and with neighboring hospitals.

Although many hospitals provided redeployment opportunities for staff who could not work on the frontline, the call to service was strong for many emergency nurses, with some feeling as though there was no option to walk away:

“What was in my mind is, if I can’t do it, who will do it?” P2

Working on the frontline reignited the passion for the profession, with emergency nurses finding renewed strength in the perseverance of themselves and their colleagues:

“This is why I’ve got such a passion for it, because I’ve seen the work that we do, and I believe in it. The staff are really strong.” P7

Newly graduated nurses shared that it was “exciting” (P1) to “jump straight into it” (P4) when entering the department for the first time, regardless of the pandemic. The junior nurses had no means of comparison to what nursing was like beyond COVID-19, therefore appreciating the “COVID allocation” (P1) of high-acuity patients.

The new process of triaging patients due to physical changes to the departments was a learning curve for

emergency nurses. New departments and triage centers were being built external to the main hospitals, consisting of “just a tent and some chairs” (P5). Staff had to manage traffic and long lines of patient presentations among their acutely unwell patients, with some patients experiencing extremely long wait times:

I get a bit anxious because patients can deteriorate when they’re sitting in those wait chairs and I don’t have room for them. They’re saying they’re in pain, it’s frustrating to me because I can’t help them until I’ve got space. P3

The lack of space in the hospital and fear from the public resulted in poor outcomes from patients. Patients had succumbed to their disease process due to presenting so late:

“I would very confidently say that all those people [3 patients] would have survived, and all of them didn’t survive because they waited so long to come.” P6

This additional layer of pressure owing to lack of space and resources affected emergency nurses further, who were already making high-acuity decisions, often on their own.

## LIVING THROUGH A PANDEMIC

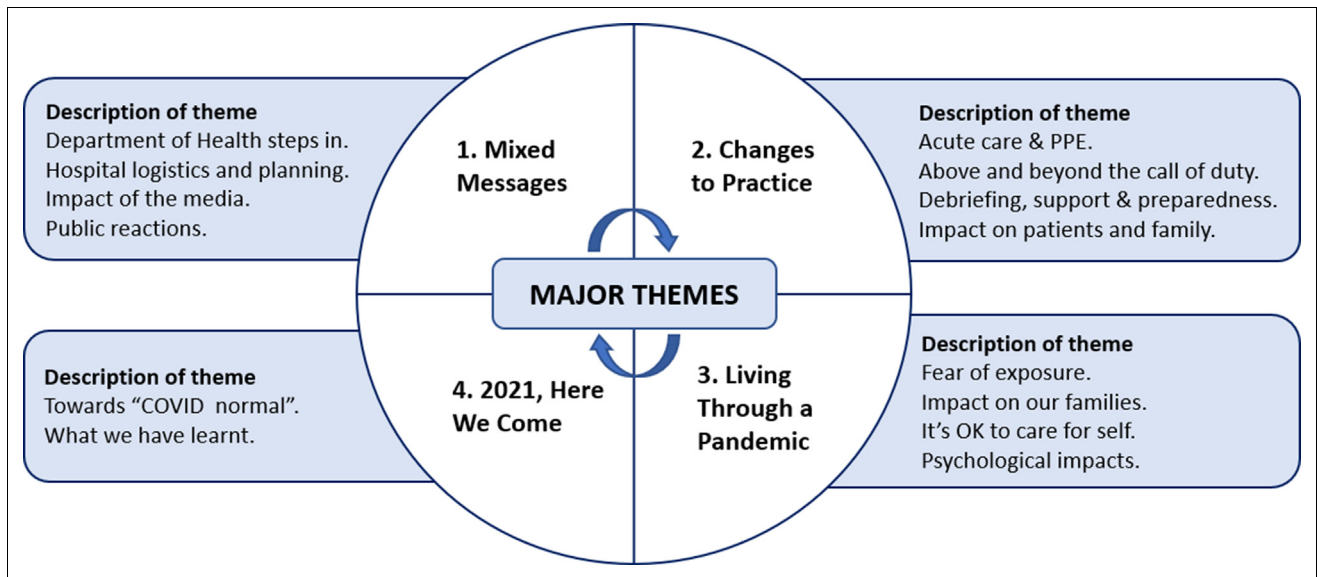
The third major theme “living through a pandemic” described the emotional experiences and moral challenges emergency nurses faced both at home and in the workplace during the first year of the COVID-19 pandemic. A range of emotional responses including feeling “scared” (P7), “anxious” (P6), “anger” (P9), “fatigue” (P3), and “overwhelmed” (P4) were experienced by emergency nurses during the first year of the pandemic:

Everyone was freaking out, there was not a great deal of good communication. People were just doing what they thought was best... they weren’t necessarily following due process or best evidence base at the time. P8

After fear came anger, with senior nurses outlining the anger they experienced from colleagues in the frequent changes of protocol:

“...We had to deal with a fair bit of anger from staff. And my response was, yeah, that’s sort of fair enough. It’s fair enough for you to be angry.” P9

Fatigue began to set in, resulting from lockdowns external to the workplace and it being “mentally exhausting” (P5) managing patient flow in the department.



FIGURE

Major theme model. PPE, personal protective equipment; COVID, coronavirus disease.

Emergency nurses experienced fear of contracting COVID-19 both at work and in the community, with those feelings at times affecting the care for their patients:

"I found that I've had to...cluster my care...to reduce the amount of times that I was going in and out of the room." P5

Without a vaccine and appropriate treatments available in 2020, emergency nurses were worried about contracting COVID-19:

"I would be concerned if I did get it [COVID-19], because I don't wanna end up on a ventilator, I don't wanna end up not being able to breathe." P3

Fear experienced at work began to extend beyond the hospital, emergency nurses being "too scared to go out anywhere" (P7), with fears of being exposed to the virus in public, or potentially spreading COVID-19 to the community. To avoid bringing COVID-19 home to their families, emergency nurses changed their home and personal routines to keep family and friends safe. Many nurses outlined feeling "paranoid about what we would take home to our families" (P9):

I would come home in the garage, come through the back door and straight into the laundry, put my uniform into the hot wash before I'd come in contact with anything else, then go and have a hot soapy shower before I saw any of my family. P8.

Ongoing discussions and plans were made with family to protect them from COVID-19 and what it would mean if their loved ones were to contract the virus:

"If I got it, by the time I realized I had it, it would probably be too late anyway, and the family would have it." P9

Some nurses distanced themselves from extended family and friends, whereas others experienced family and friends avoiding contact with them owing to their high-risk work. When managing these varied emotional experiences, emergency nurses used protective strategies to manage their well-being and identify when they needed a break. Some decided it was time to step back and take time off clinical work for a few days to reset and find passion for their profession again:

I think everyone's cup is about three quarters full and it's only taking very little for people to say, that's enough. I'm really happy that my staff have been able to come to me and talk to me about it and discuss when they need leave. P10

Specific coping strategies of emergency nurses included saying "no" and being able to voice when they had enough, having a mental distinction between work and home life, engaging in physical activity, and walking and being out in the sunshine.

TABLE

**Participant characteristics**

<b>Participant characteristics</b>	<b>n or mean</b>
Sex	
Male	2
Female	8
Age (y)	38.9
Country of birth	
Australia	8
Kenya	1
New Zealand	1
Education level	
Undergraduate degree	4
Postgraduate qualification	2
Master's degree	2
Doctoral degree	2
Working history (y)	17.1
Employment region (Victoria)	
Metropolitan	6
Regional	4
Employment status	
Casual or temporary	1
Part time	7
Full time	2
Marital status	
Single	4
Married	6
Children or caring responsibilities	
Yes	7
No	3

**2021: HERE WE COME**

The fourth and final major theme “2021: here we come” provided a reflection into the emergency nurse’s experience of a pandemic, highlighting benefits both personally and professionally, and hopes for the future. Although negative experiences were plentiful for emergency nursing during the first year of the COVID-19 pandemic, a reflection on learning experiences and positive times produced optimism:

I was learning a whole new skill set and everything was new again and I kind of like that... To be challenged again and learning new things again, almost like we had to snap the system and put it back together in a slightly different way. P9

COVID-19 had been an “exceptional experience” (P2) for many emergency nurses, finding strength in “being able to say, hey, I nursed through a pandemic” (P3). Through this “baptism of fire” (P6), a mix of emotions emerged. Some nurses felt “guilty” (P9) for experiencing the pandemic positively (eg, strengthened family and collegial bonds), whereas others felt confident that if more waves of the virus were to come, they would feel prepared:

Maybe one good thing that we can learn out of this is disaster preparedness, and maybe health care institutions doing more disaster drills in relation to getting prepared. (P2)

Emergency nurses described their adjustment to COVID-normal as surreal, comparing it with “Stockholm syndrome” (P9) when reflecting on the last 12 months. The potential for a vaccine was an exciting prospect; however, questions about vaccine hesitancy from community and nursing staff were highlighted. When reflecting on whether emergency nurses could face future waves of the virus, optimism was evident:

“I think we would be much better placed to go for round two. I wouldn’t ask for it too soon though [laughing].” P10

On reflection, emergency nurses questioned whether this first year of COVID-19 would “change the way we’re gonna nurse forever” (P3), with some unwavering in their support for their future career in the department and profession.

**Discussion**

This research project aimed to gain an understanding of lived experiences of Australian emergency nurses working on the frontline during the COVID-19 pandemic. These findings present a snapshot in time of 2020, the first year of the COVID-19 pandemic within Australia, and how this affected our emergency nurses.

This examination of the lived experiences of regional emergency nurses versus metropolitan emergency nurses revealed similar feelings surrounding the impacts of the media, experiences of wearing PPE, emotional responses to the virus, and hopes for the future. However, regional nurses in this study recognized they may have had more time to prepare policies and procedures around COVID-19 management than their metropolitan counterparts. Despite this additional preparation, studies suggest that mental health impacts of the COVID-19 pandemic may still be prevalent in regional and rural nurses, even with lower caseloads.<sup>25</sup>

This is hypothesized as being due to limited access to specialist medical support, inadequate infrastructure, and varied recruitment and retention of staff.<sup>25</sup>

A noteworthy finding from this study was how emergency nurses respond to external influences such as media and conversations had within their workplaces. These influences appeared to shape how nurses responded to their lifeworld and the subsequent emotional experiences that guided their behavior and understanding at this time. Despite their training and advanced education within infection control standards, the emergency nurses remained fearful of bringing COVID-19 home to their families. These findings were similar to Ali et al<sup>14</sup> who found that nurses who are parents think and behave more like civilians rather than health professionals despite their training. Furthermore, literature suggests that emergency nurses who were parents carried the increased burden of fear of infecting their children and experienced heightened demands of childcare with school closures.<sup>8,17</sup> Most emergency nurses in this study were parents or had caring responsibilities ( $n = 7$ ), potentially illuminating why nurses were not immune to the anxieties and fears associated with the pandemic and its impact on themselves, family, friends, and workmates.

In this study, emergency nurses were appreciative of the community support they received because of their profession. However, many highlighted that they were just doing their job as they had been trained, business as usual. Similarly, offerings of free coffee and meals were endearing, but did not assist in the management of emotional, mental, and physical pressures of the pandemic. These findings were supported within international literature, where dehumanization of emergency nurses occurs when they are labeled as “superheroes,” assuming they have superhero powers that make them immune to the pressures of their role.<sup>26</sup> Being labeled as someone who can do the impossible removes the human limitations of these nurses and potentially undermines the professional role and training required to be an emergency nurse.<sup>27,28</sup> The emergency nurses in this study were vulnerable to the many changes and dangers that COVID-19 presented during the first year and highlighted the need to create a stronger focus on nurse support and well-being within organizations.

### Limitations

Despite the success in recruitment of participants for this project, potential limitations were identified in the timing of the COVID-19 pandemic. Because of the increased

strain placed on health care workers, nurses may have been reluctant to engage in any further activity such as research outside of working hours. Due to the longitudinal nature of this study, formal analysis for each individual data set was delayed until all data had been collected to avoid premature conclusions being drawn. Although this ensured future data collection would not be affected by previous assumptions, it resulted in the delay of reporting findings. In addition, although an appropriate cross-section of emergency nurses was achieved in this project, findings may not be generalizable to other Australian states or countries with a single state sample represented within this study. Furthermore, there was an overrepresentation of female nurses within the sample, with an underrepresentation of male and gender-diverse populations. Despite these limitations, the findings demonstrate important learnings from the COVID-19 pandemic that may assist in future pandemic and epidemic management planning.

### Implications for Emergency Nurses

Findings from this study highlight the need for emergency nurse well-being protocols to be implemented within the department to protect the mental and physical well-being of the workforce. This current need to highlight well-being needs of emergency nurses is ever-present in the continued nature of the COVID-19 pandemic globally. In the United States, current evidence suggests that emergency nurses are leaving the profession to change careers at higher rates than nonemergency nurses, citing insufficient staffing and physical demands of the work after COVID-19.<sup>29</sup> In Australia, emergency nurses cited that since the onset of COVID-19, a lack of connection with colleagues and their organization increased their intentions to leave the profession.<sup>11</sup> This study provided emergency nurses a platform to voice their experiences, emotions, and attitudes to working in the emergency department during the pandemic. Facilitating discussion and debriefing through storytelling also allowed emergency nurses in this study an opportunity to engage in reflective practice. Study findings suggest that sharing their voices, reflecting on their practice, and debriefing are ways nurses in high-risk environments find well-being, build resilience, and discover healthy coping strategies. To date, there remains limited available literature on emergency nurse specific lived experiences during the COVID-19 pandemic, particularly within Australia. To ensure new learnings, reflections, and past experiences are not lost as the pandemic evolves, it is vital to historically represent these findings of

the emergency nurse population. This study presents findings from one of 3 stages of data collection for the broader longitudinal project, undertaken from 2020 to 2022. Subsequent findings will be made available after analysis.

## Conclusion

Emergency nurses have been exposed to extreme physical, mental, and emotional conditions as a result of the COVID-19 pandemic. The range of mixed messages received from media and organizations, experienced changes to clinical practice, maintenance of livelihoods beyond work, and uncertainty of what the future may hold had a profound impact on our frontline health care workers. Although educated and experienced in their role, emergency nurses are not immune to the fears and uncertainty a global pandemic carries. A greater emphasis on the mental and emotional well-being of our frontline workers is of paramount importance for the success of maintaining a strong and resilient health care workforce.

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## Author Disclosures

Conflicts of interest: none to report.

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# HEMOLYZED LABORATORY SPECIMENS IN THE EMERGENCY DEPARTMENT: AN UNDERAPPRECIATED, BUT FREQUENT PROBLEM



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## Contribution to Emergency Nursing Practice

- Hemolysis of blood samples in the emergency department is known to cause delays in treatment and patient disposition. Certain factors, such as peripheral intravenous catheter location and gauge, have been suspected to influence the risk of hemolysis.
- Previous literature has demonstrated a very wide range of hemolysis occurring from 3.3% to 77% of all ED samples, leaving uncertainty about the precise magnitude of the problem. This large observational cohort study provides added clarity regarding frequency of the problem when blood is sampled from the peripheral intravenous catheter. Overall, this study found a 17.2% hemolysis rate and identified an increased risk of hemolysis with smaller 22-gauge catheters compared with 20-gauge catheters and hand/wrist placement compared with antecubital placement. Furthermore, hemolysis was associated with a higher rate of peripheral intravenous catheter failure.
- The findings emphasize the importance of carefully considering catheter gauge and placement location in emergency nursing practice. By selecting appropriate catheter sizes and locations, nurses can potentially reduce the risk of hemolysis, thereby minimizing delays in patient care, avoiding prolonged hospital stays, and enhancing overall patient outcomes.

## Abstract

**Introduction:** Hemolysis of blood samples from emergency department (ED) patients leads to delays in treatment and disposition. The aim of this study is to determine the frequency of hemolysis and variables predictive of hemolysis.

**Methods:** This observational cohort study was conducted among three institutions: academic tertiary care center and two suburban community EDs, with an annual census of over 270,000 ED visits. Data were obtained from the electronic health record. Adults requiring laboratory analysis with at least one peripheral intravenous catheter (PIVC) inserted within the ED were eligible. Primary outcome was hemolysis of lab samples and secondary outcomes included variables related to PIVC failure.

**Results:** Between January 8, 2021 and May 9, 2022, 141,609 patient encounters met inclusion criteria. The average age was 55.5 and 57.5% of patients were female. Hemolysis occurred in 24,359 (17.2%) samples. In a multivariate analysis, when compared to 20-gauge catheters, smaller 22-gauge catheters had an increased odds of hemolysis (OR 1.78, 95% confidence interval (CI) 1.65-1.91;  $P < .001$ ), while larger 18-gauge catheters had a lower odds of hemolysis (OR 0.94; 95% CI 0.90-0.98;  $P = .0046$ ). Additionally, when compared to antecubital placement, hand/wrist placement demonstrated increased odds of hemolysis (OR 2.06; 95% CI 1.97-2.15;  $P < .001$ ). Finally,

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hemolysis was associated with a higher rate of PIVC failure (OR 1.06; 95%CI 1.00-1.13;  $P = 0.043$ ).

**Discussion:** This large observational analysis demonstrates that lab hemolysis of is a frequent occurrence among ED patients. Given the added risk of hemolysis with certain placement variables, clinicians should consider catheter gauge/placement

location to avoid hemolysis that may result in patient care delays and prolonged hospital stays.

**Key words:** Peripheral intravenous catheter; Hemolysis; Blood sampling; Emergency medicine; Peripheral intravenous catheter failure; Occlusion

## Introduction

Laboratory analysis of blood specimens is a routine component of the evaluation of patients in the emergency department. Hemolysis of these samples is a common problem in this population, but the precise magnitude is unclear given that the reported incidence ranges widely from 3.3% to 77%.<sup>1-6</sup> Thus, the Emergency Nurses Association Clinical Practice Guidelines on hemolysis prevention concluded that no substantiated benchmark for hemolysis rate exists.<sup>6</sup> Unfortunately, hemolysis results in some laboratory values being inaccurate or uninterpretable. Because these values will ultimately direct clinical management, hemolyzed samples can cause significant delays in care and disposition among ED patients.<sup>7</sup> In the modern emergency department, which is typically inundated with patient encounters, addressing the added burden of operational inefficiency owing to hemolysis may contribute to improving overall hospital efficiency.

Beyond ED throughput, sample hemolysis can also have a significant impact on clinical outcomes. Generally, erroneous results from hemolyzed samples require additional venous access and therefore have significant downstream impacts. These include patient discomfort due to additional required needle sticks, additional cost to patients and health care systems owing to repeat laboratory sampling, and the potential safety concern of exposing health care workers to additional needle stick injuries.<sup>8-10</sup> Reducing hemolysis rates among ED laboratory draws is likely an effective method of minimizing these risks.

Blood is often drawn directly from the peripheral intravenous catheter (PIVC) at the time of placement within the emergency department.<sup>11</sup> This is in direct contrast to the more common method of phlebotomy, where the vein is temporarily accessed for the sole purpose of obtaining a blood sample. This method has been shown to be 3 times less likely to result in hemolysis than directly drawing blood from an existing PIVC.<sup>5,12</sup> However, in a busy emergency department, drawing samples from a PIVC may help to expedite patient care if the rates of hemolysis remain low. However, if the rates of hemolysis remain high, this practice may actually result in delays of

care. Existing literature examining this topic describes several risk factors for hemolysis: prolonged tourniquet time, type of collection device, and location of the PIVC.<sup>1,2,13-17</sup> In addition, some studies have linked larger catheter gauges with lower rates of hemolysis, whereas others have not found this same association.<sup>1,2,8,18,19</sup> Given these conflicting findings, we aimed to further evaluate risk factors associated with hemolysis with the goal of identifying a method of reducing hemolysis while still maintaining the efficiency afforded by using PIVCs for initial ED blood draws.

## Methods

### STUDY DESIGN, SETTING, AND PARTICIPANTS

This study was an observational cohort analysis of adult emergency department encounters between January 8, 2021, and May 9, 2022. Inclusion criteria consisted of adults at the age of 18 years or older and patients who underwent PIVC placement and subsequent blood testing in the laboratory. Patients were excluded if catheter gauge was missing, the patient received more than one PIVC, or the PIVC was placed using ultrasound guidance.

The study was conducted at a large academic suburban tertiary care center and 2 suburban community emergency centers with a combined annual census of >270,000 visits. Approval for the study was granted by the institutional review board.

### STUDY DEFINITIONS

Hemolysis was defined as a laboratory-detectable level of hemolysis within a blood sample. Laboratory tests queried for hemolysis included a basic metabolic panel, comprehensive metabolic panel, and whole-blood potassium. Any level of hemolysis in a single blood sample categorized the sample as hemolyzed. Hemolysis was restricted to one event per catheter and applied only to the first set of blood samples sent to the laboratory.

## DATA SOURCES/MEASUREMENT

Data variables were collected via the electronic medical record. The data collected from the patient's charts included patient demographics, such as age, sex, race, medical history, and hospital length of stay. The PIVC variables included catheter gauge, orientation, location, reason for removal, and dwell time. Presence of hemolysis within laboratory samples was collected. These data were then compiled and analyzed.

## OUTCOMES AND MEASUREMENTS

The primary outcome was determining the rate of hemolysis and identifying risk factors associated with hemolysis. Secondary outcomes examined the association between hemolysis and PIVC failure, PIVC dwell time, and PIVC location.

## STATISTICAL ANALYSIS

Characteristics for PIVC, demographic information for each visit, and visit information were summarized. PIVC characteristics included catheter gauge size, PIVC insertion location, and PIVC insertion orientation. Demographic information included sex, race, age group, and Quan Charlson comorbidity index (CCI).<sup>20</sup> Visit information included length of stay and dwell time. Weighted CCI scores were calculated using the patients' medical history before the emergency department. Means and standard deviations were summarized for continuous variables then compared with student *t* test or Kruskal-Wallis test. Frequency and percentages were summarized for categorical variables and compared with chi-squared test/Fisher exact test. All analysis was conducted using completed cases after removing cases with missing covariates.

For the primary objective, a logistic regression model was used to test the association between PIVC gauge size and the hemolysis outcome (yes/no). This was then adjusted by PIVC insertion location, PIVC insertion orientation, sex, race, age group, and Quan CCI in the regression model. Odds ratios (ORs), 95% confidence intervals (CIs), and *P* values were reported.

For the secondary objective, only admitted patients were selected in the analysis. A logistic regression model was used to test the association between hemolysis status and PIVC failure outcome (success/failure). Both unadjusted univariate and multivariable analyses (adjusted for PIVC gauge size, PIVC insertion location, PIVC insertion orientation, sex, race, age group, and CCI) were conducted with results presented.

Statistical analysis was performed on R 4.2.2 (R Foundation for Statistical Computing, Vienna, Austria). Statistical significance was defined as  $P < .05$ .

## Results

From January 8, 2021, to May 9, 2022, a total of 141,609 emergency care patients receiving PIVCs met the inclusion criteria. Most patients were female (57.5%) and the average age was 55.5 years. Most patients identified as white or Caucasian (66.2%). Hemolysis was observed in laboratory samples from 24,359 PIVCs (17.2%). Most PIVCs were 20-gauge (83.2%), with the remainder consisting mostly of 18-gauge (13.7%) or 22-gauge (3.0%). Right-sided placement was more common (58.6%) and the antecubital fossa was the most common insertion location (58.8%) (Table 1).

An unadjusted multivariable logistic regression analysis for all patients revealed higher odds of hemolysis among patients aged 65 to 80 (OR 1.21; 95% CI 1.17-1.25;  $P < .001$ ) and  $>80$  years (OR 1.24; 95% CI 1.19-1.29;  $P < .001$ ) than patients between the age of 18 and 64 years. Patients who identify as Black or African American also had higher odds of hemolysis than patients who identify as white or Caucasian (OR 1.35; 95% CI 1.30-1.38;  $P < .001$ ). An adjusted multivariable logistic regression analysis was performed, which adjusted for age category, sex, race, CCI, catheter gauge, catheter orientation, and catheter location. Compared with 20-gauge PIVCs, 18-gauge PIVCs had a lower adjusted odds of hemolysis (adjusted OR [aOR] 0.94; 95% CI 0.90-0.98;  $P = .0046$ ) whereas 22-gauge PIVCs had higher odds of hemolysis (aOR 1.78; 95% CI 1.65-1.91;  $P < .001$ ). In addition, compared with PIVCs placed in the antecubital fossa, there was a higher adjusted odds of hemolysis among PIVCs placed in the forearm (aOR 1.40; 95% CI 1.35-1.45;  $P < .001$ ), hand/wrist (aOR 2.06; 95% CI 1.97-2.15;  $P < .001$ ), and upper arm (aOR 1.60; 95% CI 1.46-1.75;  $P < .001$ ) (Table 2).

In a subgroup analysis of the 33,758 patients (23.8%) who were admitted to the hospital, hemolysis occurred in 20.1% of this population. These admitted patients were predominantly female (51.9%) and had an average age of 65.7 years. Patients with PIVCs and hemolyzed results had an extended average length of stay (134.36 hours) compared with the nonhemolysis population (129.81 hours;  $P < .001$ ). Among patients with hemolysis, PIVC failure as the indication for catheter removal was higher than the nonhemolysis group (54.1% vs 50.5%;  $P < .001$ ). In addition, the average PIVC dwell time was shorter

TABLE 1  
Demographics, comorbidities, hospital course, and PIVC characteristics

Variables*	All	Hemolysis Yes	No	P value
n	141,609	24,359 (17.2%)	117,250 (82.8%)	
Demographics				
Age, category				< .001†
18-64	90,079 (63.6%)	14,560 (59.8%)	75,519 (64.4%)	
65-80	33,632 (23.7%)	6345 (26.0%)	27,287 (23.3%)	
>80	17,898 (12.6%)	3454 (14.2%)	14,444 (12.3%)	
Age, y				
Mean	55.53 (20.69)	57.83 (20.21)	55.06 (20.76)	< .001‡
Median	56.44 (37.47-72.34)	59.26 (41.38-74.04)	55.81 (36.77-71.95)	
Sex				.540§
Female	81,423 (57.5%)	13,963 (57.3%)	67,460 (57.5%)	
Male	60,186 (42.5%)	10,396 (42.7%)	49,790 (42.5%)	
Race				< .001§
Black or African American	37,440 (26.4%)	7633 (31.3%)	29,807 (25.4%)	
White or Caucasian	93,677 (66.2%)	15,025 (61.7%)	78,652 (67.1%)	
Other	10,492 (7.4%)	1701 (7.0%)	8791 (7.5%)	
Comorbidities and hospital course				
Charlson comorbidity index				< .001†
0	54,949 (45.4%)	8662 (41.1%)	46,287 (46.2%)	
1-2	32,031 (26.4%)	5679 (26.9%)	26,352 (26.3%)	
3-4	15,238 (12.6%)	3057 (14.5%)	12,181 (12.2%)	
≥5	18,942 (15.6%)	3675 (17.4%)	15,267 (15.3%)	
Missing	20,449	3286	17,163	
ED disposition				< .001§
Discharge	85,953 (60.7%)	13,450 (55.2%)	72,503 (61.8%)	
Admission	55,656 (39.3%)	10,909 (44.8%)	44,747 (38.2%)	
Length of stay, h				
Mean	114.83 (110.29)	118.28 (110.43)	113.98 (110.24)	< .001‡
Median	82.73 (50.40-141.85)	89.583 (51.78-144.76)	81.233 (50.08-141.12)	
PIVC characteristics				
Gauge				< .001†
18	19,423 (13.7%)	3165 (13.0%)	16,258 (13.9%)	
20	11,7859 (83.2%)	19,741 (81.0%)	98,118 (83.7%)	
22	4316 (3.0%)	1451 (6.0%)	2865 (2.4%)	
24	11 (0.0%)	2 (0.0%)	9 (0.0%)	
Orientation				< .001§
Left	58,632 (41.4%)	9409 (38.6%)	49,223 (42.0%)	
Right	82,977 (58.6%)	14,950 (61.4%)	68,027 (58.0%)	
Location				< .001§
Antecubital	82,423 (58.8%)	11,538 (47.8%)	70,885 (61.0%)	

*continued*

TABLE 1  
Continued

Variables*	All	Hemolysis		P value
		Yes	No	
Forearm	36,381 (25.9%)	6977 (28.9%)	29,404 (25.3%)	
Hand/wrist	17,789 (12.7%)	4835 (20.0%)	12,954 (11.2%)	
Upper arm	3379 (2.4%)	724 (3.0%)	2655 (2.3%)	
Other	291 (0.2%)	62 (0.3%)	229 (0.2%)	
Missing	1346	223	1123	

ED, emergency department; IQR, interquartile range; PIVC, peripheral intravenous catheter.

\* For continuous variables, medians (IQRs) and means (SD) were presented. For categorical variables, frequencies (percentage) were presented.

† Kruskal-Wallis rank sum test.

‡ Linear model analysis of variance.

§ Pearson's chi-squared test.

among PIVCs with hemolyzed samples than nonhemolyzed samples (69.60 hours vs 72.28 hours;  $P < .001$ ) (Table 3).

Among admitted patients with documentation detailing the reason for PIVC removal, there was a significant difference in age category ( $P < .001$ ), sex ( $P = .036$ ), and race ( $P < .001$ ). In terms of PIVC characteristics and outcomes, there was a significant difference among catheter gauge, orientation, location, and blood sample hemolysis (all  $P < .001$ ) (Supplemental Table 1). An unadjusted multivariable logistic regression analysis revealed a higher odds of PIVC failure among patients with laboratory evidence of hemolysis than patients without evidence of hemolysis (OR 1.16; 95% CI 1.10-1.22;  $P < .001$ ). After adjusting for age category, sex, race, CCI, PIVC gauge, PIVC orientation, PIVC location, and presence of hemolysis, there was higher odds of PIVC failure among the hemolysis group than the nonhemolysis group (aOR 1.06; 95% CI 1.00-1.13;  $P = .0445$ ) (Table 4).

## Discussion

To the best of our knowledge, this is one of the largest studies that evaluate hemolysis in PIVC-drawn samples in the emergency department. We observed a hemolysis rate of 17.2% in our population, a rate that is significantly higher than most previous studies have observed.<sup>1-3</sup> Given the large sample size, this study may better inform the magnitude of the existing problem, a current gap in the literature. Although rates of hemolyzed samples among ED patients are very high, there are several modifiable risk factors that may help to reduce these rates. In particular, catheter gauge and catheter location are known to have

implications on hemolysis, with smaller gauge and more distal placement resulting in increased odds of hemolysis. These factors should be the focus of clinical endeavors aimed at reducing rates of hemolysis, while maintaining the improved efficiency afforded by performing blood draws from existing PIVCs.

Although minimizing the rates of hemolysis facilitates timely diagnosis and management within the emergency department, it is important to balance this objective with the goal of obtaining a complication-free catheter dwell for the duration of a patient's hospitalization. Therefore, minimizing catheter-associated complications such as infiltration, infections, and dislodgment must be weighed against hemolysis-inducing factors. Thus, although larger 18-gauge catheters have the best hemolysis profile, this should be carefully weighed against the complications associated with larger catheters. Existing evidence highlights that larger gauge catheters are associated with higher rates of phlebitis and infiltration/extravasation when too large for the dwelling vessel, which can negatively affect the longevity of the catheter.<sup>21,22</sup> Similarly, smaller catheter diameters have their shortcomings. Despite the general sentiment and recommendations that smaller 22-gauge catheters have the best outcomes,<sup>23</sup> this study found the risk of hemolysis to be highest with this size device. Furthermore, a growing body of evidence has demonstrated that smaller gauge catheters are associated with more complications and higher rates of failure.<sup>21,24,25</sup> Finally, given that intravenous (IV) contrast is often restricted through a 22-gauge PIVC, this may pose another problem in cases in which a contrast-enhanced computed tomography is required. Given these findings, it may be prudent to use smaller 22-gauge PIVC less often for emergency care visits. Ultimately, a 20-gauge PIVC may present

TABLE 2  
Association between demographics and peripheral intravenous catheter characteristics and hemolysis

Effect	OR* (95% CI)	P value	aOR† (95% CI)	P value
Age, category				
18-64	Reference group		Reference group	
65-80	1.21 (1.17-1.25)	< .001	1.11 (1.06-1.15)	< .001
>80	1.24 (1.19-1.29)	< .001	1.11 (1.05-1.16)	< .001
Sex				
Female	Reference group		Reference group	
Male	1.01 (0.98-1.04)	.5397	1.03 (1.00-1.06)	.0695
Race				
White or Caucasian	Reference group		Reference group	
Black or African American	1.35 (1.30-1.38)	< .001	1.42 (1.37-1.47)	< .001
Other	1.01 (0.96-1.07)	.6468	1.07 (1.01-1.14)	.0271
Charlson comorbidity index				
0	Reference group		Reference group	
1-2	1.15 (1.11-1.19)	< .001	1.08 (1.04-1.12)	< .001
3-4	1.34 (1.29-1.40)	< .001	1.16 (1.11-1.22)	< .001
≥5	1.29 (1.23-1.34)	< .001	1.09 (1.04-1.14)	.0010
Gauge				
20	Reference group		Reference group	
18	0.97 (0.93-1.01)	.1154	0.94 (0.90-0.98)	.0046
22	2.52 (2.36-2.69)	< .001	1.78 (1.65-1.91)	< .001
24	1.10 (0.17-4.29)	.8988	1.70 (0.24-8.82)	.5388
Orientation				
Left	Reference group		Reference group	
Right	1.15 (1.12-1.18)	< .001	1.04 (1.01-1.07)	.0234
Location				
Antecubital	Reference group		Reference group	
Forearm	1.46 (1.41-1.51)	< .001	1.40 (1.35-1.45)	< .001
Hand/wrist	2.29 (2.21-2.38)	< .001	2.06 (1.97-2.15)	< .001
Upper arm	1.68 (1.54-1.82)	< .001	1.60 (1.46-1.75)	< .001
Other	1.66 (1.25-2.19)	< .001	1.33 (0.97-1.79)	.0679

aOR, adjusted odds ratio; CI, confidence interval; OR, odds ratio.

\* Unadjusted multivariable logistic regression analysis for all patients in cohort.

† Adjusted multivariable logistic regression analysis for all patients in cohort, adjusting for age category, sex, race, Charlson comorbidity index, gauge, orientation, and location.

the best choice that provides a manageable hemolysis rate with the best functionality profile.

Before cannulation, in addition to carefully considering catheter diameter, thoughtful consideration upon the location of canula placement should be examined. Similar to catheter diameter, the odds of hemolysis must be weighed against longevity goals for optimal placement location. Therefore, although the antecubital fossa placement was associated with the lowest hemolysis rates, some literature con-

cludes that the antecubital fossa is associated with higher occlusion and dislodgment rates than its forearm counterpart.<sup>21</sup> However, other evidence demonstrates that PIVCs inserted in the antecubital fossa and forearm have similar functionality outcomes for ED patients.<sup>24</sup> Although the antecubital fossa is somewhat controversial in this regard, PIVC placement within the wrist/hand has more substantiated findings. These sites had the highest rates of hemolysis within this study and are well known for having the highest

TABLE 3  
**Demographics, comorbidities, hospital course, and PIVC characteristics for admitted patients with removal reason documentation**

Variables*	All	Hemolysis		P value
		Yes	No	
n	33,758	6787 (20.1%)	26,971 (79.9%)	
Demographics				
Age, category				.099†
18-64	14,654 (43.4%)	2893 (42.6%)	11,761 (43.6%)	
65-80	11,722 (34.7%)	2368 (34.9%)	9354 (34.7%)	
>80	7382 (21.9%)	1526 (22.5%)	5856 (21.7%)	
Age, y				.1010‡
Mean	65.7 (18.16)	66.07 (18.09)	65.612 (18.17)	
Median	68.12 (54.15-79.48)	68.23 (54.53-79.81)	68.08 (54.02-79.39)	
Sex				< .001§
Female	17,509 (51.9%)	3746 (55.2%)	13,763 (51.0%)	
Male	16,249 (48.1%)	3041 (44.8%)	13,208 (49.0%)	
Race				< .001§
Black or African American	7594 (22.5%)	1852 (27.3%)	5742 (21.3%)	
White or Caucasian	24,012 (71.1%)	4488 (66.1%)	19,524 (72.4%)	
Other	2152 (6.4%)	447 (6.6%)	1705 (6.3%)	
Comorbidities and hospital course rowhead				
Charlson comorbidity index rowhead				.121†
0	9631 (31.8%)	1896 (31.1%)	7735 (32.0%)	
1-2	7926 (26.2%)	1581 (25.9%)	6345 (26.2%)	
3-4	5296 (17.5%)	1112 (18.2%)	4184 (17.3%)	
≥5	7442 (24.6%)	1517 (24.8%)	5925 (24.5%)	
Not available	3463	681	2782	
Length of stay, h				< .001‡
Mean	130.73 (122.07)	134.36 (122.00)	129.81 (122.07)	
Median	96.56 (57.10-161.03)	98.44 (63.53-165.30)	96.08 (56.03-158.97)	
PIVC characteristics				
Gauge				.557†
18	6939 (20.6%)	1225 (18.0%)	5714 (21.2%)	
20	25,792 (76.4%)	5234 (77.1%)	20,558 (76.2%)	
22	1023 (3.0%)	328 (4.8%)	695 (2.6%)	
24	4 (0.0%)	0 (0.0%)	4 (0.0%)	
Orientation				< .001§
Left	9284 (27.5%)	1686 (24.8%)	7598 (28.2%)	
Right	24,474 (72.5%)	5101 (75.2%)	19,373 (71.8%)	
Location				< .001§
Antecubital	10,295 (30.6%)	1694 (25.1%)	8601 (32.0%)	

*continued*

TABLE 3  
Continued

Variables*	All	Hemolysis		P value
		Yes	No	
Forearm	12,791 (38.0%)	2511 (37.2%)	10,280 (38.2%)	
Hand/wrist	8771 (26.1%)	2155 (31.9%)	6616 (24.6%)	
Upper arm	1658 (4.9%)	371 (5.5%)	1287 (4.8%)	
Other	118 (0.4%)	24 (0.4%)	94 (0.3%)	
Not documented	125	32	93	
Removal reason				< .001§
Therapy completed	16,474 (48.8%)	3115 (45.9%)	13,359 (49.5%)	
Failure	17,284 (51.2%)	3672 (54.1%)	13,612 (50.5%)	
Removal reason subcategory rowhead				< .001§
Therapy completed	16,474 (48.8%)	3115 (45.9%)	13,359 (49.5%)	
Dislodgement	2728 (8.1%)	614 (9.0%)	2114 (7.8%)	
Infection	7 (0.0%)	3 (0.0%)	4 (0.0%)	
Infiltration	2820 (8.4%)	664 (9.8%)	2156 (8.0%)	
Leaking	3481 (10.3%)	736 (10.8%)	2745 (10.2%)	
Occlusion	1684 (5.0%)	358 (5.3%)	1326 (4.9%)	
Phlebitis	378 (1.1%)	80 (1.2%)	298 (1.1%)	
Unclear etiology	6186 (18.3%)	1217 (17.9%)	4969 (18.4%)	
Dwell time				< .001‡
Mean	71.74 (94.22)	69.60 (66.61)	72.28 (99.97)	
Median	53.53 (30.52-91.32)	51.64 (28.13-89.00)	53.96 (31.04-91.97)	
Not documented	52	7	45	

IQR, interquartile range; PIVC, peripheral intravenous catheter.

\* For continuous variables, medians (IQRs) and means (SD) were presented. For categorical variables, frequencies (percentage) were presented.

† Kruskal-Wallis rank sum test.

‡ Linear model analysis of variance.

§ Pearson's chi-squared test.

complication and failure rates compared with other locations.<sup>26</sup> Overall, in terms of location of placement, forearm and antecubital insertions provide the most favorable options for best PIVC outcomes.

In addition, this study demonstrates hemolysis acts as an independent risk factor leading to catheter failure, ultimately leading to repeated vascular access. Thus, reducing hemolysis may have a favorable impact on functionality beyond the emergency department. Reducing the amount of vascular access attempts the patient experiences reduces risks of patient discomfort and catheter-associated complications, such as phlebitis and infiltration, and, importantly, decreases vascular damage and depletion of accessible vessels.<sup>27</sup> Certain patient populations frequenting the emergency department experience depleted venous access,

leading to numerous IV attempts and difficult IV accessibility, which further perpetuates and predisposes patients to more difficult IV access upon repeat encounters. Furthermore, evidence regarding central venous lines has linked repeated access of these devices to central line-associated bacterial infection.<sup>28</sup> It is possible that similar unnecessary access owing to repeated blood sampling may mitigate systemic and local infection in PIVCs too.

### Implications for Emergency Nurses

The results of this investigation hold considerable importance for the domain of emergency nursing practice, as they specifically address the occurrence of hemolysis in



TABLE 4

**Association between demographics and peripheral intravenous catheter characteristics and failure for admitted patients with removal reason documentation**

Effect	OR* (95% CI)	P value	aOR† (95% CI)	P value
Age, category				
18-64	Reference group		Reference group	
65-80	1.13 (1.08-1.19)	< .001	1.00 (0.95-1.06)	.8705
>80	1.31 (1.24-1.38)	< .001	1.13 (1.06-1.21)	< .001
Sex				
Female	Reference group		Reference group	
Male	0.96 (0.92-1.00)	.0356	0.95 (0.91-1.00)	.0411
Race				
White or Caucasian	Reference group		Reference group	
Black or African American	0.87 (0.82-0.91)	< .001	0.92 (0.87-0.98)	.0071
Other	0.96 (0.88-1.05)	.3534	1.00 (0.91-1.10)	.9917
Charlson comorbidity index				
0	Reference group		Reference group	
1-2	1.09 (1.03-1.16)	.0043	1.03 (0.97-1.10)	.3085
3-4	1.08 (1.01-1.16)	.0215	0.96 (0.90-1.03)	.2814
≥5	1.23 (1.16-1.31)	< .001	1.08 (1.01-1.16)	.0166
Gauge				
20	Reference group		Reference group	
18	1.07 (1.02-1.13)	.0121	1.03 (0.97-1.09)	.3878
22	1.19 (1.05-1.35)	.0057	0.87 (0.76-1.00)	.0551
24	0.97 (0.12-8.10)	.9771	0.68 (0.03-17.19)	.7834
Orientation				
Left	Reference group		Reference group	
Right	1.84 (1.76-1.94)	< .001	1.47 (1.40-1.55)	< .001
Location				
Antecubital	Reference group		Reference group	
Forearm	2.30 (2.18-2.43)	< .001	2.09 (1.97-2.21)	< .001
Hand/wrist	3.24 (3.05-3.43)	< .001	2.86 (2.68-3.06)	< .001
Upper arm	3.33 (2.99-3.72)	< .001	3.02 (2.69-3.39)	< .001
Other	2.02 (1.41-2.91)	< .001	1.96 (1.34-2.87)	< .001
Hemolysis				
No	Reference group		Reference group	
Yes	1.16 (1.10-1.22)	< .001	1.06 (1.00-1.13)	.0445

aOR, adjusted odds ratio; CI, confidence interval; OR, odds ratio.

\* Unadjusted multivariable logistic regression analysis for admitted patients in cohort.

† Adjusted multivariable logistic regression analysis for admitted patients in cohort, adjusting for age category, sex, race, Charlson comorbidity index, gauge, orientation, location, and hemolysis.

laboratory specimens, which may contribute to delays in patient care and protracted hospitalization durations. Emergency nursing professionals play an essential function in the processes of blood sample collection and PIVC insertion; however, they may not be fully aware of the best prac-

tices for preventing hemolysis.<sup>29</sup> By integrating the knowledge gleaned from this study into their routine practice, emergency nurses can make well-informed decisions regarding catheter gauge selection and placement site to mitigate the risk of hemolysis. As a result, this could

potentially improve patient outcomes, alleviate the strain on emergency departments, and augment the overall effectiveness of care provision. Emergency nursing professionals should consider using larger catheters, when feasible, and prioritize antecubital positioning over hand/wrist positioning to reduce the probability of hemolysis. This evidence-based methodology can support or initiate alterations in practice, ultimately fostering optimal patient care within emergency settings.

### Limitations

Although this study investigated numerous risk factors of hemolysis, not all factors were accounted for. As previous studies have indicated, there are hemolytic associations involving tourniquet time, as well as laboratory-associated hemolysis, that were not addressed within this study. Although this can have an association with hemolysis, the study still robustly evaluates other etiologies of hemolysis and therefore the data are still quite generalizable to a broader population. The study also did not address the circumstances in which a blood draw is obtained via butterfly stick and then a peripheral IV is subsequently obtained. Although this is an uncommon circumstance in the emergency department, the assumption was made that the first PIVC placed was the site in which blood was drawn and therefore could have caused some incongruity within the data set. In addition, the study excluded ultrasound-guided PIVCs and no conclusions can be drawn regarding hemolysis and these advanced catheters. Finally, electronic health data are limited and there were missing data on failure elements of PIVCs that limited the analysis in regard to the etiology of failure.

### Conclusions

This study demonstrated the need for a paradigm shift when undertaking vascular access within the emergency department. To optimize patient care and extended longevity of PIVC access, it is necessary to understand the modifiable risk factors associated with premature PIVC failure and hemolysis. Most importantly, gauge size and positioning should be heavily considered when placing a PIVC. Choosing a 20-gauge PIVC in the forearm or antecubital fossa offers the appropriate balance between hemolysis reduction and improved functionality on the PIVC. Taking steps to reduce the risk of these untimely consequences presents the opportunity to improve patient health care. Including these considerations within recommendations

and guidelines associated with PIVC placement can lead to an improvement within the functionality of PIVC and better catheter-associated outcomes.

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### Supplementary Data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.jen.2023.06.001>.

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# EMERGENCY DEPARTMENT USE BY YOUNG ADULTS WITH CHRONIC ILLNESS BEFORE AND DURING THE COVID-19 PANDEMIC



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## Contribution to Emergency Nursing Practice

- Emergency departments provide much of the care for young adults with chronic health conditions, and using the emergency department for chronic disease management may lead to fragmented care. Many encounters are for ambulatory care sensitive conditions and are potentially avoidable ED encounters. Nationally during the coronavirus disease pandemic, there was a significant decrease in ED visits.
- In this study, the total ED encounters for young adults with certain ambulatory care sensitive conditions decreased during COVID-19 but varied by chronic condition. The encounters and admissions for individuals with mental health conditions increased dramatically during the COVID-19 pandemic. Our study showed an increase in hospital admissions for young adults with diabetes.
- Important implications for clinical emergency nursing reflected in the results of this study are the need for mental health resources in the emergency department, especially during a pandemic. An increase in admissions for diabetes emphasized the importance of a connection to primary care and patient education.

## Abstract

**Introduction:** There was a significant decrease in emergency department encounters during the COVID-19 pandemic. Our large urban emergency department observed decreased en-

counters and admissions by youths with chronic health conditions. This study aimed to compare the frequency of emergency department encounters for certain young adults before the pandemic and during the COVID-19 pandemic.

**Methods:** A retrospective cohort study using medical records of patients ages 20 to 26 years from October 2018 to September 2019 and February 2020 to February 2021. Files set for inclusion were those with a primary diagnosis of human immunodeficiency virus, diabetes mellitus, epilepsy, cerebral palsy, sickle cell disease, asthma, and certain psychiatric disorders for potentially preventable health events.

**Results:** We included 1203 total encounters (853 before the pandemic and 350 during the pandemic), with the total number of subjects included in the study 568 (293 before the pandemic to 239 during the pandemic). During the pandemic, young adults with mental health conditions (53.1%) accounted for most encounters. Encounters requiring hospital admissions increased from 27.4% to 52.5% during the pandemic, primarily among patients with diabetes (41.8% vs 61.1%) and mental health conditions (50% vs 73.3%).

**Discussion:** The number of young adults with certain chronic health conditions decreased during COVID-19, with encounters for subjects with mental health conditions increasing significantly. The proportion of admissions increased during the pandemic with increases for subjects with mental health disorders and diabetes. The number of frequent users decreased during COVID-19. Future research is needed to understand better the causes for these disparities in young adults with chronic

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conditions who use the emergency department as a source of care.

## Introduction

### BACKGROUND/RATIONALE

Emergency departments provide a gateway to the health care system for many individuals; during 1996 to 2010, ED visits represented almost half (47.7%) of health care encounters in the United States<sup>1</sup> and in 2019 the emergency department managed 70% of daily overall hospital admissions nationally.<sup>2</sup> Most ED encounters result in discharge, a trend that has increased over time across all age groups.<sup>3</sup> Except for adults aged 65 years and older, young adults ages 18 to 44 years are the most frequent users of emergency departments.<sup>1,3</sup> Of note, young adults with chronic health conditions, such as asthma and diabetes, have the highest ED utilization<sup>4</sup> given that the emergency department provides an access point when acute symptoms related to the chronic illness are present.<sup>5</sup> Although adolescents (ages 13-18 years old) and young adults (ages 19-24 years old) (AYAs) do not differ from each other in the number of ambulatory health care visits over a 1-year period, a greater proportion of that care occurs in emergency departments.<sup>6</sup> Many ED visits are for ambulatory care sensitive conditions and are potentially avoidable.<sup>7</sup> Ambulatory care sensitive conditions are those conditions listed by the Centers for Medicare and Medicaid in which illnesses are potentially preventable if subjects receive optimum outpatient care.<sup>8</sup>

The transition from pediatric to adult care is challenging for many AYAs with chronic health conditions.<sup>9,10</sup> During transition, AYAs must assume responsibility for their self-care and form new relationships with adult health care providers. Young adults with chronic health conditions require more health care services than similar age peers without these impairments<sup>5,11</sup> and may lack the necessary knowledge and skills to transition successfully to adult medical services. A national survey of 20,708 youths with and without chronic conditions found that only 17% of those with chronic health conditions met measures of transition planning such as transition education, suggesting readiness for successful transition.<sup>12</sup> Despite their medical complexity, most ED visits for young adults with chronic health conditions occur in general emergency departments.<sup>4,13</sup> In a recent study, researchers examined ED visits among young adults with chronic conditions enrolled in a primary care network and identified young adults with sickle cell disease (SCD), type 1 diabetes, and seizure disor-

**Key words:** Young adults; Chronic health conditions; Emergency department; Pandemic; COVID-19

ders as the highest ED users.<sup>14</sup> Other studies have reported a high ED number of encounters for young adults with asthma<sup>15</sup> and HIV.<sup>16</sup>

The Centers for Disease Control and Prevention reported that ED visits decreased by 42% during the COVID-19 pandemic<sup>17</sup> with the most significant decrease in adult and pediatric visits for nonmedically urgent complaints.<sup>18</sup> Approximately 2 of 5 participants in a nationally representative survey reported delaying care during the pandemic because of concern about exposure to COVID-19.<sup>19</sup> Although survey respondents with 1 or more chronic health conditions most frequently reported delaying nonurgent care, 10.4% of respondents with 1 chronic condition and 22.7% of respondents with 2 or more chronic conditions reported either delaying or avoiding use of emergency services.<sup>19</sup> Those seeking help for mental health conditions seem to be the exception to these findings. Studies done early in the COVID-19 pandemic found that the demand for mental health services increased significantly<sup>20,21</sup> and especially for young adults.<sup>22</sup> Similar to emergency departments across the country, our large urban emergency department in New York City experienced a dramatic change in overall registrations during the pandemic. In this health care system, overall ED admissions decreased significantly in patients diagnosed as having acute stroke and congestive heart failure.<sup>23</sup>

### OBJECTIVES

ED visits by young adults with chronic conditions during the pandemic are unknown. The aim of this study was to measure the impact of COVID-19 on ED registrations and admissions for young adults with select chronic health conditions before and during the COVID-19 pandemic.

## Methods

### STUDY DESIGN/SETTING/PARTICIPANTS

We used a retrospective cohort design to address study aims. An analysis of the medical records of AYAs with certain primary diagnoses and ambulatory care sensitive conditions before and during COVID-19 was set for inclusion. We analyzed electronic health record (EHR) data from ED encounters of young adults age 20 to 26 years

TABLE 1  
ICD-10 codes by diagnosis

Chronic disease type	ICD-10 codes
Asthma	J40-J82.83
Cerebral palsy	G80.0-G80.9
Diabetes (types 1 and 2)	E08.01-E13.9
HIV	B20, Z21, B97.35, R75
Mental health condition	F30.10-F33.9
Sickle cell disease	D57.00-D57.819

ICD-10, International Classification of Diseases, Tenth Revision.

with 6 chronic health conditions (asthma, cerebral palsy, diabetes [types 1 and 2], HIV, mental health conditions, and SCD) who received care at 1 large metropolitan not-for-profit teaching hospital in New York City, which provides emergency services to approximately 250,000 patients annually.<sup>24</sup> Table 1 lists the International Classification of Diseases, Tenth Revision, codes queried by chronic health condition diagnosis to elicit ED encounters for these young adults. The International Classification of Diseases, Tenth Revision, codes capturing acute disease-specific diagnoses were selected to represent potentially preventable ED encounters.

EHR data were queried for data in 2 time frames: October 1, 2018, to September 30, 2019 (before the COVID-19 pandemic), and February 1, 2020, to February 28, 2021 (during the COVID-19 pandemic). In each time frame, we categorized patients with 4 or more encounters during that period as frequent ED users.<sup>25-27</sup> The institution's institutional review board approved this study before study initiation.

To examine changes in ED volume during the pandemic, we analyzed ED encounters at both the patient and encounter levels. At the patient level, we grouped patients by the timing of their emergency department, those encounters before but not during the pandemic, those with encounters during the pandemic but not before, and those with encounters both before and during the pandemic. At the encounter level, we grouped encounters as having occurred either before or during the pandemic.

In February 2020, the hospital changed its EHR system from Allscripts Touch Works (Chicago, IL) to Epic (Epic Health Services, Inc, Dallas, TX). Medical record numbers for established patients changed with the introduction of the new system. Patient name and date of birth were used to allow examination at the patient level across EHR systems.

After categorization at the patient level, all data were de-identified.

#### VARIABLES/BIAS

For this study, variables of interest at the patient level included demographic characteristics (age, sex, race, ethnicity), chronic disease type, number of ED encounters during each period (before and during the pandemic), proportion of young adults who were frequent ED users (4 or more visits) before or during the pandemic, and health insurance type (commercial, government sponsored [Medicaid, Managed Medicaid, Medicare], uninsured, not reported). In an effort to minimize bias, variables at the encounter level included chronic disease type and ED disposition (admit, discharge from the emergency department, incomplete encounter [patient left the emergency department before disposition], other disposition [included walk-outs before or after medical screening examination and patients who left emergency department against medical advice], and not reported).

#### DATA ANALYSIS/STATISTICAL METHODS

EHR files from October 1, 2018, to September 30, 2019, and February 1, 2020, to February 28, 2021, representing prepandemic and pandemic encounters were merged into 1 file. Two data sets were created from this merged file: an encounter-level data set and a patient-level data set. To create the patient-level data set, we stratified encounters by name, date of birth, medical record number, and date of encounter to identify encounters of unique individuals. We then categorized individuals as having encounters by the time of occurrence: before the pandemic, during the pandemic, and during both time frames. For each individual, 2 additional variables were created: number of encounters before the pandemic and number of encounters during the pandemic. Data were analyzed at the patient level and at the encounter level using descriptive statistics. At the patient level (Table 2), groups were compared using analysis of variance for continuous variables and chi-square or Fisher's exact tests for categorical variables. For continuous variables that achieved statistical significance ( $P < .05$ ), post hoc comparisons were made using the Tukey's range test; for categorical variables that achieved statistical significance ( $P < .05$ ), post hoc comparisons were made using a Bonferroni correction ( $P < .017$ ).

TABLE 2

**Comparison of demographic characteristics table of young adults with chronic conditions who used the emergency department before the pandemic (October 1, 2018-September 30, 2019) and during the COVID-19 pandemic (February 1, 2020-February 28, 2021)**

Total population variables	Prepandemic		Pandemic		Both		P value
	n = 293 Mean	SD	n = 239 Mean	SD	n = 36 Mean	SD	
Age (y)	23.70	2.00	23.30	1.90	22.60	1.60	< .001*
Encounters	2.20	2.00	1.20	0.60	7.80	10.40	< .001*
Variables	n	%	n	%	n	%	P value
Sex							
Male	115	39.2	116	48.5	15	41.7	
Female	178	60.8	123	51.5	21	58.3	.1
Race							
Asian	3	1	2	0.8	–	–	
Black	40	13.7	62	25.9	9	25	
Native American	–	–	1	0.4	–	–	
White	37	12.6	54	22.6	1	2.8	
Other race	204	69.6	87	36.4	23	63.9	
Not reported	9	3.1	33	13.8	3	8.3	< .001 <sup>†</sup>
Ethnicity							
Latino	84	28.7	111	46.4	7	19.4	
Non-Latino	29	9.9	93	38.9	6	16.7	
Not reported	180	61.4	35	14.6	23	63.9	< .001 <sup>†</sup>
Chronic illness type							
Asthma	175	59.7	64	26.8	16	44.4	
Cerebral palsy	4	1.4	1	0.4	–	–	
Diabetes (types 1 and 2)	68	23.2	25	10.5	1	2.8	
HIV	7	2.4	5	2.1	1	2.8	
Mental health condition	11	3.4	127	53.1	2	5.6	
Sickle cell disease	28	9.6	17	7.1	16	44.4	< .001*
Single ED encounter	140	47.8	209	87.4	7 pre 22 during	61.1	< .001*
Frequent users (>4 visits)	44	15	2	0.8	17	47.2	< .001*
Health insurance type							
Commercial	63	21.2	69	28.9	1	2.8	
Government sponsored	200	68.3	157	65.7	–	94.4	
Uninsured	30	10.2	5	2.1	–	2.8	
Not reported	–	–	8	3.3	–	–	< .001*

ANOVA, analysis of variance; COVID-19, COVID-19; ED, emergency department.

For those who used emergency department both before and during the pandemic, mean encounters were  $5.9 \pm 10.2$  in the year before the pandemic and  $1.9 \pm 1.4$  during the pandemic; government-sponsored insurance = Medicaid, Managed Medicaid, and Medicare; ANOVA with post hoc Tukey test used to analyze continuous variables age and encounters; all other variables analyzed using chi-square with post hoc Bonferroni correction.

\* Significant differences among all subgroups in post hoc comparisons.

<sup>†</sup> Significant differences between groups 1 (prepandemic only) and 2 (postpandemic only); significant differences between groups 3 and 2 (use of the emergency department during both time periods), but no differences noted between groups 1 and 3.



## Results

### DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

In total, 1203 encounters (853 before pandemic and 350 during pandemic) were identified and represent ED encounters by 568 young adults with chronic conditions. [Table 2](#) compares patient characteristics by ED utilization for each period of time. The number of young adults who frequented the emergency department decreased during the pandemic and varied by chronic illness type. Before the pandemic, approximately half of young adults had a single ED encounter compared with during the pandemic when 87.4% were single encounters. During the pandemic, young adults who frequented the emergency department were more frequently of Black race and Hispanic ethnicity than those who used the emergency department before the pandemic. Before the pandemic, young adults with asthma most frequently used the emergency department, whereas, during the pandemic, the largest group was those who used the emergency department for treatment of a mental health condition. In post hoc analyses to examine differences among patient subgroups, patients significantly differed in all characteristics with the exception of race and ethnicity. Patients who used the emergency department before the pandemic differed in race and ethnicity from those who used the emergency department during the pandemic; similar differences were found between those who used the emergency department during the pandemic and the group who used the emergency department during both time points. There were no differences in race and ethnicity between those who used the emergency department before the pandemic and those who used the emergency department at both time points.

### ED ENCOUNTERS

[Table 3](#) compares ED visits at the encounter level. Compared with prepandemic by chronic disease type, the number of encounters for asthma and diabetes decreased during the pandemic, whereas encounters for mental health disorders increased during the pandemic. Overall, the proportion of ED encounters requiring hospital admission increased during the pandemic. Frequent users were, for the most part, patients with a diagnosis of asthma, SCD, and diabetes (data not presented). Before the pandemic, most encounters were represented by frequent users, whereas they significantly decreased during the COVID pandemic.

## Discussion

This study aimed to compare the frequency and types of ED encounters of young adults with 6 chronic conditions at 1 urban emergency department before and during the COVID-19 pandemic. Young adults with chronic illnesses are of much concern because they face many challenges in achieving optimum health. The theory of Self-Care of Chronic Illnesses says that experience, skills, and symptom management are some factors that influence achieving illness stability.<sup>28</sup> The movement from a pediatric to an adult health care setting has potential adverse events and poor outcomes for young adults.<sup>29</sup> Health deficits compound the challenges of achieving developmental milestones in young adults.<sup>30,31</sup> Young adults who use the emergency department to care for their chronic illnesses may lack the skills, resources, or knowledge necessary to manage their health.

Consistent with findings of other studies,<sup>17,18,32</sup> total ED encounters for young adults decreased during COVID-19 but varied by chronic condition. Although total encounters for individuals with asthma, diabetes, and SCD decreased during the COVID-19 pandemic, encounters for individuals with mental health conditions increased. Noteworthy was an increase in hospital admissions for young adults with diabetes and mental health conditions ([Table 4](#)). Many may have avoided coming to the hospital owing to a lack of information about the disease and fear of exposure to the COVID-19 virus in the hospital setting.

Insurance coverage of this sample of young adults did not change significantly from before the pandemic to during the COVID-19 pandemic, with most patients having a form of government-sponsored insurance. Only a small proportion of young adults who came to the emergency department were uninsured, and the proportion of uninsured patients decreased during the COVID-19 pandemic. In contrast to our study, other research has found that this age group is 1 of the largest populations who are without health insurance.<sup>33</sup> Other researchers found an increase in uninsured patients during COVID-19,<sup>20</sup> whereas another study found the rate of patients presenting with government insurance varied during the pandemic.<sup>34</sup> The cause for the decrease in the number of uninsured patients at our institution is unknown. It may suggest that the state-run Medicaid expansion program during COVID may have decreased the number of uninsured in this population.<sup>35</sup>

During the pandemic, young adults with mental health conditions were the most frequent users of the emergency department and had the highest proportion of encounters and hospital admissions. This outcome is

TABLE 3

Comparison of department encounters of young adults with chronic conditions who used the emergency department before the pandemic (October 1, 2018-September 30, 2019) and during the COVID-19 pandemic (February 1, 2020-February 28, 2021)

Variable	Prepandemic <i>n</i> = 853		During pandemic <i>n</i> = 350		<i>P</i> value
	<i>n</i>	%	<i>n</i>	%	
Encounters by chronic illness type					
Asthma	486	57	87	24.9	< .001
Cerebral palsy	6	0.7	1	0.3	< .001
Diabetes (types 1 and 2)	153	17.9	36	10.3	< .001
HIV	11	1.3	10	2.9	< .001
Mental health condition	32	3.8	135	38.6	< .001
Sickle cell disease	165	19.3	81	23	< .001
Encounters for frequent ED users (>4 visits)	436	51.1	33	9.4	< .001
ED disposition					
Admit	233	27.3	184	52.5	< .001
Discharge	537	63	157	44.9	< .001
Incomplete encounter	79	9.3	8	2.3	< .001
Other disposition	4	0.5	–	–	
Not reported	–	–	1	0.3	< .001

COVID-19, coronavirus disease 2019; ED, emergency department.

significant and demonstrates the importance of having mental health services in emergency departments. This finding is consistent with other research<sup>21,36,37</sup> and may be caused, in part, by a lack of available resources in communities where offices were closed, and mental health care was provided virtually.<sup>38</sup> Other causes may be that young adults with mental health issues have difficulty transitioning to adult care services and may not have established relationships with adult providers in the community.<sup>39</sup> Conversely, some research demonstrated a decrease in hospitalizations for mental health conditions when patients received outpatient mental health care.<sup>38,40</sup> In our sample, most young adults who came to the emergency department during the pandemic for treatment of a mental health condition had only 1 ED encounter, suggesting that the emergency department may have been successful in providing a conduit to community mental health services for these individuals. Our findings may also suggest that some mental health conditions emerged for the first time or developed to the level that they required treatment for the first time during the pandemic owing to heightened stress.<sup>22</sup> Some patients may have had an acute exacerbation due to a pandemic-related stressor that subsequently subsided. Having mental health services readily available during a

pandemic has been recommended.<sup>41</sup> Going forward, having mental health resources as part of any ED team is an integral part in meeting patients' needs during a pandemic.

During the COVID-19 pandemic, ED encounters decreased for young adults with the primary diagnoses of asthma, diabetes, and SCD. ED encounters resulting in hospital admissions increased for patients with diabetes but significantly decreased for young adults with asthma. Before COVID-19, in New York State, the most frequent reasons for admissions from the emergency department were for asthma and diabetes.<sup>42</sup> Staying home and practicing social distancing may have reduced communicable disease transmission and chronic disease exacerbation<sup>43,44</sup> especially for those with asthma. Alternatively, young adults with chronic conditions may have avoided the emergency department during the pandemic because of concerns about being exposed to COVID-19 in the emergency department or about long ED wait times from the increase of patients presenting with COVID-19 related illness.<sup>45</sup> The increase in the percentage of young adults with diabetes who required hospital admission suggested that these patients may have waited longer to seek care and thus presented to the emergency department much sicker.

TABLE 4

**Comparison of department encounters to admissions of young adults with chronic conditions who used the emergency department before the pandemic (October 1, 2018-September 30, 2019,  $n = 853$ ) and during the COVID-19 pandemic (February 1, 2020-February 28, 2021,  $n = 350$ )**

Prepandemic Chronic condition	Prepandemic			Pandemic			P value
	Encounter	Admit	%	Encounter	Admit	%	
Asthma	486	60	12.4	87	13	14.9	
Cerebral palsy	6	4	66.6	1	0	0	.50
Diabetes (types 1 and 2)	153	64	41.8	36	22	61.1	.43
HIV	11	8	72.7	10	6	60	.04
Mental health condition	32	16	50	135	99	73.3	.66
Sickle cell disease	165	81	49.1	81	44	54.3	< .001

HIV, human immunodeficiency virus.

Similar to the findings of another study,<sup>43</sup> our study showed a decrease in the number of frequent users during the COVID-19 pandemic. This may suggest the avoidance of medical care during the pandemic for fear of exposure to diseases by patients at an increased risk of severe illness.<sup>19,45</sup> It is unclear, particularly for the subset of our sample with frequent ED use either before or during the pandemic, whether the emergency department was the only source of care or whether it was a place used when their usual source of care was unavailable. Research has shown frequent ED users may benefit from case management programs, including inpatient and outpatient monitoring. Case management programs that include home care visits may effectively reduce encounter rates and improve overall health.<sup>46-48</sup> Identifying frequent users and initiating interventions, such as a home monitoring program by health care providers before a crisis, may be helpful during times of extreme adversity.

Given that ED use is common among young adults with chronic health conditions,<sup>14,49-51</sup> strategies are needed to decrease avoidable ED encounters in young adults with chronic health conditions. Notably, with the exception of 36 young adults with ED encounters both before and during the pandemic, young adults who frequented the emergency department in the year before the pandemic did not use the emergency department during the pandemic. It is possible that the emergency department helped establish connections to primary care for these young adults. During the pandemic, use of the emergency department by most young adults in this sample limited use to 1 visit and may support the theory that accessing outpatient care was difficult during this time. Whether or not patients were able to connect to

outside resources is unknown and further research is needed in this area.

More than half of ED encounters before the pandemic and almost half of ED encounters during the pandemic resulted in discharge from the emergency department. Most of these encounters of this type were potentially avoidable with established outpatient care. Young adults with chronic illness require daily disease self-management and ongoing disease-specific monitoring from a usual source of care to maintain their health. Lacking either or both can result in poor medication adherence, disease exacerbations, and disease progression. In either case, using the emergency department as a source of episodic nonemergency care may lead to fragmented care<sup>52-54</sup> and a lack of preventive care.<sup>55-57</sup>

In this emergency department, the triage nurse is responsible for screening patients for medical issues, including psychiatrist complaints, and assigning them to areas in the emergency department where they will receive the appropriate care. During the pandemic, the emergency department maintained its comprehensive psychiatric emergency program area, staffed with full-time psychiatrists, psychiatric nurse practitioners, social workers, and registered nurses specially trained in psychiatry. Decisions for admission are made solely by the psychiatrists, and most of visits and admissions were diagnoses of major depressive disorder, bipolar 1, and mania during this time. In addition, the team providers make the appropriate referrals to outpatient psychiatric resources. During the pandemic, there was a significant need for medical beds, and the organization converted many inpatient psychiatric beds to medical beds while maintaining 1 inpatient psychiatric hospital. This study showed a significant increase in psychiatric admissions despite the decrease in inpatient beds.

## Limitations

This study has several limitations. First, data were limited to young adults with 6 chronic health conditions who used 1 emergency department in New York City and reflected a 1-year time frame before and during the pandemic. We did not stratify young adults by either diabetes type or specific mental health condition. Furthermore, ED encounters were limited to those specific to chronic disease care. Therefore, the findings of this study may not be generalizable to other ED settings or chronic diseases not studied.

## Implications for Emergency Nurses

In this study, the total ED encounters for young adults with certain ambulatory care sensitive conditions decreased during COVID-19 but varied by chronic condition. Emergency departments provide much of the care for young adults with chronic health conditions. The encounters and admissions for individuals with mental health conditions increased dramatically during the COVID-19 pandemic, stressing the importance of having mental health resources in the emergency department, especially during a pandemic. Young adults with chronic diseases require daily disease self-management and ongoing disease-specific monitoring from a usual source of care to maintain their health. Using the emergency department for chronic disease management may lead to fragmented care. Increase in hospital admissions for young adults with diabetes emphasizes the importance of a connection to primary care and patient education.

## Conclusion

This study's findings provide insight into ED use by young adults with chronic health conditions during the COVID-19 pandemic. Significant increases in encounters for young adults with mental health conditions suggest that it is imperative to have mental health resources in the emergency department and the availability of referrals to outpatient resources. Outreach programs may decrease admission rates for young adults with chronic illnesses, especially those young adults with diabetes. Transitioning young adults with chronic conditions from pediatric to adult care is a complex endeavor that has become a public health priority. Future research is needed to understand why young adults with chronic conditions use the emergency department as a frequent source of care and the potential difficulties they may encounter when using the adult health care system.

## Author Disclosures

Conflicts of interests: none to report.

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# HELP! CARING FOR PEOPLE WITH MENTAL HEALTH PROBLEMS IN THE EMERGENCY DEPARTMENT: A QUALITATIVE STUDY



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## Contribution to Emergency Nursing Practice

- Coronavirus disease 2019 has caused an increase in the population's mental health issues, thus increasing the number of patients with mental health concerns in the emergency department. This situation has caused stress for emergency nurses.
- This study explores how nurses experience and manage increased emergency department utilization by people with mental health concerns, particularly how nurses perceive their ability to deal with people seeking care for mental health problems in the emergency department.
- Emergency nurses must address patients' unique needs, requiring specialized skills and training. Emergency departments should provide targeted training including bias education, standardized care protocols, suitable treatment spaces, and access to experts in complex situations for a comprehensive approach to mental health emergencies.

## Abstract

**Introduction:** After coronavirus disease 2019, there has been an increase in patients in the emergency department with mental health conditions. They are usually received by professionals who are not specialized in mental health. This study aimed to describe nursing staff's experiences in the emergency department, in the care they provide to people with mental health problems who often feel stigmatized by society and also in health care settings.

**Methods:** This is a descriptive qualitative study with a phenomenological approach. The participants were nurses from the Spanish Health Service from the emergency department of the Community of Madrid hospitals. Recruitment was performed by convenience sampling snowball sampling until data saturation was met. Data were collected through semistructured interviews conducted during January and February 2022.

**Results:** The exhaustive and detailed analysis of the nurses' interviews made it possible to extract 3 main categories—

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health care, psychiatric patient, and work environment—with 10 subcategories.

**Discussion:** The main study findings were the need to train emergency nurses to be prepared to care for people who experience mental health concerns including bias education and the need for implementation of standardized protocols. Emergency nurses never doubted their ability to care for people experi-

encing mental health disorders. Still, they recognized that they needed specialized professionals' support at certain critical moments.

**Key words:** Emergency care; Mental health; Nursing; Qualitative research

## Introduction

The unprecedented global coronavirus disease 2019 (COVID-19) pandemic has caused significant changes in the mental health (MH) of the entire population. New cases of anxiety disorders, posttraumatic stress disorder, and insomnia have appeared<sup>1</sup> in addition to those already diagnosed as having an MH concern (MHC) before COVID-19 who were already undergoing treatment or who have become worse due to confinement, fear of contagion, and loneliness.<sup>2,3</sup>

For many people, the emergency department is the first and fastest option to solve their health problems, both physical and mental.<sup>4</sup> Several international studies suggest that 4% to 15% of ED visits are for MH reasons.<sup>5,6</sup> Consequently, the emergency nurse faces new challenges, such as providing adequate care to patients, optimizing the time in each intervention, and maintaining the quality of care.<sup>7</sup>

Emergency services are increasingly becoming a point of contact for people with MH disorders, so it is essential to provide adequate MH care in the emergency department. Emergency psychiatric care is increasingly in demand in hospitals.<sup>8-10</sup> Therefore, knowing the nursing staff's skills and knowledge to offer effective and practical care and quality service is crucial.<sup>11</sup>

In the emergency department, the care provided to patients with and without MH problems is performed by front-line ED staff who are not specialized in psychiatric care.<sup>4,12,13</sup> Approaching emergency care for a person with MHCs is a challenge for emergency care professionals because these patients usually require immediate specialized care.<sup>13</sup> As Cullen et al<sup>14</sup> state, people with MHC want nurses to know their care needs, understand their care process in the emergency department, and demonstrate effective skills.

Emergency departments are busy environments, often with tired and stressed staff handling highly complex and life-threatening situations—patients with violent and aggressive behaviors who may even physically and/or verbally assault them.<sup>15</sup> Emergency health care providers often report that a lack of knowledge and training to deal with these situations is a barrier to providing adequate care for people with MHC.<sup>4,16,17</sup> This need, coupled with

the stressful ED environment and brief interactions with patients due to time pressures, strains the ability of staff to meet patients' emotional needs.<sup>18,19</sup>

In contrast, people with MHC perceive that the attention they receive from health professionals needs to be improved.<sup>12</sup> Several studies highlight the importance of health professionals' training and experience in MH to improve care for people with physical illnesses complicated by psychological and behavioral problems.<sup>20,21</sup>

The quality of the environment is also essential. In the emergency department, it contributes to users' negative experiences owing to lack of privacy and quiet spaces, and the use of electronic equipment contributes to users' negative experiences.<sup>22,23</sup>

Wand et al<sup>24(p1)</sup> argue that a service led by specialized nurses and integrated within the structure of the emergency team provides rapid and effective access to specialized MH care for people with "undifferentiated health problems" and eliminates a significant workload from nursing and medical staff. This statement reinforces the need for initiatives to raise MH awareness among ED staff.<sup>24</sup>

Caring for people with MHC in the emergency department presents unique challenges that affect their experiences and outcomes, as demonstrated by research exploring the perspectives of people seeking care in the ED for MH reasons.<sup>12,25</sup> A recent systematic review concluded that users feel stress and discomfort in the emergency department and need staff to deal with those feelings.<sup>26</sup> In particular, people with MHC report negative experiences and inappropriate treatment by emergency personnel due to stigma and discrimination.<sup>12,22,25</sup> Those who frequently visit the emergency department describe the staff as indifferent and impatient in their interactions.<sup>26</sup> Others report being discharged from the emergency department without receiving treatment.<sup>25,26</sup>

Furthermore, it is important to point out that very few studies analyze nursing care in the emergency department for people with MHC, especially studies emphasizing the nursing staff's experience and personal involvement.<sup>20,27</sup>

For the reasons stated earlier, it is essential to know the experiences of both users and professionals to develop appropriate interventions and optimize emergency services

TABLE 1

**Participants sociodemographic characteristics**

Participant code	Age	Sex	Working time in the emergency department	Working experience	Formal education	Workplace	Employment contract	Year of graduation
E1	45	F	9 mo	9 mo	Grade	UH 1	Temporary	2021
E2	35	F	14 y	14 y	Grade	UH 2	Indefinite	2007
E3	22	F	7 y	7 mo	Grade	UH 2	Temporary	2021
E4	25	F	4 y	4 y	Grade	UH 3	Temporary	2018
E5	30	F	5 mo	9 y	Grade	UH 4	Temporary	2013
E6	35	F	8 y	15 y	Grade	UH 2	Indefinite	2007
E7	26	F	2 y	3 y and 6 mo	Grade	UH 2	Temporary	2018
E8	28	F	2 y	4 y 8 mo	Grade	UH 2	Temporary	2016
E9	60	F	25 y	37 y	Diploma	UH 2	Indefinite	1984
E10	24	F	19 mo	19 mo	Grade	UH 2	Temporary	2018
E11	56	F	28 y	36 y	Diploma	UH 5	Indefinite	1986
E12	25	F	3 y and 6 mo	3 y and 6 mo	Grade	UH 2	Temporary	2018
E13	26	F	2 y	3 y and 6 mo	Grade	UH 6	Temporary	2018
E14	25	F	2 y	3 y	Grade	UH 7	Temporary	2019
E15	41	F	10 y	14 y	Grade	UH 5	Indefinite	2009

Grade, 4-year nursing studies; Diploma, 3-year nursing studies; F, female. UH, university hospital.

for people with MHC. This paper explores emergency nursing staff's experiences, perceptions, and feelings in caring for patients with MHCs. Therefore, the study aim is to answer the following question: What are the emergency nurses' perceptions, experiences, and feelings when caring for patients with MHC?

## Methods

### STUDY DESIGN AND SETTING

A qualitative study with a descriptive phenomenological approach was conducted to explore the perceptions and personal experiences of emergency nurses. Phenomenology is a methodological, theoretical orientation about "seeing" the phenomena from the perspective of the one who experiences them.<sup>28</sup> According to Mortari,<sup>29</sup> participants' narratives reveal the empirical qualities of an experience that cannot be separated from the context of the phenomenon.

The research was conducted in 7 hospitals in the Community of Madrid.

### STUDY SUBJECTS AND RECRUITMENT

The participants were emergency nurses from hospitals in the Community of Madrid. All of them had treated at least 1 patient with MHC while working in the emergency department. Nurses with specialized training in MH and those who self-reported having MH problems were excluded.

Participant selection was based on potential participants' ability to provide relevant information to respond to the study's objective, beginning with a purposive sampling at a tertiary-level hospital in Madrid.<sup>30</sup> The facilitator, known to some of the researchers, was the ED coordinator. She provided the researchers with the list of emergency nurses who, meeting the inclusion criteria, were at different stages in their careers and had different levels of ED experience. The potential participants received an invitation letter with information about the study, a consent form, and a questionnaire to gather sociodemographic variables (Table 1). To achieve data saturation, snowball sampling was continued in the Community of Madrid hospitals, reaching data saturation in participant number 15 and ending the interviews. There were no dropouts.

TABLE 2

**Script question interviews**

Question script

How do you think emergency care should be offered to a patient with a mental health problem?

The treatment of patients who come to the emergency room for a problem other than their chronic mental illness?

Do you consider that emergency care is being carried out adequately?

What mental disorders are the most frequently seen in the emergency department?

Do you know if there is any care protocol for patients with mental health problems in the emergency department?

Who are the professionals who should care for these patients?

Do you think there is a stigma toward people with mental illness?

What would you define as the predominant or frequent emotion when approaching a patient with a mental health problem?

Do you fear for your safety in the presence of people with mental health problems?

## RESEARCH TEAM

The research team consisted of 4 PhD nurse researchers, 2 internal medicine nurses, 1 intensive care unit nurse, and 1 PhD researcher from the department of biological systems. The entire team participated in the assessment of each stage of the research process to reduce the potential for researcher bias.

## VARIABLES AND DATA COLLECTION TOOLS

Following consent, sociodemographic data was collected from each participant (See [Table 1](#)).

An interview schedule comprising open-ended questions, using a semistructured guide, was designed with an inductive-deductive process based on the existing literature, the objectives, and the clinical experience of the research team.<sup>30</sup>

Interview questions used in this study are presented in [Table 2](#).

The interviewers were nurse researchers with training in interview techniques. Data were collected through semistructured interviews conducted during January and February 2022, lasting between 45 and 60 minutes. The COVID-19 pandemic drove the need to explore alternative data collection methods for qualitative research. Consequently, 2 researchers conducted the interviews using the Microsoft Teams (version 1.4.00.4167; Microsoft Corp., Redmond, WA) platform, and video and audio were recorded and transcribed verbatim.<sup>31,32</sup> In addition, a third PhD nurse researcher collected field notes to gather participants' perceptions, sensations, and nonverbal communication during the interview.<sup>33</sup> Confidentiality was ensured by consecutively coding each interview and removing personal data from transcripts.

## DATA ANALYSIS

Five researchers participated in data analysis, and an external researcher allowed data triangulation. Investigator triangulation used in this study permitted the participation of 2 or more researchers in the same research to provide multiple observations and conclusions. This type of triangulation allowed both confirmations of findings and different perspectives, adding breadth to the phenomenon of interest.

The data were analyzed using an inductive qualitative content analysis in which similarities and differences in the data were searched for.<sup>34</sup> Open coding was first done to describe all aspects of content. Second, the units of meaning created were grouped under higher-order headings to reduce the number, and finally, they were grouped into subcategories and categories.<sup>35</sup>

Five stages were followed in the analysis process<sup>36</sup>:

1. Collection of information through semistructured interviews
2. A careful reading of audio-recorded interview data transcribed verbatim
3. Decomposition, identifying units of meaning and relevant categories according to the study objectives and the information obtained
4. Organization and enumeration through a coding process
5. Interpretation, systematization, and data summary to disseminate the results

Audio of the interviews was transcribed and the observation annotations were gathered for their subsequent interpretation. The data were reduced by carefully reading the texts and selecting the most relevant information according to the objective of the study.<sup>37</sup> The ATLAS.ti software

(version 9, Scientific Software Development GmbH, Berlin, Germany) was used as a tool for coding data.<sup>38</sup>

This study has used the 4-dimension criteria proposed by Lincoln et al<sup>39</sup> to establish quality and methodological rigor: (1) credibility, controlled by applying 2 types of triangulation (researcher's and methods triangulation [interviews, field notes, and observation] and peer debriefing); (2) transferability, by describing the method used and the phenomenon under study and using a combination of 2 purposive sampling techniques; (3) dependability, by giving a detailed description of the study methods, by elaborating detailed drafts of the study protocol throughout the study; and (4) confirmability that was met with the verification by the participants of data collected in transcribed primary documents. Finally, researchers analyzed data, and an external researcher evaluated the study, focusing on aspects of the applied design and study methods. A complete review by the research team further enhanced the study's rigor and trustworthiness.<sup>39</sup>

The Consolidated Criteria for Reporting Qualitative Research<sup>40</sup> was used as a guide for reporting study findings.

## ETHICAL CONSIDERATIONS

This study respects the fundamental principles of the Declaration of Helsinki and the European Convention on Human Rights and Biomedicine.

Once contacted, participants received information about study purposes and data collection process. All participants provided their written consent.

Ethical approval was granted by the corresponding medical and health research ethics committee of the university hospital (CEIC Fundación Jiménez Díaz University Hospital).

## Results

After analyzing the interviews, the information was compiled in an analysis table, grouping the data into 3 main categories that responded to the proposed objectives (Table 3).

### HEALTH CARE AND ATTITUDES

The social stigma associated with people with MHC—manifested in negative attitudes or behaviors toward them—hinders relationships of trust and interferes with the treatment they receive in the emergency department. Participants verbalized stigmatizing behavior from nurses toward people with MHC in the emergency department, often unconsciously.

TABLE 3  
Most frequent categories and subcategories

Categories	Subcategories
Health care and attitudes	Stigma
	Fear
	Family
Psychiatric patient	Pathology
	COVID-19
	Security and care
	Pediatric area
Work environment	Infrastructure
	Resources
	Barriers
	Training

COVID-19, coronavirus disease 2019.

“A person with a mental illness is crazy, so they are treated as such.” (E2)

We don't treat them like people with a common disease, we treat them like someone you don't want to attend because they scare you...and that fear generates a kind of rejection in us. (E7)

It has also been observed that the approach to patients seeking MH care generates rejection and fear among health professionals, mainly due to the fact that social stigma is rooted not only in society but also in health care settings:

“...we're afraid because we associate a psychiatric patient with aggressiveness...we always cautiously enter a room where there is a psychiatric patient.” (E2)

Fear? Hmm, let me think... I think it's 'uncertainty; it's caution and responsibility, you know... I've seen serious things...someone whose finger was torn off by a psychiatric patient...or a person knocked out by a kick. Even when I was pregnant, one of them told me that he was going to kick me so that I would give birth right there... But, you know, this behavior is due to that they are sick. (E8)

However, some participants reported that having a relative with MHC undoubtedly influences their approach to a person with an MHC, changing their perspective.

Today on social networks you can see many influencers or celebrities who have children with autism,

with some mental health problem...well, you know... When someone close to you suffers from this type of disorder, the commitment is greater. (E6)

My sister suffers from anxiety disorder...and I have been able to observe many of her crises... I don't like seeing them at all. I don't like to see people's suffering because I empathize with them. (E4)

Participants also considered that the relatives of patients with MHC are usually forgotten and do not have sufficient support from the institutions. Caregivers of people with MHC often suffer physical and mental exhaustion, even feeling guilt:

Often many people come with their relatives requesting to leave them in the hospital. They tell us 'I need him/her to stay here tonight please.' I can't take this situation anymore. (E11)

#### PSYCHIATRIC PATIENT

The MH disorders most commonly detected by participants were depression and anxiety, which increased considerably after COVID-19. The participants reported that this increase overwhelmed them and made them feel unprepared. They experienced frustration at not knowing how to help people with MHC and how to care for them properly:

The appearance of many cases of depression and anxiety as a result of the pandemic has been brutal...-even among colleagues! ...well...how badly we have been taught, how little we know about managing our emotions, or how to control stress, anxiety... This is too much for us! ...And how little we know about certain disorders such as borderline personality disorder, bipolar disorder, schizophrenia... (E6)

Participants noted that the number of MH cases had risen but also found that awareness of MH issues had increased as well.

"...now it seems that there are more cases, but I think there have always been cases...although now we can identify or give them a name." (E6)

However, the cases that generated the greatest feelings of anger and helplessness in the participants were MH disorders in children and adolescents.

The pediatric mental health patient overwhelms us... How is it possible that a child of only 6 years

old suffers from depression and anxiety... I can't remember that 20 years ago children of this age went to the emergency department for a mental health disorder. (E11)

A controversial issue related to treating patients with MH disorders was the use of restraints. The distrust and lack of security nurses feel when approaching patients experiencing a mental illness crisis—due to their violent and threatening attitude—led, on many occasions, to use restraints, always as a last resort, to facilitate the safety of both the staff and the patients. There were discrepancies and different opinions among nurses about the therapeutic use of restraints in psychiatry.

And here a dilemma arises. Is restraint an appropriate measure? We believe that it is unfair to them—psychiatric patients—and to us. It is true that it gives us security because it is us—not the psychiatrist who prescribes it—who stay with them... But this measure lasts all day long, even if the outbreak has passed... There is no way to stop it! (E7)

They [the doctors] ask us to immobilize the patients and we do it, but we know what that means ...we are not caring for them, we are dehumanizing them. They are people! It's frustrating! (E9)

Most participants considered the restraints a personal and individual protection resource. However, emergency nurses, especially those who previously worked in a psychiatric unit, saw restraints as a therapeutic failure and emphasized that they are neither the best nor the final solution.

"I believe immobilization is the failure of the whole approach..." (E14)

If a patient is immobilized and does not receive any other care, it is very likely that he/she will scream or become aggressive... Immobilization is a harsh measure...it is useless without other complementary measures. (E14)

However, despite the challenges posed by these situations, the participants also revealed an empathic stance when reflecting on how they would like to be treated in a similar situation, and all agreed that patients with MHCs feel misunderstood, neglected, and even forgotten. In contrast, being aware of patients' adverse experiences in the emergency department and their lack of preparation to

care for them led nurses to ask for help, specifically, more nurses specialized in MH, and more ongoing training in managing patients with MHC.

You feel it, I know the patient is being misunderstood, but at the same time, I do not know what to do with him. I want to help him, but I need HELP to give him the proper care. I know, I know, it sounds awful, it's a bit...yes, it's a pity. I feel bad, I feel sad, I feel overwhelmed; we need more nurses specialized in mental health care in the ED or more training on caring for people with mental health issues. (E6)

...nobody wants to attend to them...of course; there are no problems with those patients who are quickly diagnosed because they are immediately transferred to the mental health team. However, there are other cases, such as chronic alcoholics—they are psychiatric patients too—who have to stay in the crowded general emergency unit—in no man's land—until they get over the intoxication...nobody wants to care for them. (E9)

## WORK ENVIRONMENT

The participants detected barriers that hindered the adequate approach to people with MHC: workload, lack of time, use of pharmacologic measures, and communication difficulties.

"They need more care time than other patients..." (E7)

"The overload of work affects us a lot, and we don't have time to adequately care for people who come with a mental health problem..." (E12)

Undoubtedly, the most notable aspect expressed by many participants was the urgent need for action protocols for people with MH disorders, not only for agitated patients. Moreover, they blame the institutions for their lack of concern and initiatives to improve care for people with MHC:

Many times, I don't know how to act...or how to talk to them... I want to do the right thing, but when I have to talk to the patient...I really don't know the best way to communicate with them. (E10)

...[T]hese patients have different needs; we really need nurses trained in mental health, psychiatry and

psychology...and even though we often feel overwhelmed and confused, we try to do our job to the best of our ability and try to help others with our experience, but is it enough? Many times, we want to believe so. But it is not enough, we need specialized professionals. (E11)

The participants also emphasized the need for adequate spaces where the treatment and care of patients with MHC can be individualized:

"There is no adequate space in the ED to care for these patients. It's a fairly closed space...they should spend as little time as possible in here." (E1)

...just as there is an area for pediatrics or gynecology and obstetrics...there should also be another for psychiatry...a completely different area where psychiatric patients wouldn't need to be tied up because they would be in safe rooms, where they wouldn't be able to escape, their lives wouldn't be in danger, or they wouldn't be able to hurt themselves...come on! They just need help. (E6)

## Discussion

This study aimed to describe how nursing professionals perceive and experience emergency care for people with MHC. Currently, the demand for ED care for people with MHC is increasing.<sup>8,41</sup> Patients seeking care for MH emergencies face the challenge of being socially stigmatized, and that stigma permeates health care services.<sup>42</sup> Emergency nurses expressed that caring for patients with MHCs is more complicated and challenging than caring for patients with common physiological diseases.<sup>11,41</sup>

The study results indicated that emergency nurses consciously or unconsciously harbor negative feelings, biases, and prejudices about people with MHC. These professionals are exposed to threats and violence from their patients and, therefore, can develop negative feelings and mistrust that affect their attitudes toward caring for them, and on many occasions, they resort to the use of restraints, even though they are aware that restraints are a therapeutic failure; regarding this, some studies show diverged opinions among professionals.<sup>43,44</sup> Consistent with other findings, emergency nurses also expressed how experience, MH literacy, and interaction with the patient can help reduce stigma.<sup>45,46</sup> However, in contrast, the restrictions related

to COVID-19 may have led to increased stigmatization of vulnerable populations, including people with MHC.<sup>47</sup>

After the COVID-19 pandemic, incidences of MH have risen, especially in younger people.<sup>3,7</sup> Cases of anxiety, depression, and stress have increased, which, according to the scientific literature, are the most prevalent psychological diseases.<sup>8,9,48</sup> In addition, emergency nurses in the study hospitals have also cared for patients with psychotic and psychiatric episodes and delusions, schizophrenia, and bipolar disorder, in line with the findings in other studies.<sup>49</sup>

The emergency nurse participants highlighted the importance of relatives and caregivers in managing people with MH problems. They expressed concern about the lack of interest in and support for their needs from public institutions. Caregivers also need help because they often feel overwhelmed and tired, and struggle to meet their relatives' needs.<sup>50</sup> This finding is similar for nurses, who also expressed concern about correctly preparing to care for people with MH problems. These experiences coincide with the need for more training in dealing with people with MH disorders to resolve the concern generated by not knowing how to provide safe and effective care for people who present with MH emergency needs.<sup>4,51</sup>

One of the most pervasive findings in the consulted literature was the discriminatory treatment experienced by people with MHC in the emergency department. Patients with MH disorders attribute this behavior to professionals' negative and biased attitudes and prejudice.<sup>12,27,42,52,53</sup> Patients with MHC are often seen as dangerous and unpredictable, and they generally generate fear, rejection, and avoidance.<sup>22</sup> The findings of this study confirm the existence of bias and stigma and how it affects the quality of care that patients receive, specifically their evaluation, care treatment, and communication.<sup>13,23</sup>

As in this study, other authors also reported experiences of health professionals in which it is observed that the care of patients with MHC is associated with fear and therefore with inadequate care.<sup>54</sup> In particular, emergency nurses show negative attitudes toward them, influencing their therapeutic interactions.<sup>57</sup> In the present study, it is evident that the participants are concerned because they recognize that they are not providing optimal care for patients with MHC in the emergency setting. They feel overwhelmed and lack essential skills, and find it very necessary to receive the support of an MH specialist. Our study findings are in line with other studies that reflect the importance of having specialized professionals with experience, training, knowledge of relevant evidence-based practice, and specific therapeutic interventions to help ED patients with MH disorders.<sup>11,22</sup>

Other conditions that make it challenging to provide good quality of care for patients with MHC are the work-

load and the rhythm of the emergency department.<sup>11</sup> These problems are reflected in the waiting time in the emergency department.<sup>5</sup> Moreover, despite the wait, the care time for each patient has been reduced and is currently very short, so patients wonder whether, in such a short time, the nurses will be able to attend to their care needs.<sup>25,54</sup> Our results show that caring for patients with MHC in the emergency department fundamentally requires conditions such as adequate time for proper care, adequate space, professional training, and the support of MH specialists.

The participants in this study highlighted the need for protocols to improve the quality of care based on communication, pharmacologic measures, and restraints. They also advocated for better training and awareness for those emergency professionals who are inexperienced in caring for people with MH problems.<sup>25</sup> These measures could lead to emergency staff feeling more confident when making decisions at work.<sup>11,24</sup>

## LIMITATIONS

This study presents certain limitations to consider. Although it includes valuable insights from frontline care providers dealing with people requiring emergency care for MHC, the context-specific findings may not fully represent all professionals in the field. Furthermore, the results lack generalizability due to the study methodology and sample size. Findings from this study may not be transferable to other clinical settings. This study is also geographically confined, focusing exclusively on a single health system, which might limit the transferability of the results to staff in different locations or health systems.

Despite these limitations, it is worth noting the validation offered by the congruence with similar studies in the field and the diversity of the study group, which supports the relevance of the findings. Nonetheless, future research is necessary in the context of Mental MH in the emergency department to further validate these findings and continue the important work of updating action protocols to better serve patients with MHC.

## Implications for Emergency Nurses

The findings of our study suggest that the care of patients with MHC in the emergency department requires organizational changes and, above all, the training of the ED staff, which, if conducted, would represent a unique opportunity to offer interventions that positively influence patients with MH needs. Some fundamental changes would be training of emergency nurses in the care of patients with MH disorders,

adequate emergency spaces, standardized protocols, and the support of professionals specialized in highly complex situations.

## Conclusion

In the aftermath of COVID-19, ED visits by people with MHC continue to rise, overloading the system, stressing professionals, and sometimes leading to adverse outcomes. Due to the stressful work pace and the care load in the emergency department, it is challenging to care for patients with MH conditions because they present unique characteristics that require being cared for by nurses with specific training.

Providing safe, quality care for people with MHCs in the emergency department requires special skills and special training. Emergency nurses in this study did not doubt their ability to provide care. However, they recognize their need to be supported by professionals specialized in MH to solve problems that may arise at critical moments and thus be able to properly care for people with MHC in emergency department.

## Author Disclosures

Conflicts of interest: none to report.

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# TRAUMATIC AND ROUTINE STRESSORS IN EMERGENCY NURSES: A TURKISH VALIDITY AND RELIABILITY STUDY



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## Contribution to Emergency Nursing Practice

- Nurses working in the emergency department are exposed to traumatic and stressful events of different types severity as a part of their daily work. Identifying and managing sources of stress affect the quality of care provided to patients and patient satisfaction.
- This article contributes to the validity and reliability of the Traumatic and Routine Stressors Scale on Emergency Nurses, which is used to determine traumatic and routine stressors in nurses working in the emergency department, in Turkish.
- Key implications for emergency nursing practice found in this article are that the Traumatic and Routine Stressors Scale on Emergency Nurses is a tool that allows emergency nurses to evaluate the frequency of exposure to stressful events and their perceived emotional impact together.

## Abstract

**Introduction:** Emergency nurses face traumatic and stressful events of many different forms and severity. The aim of this study is to test the validity and reliability of the Traumatic and Routine Stressors Scale on Emergency Nurses in Turkey.

**Methods:** This methodological study was conducted with 195 nurses who had been working in the emergency service for at

least six months and could be reached via an online questionnaire. Opinions of 9 experts were obtained with the translation-back translation method for linguistic validity, and the Davis technique was used for testing content validity. Test-retest analysis was used to test the time-invariance of the scale. Construct validity was evaluated with exploratory and confirmatory factor analyses. The reliability of the scale was evaluated based on item-total correlation and Cronbach's alpha coefficients.

**Results:** The expert opinions were found to be in agreement with each other. Factor analysis results were acceptable, the Cronbach's alpha coefficients of the scale were 0.890 for the frequency factor, 0.928 for the impact factor, and 0.866 for the total scale. It was determined that the correlation values for the time-invariance of the scale were 0.637 for the frequency factor and 0.766 for the effect factor, and the scale had good test-retest reliability.

**Discussion:** The Turkish version of the Traumatic and Routine Stressors Scale on Emergency Nurses, has high levels of validity and reliability. We recommend that the scale be used to evaluate the state of being affected by traumatic and routine stressors among emergency service nurses.

**Key words:** Emergency nursing; Emergency department; Routine stressors; Traumatic stressors

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## Introduction

Recent crises have shown that even the most developed countries are vulnerable to natural disasters. Unexpected events such as natural disasters and pandemics pose a threat to global health. Fifteen million people were affected by the earthquakes of 7.6 and 7.7 magnitudes that occurred on February 6, 2023, in Turkey.<sup>1</sup> Emergency departments are the first places survivors and people who are suddenly ill turn to for help. For this reason, at any given time nurses working in the emergency department encounter many events such as the unpredictable number of patients, trauma, and the experience of resuscitation or death of infants, children, or young people.<sup>2-4</sup> Emergency nurses, who witness the suffering and death of people, are racing against time and are under pressure to make the right decisions quickly.<sup>2,5</sup> Nurses working in the emergency department are exposed to traumatic and stressful events of different forms and severity as part of their daily work.<sup>6,7</sup> The concept of trauma is no longer limited to experiencing a directly threatening attack, but it also includes witnessing, observing, learning, and hearing about traumatic events.<sup>8</sup>

Exposure to both traumatic and routine events can cause posttraumatic stress disorder.<sup>6,7</sup> In addition, it has been reported in the literature that nurses working in the emergency department develop stress similar to the stress experienced by patients as a result of caring for traumatized patients.<sup>9</sup>

In particular, repeated exposure to significant traumatic stressors can be expected to lead to sensitization (psychological awareness), thereby increasing the potentially harmful effects of such events. Conversely, repeated exposure to less threatening, more routine, and frequent events may lead to reduced awareness.<sup>6,7</sup> The traumatic stress experienced by nurses has both individual and institutional effects. Individually, emergency nurses feel unhappy, tense, and angry, regret their career choices, resign, and leave their jobs.<sup>2,4</sup> In addition, symptoms such as a decrease in job satisfaction and job performance of nurses, indifference toward work, constant complaints about work, being late to work, critical attitude toward colleagues, frequent crying, deterioration in sleep and eating patterns, and increased use of alcohol, cigarettes, and drugs may be observed.<sup>2,4,9</sup> Institutionally, the substantial work-related stress of nurses affects the quality of the care provided to patients, patient satisfaction, and patient safety. Therefore, it is very important to identify and manage sources of stress among emergency nurses.

There is no valid and reliable scale that can be used to measure traumatic and routine stressors in emergency nurses in Turkey. For this reason, this study aimed to test

the psychometric properties of a Turkish translated version of the English language scale developed by Campillo-Cruz et al called the Traumatic and Routine Stressors Scale on Emergency Nurses (TRSS-EN).<sup>7</sup>

Research questions are as follows:

- A. Is the “TRSS-EN” adapted into Turkish a valid scale?
- B. Is the “TRSS-EN” a reliable scale?

## Methods

### STUDY DESIGN

This study used a descriptive design with an online survey methodology. Ethical principles were followed while conducting the study. Permission was obtained from the researchers who developed the scale via email for the adaptation of the original scale to Turkish and for its use. Before starting the study, ethics committee approval was obtained from the Non-Interventional Research Ethics Committee of the Faculty of Health Sciences of Kafkas University. An explanatory text about the study was given to the individuals participating in the study. Nurses who read the explanation text and gave a written consent participated in the study. The data were collected on a voluntary basis.

### SAMPLE AND SETTINGS

There are various opinions regarding the determination of sample size in scale adaptation studies.<sup>10</sup> It was stated that a sample size between 100 and 200 individuals is sufficient if the items are clear, and the number of items is not high for factor analysis to be applied in scale validity and reliability.<sup>10</sup>

In general, it is recommended that the sample size be 5 to 10 times the number of items included in the scale to be able to perform factor analysis.<sup>11</sup> Given that the number of items included in the “TRSS-EN” is 13, the aim was to reach a sample size at least equal to 10 times the number of items. The sample of the study consisted of 195 emergency nurses who could be reached during the study and agreed to participate in the study.

### DATA COLLECTION

Nurses who had been working in emergency departments in Turkey for at least 6 months were reached with an online questionnaire through social media and communication groups (WhatsApp groups, Instagram, and Facebook

TABLE 1

**Data analysis methods used to confirm the validity and reliability of the Turkish version of the Traumatic and Routine Stressors Scale on Emergency Nurses**

Methods	Test		
Methods used for validation	Language validity	Translation-back translation method	Lawshe technique
	Scope validity		Scope validity index
	Explanatory factor analysis	Confirmatory factor analysis	Bartlett's test
			Kaiser-Meyer-Olkin test
Methods used for reliability	Internal consistency	Test-retest	Varimax rotation
			Factor loads
	Item-total score correlation	Fit indexes	
	Invariance of scale	Test-retest	Cronbach's alpha coefficients
			Substance loads
		Pearson product moments correlation	

accounts). A "Personal Information Form" and the "TRSS-EN" were used to collect the data.

*TRSS-EN*

TRSS-EN<sup>7</sup> is a 13-item measure that is used to simultaneously assess the frequency (frequency of exposure) and severity (emotional impact) of common traumatic events and routine stressors associated with trauma in the daily work practices of emergency nurses in the previous 6 months. The total number of responses by respondents in the TRSS-EN is 26 because each of the 13 events in the items is scored twice, based on frequency and severity. Frequency of exposure is rated on a 7-point Likert-type scale, where 1 is "fewer than 3 times in 6 months" and 7 is "every day" (frequency scale), and the emotional impact of the stressful event is rated using a second 7-point Likert-type scale, where 1 is "without emotional impact" and 7 is "maximum emotional impact" (impact scale). The final scale provides 6 indices: "emotional impact of traumatic stressors," "emotional impact of routine stressors," "frequency of traumatic stressors," "frequency of routine stressors," "total impact of traumatic stressors," and "total impact of routine stressors."

## VALIDITY AND RELIABILITY

*Linguistic adaptation of the scale*

In the linguistic validity testing phase of the scale, the translation-back translation method was used. The scale, originally developed in English, was translated into Turkish

by the researchers and a person who is fluent in both English and Turkish. The translated texts were brought together, the most appropriate statements were selected, and the Turkish translation of the scale was finalized. The Turkish translation of the scale was translated back into English by translators who are fluent in both English and Turkish and had not seen the original version of the scale. The English translations were compared with the original form of the scale, and it was found that there was no change in meaning in the statements in the scale. The scale was submitted to 9 experts in its final form for their opinions.

*Expert opinions*

An "Expert Evaluation Form" was prepared by the researchers for testing the content validity of the scale, which was translated into Turkish and given its final form. It was sent via email to 9 nursing faculty members who are experts in their fields and experienced in methodological studies.

The Davis technique was used to evaluate the agreement among expert opinions. In the form prepared using the Davis technique, the scale had its original version and its translated version.

According to the Davis technique, in which a 4-point scoring system is used, experts score each item of the scale as 1 = "not suitable," 2 = "somewhat suitable," 3 = "quite suitable," and 4 = "very suitable." After this evaluation, the sum of the last 2 ratings is equal to the number of experts. The content validity index (CVI) was calculated by dividing the number of experts who rated the relevant item as "quite suitable" by the total number of experts, and 0.80 was accepted as the criterion for an acceptable CVI value.<sup>12</sup>

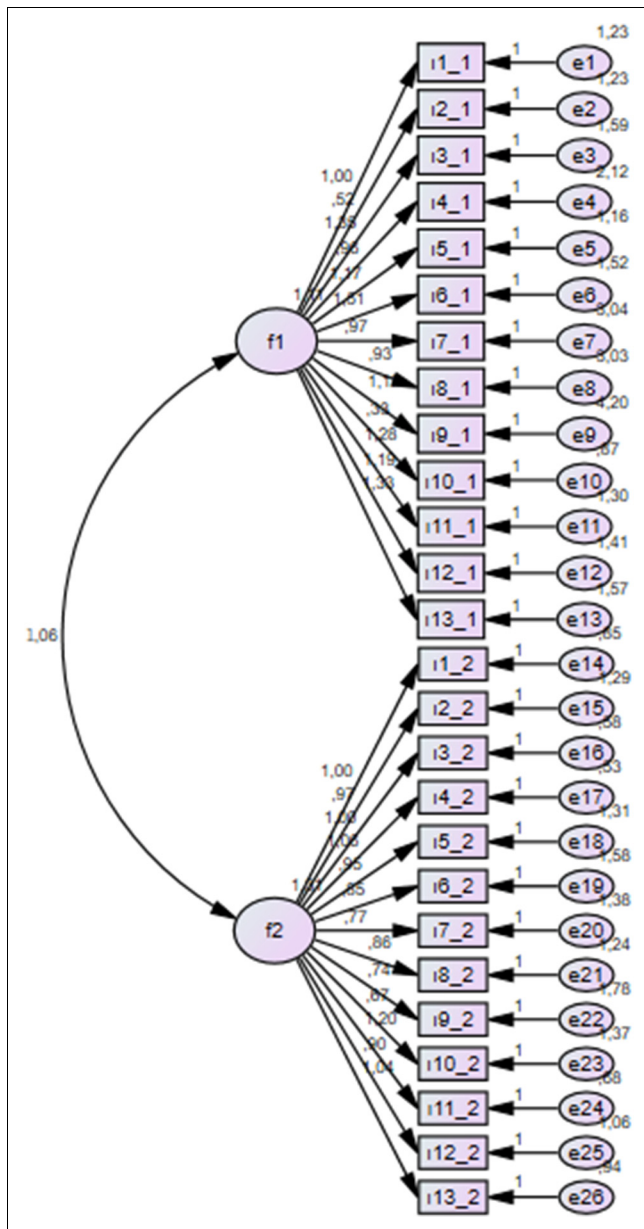


FIGURE  
Path diagram of the scale and confirmatory factor analysis factor loads.

STATISTICAL ANALYSIS

The SPSS for Windows 22.0 and SPSS AMOS 16.0 programs were used to analyze the data (IBM Corp Armonk, NY). The confidence interval was selected as 95%, and the significance level was accepted as  $P < .05$ . The methods used for the analyses are presented in Table 1.

TABLE 2  
Results of the exploratory factor analysis of the Turkish version of TRSS-EN

Items	Subscales	
	Frequency (factor 1)	Impact (factor 2)
Encountering the sudden death of young people	0.785	0.713
Encountering the death or the resuscitation of an infant or a young child	0.728	0.480
Dealing with victims of car and train accidents	0.819	0.752
Facing patients with physical trauma and burn	0.850	0.595
Encountering suicide cases	0.692	0.772
Encountering aggression, violence, and threat	0.661	0.812
Being unable to provide quality care	0.665	0.579
Being unable to help patients who suffer from chronic diseases	0.724	0.569
Meeting victim/patient relatives	0.613	0.552
Facing child abuse and negligence	0.609	0.408
Encountering sudden death	0.857	0.777
Encountering psychiatric patients	0.726	0.758
Dealing with dead bodies	0.798	0.764
Eigenvalue	7.173	5.834
The variance explained	27.434	22.593
Total variance explained	27.434	50.027

TRSS-EN, Traumatic and Routine Stressors Scale on Emergency Nurses.

Results

VALIDITY ANALYSIS

The exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) methods were used to determine the construct validity of the scale. First of all, the Kaiser-Meyer-Olkin (KMO) sample adequacy test and Bartlett's test of sphericity were performed to determine the suitability of the data for factor analysis. The KMO coefficient of the

TABLE 3

**Goodness-of-fit criteria and the results of the confirmatory factor analysis of the Turkish version of TRSS-EN**

Compliance criteria	Criteria	References	Goodness-of-fit indices of the Turkish version of TRSS-EN	Decision
Chi-squared/df	Chi-squared/df < 3	14,15	836.020/ 298 = 2.805	Accept
RMSEA	$0 \leq \text{RMSEA} \leq 1.00$	15	0.006	Accept
SRMR	$0 \leq \text{SRMR} \leq 0.05$	16	0.013	Accept
NFI	$\geq 0.90$	14,17	0.91	Accept
CFI	$0.90 \leq \text{CFI} \leq 1.00$	17	0.91	Accept
AGFI	$0.95 \leq \text{AGFI} \leq 1.00$	14	0.95	Accept
GFI	$\geq 0.90$	15	0.91	Accept

AGFI, adjusted goodness-of-fit index; CFI, comparative fit index; GFI, goodness-of-fit index; NFI, normed fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual; TRSS-EN, Traumatic and Routine Stressors Scale on Emergency Nurses.

data was 0.874, and the chi-squared value of the Bartlett's test of sphericity was significant at  $P < .001$ . The fact that the KMO value was  $>0.70$  and the results of the Bartlett's test were significant indicated that the data and sample were suitable for factor analysis.

In the EFA, the varimax rotation method was used. The loading plot obtained from the EFA is presented in the Figure. It was determined that the scale had 2 factors with eigenvalues  $>1$  and indices under these factors.

According to the EFA results, the eigenvalue of the first factor was 7.173, and the rate of the total variance in the scale scores explained by this factor was 27.434%. The eigenvalue of the second factor was 5.834, and the rate of the total variance explained by this factor was 22.593%. The rate of the total variance explained by these 2 factors was 50.027%. It is sufficient for the rate of the total variance explained in multifactorial constructs to be between 40% and 60%.<sup>13</sup> The factor loading values of the items according to the results of the EFA are presented in Table 2.

According to the CFA results, the data obtained using the measurement instrument showed an acceptable fit (Table 3). The path diagram containing the standardized results obtained based on the results of CFA is presented in the Figure.

#### RELIABILITY ANALYSIS

The item-total score correlations of all scale items were  $>20\%$ . The Cronbach's alpha value of the frequency factor of the scale was 0.890, that of the impact factor was 0.928, and that of the total scale was 0.866 (Table 4).

The test-retest analysis method was used to test the time invariance of the scale. The scale was readministered to the participants 4 weeks later. The test-retest correlation value for the frequency factor (factor 1) was 0.637, and the test-retest correlation value for the impact factor (factor 2) was 0.766. Both correlation values showed that the scale had good test-retest reliability (Table 5).

#### Discussion

Emergency nurses face recurrent traumatic and routine events, violence against the staff, the coronavirus disease 2019 pandemic, and various other disasters.<sup>18</sup> Various tools have been developed to identify the stress factors and stress levels experienced by nurses. Some of these tools are the Nurse Stress Scale,<sup>19</sup> the Medical Personnel Stress Survey,<sup>20</sup> and the Charge Nurse Stress Questionnaires.<sup>21</sup> It was reported that some stressors specific to the emergency department are not included in these measurement tools, and some items in these tools may have low sensitivity because they are not related to the emergency department.<sup>22</sup> Yuwanich et al (2018)<sup>23</sup> developed a stress scale to determine the stress experienced by emergency nurses. This scale has 25 items and 4 dimensions: life and death situations, actions and reactions of patients and families, technical and official support, and conflicts; the intraclass correlation coefficient was reported to be 0.89. The Turkish validity and reliability study of this scale was conducted, and its Cronbach's alpha value was reported to be 0.90.<sup>24</sup> Items on cardiopulmonary resuscitation, death and postmortem care, suicide, and multiple injuries defined by life and death situations in the



TABLE 4  
Item-total score correlation analysis results of the Turkish version of TRSS-EN

Items	Item-total score correlations	
	Frequency	Impact
1	0.63	0.74
2	0.40	0.68
3	0.67	0.77
4	0.51	0.81
5	0.70	0.62
6	0.76	0.60
7	0.51	0.61
8	0.51	0.68
9	0.48	0.55
10	0.35	0.56
11	0.70	0.82
12	0.70	0.67
13	0.69	0.75
Cronbach's $\alpha$ coefficient		
Factors	0.890	0.928
Total	0.866	

TRSS-EN, Traumatic and Routine Stressors Scale on Emergency Nurses.

Emergency Department Stress Scale overlap with TRSS-EN. In addition, the frequency of these stressful events and the level of emotional impact on nurses are also evaluated in TRSS-EN. The relevant literature confirms that emergency nurses face higher rates of occupational exposures such as compassion fatigue, burnout, acute stress disorder, posttraumatic stress disorder, vicarious traumas, and secondary traumatic stress than other specialties of nursing.<sup>25,26</sup> In line with the existing literature, in TRSS-EN, occupational exposures are evaluated with items on

the sudden death of young people, child abuse, physical trauma and caring for burn patients, violence against the staff, and the inability to provide quality care. In their integrative review covering the years 2014 to 2021, Caulfield et al<sup>27</sup> discussed 16 studies with topics including acute and posttraumatic stress disorders and secondary traumatic stress in emergency nurses. In their study, the professional difficulties experienced by emergency nurses included the inability to provide optimal care, exposure to trauma, death of a pediatric patient, and uncertainty about patients. It is thought that all items in TRSS-EN define these professional difficulties. The Secondary Traumatic Stress Scale, which was adapted into Turkish, was created to measure the secondary posttraumatic stress symptoms developed by professionals working with traumatized individuals, and it evaluates the reactions experienced by the individual in the last 7 days of their life.<sup>28</sup> In Morrison's study, 75% of emergency nurses reported at least one secondary traumatic stress symptom in the last week. The participants reported that acute occupational stressors such as resuscitation and death caused secondary traumatic stress.<sup>29</sup> TRSS-EN is thought to contribute to the literature by evaluating the frequency and impact of traumatic events experienced in the last 6 months.

No specific scale was found to evaluate the traumatic and routine stressors of emergency nurses in Turkey. Therefore, TRSS-EN was adapted to Turkish, and its validity and reliability were tested for Turkish society. In addition to analyses of linguistic validity, content validity, construct validity, and reliability, the findings related to internal consistency and test-retest analyses were discussed.

The results of this study showed that TRSS-EN met the linguistic, content, construct validity, and reliability criteria and could be applied to nurses who have been working in emergency departments for at least 6 months. In the statistical analyses, the original form of the scale was preserved, and no changes were made in the items that make up the scale.

TABLE 5  
Test-retest correlation analysis results of the Turkish version of TRSS-EN

Test	Application	N	Mean	SD	Correlation
TRSS-EN frequency	Test	195	35.54	15.29	0.637
	Retest	31	35.54	12.37	
TRSS-EN impact	Test	195	57.14	14.36	0.766
	Retest	31	60.25	12.89	

TRSS-EN, Traumatic and Routine Stressors Scale on Emergency Nurses.

\*  $P < .001$ .

Because translating a scale into different languages may change the nature of the scale, each item in the scale should be carefully examined. The translation-back translation method is frequently used to determine the differential cultural equivalency of a scale in the original language.<sup>12</sup> The translation-back translation method was used to ensure conceptual equivalence in the linguistic validity testing process of TRSS-EN.

Content validity shows the extent to which the items in a measurement instrument are suitable for the purpose of measurement and whether they represent the variable to be measured, and this parameter is determined according to expert opinion.<sup>30</sup> The Davis technique is one of the methods used to make this evaluation.<sup>31</sup> In the literature, it is recommended to take the opinions of 3 to 20 experts in content validity calculations. In this study, the "Expert Evaluation Form" prepared in accordance with the Davis technique was sent via email to 9 nursing faculty members who are experts in their fields and experienced in methodological studies. The experts were asked for their opinions and recommendations about the language, expression, and content compatibility of the scale items. Given that the scale items had CVI values in the range of 0.88 to 1.00 calculated as a result of the evaluations of the experts, no items were removed from the original scale. A value of 0.80 is considered acceptable for content validity in the literature.<sup>31</sup> Based on this information in the literature, it was concluded that the content validity of the items of the scale was sufficient.

Construct validity evaluates how accurately the measurement tool measures an abstract concept or behavior that is difficult to directly observe and measure. In this study, the EFA method was used to evaluate the construct validity of the adapted scale. The purpose of factor analysis is to express a large number of items with a smaller number of factors. Items measuring the same factor come together to form separate groups. Each group is called a factor according to the characteristics of the items in it. Each of these factors should express the theoretical construct in the measurement.<sup>30</sup>

The suitability of the data set for factor analysis was evaluated with KMO test, and the correlations of the variables with each other were determined using the Bartlett's test of sphericity. To obtain acceptable factor analysis results, a KMO value  $>0.60$ , preferably in the range of 0.80 to 0.89, should be obtained.<sup>31</sup> In this study, the KMO coefficient was found to be 0.874. This value showed that the sample size was sufficient for factor analysis. In addition, the Bartlett's test of sphericity significance value being  $P < .001$  indicated that the results

obtained using the measurement were independent of the sample size.

In the literature, it was stated that factor load values items in scale development and adaptation studies should be at least 0.30.<sup>32</sup> In this study, the factor loads of all items in the scale were found to vary between 0.40 and 0.85. This finding showed that the factor loads of the scale items were high. It is sufficient for the total variance explained in multifactorial constructs to be between 40% and 60%.<sup>33</sup> In this study, the rate of the total variance in the scale scored explained by the factors of the scale was found to be 50.027%. As a result of the analyses that were conducted, it was concluded that there was no need to remove any item from the scale that met the construct validity criteria of the TRSS-EN scale consisting of 13 items.

While assessing internal consistency, the most frequently used method to determine the consistency of the scale items with each other is the calculation of the Cronbach's alpha coefficient. In this study, the Cronbach's alpha coefficients were determined as 0.890 for the frequency factor, 0.928 for the impact factor, and 0.866 for the total scale. The Cronbach's alpha coefficient of the original frequency factor of the original scale was 0.91, the Cronbach's alpha value of its impact factor was 0.86, and the total Cronbach's alpha value of the scale was 0.92. The findings of this study were similar to the development study of the original scale. In the literature, it has been emphasized that Cronbach's alpha values in the range of 0.80 to 1.00 indicate high levels of reliability.<sup>34</sup> The Cronbach's alpha values obtained in this study suggested that the internal consistency of the scale was at an acceptable level, and the scale had high reliability.

Test-retest method was used as another method to determine reliability. Because it is difficult and not economical to develop another scale equivalent to one scale, after a certain period, the measurement tool is applied to the same individuals under the same conditions, the correlation between the 2 applications is found, and the coefficient that is found is called the "test-retest reliability coefficient." The time between the 2 treatments depends on the trait being measured, but usually, 10 to 15 days is appropriate for most psychological traits.<sup>35</sup> In this study, 18% of the sample (35 participants) were retested 4 weeks after the first measurement. The test-retest reliability correlation value for the frequency factor (factor 1) was 0.637, and that of the impact factor (factor 2) was 0.766. If a measurement tool has test-retest reliability, the scores obtained from that test will be highly correlated with the scores of the subsequent application among the same group of participants. This shows the consistency of the scale over

time.<sup>36</sup> In this study, both correlation values showed that the scale had good test-retest reliability.

## Limitations

This study has some limitations. One limitation is that the scale is new, it has not been adapted to different languages, and its use in research has not yet become widespread. Another limitation is that the data were collected based on the self-reports of the participants.

## IMPLICATIONS FOR EMERGENCY NURSES

- This study confirmed that TRSS-EN is a valid and reliable tool in Turkish for identifying traumatic and routine stressors and determining the impact status in emergency nurses. The high content validity and reliability of TRSS-EN in Turkish are its strengths.
- In Turkey, there is no scale that simultaneously measures the frequency of traumatic and routine stressors experienced by emergency nurses and their emotional vulnerability.
- The scale shows the frequency of traumatic events experienced by emergency nurses in the last 6 months and the emotional impact of these events on them. It is preferable that the scale items are short and cover a wide range of areas such as sudden death, multiple injuries, violence, dealing with victims, and child abuse.

## Conclusion

In this study, the validity and reliability of the TRSS-EN were tested. TRSS-EN was determined to be usable in the Turkish population. It is recommended that the scale be used as a data collection tool to investigate traumatic and routine stressors on emergency nurses. Given that the scale will be applied to different samples in future studies, its Cronbach's alpha reliability analyses need to be repeated.

## Author Disclosures

Conflicts of interest: none to report.

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# WORKPLACE VIOLENCE AND BULLYING FACED BY HEALTH CARE PERSONNEL AT THE EMERGENCY DEPARTMENT OF A TERTIARY CARE HOSPITAL OF KARACHI, PAKISTAN: A CROSS-SECTIONAL STUDY

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## Contribution to Emergency Nursing Practice

- A greater number of emergency workers, mainly nurses, face workplace violence yearly. This violence affects the efficiency and well-being of health care personnel working in the emergency department.
- Over half of the participants reported some type of workplace violence and multiple participants reported no action was taken to investigate the causes of the incidents.
- Creating effective policies and procedures for a reporting system would potentially lead to lowering violence rates and positively impacting health care workers' well-being and efficiency.

## Abstract

**Introduction:** The emergency department is the most affected by physical and verbal abuse and bullying in health care. Violence against health care workers not only affects their safety, but also their performance and motivation. This study aimed to determine the prevalence and associated determinants of violence against health care personnel.

**Methods:** A cross-sectional study design was used with 182 health care personnel at the emergency department tertiary care hospital of Karachi, Pakistan. Data were collected through a questionnaire comprised of 2 sections: (1) demographic questions and (2) statements to identify the prevalence of workplace violence and bullying among health care personnel. Nonprobability purposive sampling was used for recruitment. Binary logistic regression was used to identify the prevalence and determinants of violence and bullying.

**Results:** Most participants were younger than 40 years of age ( $n = 106$ , 58.2%). Participants were mainly nurses ( $n = 105$ , 57.7%) and physicians ( $n = 31$ , 17.0%). Participants reported experiencing sexual abuse ( $n = 5$ , 2.7%), physical violence ( $n = 30$ , 16.50%), verbal abuse ( $n = 107$ , 58.8%), and bullying ( $n = 49$ , 26.9%). The odds of experiencing physical violence were 3.7 times greater (confidence interval = 1.6-9.2) when there was not a procedure for reporting workplace violence compared to when there was a procedure.

**Discussion:** Attention is required to identify the prevalence of workplace violence. Creating effective policies and procedures for a reporting system would potentially lead to lowering violence rates and positively impacting health care workers' well-being.

**Key words:** Workplace violence; Workplace aggression; Abuse; Bullying; Emergency; Health care system

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## Introduction

The health care sector has been plagued with workplace violence (WPV) and faces significant challenges in combating this burden to create a safe working environment for their employees.<sup>1</sup> The World Health Organization defines WPV as “incidents where staff is abused, threatened or assaulted in circumstances related to their work, including commuting to and from work, involving an explicit or implicit challenge to their safety, well-being, or health.”<sup>2</sup> A study by Phillips et al<sup>3</sup> reported that 69% of health care professionals have endured a patient’s violent episode and are 5 times more likely to be violated at work than any other profession in the United States. The prevalence of WPV and bullying cause health care workers to be affected both mentally and physically.

Not only are these employees facing a risk to their safety, they also are developing a significant mental health burden, which could affect their performance and motivation.<sup>4</sup> A study conducted in Turkey found that nurses experience fear after a violent episode and feel confined to seek support only from their organizations.<sup>5</sup> Further, seeking help from their organizations was not known to be an adequate solution to the nurses’ concerns. Most of these employees ( $n = 873$ , 83.5%), also stated that they desired adequate training to combat the violence they experienced in the health care sector.<sup>5</sup>

The types of violence experienced by health care workers include verbal abuse and physical violence. Even though WPV is extremely common worldwide, most cases go unreported.<sup>6</sup> A study by Gohil et al<sup>7</sup> revealed that 89% of the respondents had experienced verbal abuse when working, but only 46% of cases were reported. An Egyptian study by Abdellah and Salama<sup>8</sup> also demonstrated that most verbal abuse or physical violence cases go unreported and that only 23.8% of health care personnel that experienced physical violence reported it to hospital management. Grundmann et al<sup>6</sup> reported that almost half of the health care workers face WPV, and a majority of them are nurses; 70% of nurses stationed in the emergency department have been hit or stomped on in the workplace.

The associated factors of violence also have been studied to understand and further combat this violence. Some examples of associated factors include inadequate information and long wait times. Long wait times also are attributable to WPV as frustrations are taken out on the health care workers.<sup>9</sup> Further, there are more personnel during the day to assist in patient care, yet in the evenings there is not adequate staff to account for all the patients.<sup>9</sup> The decrease in the number and efficiency of the health care personnel

compared to the number of patients in an emergency department also can escalate violent episodes.<sup>10,11</sup>

A cross-sectional study by Shaikh et al<sup>12</sup> revealed that nearly half of health care professionals (49.2%) had faced or witnessed violence while on the job. Verbal abuse was the most common type of violence experienced. Violence against health care personnel is common in Karachi, Pakistan, but underreported due to hospital policies. Nurses and other health care personnel also do not report WPV incidents due to no reporting mechanism in the organization. This WPV affects their work efficiency and well-being. Certain violence factors are unexplored, and the literature is scarce. Therefore, the present study aimed to determine the prevalence and associated determinants of violence against health care personnel in a tertiary care hospital in Karachi, Pakistan.

## Methods

### STUDY DESIGN

This study used a cross-sectional design to determine the prevalence and determinants of violence and bullying faced by the health care personnel in the emergency department of a private hospital in Karachi, Pakistan. The STROBE guidelines were used to report this study.

### STUDY SETTING

This study was carried out at the Murshid Hospital and Health Care Center, a tertiary care hospital in Karachi, Pakistan. This emergency department is a trauma center that attends to all age groups’ needs.

### STUDY POPULATION

The target population included all health care personnel including physicians, nurses, security guards, and nurse technicians working in the emergency department of the Murshid Hospital and Health Care Center in Karachi, Pakistan. A total of 650 physicians, nurses, security guards, and nurse technicians work in the hospital.

### ELIGIBILITY CRITERIA

Physicians, nurses, and technicians in the emergency department that possessed a valid license and at least 1 year of emergency department experience, and security personnel were included in the study. Health care workers such as

house officers, nursing interns, and medical/nursing paramedical students who visited the emergency department for their clinical were excluded. Personnel that did not work in rotating shifts at the hospital, ie, morning, evening, and night also were excluded.

#### SAMPLE SIZE

The minimum sample size was calculated based on the primary objective and reference studies in Pakistan.<sup>4,13,14</sup> We took the prevalence of violence among health care personnel as an average of 67% from the reference studies. Using this percentage, the sample size of this study was 80% power and 5% level of significance; so, the 173 actual number was calculated. After allowing 5% sample attrition for non-responders, the final calculated minimum sample size was 182.

#### STUDY TOOL

The WPV tool used in this study was approved by the World Health Organization, International Labor Office, the International Council of Nurses, and Public Services International (2003). The tool was freely available for public use; therefore, it did not require permission. This tool is available in English only. Moreover, this instrument had 2 parts; part A and part B. Part A covered the demographic details, and part B contained the violence, bullying, and associated determinants. The questionnaire was self-administered and required 60 to 80 minutes to complete. The tool's Content Validity Index was calculated as 0.91 for relevance and 0.87 for clarity.<sup>15</sup>

#### STUDY VARIABLES

The dependent variable was violence, including physical violence, bullying, verbal abuse, and sexual abuse. The independent variables were age, gender, marital status, profession, years of experience, and shortage of staff.

#### DATA COLLECTION

The recruitment process began after approval from the ethical review committee and the hospital's chief executive officer. Informed written consent was obtained before data collection. Data were collected between July 30, 2021, and October 30, 2021. Data were gathered using a questionnaire in English and Urdu. Data were collected in a private room to maintain participants' privacy.

#### DATA ENTRY AND ANALYSIS

The data were entered into the International Business Machines Statistical Package for Social Sciences (IBM SPSS 21; Armonk, NY) for analysis. For categorical variables (gender, age, years of experience, marital status, profession, and staff shortage), frequencies and percentages were calculated. Multivariate binary logistic regression was used to determine the unadjusted and adjusted relationships between the independent and dependent variables. Odds ratios, with 95% confidence intervals, were calculated. A *P*-value < .05 was considered significant.

#### Results

**Table 1** is a summary of the participants' demographic characteristics. Of the 182 participants, the majority, 59 (32.4%), were between 25 to 29 years. More than half ( $n = 106$ , 58.2%) of the participants were males, and more than half ( $n = 103$ , 56.6%) were married. Participants by profession were mainly nurses ( $n = 105$ , 57.7%), followed by physicians ( $n = 31$ , 17.0%). More than half of the participants ( $n = 97$ , 53.30%) had less than 5 years of working experience.

**Table 2** is a summary of the WPV characteristics of health care personnel. About half ( $n = 87$ , 47.8%) of the participants were not concerned about WPV, and almost all ( $n = 154$ , 84.6%) reported that there were no procedures in place for reporting violence in their workplace, and only a few participants ( $n = 28$ , 15.4%) reported that there were procedures for reporting violence. Among those who said that there were procedures, almost all ( $n = 27$ , 96.43%) of them shared that they knew how to use the procedures. Most ( $n = 153$ , 84.1%) of the participants were not encouraged to report violence. Those ( $n = 20$ , 69.0%) who reported they were encouraged were mainly encouraged by their management/employer.

In the last 12 months, participants reported they had faced all forms of violence, such as sexual abuse ( $n = 5$ , 2.7%), physical violence ( $n = 30$ , 16.5%), verbal abuse ( $n = 75$ , 41.2%), and bullying ( $n = 49$ , 26.9%). Out of 30 who experienced physical violence, 26 (86.7%) reported that they faced physical violence with a weapon, and 10 (33.3%) reported an injury. Of the 10 workers with an injury from physical violence, 6 required formal treatment for their injuries. Although 5 participants took leave after their injury, most ( $n = 25$ , 83.3%) of the participants experiencing physical violence continued their duties due to non-severity.



TABLE 1  
Demographic characteristics of health care personnel  
(*n* = 182)

Characteristics	n (%)
Age	
18-24 y	39 (21.43)
25-29 y	59 (32.42)
30-34 y	47 (25.82)
35-39 y	17 (9.34)
≥40 y	20 (10.99)
Gender	
Female	76 (41.76)
Male	106 (58.24)
Marital Status	
Single	79 (43.41)
Married	103 (56.59)
Profession	
Physician	31 (17.03)
Nurse	105 (57.69)
Nurse technician	21 (11.54)
Security guard	25 (13.74)
Member of Majority in-country (Muslims)	
Yes	167 (91.8)
No	15 (8.2)
Do you interact with patients/ clients during your work?	
Yes	157 (86.26)
No	25 (13.74)
Work experience	
1-5	97 (53.30)
6-10	54 (29.67)
11-15	20 (10.99)
16 and above	11 (6.04)
In which specialty do you most frequently work? Multiple options	
Infants	10 (3.2%)
Children	52 (16.5)
Adolescent (10-18 y)	62 (19.7)
Adults	117 (37.1)
Older adults	74 (23.5)
Which specialty do you spend more than 50% of your time? Multiple options	
Terminally ill	107 (42.5)
Mother and child care	61 (24.2)

*continued*

TABLE 1  
Continued

Characteristics	n (%)
Geriatric	81 (32.1)
Other	3 (1.2)
The number of staff present in the work setting during most of your work time?	
None	14 (7.69)
1-5	89 (48.90)
6-10	72 (39.56)
11 and above	7 (3.85)

Forty-three of 49 (87.8%) of the participants who faced bullying, along with 43 of 75 (57.3%) who experienced verbal abuse, 19 of 30 (63.3%) with physical violence, and 2 of 5 (40.0%) with sexual abuse responded that they considered this to be typical incidents of violence in their work. Health care workers that were subject to bullying (*n* = 34 of 49, 69.4%), verbal abuse (*n* = 47 of 75, 62.7%), physical violence (*n* = 13 of 30, 43.3%), and sexual abuse (*n* = 2 of 5, 40.0%) by their patients did not take any action in response to the incidents. However, some participants responded differently, such as telling the offender to stop. Many of the participants who faced verbal abuse (*n* = 48 of 75, 64.0%), bullying (*n* = 37 of 49, 75.5%), physical violence (*n* = 19 of 30, 63.3%), and sexual abuse (*n* = 1 of 5, 20%) reported being moderately bothered by the repeated disturbing memories, thoughts, or images of the attack. A greater number (*n* = 20 of 30, 66.7%) of participants tried to avoid thinking about, talking about, or having thoughts about the attack.

A good portion of the participants who suffered bullying (*n* = 29 of 49, 59.2%), verbal abuse (*n* = 32 of 73, 43.8%), or physical violence (*n* = 19 of 30, 63.3%) reported that no action was taken to investigate the causes of the incidents. Many participants who faced verbal abuse (*n* = 28 of 29, 96.6%), physical violence (*n* = 9 of 11, 81.8%), sexual abuse (*n* = 4 of 4, 100%), and bullying (*n* = 15 of 15, 100%) reported that the management/ employer acted in response to the incident for those events in which an investigation was conducted. Two health care workers who faced physical violence reported that the worker's association acted in response to the incident. Some health care personnel reported that the attacker was reported to the police, yet others said that no action was taken against the attacker.

Many of the participants who faced bullying (*n* = 41 of 49, 83.7%), verbal abuse (*n* = 58 of 74, 78.4%), physical

TABLE 2  
**WPV characteristics of health care personnel in the study (*n* = 182)**

Characteristics	n (%)
How worried are you about violence in your current workplace?	
Not worried at all	87 (47.80)
Moderately worried	91 (50.0)
Very worried	4 (2.20)
Are there procedures for the reporting of violence in your workplace?	
Yes	28 (15.38)
No	154 (84.62)
If yes, do you know how to use them?	
Yes	27 (96.43)
No	1 (3.57)
Is there encouragement to report WPV?	
Yes	29 (15.93)
No	153 (84.07)
If yes, by whom?	
Management/employer	20 (68.97)
Colleagues	9 (31.03)

violence (*n* = 22 of 30, 73.3%), and sexual abuse (*n* = 2 of 5, 40.0%) reported that they had not received counseling from their supervisor or employer. An approximately equal number of participants that endured verbal abuse, bullying, physical violence, and/or sexual abuse were dissatisfied with how the incident was handled (Table 3).

In the univariate model for physical violence, all the associated independent variables were checked for a 5% significance level. Among all the variables, univariate analysis showed that there was an association with not having procedures for the reporting of violence in the workplace. The odds of facing physical violence when not having a procedure for reporting workplace violence were 3.722 times greater compared to having a procedure for reporting violence in the workplace (odds ratio = 3.722, confidence interval = 1.506-9.197). However, all the other variables, including age, gender, experience, interactions with patients, professions, and security measures, remained not significant. In the multivariate model, keeping all the demographic and environmental variables constant, the adjusted odds ratio showed a statistically significant association with physical violence (odds ratio = 3.560, confidence interval = 1.347-9.411) (Table 4).

When the participants were asked about the details of violence, 28 of them reported verbal abuse and bullying, followed by verbal abuse alone (*n* = 25). Fourteen participants reported all verbal abuse, physical abuse, and bullying. When asked what kind of violence they had been facing, some participants (*n* = 7) responded that they had faced only physical violence. Only 3 participants reported that they faced bullying, physical violence, and verbal abuse. Two participants reported physical violence plus verbal abuse plus bullying plus sexual abuse. Moreover, among them, 1 participant experienced bullying only.

## Discussion

Violence within the health care sector is disproportionately affecting young nurses in the hospital setting with 1 to 5 years of experience, which also was emulated in cross-sectional studies that were carried out in China and Iran in a tertiary care hospital. Verbal abuse (41.2%) was the most common form of violence in the current study, followed by bullying (26.9%), physical violence (16.5%), and sexual abuse (2.7%). Studies conducted in Egypt in an emergency department and Turkey with health care professionals (HCPs) showed higher rates of verbal abuse (60.3% and 74.7%, respectively) in health care.<sup>5,8</sup>

The intense workload on health care personnel, educational inadequacy, unmet expectations of patients and their families, and attendant restrictions are all contributing factors to the high prevalence of WPV.<sup>16</sup> A study conducted in a public hospital in Palestine also reported that WPV disproportionately affects married male nurses (65.8%).<sup>17</sup>

Health care Savoy et al<sup>18</sup> reported that nurses (38.3%) experienced verbal abuse by a patient while on duty, and most of the cases found that the reason behind the verbal abuse was the patient not getting treatment on time or in an efficient manner. This study also demonstrated that many health care personnel consider this to be a typical incident of violence and took no action against physical violence, verbal abuse, and sexual abuse. Only a handful of health care personnel sought counseling, and no investigation had been conducted to assess these incidents.

The rates of violence in the emergency department have risen to alarming levels, and emergency nurses are particularly vulnerable to this type of abuse.<sup>18</sup> Most of the research to both understand the prevalence of this violence and establish protocols to combat it takes place in affluent countries with established laws and punishment for violence against health care providers.<sup>19</sup>

TABLE 3

**Characteristics of physical violence, verbal abuse, and sexual abuse, and bullying in health care personnel (n = 182)**

<b>Characteristics</b>	<b>Physical violence n (%)</b>	<b>Verbal abuse n (%)</b>	<b>Bullying n (%)</b>	<b>Sexual abuse n (%)</b>
In the last 12 months, have you been violated in your workplace?				
Yes	30 (16.5)	75 (41.2)	49 (26.9)	5 (2.7)
No	152 (83.5)	107 (58.8)	133(73.1)	177 (97.3)
Physical violence with a weapon	4 (13.3)	ND	ND	ND
Physical injury sustained due to violence	10 (33.3)	ND	ND	ND
If injury sustained (n=10), was formal treatment required	6 (60.0)	ND	ND	ND
Took time off from work after being attacked	5 (16.7)	ND	ND	ND
Frequency of being violated in the last 12 months				
All the time	4 (13.3)	2 (2.7)	1 (2.0)	0 (0.0)
Sometimes (2-4 times)	19 (63.3)	53 (70.7)	30 (61.2)	0 (0.0)
Once	7 (23.3)	20 (26.7)	18 (36.7)	5 (100)
Aggressor for violence				
Patient/Client	5 (16.7)	23 (30.7)	11 (22.4)	0 (0.0)
Relative of Patient/Client	25 (83.3)	49 (65.3)	34 (69.4)	4 (80.0)
Staff member/Management	ND	3 (4.0)	4 (8.2)	1 (20.0)
Incident was typical for violence in the workplace	19 (63.3)	43 (57.3)	43 (87.8)	2 (40.0)
Personal response to violence incident				
Took no action	13 (43.33)	47 (62.7)	34 (69.4)	2 (40.0)
Tried to pretend it never happened	3 (10.00)	3 (4.0)	1 (2.0)	0 (0.0)
Told the person to stop	5 (16.7)	6 (8.0)	8 (16.3)	0 (0.0)
Sought counseling	2 (6.7)	6 (8.0)	ND	0 (0.0)
Sought help from the union	ND	1 (1.3)	ND	0 (0.0)
Tried to defend myself physically	2 (6.7)	ND	ND	0 (0.0)
Informed friend/family/colleague	5 (16.7)	ND	5 (10.2)	4 (80.0)
Reported to a senior staff member	ND	ND	1 (2.0)	0 (0.0)
Repeated, disturbing memories, thoughts, or images of the violence since being violated				
Not at all	7 (23.3)	22 (29.7)	10 (20.4)	1 (20.0)
Moderate	19 (63.3)	48 (64.9)	37 (75.5)	1 (20.0)
Severe	4 (13.3)	4 (5.4)	2 (4.1)	3 (60.0)
Avoid thinking about or talking about the violence or avoiding having feelings related to it since being violated?				
Not at all	4 (13.3)	9 (12.2)	6 (12.2)	0 (0.0)
Moderate	20 (66.7)	61 (82.4)	42 (85.8)	2 (40.0)
Severe	6 (20.0)	4 (5.4)	1 (2.0)	3 (60.0)

*continued*

TABLE 3  
Continued

Characteristics	Physical violence n (%)	Verbal abuse n (%)	Bullying n (%)	Sexual abuse n (%)
Being "super alert" or watchful and on guard since being violated?				
Not at all	4 (13.3)	8 (10.8)	6 (12.2)	0 (0.0)
Moderate	20 (66.7)	57 (77.0)	42 (85.8)	2 (40.0)
Severe	6 (20.0)	9 (12.2)	1 (2.0)	3 (60.0)
Feeling like everything you did was an effort since being violated?				
Not at all	4 (13.3)	8 (10.8)	6 (12.2)	1 (20.0)
Moderate	16 (53.3)	50 (67.6)	42 (85.8)	1 (20.0)
Severe	10 (33.3)	16 (21.6)	1 (2.0)	3 (60.0)
Actions were taken to investigate the causes of the violence				
Yes	11 (36.7)	29 (39.7)	15 (30.6)	4 (80.0)
No	19 (63.3)	32 (43.8)	29 (59.2)	0 (0.0)
Do not know	0 (0.0)	12 (16.4)	5 (10.2)	1 (20.0)
If yes to violence investigation, by whom?				
Management/employer	9 (81.8)	28 (96.6)	15(100.0)	4 (100)
Association	2 (18.2)	1 (3.4)	0 (0.0)	0 (0.0)
If yes to violence investigation, what were the consequences for the violator?				
None	0 (0.0)	2 (7.1)	0 (0.0)	4 (100)
Verbal warning issued	7 (63.6)	24 (85.7)	15 (100.0)	0 (0.0)
Care discontinued	3 (27.3)	1 (3.6)	ND	0 (0.0)
Other	1 (9.1)	1 (3.6)	ND	0 (0.0)
Employer or supervisor offered to provide counseling	8 (26.7)	16 (21.6)	8 (16.3)	3 (60.0)
Satisfied with the way the incident was handled	14 (46.7)	38 (51.4)	28 (57.1)	3 (60.0)
In the last 12 months, witnessed physical violence in the workplace				
Yes	52 (28.6)	ND	ND	ND
No	130 (71.43)	ND	ND	ND

Health care studies also have suggested that policies against violence, educating patients and their families, effective communication, security and alarm systems, restricting public access, controlling visiting times, and adequate staff members also can be helpful in preventing incidents of violence.<sup>20</sup>

Incidents in the emergency department, such as coercion, bullying, and physical violence, are mostly caused by staff shortages.<sup>21</sup> When patients present to the emergency department, they expect to be seen right away, yet a lack

of staffing causes delays, thus causing patients to become angry and frustrated and become violent and aggressive.<sup>12</sup> Many of the participants in this study stated that there was a lack of health care staffing in private hospitals. Needleman et al concluded that increasing the number of staff would be helpful in assessing the patients more adequately and efficiently while also preventing violence during triage and other departments in the hospital.<sup>22</sup> The current study demonstrated that 71 (39%) of the participants agreed that

TABLE 4

**Univariate and multivariate association of demographic and workplace characteristics of health care personnel with physical violence in the last 12 months (*n* = 182)**

Characteristics	Physical violence Yes <i>n</i> = 30 (%)	Physical violence No <i>n</i> = 152 (%)	Univariate odds ratio (95% confidence interval)	<i>P</i> -value	Multivariate odds ratio (95% confidence interval)	<i>P</i> -value
Age						
>40 y	3 (10.0)	17 (11.2)	1		1	
18-24 y	5 (16.7)	34 (22.4)	1.20 (0.256-5.62)	0.817	0.915 (0.84-9.962)	0.942
25-29 y	13 (43.3)	46 (30.3)	0.624 (0.158-2.46)		0.627 (0.069-5.725)	0.679
30-34 y	5 (16.7)	42 (27.6)	1.482 (0.318-6.90)		1.853 (0.18-18.499)	0.599
35-39 y	4 (13.3)	13 (8.6)	0.57 (0.109-3.02)		0.509 (0.056-4.639)	0.550
Gender						
Female	9 (30.0)	67 (44.1)	1		1	
Male	21 (70.0)	85 (55.9)	1.839 (0.791-4.277)	0.157	2.059 (0.819-5.173)	0.125
Profession						
Physician	8 (26.7)	23 (16.1)	1		1	
Nurse	16 (53.3)	89 (58.6)	1.935 (0.737-5.076)	0.206	1.797 (0.623-5.177)	0.278
Technician	3 (10.0)	18 (11.8)	2.087 (0.483-9.016)		1.950 (0.391-9.726)	0.415
Security guard	3 (10.0)	22 (14.5)	2.551 (0.598-10.87)		2.473 (0.475-12.86)	0.282
Work experience						
16 and above	2 (6.7)	9 (5.9)	1		1	
1-5	15 (50.0)	82 (53.9)	1.215 (0.238-6.188)	0.815	1.045 (0.08-13.242)	0.973
6-10	10 (33.3)	44 (28.9)	0.978 (0.182-5.241)		0.585 (0.48-7.203)	0.676
11-15	3 (10.0)	17 (5.9)	1.259 (0.177-8.968)		1.135 (0.08-14.619)	0.925
Member of Majority in the country (Muslim)						
No	3 (10.0)	13 (8.6)	1	0.798		
Yes	27 (90.0)	139 (91.4)	1.188 (0.317-4.453)			
Do you interact with patients/client during your work?						
Yes	27 (90)	139 (91.4)	1	0.518		
No	3 (10)	13 (8.6)	1.523 (0.425-5.453)			
Are there procedures for reporting violence in your workplace?						
Yes	10 (33.3)	18 (14.8)	1	0.004	1	0.010
No	20 (66.7)	134 (88.2)	3.722 (1.506-9.197)		3.560 (1.347-9.411)	
Is there encouragement to report workplace violence?						
Yes	8 (26.7)	21 (13.8)	1	0.085	-	-
No	22 (73.3)	131 (86.2)	2.268 (0.894-5.756)			

*continued*

TABLE 4  
Continued

Characteristics	Physical violence Yes <i>n</i> = 30 (%)	Physical violence No <i>n</i> = 152 (%)	Univariate odds ratio (95% confidence interval)	<i>P</i> -value	Multivariate odds ratio (95% confidence interval)	<i>P</i> -value
Are there security measures that exist in your workplace? (eg, guards, alarms, portable telephones)					-	-
No	5 (16.7)	46 (30.3)	1	0.137		
Yes	25 (83.3)	106 (69.7)	0.46 (0.166-1.279)			
Improved surroundings in your workplace (eg, lighting, noise, heat, access to food, cleanliness, privacy)					-	-
No	6 (20.0)	54 (35.5)	1	0.105		
Yes	24 (80.0)	98 (64.5)	0.45 (0.175-1.178)			
Restricted public access in your workplace?					-	-
Yes	4 (13.3)	21 (13.8)	1	0.944		
No	26 (86.7)	131 (86.2)	0.960 (0.304-3.028)			

an increased number of staff would be sufficiently helpful in decreasing the inefficiencies in patient care that result in violence.

Participants of this study have revealed that ample training would be effective in an emergency department to tackle issues related to violence in the health care sector, most notably in emergency departments. Eighty-two participants (45.1%) agreed that they felt the workplace would be safer and suffer from less violence if the training was implemented. The current literature cites sufficient training as being an essential aspect of improving the quality of the skills of the health care professionals to then create a safer environment for all faculty involved.<sup>23</sup> Training can support health care providers to obtain and implement new skills to provide better quality care to their patients, thus resulting in better patient outcomes. Exemplary human resource management, updated training, and innovative policies can motivate staff and create sustainable outcomes for all personnel involved.<sup>24</sup>

The results of the current study showed that there was no difference in an association related to gender in univariate ( $P = .157$ ) and multivariate ( $P = .125$ ) analyses. In the

last 12 months, no physical violence has been observed among male and female health care workers in the emergency area of the private hospital. This contrasts other studies as, in the current literature, it has been noted that physical violence was significantly correlated to males ( $P = .033$ ) as compared to females in a public hospital in Palestine.<sup>17</sup>

Dynamic, multilayered, and easy-to-follow strategies need to be developed to prevent and manage violence occurring in the emergency department of hospitals. The goal should be to provide personnel with the necessary information and abilities, as well as to create a pleasant workplace to reduce the possibility of violence. Staff should be taught and informed on themes such as danger or threat detection, dispute resolution, and self-defense tactics.<sup>25</sup>

#### STRENGTHS

A strength of this study was the discussion of all types of violence, including physical violence, verbal abuse, sexual abuse, and bullying. This study was innovative as there have been few studies that investigate the topic of the issue

of the prevalence and factors of violence against health care professionals in Karachi, but also on the outskirts of Karachi, Pakistan. The study was strengthened by the diversity and inclusion of various health care personnel, such as physicians, nurses, technicians, and security guards, which increased the study's generalizability.

### Limitations

This study was conducted during the coronavirus disease-2019 pandemic and, therefore, made data collection difficult and time-consuming. This research was carried out in a single hospital, which could affect its generalizability. Due to the sensitivity of the topic, many potential participants may have been hesitant to share their traumatic experiences.

### Implications for Emergency Nurses

Emergency nurses and other health care personnel experience and are at high risk of WPV. Very few health care personnel were provided with counseling. Emergency nurses and other health care personnel should work toward identifying factors contributing to WPV, initiate developing peer support programs to help each other come out of this trauma, and encourage authorities to develop certain policies to stop WPV.

### Conclusion

The violence experienced by health care personnel is a severe public health concern. Attention is required to work toward identifying the prevalence of all forms of workplace harassment, including physical violence, verbal abuse, sexual abuse, and bullying by the patients and their caregivers. Furthermore, there was an association between being aware of an effective reporting system and physical violence, as many were aware of this system but chose not to report to it due to feeling it was an inadequate reporting system or various other reasons. Creating effective policies and procedures for a reporting system would potentially lead to lowering the rates of violence and produce a positive impact on health care personnel's well-being. The governance of health care settings, the provincial health department, and the local law enforcement authorities must focus on how to improve hospital and staff security to generate a safer environment for health care personnel.

### Data, Code, and Research Materials Availability

Data available to corresponding author on the reasonable request.

### Ethical approval and consent to participate

Ethical approval was obtained from the Aga Khan University's ethical review committee 2021-6255-18623. Informed written consent was obtained from study participants.

### Author Disclosures

Conflicts of interest: none to report.

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# EMERGENCY NURSING REVIEW QUESTIONS: SEPTEMBER 2023



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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

- An 83-year-old presents to the emergency department with her daughter. The daughter describes a change in her mother regarding her level of awareness and increasing confusion. The patient denies any falls but admits to hitting her head on the cupboard 2 days ago. She has a history of atrial fibrillation and is on an anti-coagulant and antacid tablet. She denies any urinary frequency. The nurse might suspect which of the following conditions?
  - Epidural hematoma
  - Subdural hematoma
  - Subarachnoid hemorrhage
  - Intracerebral hemorrhage
- A patient presents to the emergency department via Emergency Medical Services with slurred speech, right-arm weakness, and a right-eye gaze preference. The patient experienced an onset of symptoms 2 hours before arrival in the emergency department. A stroke (cerebrovascular accident) is likely to have occurred in which of the following areas?
  - Left hemisphere
  - Right hemisphere
  - Cerebellum
  - Brainstem
- Which of the following statements is true concerning Guillain-Barré syndrome?
  - Symmetric tingling and weakness starting in the lower extremities and progressing upward
  - A paralysis trending upward to the waist, not involving the diaphragm or respiratory muscles
  - Hyperactive superficial and deep tendon reflexes present in the lower extremities
  - Disease caused by increased myelin accumulation in nerve roots and peripheral nerves
- Nylon sutures are placed in a laceration to the left cheek. Which of the following statements by the patient would indicate an understanding of the discharge instructions?
  - I need to have my sutures removed in 7 to 10 days.
  - My sutures will absorb and do not need to be removed.
  - This wound will not cause a scar because of the small sutures.
  - I can wash around the wound after 24 hours.
- A patient presents to the emergency department describing heart palpitations for the past several days. The patient is 54 years old, weighs 75 kilograms, is a 1-pack-per-day smoker, and has no cardiac history. Blood pressure is 130/70 mm Hg, and pulse rate is 124 beats per minute and irregular. The cardiac monitor rhythm is shown below. After a 12-lead electrocardiogram and laboratory work, the physician orders which of the following medications for this patient?

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- A. Calcium chloride (calcium) 10 mL intravenous (IV) bolus
- B. Atropine (atropine sulfate) 0.5 mg IV bolus
- C. Heparin (heparin sodium) 5000 units IV bolus
- D. Cardizem (diltiazem) 75 mg IV bolus

## ANSWERS

1. Correct answer: B

This patient presents with findings of a probable subdural hematoma. A subdural hematoma results from a venous hemorrhage between the dura and the arachnoid mater in the subdural space. Symptoms include a decreasing level of consciousness after an injury to the head. The patient's age and medication history increase the likelihood of the subdural hematoma. (B) Subdural hematomas may present in the acute period of injury or may be delayed or chronic. (A) A patient with an epidural hematoma usually experiences rapid deterioration in the level of consciousness owing to the arterial nature of the bleed. (C) A patient with a subarachnoid hemorrhage usually has underlying brain injury such as an aneurism or arteriovenous malformation. Although head injury may be the cause, the diagnosis of a subarachnoid hemorrhage would be most likely an incidental finding, associated with more serious brain injury. Because of increasing intracranial pressure, hydrocephalus can be seen. (D) A patient with intracerebral hemorrhage would present with sudden abnormal motor functioning and loss of consciousness. If the hemorrhage is located in the posterior fossa, brainstem deficits may be present.<sup>1</sup>

2. Correct answer: A

(A) Signs of a left hemisphere cerebrovascular accident (stroke) include right-sided weakness, problems with speech or aphasia, and a right-eye gaze. The assessment of the time of onset of symptoms is a vital component for treatment considerations. (B) A patient with a right hemisphere cerebrovascular accident (stroke) would include left-sided weakness, a left-eye gaze, and behavioral changes such as impulsive behavior. (C) A patient with a cerebellar stroke would experience an altered gait, sudden dizziness, and headache. (D) A patient with a brainstem stroke would exhibit weakness or paralysis and balance issues, but also abnormalities with breathing, heart function, and body temperature.<sup>1,2</sup>

3. Correct answer: A

(A) Guillain-Barré syndrome is an acute immune mediated polyneuropathy resulting in paralysis or extremity numbness. The tingling, numbness, or paralysis begins in the legs and ascends upward in most cases. Guillain-Barré syndrome is more common in adult men. (B) The disease is not limited to below the waist, as 20% to 30% of patients will require respiratory support. (C) Along with the symmetric and progressive weakness, depressed or absent deep tendon reflexes are noted. (D) The disease is caused by de-myelination around the nerve roots and peripheral nerves. Patients may experience pain owing to the irritation of the nerve roots.<sup>3</sup>

4. Correct answer: D

(D) Patients are generally instructed to keep wound clean and wash around the wound daily to remove any debris or crusting. (A) Facial lacerations typically have sutures removed in 3 to 5 days, not 7 to 10 days. (B) Nylon sutures are nonabsorbable and must be removed in the prescribed time frame. (C) Any laceration may

cause scarring, but efforts are focused to minimize scarring, such as fine sutures, early suture removal, and good wound care.<sup>4</sup>

5. Correct answer: C

Of the listed medications, (C) the correct medication and dose would be heparin (heparin sodium). The rhythm displayed is atrial fibrillation with a rapid or uncontrolled ventricular response. This new onset of atrial fibrillation without verification of time in the rhythm would be of concern for clot formation in the atria owing to loss of the atrial kick. Initial anticoagulation

with heparin would be initiated, followed by a heparin infusion. Oral anticoagulation could be considered after initial treatment. (A) Calcium chloride (calcium) would be used to stimulate the heart and would increase myocardial contractions. It is also used for hypocalcemia and other electrolyte disturbances. (B) Atropine (atropine sulfate) would increase the heart rate and would not be indicated for atrial fibrillation with a rapid ventricular response. (D) Cardizem (diltiazem) is a calcium channel blocker and would be useful with atrial fibrillation with a rapid ventricular response at the correct loading dose. The loading dose is 0.25 mg/kg, or 18.75 mg. The listed dose would be 4 times too much.<sup>5</sup>

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