



# The Canadian Journal of Critical Care Nursing

Volume 34, Number 2, Summer 2023

ISSN (Print): 2368-8653, (Online): 2563-8998

## IN THIS ISSUE:

- 8 Identifying opportunities for antimicrobial stewardship in a tertiary intensive care unit:  
A qualitative study
- 19 CRITICAL CARE NURSING ABSTRACTS
- 19 Fast & Focused – 45 minutes
- 35 Concurrent – 60 minutes
- 41 Poster Abstracts (oral and printed)
- 43 Poster Abstracts (printed)



# The Canadian Journal of Critical Care Nursing

Volume 34, Number 2, Summer 2023

## Chief Editor

Asha Pereira, PhD, RN, Winnipeg, MB

## Co-Editors

Michelle House-Kokan, MSN, RN, CCNE, CNCC(C), Co-Editor,  
Vancouver, BC

Catherine Liao, MSc, RN, Co-Editor, Chilliwack, BC

Ramesh Venkatesa Perumal, PhD, RN, CCNE, CNCC(C), CCSNE,  
Co-Editor, Toronto, ON

## Managing Editor

Heather Coughlin, Pappin Communications, Cobden, ON

## Editorial Review Board

### Adult Consultants:

Marie Edwards, PhD, RN, Winnipeg, MB

Sandra Goldsworthy, PhD, MSc, RN, CNCC(C), CMSN(C),  
Calgary, AB

Martha Mackay, PhD, RN, CCN(C), Vancouver, BC

Carmel Montgomery, PhD, RN, Edmonton, AB

Mary Mustard, MN, NP-Adult, CNCC(C), CNC(C), Etobicoke, ON

### Pediatric Consultant:

Franco Carnevale, MSA, MEd, PhD, RN, Montréal, QC

### Neonatal Consultant:

Debbie Fraser, MN, RNC, Winnipeg, MB

## Canadian Association of Critical Care Nurses

### CACCN National Office

#### Chief Operating Officer:

Christine R. Halfkenny-Zellas, CIM

P.O. Box 25322, London, Ontario N6C 6B1

caccn.ca

email: caccn@caccn.ca

phone: 519-207-7007

toll-free: 1-866-477-9077

The *Canadian Journal of Critical Care Nursing* is the only peer-reviewed, open-access critical care journal in Canada, and is published by Pappin Communications, Cobden, Ontario. Printed in Canada. ISSN: 2368-8653 (Print), 2563-8998 (Online). The journal is offered electronically on our website at [cjccn.ca](http://cjccn.ca). A small number of print copies are produced for paid subscribers.

**Advertising information:** For advertising enquiries, contact Heather Coughlin, Pappin Communications, 1012 Snake River Line, Cobden, ON K0J 1K0, telephone: 613-633-1938, email: [heather@pappin.com](mailto:heather@pappin.com), website: [www.pappin.com](http://www.pappin.com)

**Author Enquiries:** All manuscript submissions are to be sent to Chief Editor, Canadian Journal of Critical Care Nursing (CJCCN): [cjccneditor@caccn.ca](mailto:cjccneditor@caccn.ca) and CACCN National Office: [caccn@caccn.ca](mailto:caccn@caccn.ca). For Author Guidelines, refer to the Canadian Journal of Critical Care Nursing (CJCCN) website: <https://cjccn.ca/>

Print copies of back issues may be purchased for \$30 (plus HST), subject to availability. Back issues may be delivered electronically (PDF).

Copyright © 2023 by the Canadian Association of Critical Care Nurses, P.O. Box 25322, London, Ontario N6C 6B1. No part of this journal may be reproduced in any manner without written permission from CACCN. The editors, the association, and the publisher do not guarantee, warrant or endorse any product or service mentioned in this publication.



The Canadian Journal of  
Critical Care Nursing is  
printed on recycled paper.



CANADIAN  
ASSOCIATION OF  
CRITICAL  
CARE  
NURSES



# Canadian Association of Critical Care Nurses

## Vision statement

Critical care nurses provide the highest standard of care to patients and families through a respectful, engaging, vibrant, educated and research driven specialized community.

## Mission statement

We engage critical care nurses in Canada and internationally through scholarship, education, and networking.

## Values and beliefs statement


Our core values and beliefs:

- Excellence and Leadership
  - Collaboration and partnership
  - Pursuing excellence in education, research, and practice
- Dignity and Humanity
  - Respectful, healing and humane critical care environments
  - Combining compassion and technology to advocate and promote excellence
- Integrity and Honesty
  - Accountability and the courage to speak up for our beliefs
  - Promoting open and honest relationships

## Philosophy Statement

Critical care nursing is a specialty which exists to care for patients who are experiencing or at risk of experiencing life-threatening health crises within a patient/family centred model of care. Nursing the critically ill patient is continuous and intensive, aided by technology. Critical care nurses require advanced problem-solving abilities using specialized knowledge regarding the human response to critical illness.

The critical care nurse works collaboratively within the inter-professional team and is responsible for coordinating patient care using each member's unique talents and scope of practice to meet patient and family needs. Each patient has the right to receive care based on their personal preferences. The critically ill patient must be cared for with an appreciation of their wholeness, integrity, and relation to family and environment. Critical care nurses plan, coordinate and implement care with the health care team to meet the physical, psychosocial, cultural, and spiritual needs of the patient and family. The critical care nurse must balance the need for the highly technological environment with the need for safety, privacy, dignity, and comfort.

Critical care nurses are at the forefront of critical care science and technology. Lifelong learning and the spirit of enquiry are essential for the critical care nurse to enhance professional competencies and to advance nursing practice. The critical care nurse's ability to make sound clinical nursing judgments is based on a solid foundation of knowledge and experience. 

# From the desk of the Chief Editor

After a long winter, it appears spring is arriving across the country. It is a time for renewal and looking forward. This issue of this *Canadian Journal of Critical Care Nursing* is not different. We are continuing to look for new opportunities for growth and looking forward to providing you with quality, relevant information to support your extraordinary practice, Every Day.

Within the summer issue, you will find the Abstracts for the Canadian Critical Care Nursing Conference, taking place in Fredericton, New Brunswick, from September 25- 27, 2023. The theme of this year's conference is **Extraordinary Every Day**, exemplifying who critical care nurses are. I invite you to read the abstracts and make plans to join critical care nurses and your interprofessional colleagues from across Canada and internationally to network, learn and celebrate together.

We are also pleased to provide a manuscript by John Y. Groumoutis, Sean K. Gorman and Jessica E. Beach entitled "Identifying opportunities and priorities for antimicrobial stewardship in a tertiary intensive care unit."

Finally, as part of our anti-racism priority, we are fortunate to receive a guest editorial from Catherine Liao entitled, "Unsettling the 'I do not see colour' ideology in nursing." Liao draws our attention to the harms to Indigenous, Black and People of Colour this seemingly innocuous statement causes.



As we move forward in an attempt to reconcile the injustices of the past, it is imperative that each and every critical care nurse pay attention to the words, the actions and the deep-seated beliefs and behaviours that have dominated our history, so we can avoid perpetuating them in the future. In the words of Maya Angelou, "When we know better, we do better." With knowledge, we can continue to be Extraordinary Every Day.

Looking forward to connecting with you in Fredericton in September. In the meantime, please reach out to us at [cjccneditor@caccn.ca](mailto:cjccneditor@caccn.ca) with comments, concerns, and ideas to help us build and grow the *Canadian Journal of Critical Care Nursing* (CJCCN).



**Dr. Asha Pereira, PhD, RN**  
**Chief Editor**  
**Canadian Journal of Critical Care Nursing**

# Unsettling the “I do not see colour” ideology in nursing

**A**s a woman of colour, I have often heard the phrase “*I do not see colour because we are all the same*” from nursing professors, colleagues, and students. While I used to agree with this statement, I now realize how subtle biases impact patient care when nurses are socialized into thinking we are neutral caregivers. My colour-blind perspectives were well-intentioned at the time. However, as a nurse educator, I see how neutrality in nursing education obscures how racism contributes to health disparities, making it challenging to promote health equity in health and healthcare. In this way, as nurses, we overlook how power and systemic racism embed themselves in healthcare and, consequently, impede nursing’s fundamental disciplinary commitment to promoting health for all equitably (Thorne, 2021; Bell, 2021).

Colour blindness represents modern or covert racism, wherein society has programmed white individuals to be ignorant about structural racism (Fu, 2015). Colour blindness asserts that all people, regardless of their ethnicity and racial identities, are the same; and in nursing, this notion of sameness is insidious in education and practice. Colour blindness minimizes and erases the lived experience of individuals who encounter prejudice related to their racial identity (Thorne, 2021). Colour blindness downplays and obscures the systematic discrimination that continues to exist. The fear of being unfairly judged or discriminated against because of the colour of your skin is an uncomfortable truth, and many of my white colleagues in the United Kingdom (UK) and Canada have been in denial.

Racism is a social determinant of health (SDOH). “*I do not see colour*” ignores how cultural backgrounds, identities, and skin colour may have shaped the experiences of others. This *colour-blind* stance dismisses the reality that Indigenous, Black, and Persons of Colour (IBPOC) have different healthcare experiences, or that nurses of colour do not have the same privileges as our white counterparts. For example, it is well documented that black and white patients receive differing health standards of care in the United States due to racial inequities (Kaiser Family Foundation, 2023). In the UK, there are widespread inequalities and inequities in ethnic minority groups across a range of health services – poor quality or discrimination from healthcare staff is a commonly cited reason why racialized patients avoid seeking help because they fear racist treatments (Wise, 2022). In Canada, racism and harmful stereotypes are responsible for the avoidable deaths of Indigenous patients. To name a few, Brian Sinclair, Joyce Echaquan, and Keegan Coombes. Further, in the UK, white nurses are twice as likely to get promoted as nurses of colour (Royal College of Nursing, 2022). These nursing workforce trends are yet to be studied in Canada due to the absence of disaggregated race-based data.

Unfortunately, racism and white privilege as topics remain on the margins of discussion in nursing education and practice (McGibbon et al., 2014). “*I do not see colour*” is problematic in nursing because it minimizes racism in healthcare. This narrative promotes individualism and meritocracy, assuming everyone has an equal opportunity for good health when racism is a key driver of health inequities for IBPOC groups (Cunningham & Scarlato, 2018). However, unsettling the colour-blindness narrative is a step towards antiracism work in nursing. Seeing in colour can guide nurses to identify how systems of oppression operate, help them recognize institutionalized racism, and empower them to eliminate discrimination that is explicitly linked to power structures and processes in health systems and nursing practice. By acknowledging that we see colour, we can contextualize health behaviours and choices and critically think about policies and practices that promote unearned privilege in dominant groups. We must go beyond understanding racism as a sum of actions and racial slurs. Racism is a combination of prejudice and power designed to benefit and privilege *whiteness* in every aspect of life (Phillips-Beck et al., 2020). As nurses, when we acknowledge colour, we fully appreciate how racism persists and perpetuates itself through healthcare. This requires an angle of vision that analyzes structures upon which healthcare is formed.

Self-awareness and examining our perspectives, attitudes, biases, and belief systems are good starting points for addressing colour blindness. It is essential to recognize that acknowledging colour does not mean one is racist; instead, challenging colour blindness can help us address health inequities. By using a structural perspective on health and healthcare, nurses can better understand how some groups of people persistently have worse health outcomes than others. Many resources are available for nurses who want to learn more about cultural safety and humility and become anti-racist (<https://bchumanrights.ca/be-anti-racist-colour/>; <https://www.fnha.ca/wellness/wellness-and-the-first-nations-health-authority/cultural-safety-and-humility>; <https://www.aamc.org/about-us/equity-diversity-inclusion/anti-racism-resources>). Many of us have wrestled with discomfort, not knowing how to support IBPOC communities without saying or doing the wrong thing. However, when we lean into our discomfort, we allow ourselves to unlearn and relearn, thus opening ourselves to conversations and moving away from the colour-blind ideology.

**Catherine Liao, MSc, BSc(Hons), RN**  
**Co-Editor**  
**Canadian Journal of Critical Care Nursing (CJCCN)**

---

## REFERENCES

- Bell, B. (2020). White dominance in nursing education: A target for anti-racist efforts. *Nursing Inquiry*, 27(4), 1–11. <https://doi.org/10.1111/nin.12379>
- Cunningham, B. A., & Scarlato, A. S. M. (2020). Ensnared by colorblindness: Discourse on health care disparities. *JAMA Internal Medicine*, 180(12), 1562–1563. <https://doi.org/10.18865%2Fed.28.S1.235>
- Fu, M. (2019). I don't see color, all people are the same: Whiteness and Color-Blindness as Training and Supervisory Issues. *Journal of Multicultural Counseling and Development*, 47(3), 166–180. <https://doi.org/10.1080/02703149.2015.1059212>
- Kaiser Family Foundation. (2021, October 7). Key data on health and health care by race and ethnicity. <https://www.kff.org/racial-equity-and-health-policy/report/key-data-on-health-and-health-care-by-race-and-ethnicity/>
- McGibbon, E., Mulaudzi, F. M., Didham, P., Barton, S., & Sochalski, J. (2014). Toward decolonizing nursing: the colonization of nursing and strategies for increasing the counter-narrative. *Nursing Inquiry*, 21(3), 179–191. <https://doi.org/10.1111/nin.12042>
- Phillips-Beck, W., Eni, R., Lavoie, J. G., Kinew, K. A., Achan, G. K., & Katz, A. (2020). Confronting racism within the Canadian healthcare system: Systemic exclusion of First Nations from quality and consistent care. *International Journal of Environmental Research and Public Health*, 17(22), 8343. <https://doi.org/10.3390/ijerph17228343>
- Royal College of Nursing. (2022, June 8) *There must be nursing leadership in all levels of the health and care services*. RCN Survey. <https://www.rcn.org.uk/news-and-events/news/uk-there-must-be-nursing-leadership-in-all-levels-of-the-health-and-care-services-080622>
- Thorne, S. (2022). Moving beyond performative allyship. *Nursing Inquiry*, 29(1), e12483. <https://doi.org/10.1111/nin.12483>
- Wise, J. (2021). Racial health inequality is stark and requires concerted action, says review. *BMJ*, 372, n432. <https://doi.org/10.1136/bmj.o382>

# Identifying opportunities for antimicrobial stewardship in a tertiary intensive care unit: A qualitative study

JOHN Y. GROUMOUTIS, BSc (PHARM), ACPR, SEAN K. GORMAN, BSc (PHARM), ACPR, PHARM.D, AND JESSICA E. BEACH, BSc. PHARM, ACPR, PHARM.D

## Abstract

**Background:** Antimicrobial stewardship (AMS) encompasses numerous interventions that seek to improve antimicrobial usage, as inappropriate use of antimicrobials may result in the promotion of antimicrobial resistance, patient harm, and increased costs. AMS is of particular interest in intensive care units (ICUs) where antimicrobial use is extensive. Few qualitative studies have sought to identify the perceived attitudes and beliefs of intensive care clinicians around AMS.

**Objectives:** To understand ICU nursing and physician priorities and preferences around AMS and possible AMS interventions for implementation in the ICU.

**Methods:** Using consecutive sampling, semi-structured one-to-one interviews were conducted with ICU nursing and physician staff at a tertiary hospital in BC, Canada.

**Results:** Nine participants (seven nurses and two physicians) were interviewed, and themes were identified and categorized as: opportunities to improve AMS in the ICU, barriers to AMS in the ICU, and possible future AMS interventions for implementation

in the ICU. Opportunities identified included: clinician activities (improved communication, de-escalation, ICU nurse assessment) and support (infectious disease and antibiotic experts, AMS presence). Barriers identified included: knowledge gaps (infectious disease and antibiotic knowledge, AMS awareness), AMS and ICU integration (nursing role in AMS, AMS efficacy in ICU), and environment (competing priorities, critical care context). Interventions identified included: organisational (EMR modifications, checklists, algorithms), learning (infectious disease and antimicrobial education, audit, and feedback), and nursing intervention (antibiotic review, prompting reassessment).

**Conclusions:** To effectively promote AMS in the ICU, perceived opportunities and barriers must be considered. To facilitate AMS activities, feasible interventions that local ICU staff would accept should be implemented in collaboration with the ICU team.

**Keywords:** antimicrobial stewardship, critical care, intensive care, qualitative, nursing

Groumoutis, J. Y., Gorman, S. K., & Beach, J. E. (2023). Identifying opportunities for antimicrobial stewardship in a tertiary intensive care unit: A qualitative study. *The Canadian Journal of Critical Care Nursing*, 34(2), 8–14. DOI: 10.5737/23688653-3428

## Implications for nurses

- Both the definition of antimicrobial stewardship and nursing's role in antimicrobial stewardship are not always clear to nurses.
- Nurses are keen on receiving education about antimicrobials and infectious diseases to improve their patient assessment-related skills.
- The implementation of various clinical tools and interventions may help nurses better contribute to antimicrobial stewardship efforts.
- Future research should be conducted investigating the effect of antimicrobial stewardship activities performed by nurses on outcomes related to antimicrobial usage and patient care.

## Background

Antimicrobial stewardship (AMS) is defined as “coordinated interventions designed to improve and measure the appropriate use of [antibiotic] agents by promoting the selection of the optimal [antibiotic] drug regimen including dosing, duration of therapy, and route of administration” (Barlam et al., 2016, p. e51). AMS interventions have been categorized, as was done in a 2017 Cochrane review, according to the following functions: education, persuasion,

restriction, environmental restructuring, and enablement (Davey et al., 2017).

The importance of AMS is highlighted by data qualifying the use of antimicrobials. Various studies have suggested that roughly 30–50% of antimicrobials are inappropriately used in hospital settings (Hecker et al., 2003; Magill et al., 2021; Núñez-Núñez et al., 2022; Park et al., 2022). These results are consistent with what has been measured for inappropriate antimicrobial use in the intensive care unit (ICU; Chiotos et al., 2022; Cusini et al., 2010; Macera et al., 2021). This is of interest, as antimicrobial usage in the ICU is a risk factor for developing antimicrobial resistance (Ang & Sun, 2018), and hospital-acquired infections by antibiotic-resistant organisms may increase the risk of mortality and readmissions (Barrasa-Villar et al., 2017). Furthermore, antimicrobial usage in ICU patients has been suggested to potentially contribute to patient harm related to mitochondrial and organ dysfunction, opportunistic fungal and *C. difficile* infections, adverse drug reactions and toxicities, and drug-drug interactions (Arulkumaran et al., 2020; Granowitz & Brown, 2008). Beyond the clinical implications of antimicrobial usage, reducing unnecessary usage in hospitals may reduce healthcare-associated costs (Nathwani et al., 2019).



Various strategies and interventions have been implemented and studied to optimize antimicrobial use in the ICU. Key strategies in the ICU include prospective audit and feedback, antibiotic time-outs, rapid diagnostics and laboratory testing, clinical pathways, computerized-decision support, and infection control (Chiotos et al., 2019; Pickens & Wunderlink, 2019). While the outcomes associated with these various strategies differ, the potential benefits include: decreased antibiotic use, reduced rates of *C. difficile* infections, decreased length of ICU or hospital stay, and cost savings without a negative impact on mortality (Pickens & Wunderlink, 2019).

As important as identifying interventions and strategies with supportive evidence to optimize antimicrobial usage is, an equally important task is determining the feasibility of implementing proven interventions in a busy critical care environment. Few qualitative studies have sought to identify the perceived opportunities and barriers to the implementation of AMS interventions and attitudes of clinicians toward implementing antimicrobial stewardship programs and interventions, particularly in the intensive care setting (Jeffs et al., 2018; Steinberg et al., 2016). Understanding perceived opportunities and barriers towards AMS interventions enables design and implementation of targeted implementation strategies that enhance facilitators and modify barriers. Moreover, this will also help to prioritize AMS interventions to deliver in the ICU setting. Therefore, the aim of this study was to identify ICU staff perspectives and help to identify priorities for AMS interventions at our institution.

## Methods

This study was a prospective, qualitative descriptive study conducted at a 259-bed tertiary hospital within a regional health authority in British Columbia, Canada. The hospital's intensive care unit is mixed; medical, and surgical and, at the time of initiation of this study, consisted of 11 inpatient beds. Annual admissions to the unit were roughly 500 per year. There were four physicians employed in the ICU to cover the unit in a closed-unit model of intensive care service. The rounding team consisted of the physician, bedside nurse, clinical pharmacist, dietician, respiratory therapist, and patient care coordinator, with ad hoc participation of a physiotherapist, social worker, and Aboriginal patient navigator (APN). The health authority had an established regional AMS program staffed by two members – the medical director and pharmacy coordinator, who are not located in our hospital. The AMS program is governed by the health authority's Pharmacy and Therapeutics Committee and institutes restrictive drug policies, provides education to physicians, pharmacists, and nurses, creates and implements clinical decision support tools and pre-printed orders to guide appropriate antimicrobial use, performs antimicrobial quality improvement projects, and advises on antimicrobial issues for the pharmacy and therapeutics committee. The regional health authority's Research Ethics Board granted this research a certificate of approval (REB approval number: H19-03268).

All ICU staff were invited to participate via email invites or through in-person announcements at ICU morning huddles.

Inclusion criteria were any physician, nurse, patient care coordinator, nurse educator, manager or respiratory therapist working in the ICU. Learners (students, trainees, interns) and staff with casual employment status were excluded. Semi-structured, one-on-one in-person, audio-recorded interviews of 20-30 minutes were conducted at the hospital. An interview guide (Appendix 1) was developed in referring to semi-structured interviews used in similar qualitative literature. Question development for the interview guide was informed by categorizations of AMS interventions suggested by Davey et al. (2017), as well as the Effective Practice and Organisation of Care (EPOC) taxonomy (2015). Interview questions sought to capture participant beliefs and perceptions on AMS and usage within the ICU and the perceived potential impact of various AMS interventions on improving antimicrobial use in the ICU. Interviews were conducted and transcribed by one author (JG, a pharmacy resident who received research training during their pharmacy education). This author did not have any prior relationships with the ICU team. Transcripts were independently coded by two authors (JG, JB). The transcripts were each coded twice via two different methods. Initially, two-thirds of the transcripts were openly coded in an inductive, semantic way, followed by axially to organize the codes into broader categories. It was then noted that the codes and categories created thus far aligned well with and could be further categorized under the domains present within the Theoretical Domains Framework (TDF) (Atkins et al. 2017). The decision was then made to openly code the initial transcripts again, though this time with a more deductive approach guided by the TDF concepts. Lastly, the last third of transcripts were coded twice each via the two previously stated methods, with codes being added to the master list of codes, one transcript at a time, to note the generation of any new codes and assess for data saturation. Data saturation was defined as: "the point in coding in which no new codes occur in the data" (Urquhart, 2013, p.194). Consensus on codes was confirmed via discussion between the two authors. A thematic analysis was then performed to identify and classify emergent themes, agreed upon by both authors involved with coding (JG, JB) and later reviewed by the other study author (SG). Themes were derived inductively from codes, within the parameters of this study's objectives (identifying opportunities, barriers, and interventions). The COREQ reporting guidelines for qualitative research interviews were reviewed and used to inform the reporting of the results of this study (Tong et al., 2007).

## Results

A total of nine participants were recruited and interviewed, with interviews conducted in December 2019. Their characteristics are described in Table 1. None of these participants reported any formal training or education in infectious diseases beyond what they would have covered in their profession's standard education and training.

Themes relating to opportunities, barriers, and interventions to optimize antimicrobial usage in the intensive care setting were identified and are summarized in Tables 2, 3, and 4, respectively.

## Opportunities [see Table 2]

### Clinician activities

The majority of participants noted the need for thorough communication of the antimicrobial treatment plan between healthcare professionals. They perceived this would help facilitate stewardship efforts by enabling nurses to assess patients more effectively. Participants highlighted the importance of documenting antimicrobial indications and intended durations of therapy and the need for consistency in recording antimicrobial treatment details within nursing reports and handover tools. Additionally, the handover of care was identified as a key time requiring appropriate communication of the antimicrobial plan.

**Table 1**

### Participant Demographics

Experience in ICU (years)	Attending Physicians (n = 2)	Nurses (n = 7)	Total (%)
0–4.9	1	2	2 (22%)
5–9.9	1	2	3 (33%)
>10		2	3 (33%)
Unknown		1	1 (11%)

**Table 2**

### Opportunities for antimicrobial stewardship in the intensive care unit

Theme	Sub-themes	Quotes
Clinician activities	Improved communication	“I guess like if somebody moved in quite quickly from another part of the hospital, or if it was failed to be reported what they might have – an antibiotic resistant bug – or some other thing going on with them... Like that would kind of be something we’d address at the time but also it’d be better to know before they came in, right? Cause then you could handle this appropriately – isolation set up, or... yeah” (RN #3)
	De-escalation	“So the length is one thing, and then switching from IV to PO, or stepping down to a narrower antibiotic from a broader spectrum antibiotic – those are all things that I suspect everybody can improve on.” (MD #1)
	ICU nurse assessment	“I would prioritize the nurses touching on it [antimicrobials] in the morning during rounds so that the pharmacist can hear about what antimicrobials the patient is on. Assess how that’s going, how long they been on it, how effective it is, and – yeah. That will – even just doing that would be a big improvement from what we’re doing right now, I think.” (RN #7)
Support	Infectious disease and antibiotic experts	“...I guess, like, an infectious disease consultant. In other words, like, learning or having a second opinion from infectious disease is helpful.” (MD #1)
	AMS presence	“The pharmacist had a lot of input as to different opinions and what the doctor wanted and they could have it out and whatever... Just having that other opinion and someone else looking at it. I think that’d be great.” (RN #6)
		“...there is an antimicrobial stewardship program in [regional health authority], I understand, but they do not – I wouldn’t say that they really have any – like, their presence is not felt in our ICU whatsoever.” (MD #2)

Nursing staff perceived that antimicrobial usage was too high in the ICU, while ICU physicians felt that antimicrobial usage was largely appropriate, though admitted there could be potential for improvement. A key possible area for improvement mentioned by participants was that broad-spectrum antibiotics may be overused as empiric therapy, and that narrowing of therapy should occur. There was also a belief among some nursing participants that either empiric therapy or broad-spectrum antibiotics should not be prescribed until preliminary culture results have returned. IV-to-PO stepdown of antimicrobials was also mentioned as something that could occur in a timelier manner.

The majority of nursing participants felt that the ICU nurse’s abilities and competencies around performing assessments were an important aspect to a patient’s antimicrobial care. With the appropriate knowledge of infectious diseases, clinical presentations, and antimicrobial uses and harms, nurses believed they could more comprehensively and efficiently conduct assessments of their patients’ statuses and review their progress. They believed that their ability to know what should be flagged for a physician to review and their timeliness in doing so would be improved.

### Support

Most participants referenced the many ways the infectious diseases specialists contribute to the ICU, as well as how their role could be further expanded in providing a second opinion for a patient case. Physicians, while feeling confident in their own

skills and antimicrobial knowledge, noted that input from an infectious diseases expert could be valuable in updating their knowledge on infectious disease topics. Various formats of infectious diseases specialist oversight over cases in the ICU were suggested, including having infectious diseases automatically consulted in the case of Gram-positive bacteremias, all culture-positive bacteremias, all antimicrobial orders, and all infectious disease cases transferred in from external sites. The participation of the ICU pharmacist in multidisciplinary rounds was acknowledged, with comments as to how ICU pharmacists could or already do perform stewardship activities. Participants noted their utility in reviewing, assessing, and providing input on the antimicrobial care plan, and nurses identified ICU pharmacists as candidates for providing antimicrobial education. Other services were less frequently mentioned for providing antimicrobial expertise and included the medical microbiologist and the infection prevention and control program. One nurse also suggested that leadership may come from a designated nurse AMS champion.

Neither physician felt that the AMS program had a strong presence within the ICU but noted their openness to receiving feedback from a stewardship team. One physician noted their hope that in the future the AMS program would be more involved in the ICU. Nursing participants were unaware of the existence of the AMS program and its role. Though unfamiliar with the program, nurses were generally enthusiastic to the idea of the AMS program collaborating with the local ICU staff to improve antimicrobial usage after being given a general idea of the program's structure and functions.

**Barriers [see Table 3]**

*Knowledge gaps*

Nursing participants perceived themselves to be lacking in general infectious diseases and antimicrobials knowledge, as this was felt to be minimally covered in their nursing education and critical care training. This was felt to be a limitation to their ability to review and assess their infectious diseases cases. While participants mostly spoke of general knowledge gaps,

**Table 3**

*Barriers to antimicrobial stewardship in the intensive care unit*

Theme	Sub-themes	Quotes
Knowledge gaps	ID and antibiotic knowledge	“I just did a BSN. I didn’t do a science degree or anything. Our schooling in particular was pretty lacking in the microbiology aspect. Not a lot of infectious disease.” (RN #1)
	AMS awareness	“Not sure if I know exactly what antimicrobial stewardship is.” (RN #2)
AMS and ICU integration	Nursing role in AMS	“I guess we have a very small, like fundamental education on it [antimicrobials] but ultimately it’ll come down to the pharmacists and physicians.” (RN #3)  “Not a lot of value, to be honest, in targeting nursing just because I think it is unreasonable to expect that they are going to, you know, be, you know - be providing feedback to the prescribers. So, I think it – the only two roles that would benefit from this would be like, the ICU pharmacist and the ICU physicians.” (MD #2)
	AMS efficacy in ICU	“I think that all of these sort of stewardship interventions are going to probably have higher impact in the medical-surgical wards... if you were to have a, you know, audit and feedback, and they looked at a patient and they were like really really ill, there’s not going to be that many recommendations to narrow and to truncate duration of therapy...” (MD #2)  “ICU has so many resources that I think - I think they’re already doing it anyway, right? Like, you have pharmacists on rounds that’s going through the chart and looking at all the drugs that they’re on and - “Is this appropriate dosing?” and all that...” (RN #5)
Environment	Competing priorities	“I think the algorithms work, and pathways - clinical pathways - work. Definitely. As long as there’s not pages and pages and pages of stuff because it can get to be sensory overload, right? Because there’s so many protocols and procedures and it gets to be just brain matter after a while and people just ignore it and it’s not that effective, right?” (RN #5)
	Critical care context	“And the other is, maybe, duration. It’s, you know – there’s actually not a lot of good data on how long somebody should be treated for a pneumonia, for example. Whether it’s community-acquired or hospital-acquired. And a lot of infection disease stuff – there’s not a lot of really hard data to say, “you must treat for two weeks for a bloodstream infection or etcetera.” So, people tend to err on the side of caution and give longer duration if they’re not sure or feel uncomfortable.” (MD #1)

some specific knowledge gaps identified were in the understanding of microbiology and therapeutic considerations for antimicrobials.

None of the nursing participants were aware of the existence of an AMS program at our health authority or what role it could play in the ICU. Additionally, no nurses were formally aware of the term “antimicrobial stewardship” and its functions, though some were able to correctly guess as to some of the outcomes associated with antimicrobial stewardship (e.g., decreasing antimicrobial resistance, appropriate use of antimicrobials).

#### *AMS Integration into the ICU*

Participants did not generally believe stewardship to be a nursing role, rather perceiving the decision-making surrounding a patient’s antimicrobials to ultimately be the duty of the physician or clinical pharmacist. Suggestions were made that it is unreasonable to expect nursing to provide antimicrobial feedback to prescribers and that the culture in the ICU is such that nurses do not question or provide input to antimicrobial orders.

Skepticism towards the effectiveness of AMS initiatives in improving antimicrobial usage in the ICU setting was expressed widely by participants, driven by perceptions that either AMS initiatives would be ineffective and enact no change or that the ICU was already accomplishing antimicrobial stewardship. Common beliefs were that the ICU pharmacist on rounds already acted as an antimicrobial steward and interventions like audit and feedback would be less effective in the ICU setting than they would on non-critical care, medical or surgical wards. One physician additionally expressed that: clinical pathways from the local regional health authority’s AMS program were not utilized by ICU physicians; the local antibiogram as provided (a small laminate brochure) was not easily accessible and, therefore, not useful; that restriction criteria applied to certain antimicrobials did not influence their decision to prescribe the antimicrobial; and that there is little value in targeting nurses for antimicrobial education. Some nurses additionally expressed that they felt education was unlikely to change their practice.

#### *Environment*

Participants highlighted the high workload at times in the ICU and how distractions to maintaining workflow were a potential barrier to antimicrobial optimization. These included any procedures or workflows that are excessively complex as a result of paperwork or instructions. Participants felt that task complexity leads to staff eventually ignoring protocols altogether and, thus, any antimicrobial-related workflows would need to be simple to be of any use. Other competing priorities identified as barriers related to timeliness, such as the delay in collecting specimens and receiving results and the delay in reassessing antimicrobial treatment plans.

Challenges inherent to the critical care practice environment were identified by both physicians and nurses. Physicians note the difficulty in selecting appropriate antimicrobials when diagnostic uncertainty is present and the potential consequences to the patient if undertreated are great. This consequently leads to a hesitation to narrow therapy in critically ill patients. The

lack of adequate data to guide antimicrobial prescribing in critical care patients and knowing when to consult the infectious diseases team were also identified barriers. Nurses highlighted the challenge of acquiring timely sputum cultures as well as lack of viable IV access points on some patients as challenges that impact the reassessment and timely administration of antimicrobials.

#### **AMS Interventions [see Table 4]**

##### *Organizational*

Both physicians provided suggestions on modifications to the EMR. These suggestions included embedding various clinical tools into the EMR such as local resistance patterns and the local antibiogram to help guide antimicrobial selection at the point of prescribing. Also suggested were EMR functions to assist with antimicrobial dosing and interaction checking at the time of ordering.

Participants felt the implementation of checklists for nursing staff that prompt antimicrobial reassessment could be valuable. They felt this would enable the nurse to ask questions on rounds that would facilitate reconsideration of details such as the indication or spectrum coverage. A suggestion was that an antimicrobial checklist could be integrated into the nursing report tool to become a standard of work.

The potential adoption of algorithms and clinical pathways was the most popular intervention among nurses. They noted that they preferred algorithms for their perceived efficacy, as well as their ease of use.

##### *Learning*

Most nurses were keen to receive infectious disease and antimicrobial education to address their self-perceived knowledge gaps in these areas. Educational modalities suggested for delivery of the information were varied and diverse, including nursing inservices, newsletters, and seminars. Suggestions were made on who should be providing the teaching, with the most frequent mentions being infectious diseases physicians, pharmacists, and the nurse educator.

Both physicians referred to prospective audit and feedback as a known AMS intervention that could be implemented to improve their antimicrobial knowledge, with this being the most highly preferred intervention by one physician. This physician stated they would be open to feedback from any healthcare professional, including pharmacists, microbiologists, and nurses, but preferentially would like to receive it from an infectious diseases specialist. While nurses were not formally aware of audit and feedback as an AMS intervention prior to interviews, upon being given a basic overview of the concept most nurses believed audit and feedback to sound like an intervention that would be useful.

##### *Nursing intervention*

A common suggested nursing intervention to potentially aid with antimicrobial optimization was the nurse’s review of the patient and the antimicrobial treatment plan. Nurses felt they could clinically assess their patients’ progress and review details such as the need for ongoing therapy or upcoming antimicrobial auto-stops and share these details on rounds. One nurse

**Table 4***Interventions for possible implementation in the intensive care unit to promote antimicrobial stewardship*

Theme	Sub-themes	Quotes
Organisational	EMR modifications	“So what will be nice, and maybe that will be a part of our new EMR when that news is – you know we’re getting a new EMR eventually, right? So, it would be nice if when a culture comes up that local resistance patterns are acceptable – accessible, with a click. “Oh, I’ve got – I don’t know what – growing <i>Klebsiella</i> in the urine. What’s our local resistance patterns?” So, it just makes it easier to just, right from the get-go, decide what antibiotic you’re going to do...” (MD #1)
	Checklists	“And that is one where I feel like nursing staff could be very helpful. If that – they’re assigned to a patient they could sort of go through those questions like “Do we have microbiology? Are we on the right drug? Do we still need to be on therapy?”... and I think that would be super helpful” (MD #2)
	Algorithms	“I think the algorithms work, and pathways... If it’s simple and easy to follow, then it will get used.” (RN #5)
Learning	Infectious disease and antimicrobial education	“I wouldn’t mind an inservice actually on the differences – I mean like, kind of a basic knowledge of Gram-negative versus Gram-positives and learning about different sensitivities. Which, I don’t know, if they have like really red flags with different signs and symptoms or if we’re always just looking for temperature and white blood cells kind of thing. I think that might help us with kind of detecting and you know, then letting the doctor know what we’re seeing.” (RN #2)
	Audit and Feedback	“So, I think like, if in an ideal world, there would be audit and feedback or some guidance from somebody who is - like that is their specific role. They have a particular interest in it. They have particular training in it. Cause otherwise it’s just, you know, the usual ICU clinicians, you know, doing the best that we can.” (MD #2)
Nursing intervention	Antibiotic review	“Like say, my patient was on Pip-Taz for pneumonia, and today we decided to stop it. I’m not running around trying to find a sputum spec. But I am going to go through the thought process of wondering “Oh, are her lungs still, you know – is it resolved?”... Instead of the antibiotics just stopping and going “Great! Whatever that problem was is over.” But maybe it’s not, cause I don’t really know what the antibiotics are for.” (RN #6)
	Prompting reassessment	“even if nursing staff is not, you know, making the decision like “Hey, we should – we should narrow spectrum” or “Do we still need this antibiotic? Because we have an alternate explanation for the syndrome” – if they’re just at least prompting those questions in rounds and – I can see that being helpful as well.” (MD #2)

felt that, if equipped with the right knowledge, they could act as a second set of eyes and review the appropriateness of new antimicrobial orders.

In addition to reviewing the antimicrobial treatment plan, participants felt there were opportunities to prompt physicians to reassess the antimicrobial treatment plan. Prompting on rounds to reconsider details such as antimicrobial indication, spectrum, need for ongoing therapy, and IV-to-PO stepdown were all mentioned as interventions that could potentially improve antimicrobial usage.

## Discussion

This study explored ICU staff perceptions around AMS opportunities, barriers, and interventions in the ICU. The qualitative nature of this study allowed for the gathering of elaborative data from which themes were identified.

A main opportunity for AMS in the ICU was in the completion of clinician activities that would facilitate and promote antimicrobial stewardship. Improving communication between members of the ICU care team, as well as between care teams on transfer of care, was felt to be important and vital to ensuring that staff are well-informed of relevant antimicrobial details. The importance of the communication process has been highlighted in a systematic review of staff-reported barriers and facilitators when considering the implementation of interventions (Geerligts et al., 2018). They noted particularly the importance of communication between different disciplines, a finding consistent with our own. The implementation of organizational interventions to standardize the documentation and reporting of antimicrobial details, as well as nursing initiatives to review and share these details, have been identified as possibly useful interventions within our study.

Another important activity highlighted by our participants was the de-escalation of broad-spectrum antimicrobials. De-escalation activities included narrowing the antibiotic spectrum for a more targeted and pathogen-directed antimicrobial therapy, and switching from intravenous to oral route of administration. De-escalating therapy in the ICU setting can be challenging given the acuity of illness present and the perception of high risk of therapeutic failure with this activity. It has been well-established in sepsis guidelines that clinical presentation alone can warrant the prescribing of empiric antimicrobial therapy to treat vulnerable, critically ill patients (Evans et al, 2021). Interestingly, several nurses in our study commented that they believed broad-spectrum antimicrobials or empiric antimicrobial therapies should not be prescribed until at least preliminary microbiology results had returned. This may suggest that there are misunderstandings among some ICU staff as to the appropriate indications for empiric, broad-spectrum therapy, as well as the importance of their timely administration in sepsis. Interventions to help ICU clinicians understand the role of broad-spectrum antimicrobials, as well as comfortably de-escalate them when appropriate, are needed. Education and feedback from expert resources are identified as key interventions within our study that may address these points and facilitate de-escalation.

Lastly, nurse assessments were highlighted in our study as an activity to promote AMS. Nurses felt their assessments of the patient's status and progress were valuable in aiding with antimicrobial-related decision-making when shared with the care team on rounds or when used to prompt a reassessment of the anti-microbial treatment. In a study on nurse-driven antimicrobial stewardship, the nurse's capacity to assess patients for IV-to-PO stepdown was identified as an AMS enabler (Fisher et al., 2018). Interventions with the potential to facilitate and enhance nursing assessments should be sought. This may include education initiatives to increase nursing competencies in AMS and the integration of standard organizational tools and reports into nursing workflows that enhance nurse assessments of antimicrobial care.

A second foremost opportunity identified within our study was external support for the ICU to facilitate AMS. Participants often alluded to antimicrobial expert resources such as the infectious diseases service to help guide local ICU teams. Physicians in our study were generally confident in their abilities and practices as stewards, but acknowledged there could be potential for improvement and were generally open to receiving feedback. This is consistent with findings by Steinberg et al. (2016), in which a survey of critical care physicians revealed that the majority agreed or strongly agreed that having an AMS program is beneficial to ICU patients and that an AMS program increases knowledge of appropriate antimicrobial usage in the ICU. The findings also highlight the importance of an enhanced AMS presence within the ICU, another key form of support identified within our study. Interventions identified within our study that may seek to add support would be enhancing the role of the infectious diseases service in the ICU, as well as facilitating an audit and feedback program through the AMS program to positively impact antimicrobial usage in the ICU, as previous literature supports (Diaz-Grandos, 2012; Ellingsen et al., 2013; Khdour et al., 2018).

Three barriers to AMS in the ICU were identified in our study. The first barrier was knowledge gaps. Nurses were aware of their infectious diseases and antibiotics knowledge gaps and were keen to address them through teaching and various educational modalities. This is consistent with the findings by Olans et al. (2016) in their study to define the role of nurse education and staff nurse participation in AMS. Their survey of hospital nurses revealed that some of the most important issues to be addressed were proper technique for culture sample collection, basic microbiology interpretation, basic knowledge about IV-to-PO stepdown, when to de-escalate broad-spectrum antibiotics, and improving confidence in discussing antimicrobial usage with prescribers. Our study identified educational initiatives facilitated by antimicrobial experts as interventions that may address these nursing knowledge gaps. In addition to general infectious diseases and antibiotic knowledge, nurses formally lacked an awareness of the term "antimicrobial stewardship." A previous survey of hospital nurses revealed that the majority of hospital nurses are unfamiliar with the term "antimicrobial stewardship" or have heard the term, but do not know what it means (Merrill et al., 2019); a finding very consistent with our own. To promote AMS awareness and practices by nursing, an AMS program should have a strong presence within the ICU and be involved with staff education and feedback, as we have identified as opportunities.

A second barrier identified in our study related to integrating AMS into the ICU. Participants expressed doubts that AMS would be effective in the ICU, perceiving that AMS is either already accomplished or that it would be increasingly difficult to accomplish in the ICU context. Additionally, our participants have also expressed skepticism as to the nurse's role in AMS. Participants felt that AMS is accomplished by and is the role of physicians and pharmacists. Previous studies have revealed that nurses believe they should be involved in AMS (Broom et al., 2017; Merrill et al., 2019). These views around AMS efficacy and roles in ICU by our participants contradict some of our opportunities identified, where our participants suggested various activities, supports, and specific interventions that would promote and facilitate AMS in the ICU. It is noted that psycho-social factors are frequent and often unaddressed elements that influence antimicrobial practices (Donisi et al., 2019). It is possible that this cognitive dissonance in our participants could be driven by simultaneous and contradicting enthusiasm and appreciation for AMS outcomes as well as fear and risk perceptions of undertreating critically ill patients. Further research into understanding this cognitive dissonance would be beneficial. Behavioural change science approaches may be needed to address this type of barrier. In their study of ICU nurses, Jeffs et al. (2018) identified that the key to engaging nurses in optimal antimicrobial usage was to engage them in their local AMS programs by leveraging their interests and passions. A more substantial AMS presence to engage nurses in the ICU may help to clarify the nurse's role and overcome this barrier, as well as create the opportunity for nurses to assume leadership roles in AMS.

The third barrier identified in our study related to the ICU environment. Participants identified that the critical care context, with high acuity of illness, diagnostic uncertainty, and

lack of practice-guiding data, was a barrier to AMS in the ICU. Increased guidance and support from infectious disease and antimicrobial experts for challenging infectious disease cases may help address this barrier. Additionally, competing priorities in the ICU concerning workflow and workload were identified as barriers. Identified interventions that may address workflow management challenges and facilitate AMS practices include EMR and nursing tools modification, so long that they simplify and expedite tasks and increase efficiency rather than add to the cognitive and physical workload. These environmental barriers identified are consistent with what has been found in the literature (Chiotos et al., 2019; Pickens & Wunderlink, 2019; Geerligts et al., 2018).

Three broad categories of interventions have been identified as potential targets for implementation in the ICU and have been alluded to thus far. Firstly, organizational interventions in the form of EMR modifications and nursing checklists and algorithms have emerged as preferred interventions for implementation. However, some participants expressed concerns that existing tools can either unnecessarily add to workload or are simply not used at all. These types of tools have been identified as being moderately effective in changing practice habits (Canadian Patient Safety Institute, 2012). Clinical decision support systems have demonstrated the ability to improve patient safety and clinical management, but excessive and inappropriate alerts can lead to alert fatigue (Sutton et al., 2020). This can create distrust in alerts altogether and dismissal of them regardless of appropriateness. These various organizational tools must be implemented with careful consideration in their design. Collaboration with the ICU team to design relevant, effective, and simple tools should be done to ensure they are used by ICU staff and effectively promote AMS.

Secondly, interventions for learning through education, audit, and feedback were also preferred. The enhanced presence and guidance from antimicrobial experts in the ICU could address knowledge-related barriers and skepticism towards AMS efficacy and roles in the ICU. Indeed, a study of infectious disease and ICU physician collaboration in the ICU demonstrated a significant reduction in antibiotic consumption (Rimawi et al., 2013). This could guide clinicians and empower them to accomplish de-escalation in the ICU successfully.

Thirdly, our participants preferred nursing interventions - antibiotic reviews and prompting reassessments - to facilitate AMS. A systematic review has suggested that nursing initiatives can potentially optimize antimicrobial usage in the ICU (Padigos et al., 2021). Consistent with this literature, participants in our study, while formally skeptical of the nurse's role in AMS, still highlighted nursing interventions they believed could be performed to contribute to AMS efforts. A key to engaging nurses in AMS further will be to increase nursing exposure to the AMS program and initiatives and include them in AMS leadership and champion roles (Padigos et al., 2021, Jeffs et al., 2018).

This study has several limitations. This study sought to recruit a minimum consecutive sample of 10 interviews, but fell short of this target with only nine interviews completed. Of all the interviews completed, only two physicians were recruited,

which could result in a possible underrepresentation of physician perspectives within our data. Additionally, the perspectives of other members of the ICU multi-disciplinary team, such as pharmacists and respiratory therapists should be represented. Conversely, because seven of nine interviewees were nurses, nursing perspectives were likely well captured in our data. Per the definition used to define data saturation in our protocol, data saturation was not achieved, though the incidence of new codes significantly dropped as coding progressed. Only one new code was identified from the coding of the final transcript, suggesting data saturation may have been nearly met. There may have been observer expectancy bias, given that the interviewer was a pharmacist. The results of this study may be limited in their generalizability, as all participants were recruited from one centre.

Further research can explore the feasibility of implementing the AMS interventions identified within our study and the impact of these interventions on outcomes related to antimicrobial stewardship.

## Conclusions

*ICU staff perspectives on AMS allowed for identifying opportunities, barriers, and priority interventions to improve antimicrobial usage in the ICU. Opportunities for improvement included clinician activities that could be performed by ICU staff to facilitate AMS, as well as external supports that could be put in place to provide expertise and guidance. Identified barriers to optimal antimicrobial usage were knowledge gaps in infectious disease syndromes and antimicrobials, the perceived inability to integrate AMS practice into the ICU, and the complexities and demands of the ICU environment itself. Suggested interventions for implementation included the modification or adoption of organisational tools, learning in the ICU provided by experts, and nursing initiatives related to antimicrobial care. Considering the themes identified in this study may allow for the feasible and effective implementation of AMS initiatives in the ICU.*

## Author Notes

*John Y. Groumoutis, BSc (Pharm), ACPR, Royal Inland Hospital, Kamloops, BC*

*Sean K. Gorman, BSc (Pharm), ACPR, PharmD, Interior Health Pharmacy Services, Kelowna BC*

*Jessica E. Beach, BSc (Pharm), ACPR, PharmD, Kelowna General Hospital, Kelowna BC*

### Address for correspondence

*Jessica E. Beach, BSc (Pharm), ACPR, PharmD, Clinical Pharmacy Specialist in Critical Care at Kelowna General Hospital 2268 Pandosy St, Kelowna, BC V1Y 1T2.*

*Phone: 778-214-0345 Email: jessica.beach@interiorhealth.ca*

## Acknowledgments

*The authors would like to thank Piera Calissi for her participation and useful discussion in the development of this study's protocol.*

## Funding and Conflict of Interest

*The authors have no conflict of interest to disclose.*

## REFERENCES

- Ang, H., & Sun, X. (2018). Risk factors for multidrug-resistant Gram-negative bacteria infection in intensive care units: A meta-analysis. *International Journal of Nursing Practice*, 24(4). <https://doi.org/10.1111/ijn.12644>
- Arulkumaran, N., Routledge, M., Schlebusch, S., Lipman, J., & Conway Morris, A. (2020). Antimicrobial-associated harm in critical care: A narrative review. *Intensive Care Med*, 46(2), 225–235. <https://doi.org/10.1007/s00134-020-05929-3>
- Atkins, L., Francis, J., Islam, R., O'Connor, D., Patey, A., Ivers, N. Foy, R., Duncan, E. M., Colquhoun, H., Grimshaw, J. M., Lawton, R., & Michie, S. (2017). A guide to using the theoretical domains framework of behaviour change to investigate implementation problems. *Implementation Science*, 12(1). <https://doi.org/10.1186/s13012-017-0605-9>
- Barlam, T. F., Cosgrove, S. E., Abbo, L. M., MacDougall, C., Schuetz, A. N., Septimus, E. J., Srinivasan, A., Dellit, T. H., Falck-Ytter, Y. T., Fishman, N. O., Hamilton, C. W., Jenkins, T. C., Lipsett, P. A., Malani, P. N., May, L. S., Moran, G. J., Neuhauser, M. M., Newland, J. G., Ohl, C. A., ... Trivedi, K. K. (2016). Implementing an antibiotic stewardship program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America. *Clinical Infectious Diseases*, 62(10), 51–77. <https://doi.org/10.1093/cid/ciw118>
- Barrasa-Villar, J. I., Aibar-Rejon, C., Prieto-Andres, P., Mareca-Donate, R., & Moliner-Lahoz, J. (2017). Impact on morbidity, mortality, and length of stay of hospital-acquired infections by resistant microorganisms. *Clinical Infectious Diseases*, 65(4), 644–652. <https://doi.org/10.1093/cid/cix411>
- Broom, J., Broom, A., Kirby, E., Gibson, A. F., & Post, J. J. (2017). How do hospital respiratory clinicians perceive antimicrobial stewardship (AMS)? A qualitative study highlighting barriers to AMS in respiratory medicine. *Journal of Hospital Infection*, 96(4), 316–322. <https://doi.org/10.1016/j.jhin.2017.05.001>
- Canadian Patient Safety Institute. (2012). *Canadian Incident Analysis Report*. <https://www.patientsafetyinstitute.ca/en/toolsResources/IncidentAnalysis/Documents/Canadian%20Incident%20Analysis%20Framework.PDF>
- Chiotos, K., Tamma, P. D., & Gerber, J. S. (2019). Antibiotic stewardship in the intensive care unit: Challenges and opportunities. *Infection Control & Hospital Epidemiology*, 40(6), 693–698. <https://doi.org/10.1017/ice.2019.74>
- Chiotos, K., Blumenthal, J., Boguniewicz, J., Palazzi, D. L., Stalets, E. L., Rubens, J. H., Tamma, P. D., Cabler, S. S., Newland, J., Crandall, H., Berkman, E., Kavanagh, R. P., Stinson, H. R., & Gerber, J. S. (2022). Antibiotic indications and appropriateness in the Pediatric Intensive Care Unit: A 10-center point prevalence study. *Clinical Infectious Diseases*. <https://doi.org/10.1093/cid/ciac698>
- Cusini, A., Rampini, S. K., Bansal, V., Ledergerber, B., Kuster, S. P., Ruef, C., & Weber, R. (2010). Different patterns of inappropriate antimicrobial use in surgical and medical units at a tertiary care hospital in Switzerland: A prevalence survey. *PLoS ONE*, 5(11). <https://doi.org/10.1371/journal.pone.0014011>
- Davey, P., Marwick, C. A., Scott, C. L., Charani, E., McNeil, K., Brown, E., Gould, I. M., Ramsay, C. R., & Michie, S. (2017). Interventions to improve antibiotic prescribing practices for hospital inpatients. *Cochrane Database of Systematic Reviews*, 2(2). <https://doi.org/10.1002/14651858.CD003543.pub4>
- DiazGranados, C. A. (2012). *Prospective audit for antimicrobial stewardship in intensive care: Impact on resistance and clinical outcomes*. *American Journal of Infection Control*, 40(6), 526–529. <https://doi.org/10.1016/j.ajic.2011.07.011>
- Donisi, V., Sibani, M., Carrara, E., Del Piccolo, L., Rimondini, M., Mazzaferri, F., Bovo, C., & Tacconelli, E. (2019). Emotional, cognitive, and social factors of antimicrobial prescribing: Can antimicrobial stewardship intervention be effective without addressing psycho-social factors? *Journal of Antimicrobial Chemotherapy*, 74(10), 2844–2847. <https://doi.org/10.1093/jac/dkz308>
- Effective Practice and Organisation of Care (EPOC)*. (2015). *EPOC Taxonomy*. <https://epoc.cochrane.org/epoc-taxonomy>
- Elligsen, M., Walker, S. A., Pinto, R., Simor, A., Mubareka, S., Rachlis, A., Allen, V., & Daneman, N. (2012). Audit and feedback to reduce broad-spectrum antibiotic use among intensive care unit patients: A controlled interrupted time series analysis. *Infection Control and Hospital Epidemiology*, 33(4), 354–361. <https://doi.org/10.1086/664757>
- Evans, L., Rhodes, A., Alhazzani, W., Antonelli, M., Coopersmith, C. M., French, C., Machado, F. R., Mcintyre, L., Ostermann, M., Prescott, H. C., Schorr, C., Simpson, S., Wiersinga, W. J., Alshamsi, F., Angus, D. C., Arabi, Y., Azevedo, L., Beale, R., Beilman, G., ... Levy, M. (2021). Surviving sepsis campaign: International guidelines for management of sepsis and septic shock 2021. *Critical Care Medicine*, 49(11). <https://doi.org/10.1097/ccm.0000000000005337>
- Evans L., Rhodes A., Alhazzani, W., Antonelli, M., Coopersmith C. M., French, C., Machado, F. R., Mcintyre, L., Ostermann, M., Prescott, H. C., Schorr, C., Simpson, S., Wiersinga, W. J., Alshamsi, F., Angus, D. C., Arabi, Y., Azevedo, L., Beale, R., Beilman, G., Belley-Cote, E., Burry, L., Ceconi, M., Centofanti, J. Yataco, A. C., De Waele, J., Dellinger, R. P. Surviving sepsis campaign: International guidelines for management of sepsis and septic shock 2021. *Critical Care Medicine*, e1063–1143. <https://doi.org/10.1097/CCM.0000000000005337>
- Fisher, C. C., Cox, V. C., Gorman, S. K., Lesko, N., Holdsworth, K., Delaney, N., & McKenna, C. (2018). A theory-informed assessment of the barriers and facilitators to nurse-driven antimicrobial stewardship. *American Journal of Infection Control*, 46(12), 1365–1369. <https://doi.org/10.1016/j.ajic.2018.05.020>
- Geerlig, L., Rankin, N. M., Shepherd, H. L., & Butow, P. (2018). Hospital-based interventions: A systematic review of staff-reported barriers and facilitators to implementation processes. *Implementation Science*, 13(1). <https://doi.org/10.1186/s13012-018-0726-9>
- Granowitz, E. V., & Brown, R. B. (2008). Antibiotic adverse reactions and drug interactions. *Critical Care Clinics*, 24(2), 421–442. <https://doi.org/10.1016/j.ccc.2007.12.011>
- Hecker, M. T., Aron, D. C., Patel, N. P., Lehmann, M. K., & Donskey, C. J. (2003). Unnecessary use of antimicrobials in hospitalized patients: Current patterns of misuse with an emphasis on the antianaerobic spectrum of activity. *Archives of Internal Medicine*, 163(8), 972–978. <https://doi.org/10.1001/archinte.163.8.972>
- Jeffs, L., Law, M. P., Zahradnik, M., Steinberg, M., Maione, M., Jorgoni, L., Bell, C. M., & Morris, A. M. (2018). Engaging nurses in optimizing antimicrobial use in ICUs: A qualitative study. *Journal of Nursing Care Quality*, 33(2), 173–179. <https://doi.org/10.1097/ncq.0000000000000281>
- Khdour, M. R., Hallak, H. O., Aldeyab, M. A., Nasif, M. A., Khalili, A. M., Dallashi, A. A., Khofash, M. B., & Scott, M. G. (2018). Impact of antimicrobial



- stewardship programme on hospitalized patients at the intensive care unit: A prospective audit and feedback study. *British Journal of Clinical Pharmacology*, 84(4), 708–715. <https://doi.org/10.1111/bcp.13486>
- Macera, M., Calò, F., Onorato, L., Di Caprio, G., Monari, C., Russo, A., Galdieri, A., Giordano, A., Cuccaro, P., & Coppola, N. (2021). Inappropriateness of antibiotic prescribing in medical, surgical, and intensive care units: Results of a multicentre observational study. *Life*, 11(6), 475. <https://doi.org/10.3390/life11060475>
- Magill, S. S., O’Leary, E., Ray, S. M., Kainer, M. A., Evans, C., Bamberg, W. M., Johnston, H., Janelle, S. J., Oyewumi, T., Lynfield, R., Rainbow, J., Warnke, L., Nadle, J., Thompson, D. L., Sharmin, S., Pierce, R., Zhang, A. Y., Ocampo, V., Maloney, M., ... Neuhauser, M. M. (2021). Assessment of the appropriateness of antimicrobial use in US hospitals. *JAMA Network Open*, 4(3). <https://doi.org/10.1001/jamanetworkopen.2021.2007>
- Merrill, K., Hanson, S. F., Sumner, S., Vento, T., Veillette, J., & Webb, B. (2019). Antimicrobial stewardship: Staff nurse knowledge and attitudes. *American Journal of Infection Control*, 47(10), 1219–1224. <https://doi.org/10.1016/j.ajic.2019.03.022>
- Nathwani, D., Varghese, D., Stephens, J., Ansari, W., Martin, S., & Charbonneau, C. (2019). Value of hospital antimicrobial stewardship programs [ASPs]: A systematic review. *Antimicrobial Resistance and Infection Control*, 8(35). <https://doi.org/10.1186/s13756-019-0471-0>
- Núñez-Núñez, M., Perez-Galera, S., Girón-Ortega, J. A., Sandoval Fernández-Del-Castillo, S., Beltrán-García, M., De Cueto, M., Suárez-Barrenechea, A. I., Palacios-Baena, Z. R., Terol-Barrero, P., Oltra-Hostalet, F., Arenzana-Seisdedos, Á., Rodríguez-Baño, J., & Retamar-Gentil, P. (2022). Predictors of inappropriate antimicrobial prescription: Eight-year point prevalence surveys experience in a third level hospital in Spain. *Frontiers in Pharmacology*, 13. <https://doi.org/10.3389/fphar.2022.1018158>
- Olans, R. N., Olans, R. D., & DeMaria, A. (2016). The critical role of the staff nurse in antimicrobial stewardship—unrecognized, but already there. *Clinical Infectious Diseases*, 62(1), 84–89. <https://doi.org/10.1093/cid/civ697>
- Park, S. Y., Moon, S. M., Kim, B., Lee, M. J., Park, J. Y., Hwang, S., Yu, S. N., Lee, Y.-M., Lee, H. J., Hong, K.-W., Park, K.-H., Kwak, Y. G., Moon, C., Jeon, M. H., Park, S. H., Kim, Y. K., Song, K.-H., Kim, E. S., Kim, T. H., & Kim, H. B. (2022). Appropriateness of antibiotic prescriptions during hospitalization and ambulatory care: A Multicentre prevalence survey in Korea. *Journal of Global Antimicrobial Resistance*, 29, 253–258. <https://doi.org/10.1016/j.jgar.2022.03.021>
- Padigos, J., Reid, S., Kirby, E., & Broom, J. (2021). Knowledge, perceptions and experiences of nurses in antimicrobial optimization or stewardship in the Intensive Care Unit. *Journal of Hospital Infection*, 109, 10–28. <https://doi.org/10.1016/j.jhin.2020.12.003>
- Pickens, C. I., & Wunderink, R. G. (2019). Principles and practice of antibiotic stewardship in the ICU. *Chest*, 156(1), 163–171. <https://doi.org/10.1016/j.chest.2019.01.013>
- Rimawi, R. H., Mazer, M. A., Siraj, D. S., Gooch, M., & Cook, P. P. (2013). Impact of regular collaboration between infectious diseases and critical care practitioners on antimicrobial utilization and patient outcome. *Critical Care Medicine*, 41(9), 2099–2107. <https://doi.org/10.1097/ccm.0b013e31828e9863>
- Steinberg, M., Dresser, L. D., Daneman, N., Smith, O. M., Matte, A., Marinoff, N., Bell, C. M., & Morris, A. M. (2014). A national survey of critical care physicians’ knowledge, attitudes, and perceptions of antimicrobial stewardship programs. *Journal of Intensive Care Medicine*, 31(1), 61–65. <https://doi.org/10.1177/0885066614541922>
- Sutton, R. T., Pincock, D., Baumgart, D. C., Sadowski, D. C., Fedorak, R. N., & Kroeker, K. I. (2020). An overview of clinical decision support systems: Benefits, risks, and strategies for Success. *Npj Digital Medicine*, 3, 17. <https://doi.org/10.1038/s41746-020-0221-y>
- Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated Criteria for Reporting Qualitative Research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*, 19(6), 349–357. <https://doi.org/10.1093/intqhc/mzm042>
- Urquhart, C. (2013). Grounded theory for qualitative research: A practical guide. SAGE publications, Ltd. <https://dx.doi.org/10.4135/9781526402196>



# Extraordinary EVERY DAY



CANADIAN  
ASSOCIATION OF  
CRITICAL  
CARE  
NURSES

## CANADIAN CRITICAL CARE NURSING CONFERENCE 2023

Fredericton Convention Centre, Fredericton, New Brunswick

SEPTEMBER 25 TO 27, 2023

# CRITICAL CARE NURSING ABSTRACTS

The Canadian Critical Care Nursing Conference (CCCNC) is an excellent venue for accomplishing our objectives of providing educational opportunities for critical care nurses, the interprofessional team and those interested in critical care.

The following abstracts represent the Fast & Focussed, Concurrent, Oral Posters and Posters being presented during the Canadian Critical Care Nursing Conference 2023 being held in Fredericton, NB, September 25 to 27, 2023.

## Fast & Focused – 45 minutes

### Beyond the intensive care unit (ICU): Critical care outreach data to inform site wide training to improve early recognition of deteriorating patients

*Sarah Crowe, MN, PMD-NP(F), NP, CNCC(C), Langley, BC*

**Keywords:** deteriorating patients, critical care outreach

**Educational Stream:** Leadership

**Patient Population:** Adult

**Description:** The ability to quickly detect a clinically deteriorating patient and intervene appropriately is a skill nurses are expected to bring into practice, but often struggle with. Critical care outreach, or rapid response teams (RRT), were designed to provide care to deteriorating patients in non-critical care areas of the hospital to help better support staff. This presentation will provide an overview of how critical care outreach data was used to improve patient outcomes by identifying a learning opportunity, creating, and implementing a simulation based educational curriculum. The presentation will also share an evaluation of the education, including the sustainment post implementation.

**Learning Objectives:**

1. Understand how intensive care unit (ICU) outreach response and data collection is used to create a training program to improve critical care outcomes.
2. Describe an overview of a training program aimed to cultivate non-critical care trained staff ability to recognize patient deteriorations earlier to improve patient outcomes.

**Abstract**

The ability to detect a clinically deteriorating patient quickly and reliably and intervene appropriately is a skill nurses are expected to bring into practice, but often struggle with. Early recognition and intervention have been shown to improve patient morbidity and mortality. Critical care outreach, or rapid response teams (RRT), were designed to provide care to deteriorating patients in non-critical care areas of the hospital to help better support staff. The critical care outreach team at a tertiary academic hospital of 650 beds was engaged to help identify gaps in knowledge based on the type of consultation requests they were receiving. Based on this information, an innovative curriculum was created to meet the needs of nurses in non-critical care areas to better prepare them to recognize and manage deteriorating patients. This presentation will provide an overview of how critical care outreach data was used to improve

patient outcomes by identifying a learning opportunity. This presentation will describe the creation and implementation of a simulation based educational curriculum. The presentation will also share the evaluation outcomes of the education, including the sustainment three months post implementation.

### Creation of an escape room to enhance hemodynamic learning: A method to improve patient outcomes

*Heather Przybyl, DNP, RN, CCRN, Goodyear, AZ and Kathleen Przybyl, MSN, RN, CCRN, CCNS, NE-BC, Lansing, IL*

**Keywords:** escape room, education, hemodynamics, staff training

**Educational Stream:** Education

**Patient Population:** Adult

**Description:** Creating innovative education to promote learning and retention of concepts is key in the development of any program. Interpretation and insertion of a pulmonary artery catheter is becoming a high-risk, low-frequency task for the nursing staff. This presentation will share the creation of an escape room to deliver education to bedside staff reports in a fun, engaging, and informative manner, by a multidisciplinary team led by the clinical nurse specialist (CNS).

**Learning Objectives:**

1. Describe an innovative educational tool to promote learning.
2. Understand how an escape room would be beneficial as a potential educational style.
3. Understand the steps to deliver education through the creation of an escape room.
4. Identify how to monitor the success of the escape room.

**Abstract**

A large academic medical centre completed a needs assessment. From the needs assessment, it was determined skill validation for hemodynamics and various shock states was required. To meet these skill requirements, the centre determined an innovative approach was required to provide these skills. This novel approach included the creation of an escape room. Traditionally, an escape room consists of a scenario and a team required to complete various puzzles using clues to “escape” the room. Escape rooms are designed to incorporate teamwork, improve communication skills, and enhance critical thinking. Using adult learning principles, the content was created

# Extraordinary EVERY DAY

using issues identified from staff self-reports of this high-risk, low-volume therapy to be delivered in a fun, engaging, and informative manner. Escape room sessions were 30 to 40 minutes in length, allowing staff to ideally attend sessions while at work. More than 75 participants were divided into groups of up to six and worked through four stations focused on shock states, definitions, treatment, pulmonary artery location during insertion, and hemodynamic set-up. Nurses completed one station, “opened a lock” then moved to the next station. Items in locked boxes provided clues or items necessary for the next station, for example, a blacklight was needed to uncover hidden numbers. Adapting teaching styles and learning environments to meet staff needs enhanced knowledge about subjects requiring validation. Escape rooms can be tailored to meet the needs of many skills, thus creating new and innovative ways to learn while increasing patient safety and nursing satisfaction.

## Deceased organ donation: How legislative change has impacted nursing practice

*Marty Butler, MN, RN, Halifax, NS, Lucie Appleby, BN, RN, Dartmouth, NS and Rhonda Porter, BScN, RN, CNCCP(C), Beaverbank, NS*

**Keywords:** organ, donation, legislation, practice

**Educational Stream:** Clinical Practice

**Patient Population:** All Ages

**Description:** This presentation will introduce nurses to legislative changes in deceased organ donation by introducing the concepts of deemed consent, mandatory referral, and recipient-donor family meetings. The session will explore how these concepts have impacted the clinical practice of critical care RNs, and how these changes have been reflected in the referral and organ donation rates.

### Learning Objectives:

1. Describe legislative changes to deceased organ donation in one Canadian province.
2. Understand nursing practice changes to deceased organ donation within intensive care units (ICUs) and emergency departments (EDs).
3. Analyze key performance indicators for organ donation.
4. Identify barriers and enablers of increasing referral and donation rates.

### Abstract

A Canadian province introduced new organ and tissue donation legislation to increase the supply of deceased donor organs. The legislation is the first in North America to create a deemed consent model, in addition to supporting regionally novel practices like mandatory referral and facilitating recipient-donor family meetings. Deemed consent entails that everyone who is medically eligible for donation has consented to organ and tissue donation unless they have declared their objection through the “opt-out” registry or through conversations with their families. There are exceptions to this rule for youths, some professions, incarcerated individuals, and individuals without decision making capacity. Mandatory referral entails that all patients who meet the defined clinical triggers must be referred to the organ donation organization. For frontline intensive care unit (ICU) and emergency department (ED) nurses, mandatory referral allows nurses to independently make the referral to the organ donation organization. The facilitation of recipient-donor family meetings is performed by the family support liaison and is part of a larger family support program that follows families for a year after the death of their loved one. The impact of the legislative changes is being monitored with three key performance indicators (KPIs) which are the potential organ donor referral rate, consent rate, and organ donor rate (per million). These KPIs have established a baseline for data analysis since the legislative change occurred. Suspected barriers to increasing referral rates include capacity issues and redeployment related to COVID-19, in addition to education gaps related to the identification and referral of potential donors across the province.

## Family centred cardiac arrest care: A practice improving co-design research project

*Matthew Douma, MN, RN, ENC(C), CNCC(C), CCN(C), Edmonton, AB*

**Keywords:** participation, cardiac arrest, family centred

**Educational Stream:** Research

**Patient Population:** All Ages

**Description:** This presentation will provide an overview of a program of research completed with cardiac arrest survivors and family co-researchers and collaborators. The program’s goal is to identify the care needs of families experiencing the cardiac arrest of a loved one and provide tangible strategies for meeting those care needs. This presentation will share discoveries, co-designed treatment recommendations, and low-cost/high-impact strategies for improving the family centredness of cardiac arrest care. This presentation will also provide a summary of new knowledge, insights into family experiences, as well as low-, medium-, and high-resource strategies for providing family centred cardiac arrest care.

**Learning Objectives:**

1. Identify families' priority care needs before, during, and after a cardiac arrest.
2. Explain the experience of cardiac arrest from a family's perspective.
3. Explain low cost and high impact family centred cardiac arrest care practices.
4. Demonstrate an understanding of the role of nursing staff in improving family outcomes from cardiac arrest.

**Abstract**

The Family Centred Cardiac Arrest Care project is an applied and participatory practice improving research program that uses co-design methods. What this means is the full partnership of cardiac arrest survivors and the families of survivors and non-survivors alike to i) understand the care needs of families experiencing cardiac arrest, and ii) to provide tangible and easily implementable strategies for meeting family care needs. This is important, as one in five close family members of a sudden cardiac arrest victim experience prolonged grief, trauma, depression, and anxiety often regardless of patient outcome. Furthermore, families describe their uncertainty, conflict with staff, and perceived abandonment at discharge to be further traumatizing. Nurses are well positioned, whether it be at the bedside, as educators, nurse specialists, managers, or administrators to have a significant impact on the experience of families. Starting with a 2019 research priority setting exercise, re-inforced by a 2020 American Heart Scientific Statement, and funded by local and international funding agencies, this research is high impact in the fields of resuscitation science, as well as patient and family centred care. Research outputs, completed with survivors and co-survivors as researcher partners, include a scoping review and conceptual framework development, a systematic review and meta-synthesis including treatment recommendations, qualitative document analyses, and in-depth interview studies. Co-design outputs include family centred cardiac arrest care algorithms, digital storyboards, touchpoint maps, policy and procedure templates, and toolkits.

## Family members' experiences of multidisciplinary rounds in an adult intensive care unit (ICU)

*Tannis Sidloski, BN, RN, CNCC(C); Marie Edwards, PhD, RN, Donna Martin, PhD, RN, and Kendiss Olafson, MD, FRCPC, MPH, Winnipeg, MB*

**Keywords:** family, participation, adult, multidisciplinary rounds

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** The participation of family members in adult multidisciplinary rounds is a recently accepted practice in some centres. With a qualitative interpretive description approach, seven family members of critically ill patients in one adult intensive care unit (ICU) were individually interviewed

about their experiences of participating in multidisciplinary rounds. Participants spoke about their desire to be prepared to participate in rounds, including what types of questions to ask, and the value of being present at rounds, how it made them feel and what they learned from and offered to the healthcare team about the critically ill patient. In this presentation, recommendations for family inclusion and participation will be discussed.

**Learning Objectives:**

1. Explain the importance of family participation in multidisciplinary rounds.
2. Understand the needs of family members of critically ill individuals.
3. Discuss recommendations for family inclusion and participation in multidisciplinary rounds.

**Abstract**

The participation of family members in multidisciplinary rounds has been accepted practice in many paediatric and neonatal intensive care units (PICUs, NICUs), but the idea of including family members in rounds in adult intensive care units (ICUs) is more recent. Using a qualitative interpretive description approach, seven family members of critically ill patients in one adult ICU in western Canada were individually interviewed by phone about their experiences of participating in multidisciplinary rounds. Data analysis involved line-by-line review of the interview transcripts to identify common words and phrases used by participants, comparing, and contrasting the stories participants told about their experiences, examining notes recorded in the primary researcher's reflective journal after each interview, and searching for patterns in the data. Through this process, three themes were identified: 1) finding your footing – learning how to participate in multidisciplinary rounds; 2) part of the team – feeling included through participation in multidisciplinary rounds; and 3) in the know – the benefits of sharing information in multidisciplinary rounds. Participants spoke about their desire to be prepared to participate in rounds, including what types of questions to ask, and the value of being present at rounds, in terms of how it made them feel and what they learned from and offered to the healthcare team about the critically ill patient. Recommendations will be discussed for continuing staff education, orientation for families to the ICU and rounds, the use of checklists and daily goals sheets in multidisciplinary rounds, and future studies on both in-person and virtual participation in multidisciplinary rounds.

## ABSTRACTS

# Extraordinary EVERY DAY

## H's and T's to workplace happiness in nursing

Chantel Glenn, RN, London, ON

**Keywords:** job satisfaction, competency

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** This presentation will start the conversation about what elements aid in creating the ideal workplace environment for nurses who work in healthcare. The session will bring light to the relevance of having an atmosphere that is deemed healthy and non-toxic and will outline various ways a workplace setting can become a positive environment to work in for nurses. A literature-based list similarly outlined in ACLS H's and T's format will be shared regarding ways to encourage a positive workplace for nurses. Finally, attendees will be led by the presenter in a discussion to outline strategies, potential solutions as well as gaps faced with tackling this healthcare crisis.

### Learning Objectives:

1. Define the fundamental needs nurses require to improve overall workplace satisfaction.
2. Assess the needs of nurses in order to provide optimal care.

### Abstract

During the last few years, nurses have had an increase in workload stressors, causing more nurses to re-evaluate if a career in nursing is truly their calling. The nursing profession as a whole is on life support. Immense amounts of responsibility, combined with a toxic work atmosphere, have nurses' morale and job satisfaction at a crushing low. These factors have been mentioned frequently in literature to negatively impact personal and organizational outcomes. Nurses are the largest group of regulated health professionals in Canada, as such, it is imperative to discover solutions to mitigate and lessen the effects of discontent in this field.

## High-acuity nursing programs (HANP) as a prerequisite for critical care: Developing extraordinary future critical care nurses

Samantha McWilliams, MScN, RN, CNCC(C), Amherst, NS

**Keywords:** high acuity, critical care, education

**Educational Stream:** Education

**Patient Population:** Adult

**Description:** This presentation will explore the implementation of high-acuity nursing programs (HANP) that will serve as a prerequisite for critical care nursing programs (CCNP). Training and educating nurses at the high acuity (HA) level will allow for scaffolding of knowledge, skills, and abilities in addition to meeting competencies that are required in both HA and critical care (CC) areas. The knowledge and skills developed in these prerequisite programs would allow for nurses to care for higher acuity patients in HA units, which will serve as a steppingstone to transitioning to CC in the future.

### Learning Objectives:

1. Understand the difference between High Acuity Care (HACs) Units and Intensive Care Units (ICUs).
2. Demonstrate how high acuity nursing programs (HANP) would reduce workload from current Critical Care Nursing Programs.
3. Understand the difference between the nursing roles in HAC areas and ICUs.
4. Explore an educational model to meet the needs of critical care nurses.
5. Explore the benefits of the educational model in meeting the needs of critical care nurses.

### Abstract:

The rise in complexity and acuity of patients continues to place pressure on intensive care units (ICUs), which are often over capacity and experience staffing shortages, impacting care for critically ill patients. The concept of high-acuity (HA) units has gained momentum in attempts to offload ICU pressures by accepting 'low-risk ICU patients.' The goal of these units is to bridge the gap between general wards and ICUs when patient acuity is between the two levels of care. High-acuity nursing programs (HANPs) prepare nurses to work in HA units and should be considered a prerequisite for critical care nursing programs (CCNPs). Critical care nurses require an advanced level of knowledge, skills, and abilities to care for critically ill patients. It can be challenging to prepare nurses to work in these environments due to patient complexities and the non-linear learning that accompanies critical care. Having HANPs as a prerequisite for CCNPs will serve as a method of scaffolding the KSAs required to care for critically ill patients. After completing the HANP, nurses will be afforded the opportunity to work in HA units to integrate the KSAs obtained from the program into caring for acutely ill patients. The goal would be for these same nurses to enroll in CCNPs in the future where they can continue to build upon their HA experience, KSAs and to transition to ICU more gradually. Additionally, prerequisite HANPs could condense CCNPs in duration, content, skills, and clinical shifts. This new model would assist in ensuring nurses entering ICUs feel adequately prepared to care for our most vulnerable patient population.

## **“I don’t think we’re in Kansas anymore”: Follow the yellow brick road of our journey through the implementation of electronic nursing documentation, in an adult critical care program**

*Kendrah Krouskos, BScN, RN, CNCC(C) and Donna Simpson, BScN, RN, London, ON*

**Keywords:** documentation, electronic health record, nursing

**Educational Stream:** Education

**Patient Population / Population de patients:** All Ages

**Description:** This presentation will share the lived experience of development, implementation, and education strategies for the launch of critical care electronic nursing documentation during the height of the pandemic. Focus on the current strategies for continued education and collaboration with clinical informatics, front-line staff, and content experts for future optimization of critical care nursing documentation will be discussed. Sharing this experience will support the efforts of clinicians at other organizations who are embarking on their own journey of implementing the electronic nursing documentation in critical care.

### **Learning Objectives:**

1. Describe the lessons learned during electronic nursing documentation implementation.
2. Understand future plans for continued optimization of the electronic system to support documentation practices for nurses.

### **Abstract**

A healthcare organization in Ontario began its electronic health record (EHR) implementation journey in 2014. Critical care was one of the remaining in-patient clinical areas to go live with nursing documentation when it was successfully launched mid-pandemic six years later. Electronic laboratory, medical imaging, order-entry, and medication administration records (MAR) had already been implemented. This presentation will describe the journey beginning with the development phase that integrated the expertise of stakeholders, front-line nurses, and regional partners in the development of a common language for documentation. Included will be the exploration of the various strategies used, and discussion of the successes and limitations, including the challenges associated with implementation during a pandemic. Lessons learned from the launch of electronic nursing documentation, and exploration of ways to continue to collaborate with clinical informatics, content experts, and front-line staff to optimize our electronic health record will be shared.

## **In hospital cardiac arrest - What is on the guideline horizon**

*Matthew Douma, MN, RN, ENC(C), CNCC(C), CCN(C), Edmonton, AB*

**Keywords:** cardiac arrest, resuscitation, rapid response

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** Interested in improving outcomes from cardiac arrest in your hospital? Do you want to know what treatment recommendations are on the horizon? Do you want to understand the rationale behind the algorithms? This session will provide a sneak peak into the science informing the 2025 advanced and basic cardiac life support guidelines, as well as the upcoming in hospital cardiac arrest scientific statement.

**Pre-requisites:** Having knowledge of basic cardiac life support (BCLS) is required, advanced cardiac life support (ACLS) is preferred, and knowledge of code blue program operations is ideal.

### **Learning Objectives:**

1. Understand the key factors for improving survival from in hospital cardiac arrest.
2. Describe what makes hospitals with the highest cardiac arrest survival different from the hospitals with lower survival.
3. Recognize personal, unit-level and hospital-level strategies for improving cardiac arrest care.

### **Abstract**

This presentation provides an overview of the highest impact research in the world of resuscitation, as well as noteworthy hidden gems. This presentation will give attendees a glimpse into what goes into the basic cardiac life support (BCLS) and advanced cardiac life support (ACLS) guidelines and the scientific statements that determine the operational priorities and quality indicators for in-hospital resuscitation. Main topics to be addressed include methods for improving the prevention of deterioration, improving early recognition and response, and improving code blue team operations. Furthermore, deep dives into the practices of the highest performing cardiac arrest care centres in the world will be unpacked. Trends in resuscitation such as mechanical compression devices, family centredness, debriefing, psychological support, accreditation, and mandatory reporting will also be discussed.

## **ABSTRACTS**

# Extraordinary EVERY DAY

## Keeping a safe pace: Temporary VVI pacing

Ian Dashmay, BScN, BSc Biology, RN, CNCC(C) and Sheila Hunt, BScN, RN, London, ON

**Keywords:** transvenous, pace making, VVI

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** This presentation is designed to review VVI pacing concepts as they relate to the assessment and care of patients with temporary transvenous pacemakers. Potential pacing problems that can occur will be presented, as well as associated troubleshooting. Strategies to enhance proficiency and deal with changing products will also be discussed.

**Pre-requisites:** Basic electrocardiogram (ECG) interpretation

### Learning Objectives:

1. Assess transvenous pacing equipment and securement.
2. Analyze electrocardiogram (ECG) rhythm strips for failure to pace, failure to capture, failure to sense and oversensing.
3. Identify strategies to deal with product changes.

### Abstract:

Several clinical situations may require temporary ventricular pacing: symptomatic bradycardia not responsive to pharmacology, third degree heart block, or to provide overdrive pacing for recurrent tachyarrhythmias. Transvenous pacing provides a more reliable and comfortable method for pacing and is often started as a transition from transcutaneous pacing. Rigid transvenous pacing wires can be inserted with radiologic guidance or balloon tipped wires can be floated into the right ventricle through a venous introducer. Once the wire is established, it is important that bedside nurses assess the equipment (introducer, pacemaker wire and pins, protective sleeve, locking or wire securement method, cable, pacemaker generator) and examine pacing function. To do this, nurses require an understanding of the principles of VVI pacing in order to ensure that they can correctly identify pacemaker function and identify when a problem exists that requires intervention. During this session, participants will be able to examine pacemaker wires and pulse generators. Normal pacing and capture will be examined, and troubleshooting for failure to pace, failure to capture, failure to sense, and oversensing will be reviewed. Equipment available from institution to institution and/or supply chain challenges can lead to variability in available product. This can leave nursing and physician staff with unfamiliar components. During this session strategies to support education and communication of new products will be shared. Case studies with electrocardiogram (ECG) strips will be used to support the content.

## L'évaluation non-invasive de la volémie en contexte de choc distributif : Une étude de cas

Emilie Collins, BN, RN, North Tetagouche, NB, Marie-Michelle Roy, RN, South Tetagouche, NB and Monica Lavigne, BN, RN, Sormany, NB

**Mot clés :** choc distributif, surveillance hémodynamique non invasive, gestion volémique

**Volet éducatif :** Pratique clinique

**Population de patients :** Adultes

**Description :** L'administration de liquide intraveineux peut améliorer le statut hémodynamique d'un patient atteint de choc distributif. Cependant, cela n'est pas toujours le cas. En fait, presque la moitié de ces patients n'obtiendront pas l'augmentation du débit cardiaque et du volume d'éjection systolique désirée, à la suite de l'administration d'un volume de remplissage liquidien. De plus, une surcharge volémique peut poser des risques aux patients en augmentant le temps d'hospitalisation et la mortalité.

**Éléments prérequis :** Une connaissance de base des principes de surveillance hémodynamique et des notions générales du choc distributif.

### Objectifs d'apprentissage :

1. Identifier les avantages et les inconvénients des différentes modalités de prise en charge thérapeutique visant à traiter la composante hémodynamique d'un choc distributif.
2. Connaître sommairement les méthodes d'évaluation hémodynamique ainsi que leurs avantages et inconvénients.
3. Appliquer les principes d'évaluation hémodynamique non-invasive dans la prise en charge thérapeutique du choc distributif.

### Résumé

L'utilisation complémentaire de vasopresseur et de solution cristalloïde permet d'améliorer le profil hémodynamique des patients en état de choc distributif. La connaissance des paramètres cliniques à évaluer ainsi que des avantages et inconvénients des modalités thérapeutiques courantes s'avère essentielle. Puisque la surcharge volémique peut amener à de résultats de santé défavorables, un plan thérapeutique fondé sur une évaluation judicieuse du statut hémodynamique est idéal. L'administration prudente de vasopresseurs doit également être considérée. Pour y parvenir, diverses techniques d'évaluation peuvent être considérées, dépendamment des outils disponibles et de la condition clinique du patient. L'emploi d'un instrument de mesure volémique non-invasif dans la gestion thérapeutique peut favoriser l'amélioration rapide et ciblée du statut hémodynamique. Cela sera démontré par une étude de cas.



## Le sevrage de la ventilation mécanique (SVM) : la contribution des infirmières dans l'équipe interprofessionnelle

Lysane Paquette, PhD, RN, St-Jérôme, QC and Kelley Kilpatrick, RN, Montréal, QC

**Mot clés :** équipe interprofessionnelle, infirmière, rôle, sevrage de la ventilation mécanique (SVM).

**Volet éducatif :** Recherche

**Population de patients :** Adultes

**Description :** Dans le cadre d'un projet de recherche sur la mise en œuvre du rôle des infirmières lors du sevrage de la ventilation mécanique (SVM), il a été mis en évidence l'importance de leur contribution au fonctionnement de l'équipe interprofessionnelle. L'objectif de la présentation est de partager ces résultats et d'offrir des solutions pour optimiser le rôle des infirmières et d'améliorer le fonctionnement de l'équipe en situation de sevrage de la ventilation mécanique, telles que l'utilisation d'un protocole, les réunions d'équipe, de la formation spécifique.

**Objectifs d'apprentissage :**

1. Identifier des lacunes et des forces dans le fonctionnement des équipes interprofessionnelles aux soins intensifs.
2. Reconnaître de quelle façon en tant qu'infirmier/ière ils/elles peuvent participer aux différents processus d'équipe (p.ex., la communication, la prise de décisions, etc).
3. Comprendre comment ils/elles peuvent déployer leur rôle dans l'équipe lors du sevrage de la ventilation mécanique.

**Résumé**

**Problématique :** Le processus du sevrage de la ventilation mécanique (SVM) nécessite un travail concerté des infirmières avec différents professionnels dont les champs d'exercice se juxtaposent. But : Décrire la contribution des infirmières au fonctionnement des équipes interprofessionnelles lors du SVM.

**Méthodes :** Une étude de cas multiples avec méthodes mixtes dans deux USI a été réalisée. Un questionnaire auto rapporté sur le fonctionnement des équipes (alpha de Cronbach : 0,72 à 0,90) a été distribué aux infirmières, inhalothérapeutes et intensivistes (ntotal = 102), des entrevues (ntotal = 49), des observations et des interactions (ntotal = 16 heures) lors du SVM ont été effectuées. Des analyses statistiques descriptives pour le questionnaire, de contenu pour les entrevues et des sommes pour les interactions ont été effectuées. Les résultats des différentes sources ont été comparés, amalgamés puis intégrés.

**Résultats :** Le fonctionnement des équipes lors du SVM est modérément positif. Les infirmières ne s'impliquent pas de façon optimale dans les interactions (p.ex. : poser des questions, diriger). La communication est le processus le plus faible. La clarté de rôle et l'emphase sur le patient influencent positivement le fonctionnement de l'équipe. Les membres des équipes négocient leur rôle autour d'objets de frontières comme le respirateur.

**Implications :** Le travail d'articulation constitue la principale contribution des infirmières aux processus d'équipe lors du SVM. Une relation réciproque prédomine entre le fonctionnement de l'équipe et les rôles infirmiers. L'utilisation d'un protocole, les réunions d'équipe, la formation sur le SVM facilitent le fonctionnement de l'équipe.

## A narrative literature review of patient- and family-centred care in adult intensive care units (ICU): Where we are, and we must go

Bethany Trotter, BScN, RN, CNCC(C), CCN(C), Calgary AB

**Keywords:** evidence-based practice; family; patient-centered care; intensive care; critical care

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** Explaining critical illness to family members of a patient admitted to an intensive care unit (ICU) is a sensitive and challenging duty for nurses. This literature review shows that patients and families consistently report receiving inadequate communication. Various methods have been proposed to improve patient and family-centred care with mixed results. This presentation will review the current literature to discuss the challenges and opportunities of patient and family-centred care in adult ICUs.

**Learning Objectives:**

1. Identify challenges and barriers to effective communication and patient and family-centred care in adult intensive care units (ICUs).
2. Identify the short- and long-term effects of poor communication with patients and families.
3. Understand the various evidence-based approaches to improve patient and family-centred care.

**Abstract**

Explaining critical illness to family members of a patient admitted to an intensive care unit (ICU) is a sensitive and challenging duty for nurses and the entire multidisciplinary team. This literature review aimed to assess the barriers, challenges, and approaches to improving patient and family-centred care (PFCC) in adult ICUs. A narrative approach was taken for this literature review, including qualitative and quantitative studies. The search strategy for published peer-reviewed research papers was limited to those in the English language from 2000 – present. The literature search was carried out in three databases: PubMed, CINAHL, and Cochrane Library, using keywords “patient and family-centred care,” “adult,” “intensive care unit,” “communication,” and “expectations.” Appropriate studies were reviewed, and suitable studies in reference lists that did not appear in the initial database search were also

ABSTRACTS

# Extraordinary EVERY DAY

included. Literature shows that families often report receiving inadequate communication from critical care staff. Patients and families report poor satisfaction with communication and decision-making. Research also shows that poor communication can contribute to stress, anxiety, and even post-traumatic stress disorder in patients' families. Recommendations and strategies for improving PFCC include increasing family presence in rounds and resuscitations, routine family conferences, having a nurse liaison, formal unit tours, brochures, and communication training. PFCC is a cornerstone of healthcare, with extensive evidence supporting positive outcomes, and yet the ICU environment faces unique challenges in implementing these practices. A systematic literature review and further research should be completed to understand the barriers and approaches to overcoming the challenges.

## Nurse-led quality improvement (QI) project decreasing delirium using electroencephalogram (pEEG) monitors to guide titration of intravenous (IV) sedation in ventilated patients

Fiona Howarth, BA BScN RN, Abbotsford, BC

**Keywords:** delirium, sedation, neurological monitoring, ventilated, quality improvement (QI)

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** This session will provide information on a quality improvement (QI) project. Intravenous (IV) sedative medications in ventilated patients (Midazolam and Propofol) are subjectively titrated by registered nurses (RNs) using observation scales, such as the Richmond Agitation-Sedation Scale (RASS). Although the RASS is a valid and reliable tool, there is a great deal of subjectivity to the titration of sedation that can result in over-sedation. This project entailed utilizing processed electroencephalogram monitors (pEEG) for RNs to guide the titration of IV sedation in ventilated patients. This resulted in a reduction in the occurrence of delirium by 64% and decreased ventilated days by 36%.

### Learning Objectives:

1. Describe the impact of over sedation in the intensive care unit (ICU).
2. Describe how electroencephalogram (pEEG) monitors can safely guide sedation.
3. Identify appropriate patients for pEEG monitoring.
4. Describe how fluctuations in sedation can lead to delirium.

### Abstract

This registered nurse (RN) led quality improvement (QI) project aimed at decreasing delirium in ventilated patients in the intensive care unit (ICU). ICU RNs screen for delirium every four hours using the Intensive Care Delirium Screening Checklist (ICDSC), in which a score of 4 is positive for delirium. The Richmond Agitation-Sedation Scale (RASS) and sedative ranges ordered by intensivists allows RNs the ability to make subjective decisions about how much sedation to administer to patients to meet their defined clinical goals. Historically, patients are over-sedated, which has downstream consequences of increased rates of delirium, increased days on a ventilator, and increased days in the ICU. Closely monitored clinical trials showed that when using observational scales alone, patients were at the target level of sedation, on average, only 69% of the time. This project used *electroencephalography* (pEEG) to titrate sedation, in addition to the gold standard observational scales. The pEEG monitor gives RNs a quantifiable measurement to target sedation. By using these monitors to guide sedation, delirium was reduced by 64% and ventilator days were reduced by 36%. Importantly, there were no adverse outcomes related to decreasing sedation in the pEEG group; no self-extubation or worsening of clinical status were noted. Continuous pEEG monitoring eliminated over sedation at night, which led to increased spontaneous awakening trials (SATs) and spontaneous breathing trials (SBTs) in the mornings. Application of the pEEG monitors led to the realization that patients who were sedated utilizing RASS alone were more deeply sedated than what was clinically required. Patients were often sedated to burst suppression (inactivated brain state), which is associated with increased morbidity and mortality.

## OB oh my: Using simulation to increase comfort of new and experienced critical care nurses when caring for obstetrical patients

Rebecca Park, BScN, RN, Sarnia, ON and Tiffany Dubreuil, RN, London, ON

**Keywords:** obstetrics, simulation, education, HALO

**Educational Stream:** Education

**Patient Population:** Adult

**Description:** This presentation will examine the use of obstetrical simulation scenarios with new critical care nurses, as part of the critical care orientation program, and drop-in education sessions for experienced critical care nurses. The use of simulation to enhance classroom learning and increase comfort in high acuity low occurrence (HALO) situations has been supported by evidence to increase participants reported comfort level. Attend this session to discuss the value of simulation-based learning, review examples of patient scenarios used, and reflect on the successes and areas for growth.

### Learning Objectives:

1. Describe how simulation can enhance the learners experience of content presented in the classroom.
2. Identify how participation in simulation surrounding high acuity, low occurrence situations (HALO), can increase the comfort of critical care nurses.
3. Understand the high-risk obstetrical patient simulation scenarios used to enhance the learning experience.
4. Understand how post simulation evaluation feedback can guide future learning opportunities.

### Abstract

Managing critically ill obstetric patients is a high-acuity, low-occurrence (HALO) event in many adult critical care units. The infrequency of encountering these patients and the high stakes, leaves nurses feeling anxious and overwhelmed. The use of high-fidelity simulation can help to consolidate classroom learning for new critical care nurses and can improve confidence among experienced critical care nurses. This session will discuss the benefits of integrating high-fidelity simulation with classroom-based education for the management of the critically ill obstetrical patient. Explore the simulation scenarios, developed by the educator team, for the management of an unexpected spontaneous delivery, a post-partum hemorrhage, and a CODE OB (cardiac arrest in a pregnant patient). Strategies for creating realistic simulation and the strengths of this method for both new and experienced participants will be shared. The role of structured debriefing, hands-on experience and collaborative learning will be illustrated. Tips to enhance the safety and value of the simulation experience will be discussed, and lessons-learned will be reviewed.

## Preventing confusion in the critical care setting: Using simulation to inspire, develop, and empower nurses

Gaelen Armstrong, BScN, RN, Brockville, ON and Daniel Roy, RN, Seeley's Bay, ON

**Keywords:** simulation, engagement, competency, budget

**Educational Stream:** Education

**Patient Population:** Adult

**Description:** With many critical care units experiencing significant health human resource challenges, coupled with experienced critical care nurses either retiring or moving to other areas, there is a significant need for ongoing education and training to ensure safe patient care. This presentation will explore the experiences of a rural community hospital and the journey towards developing a clinical simulation program for the critical care team using limited resources to help improve education needs for staff, as well as increase staff satisfaction in the workplace.

### Learning Objectives:

1. Describe the implementation of a simulation program with a minimal budget and limited resources.
2. Describe team or individual learning needs to build simulation experiences reflecting current skill gaps.
3. Describe how simulation can increase team engagement in the learning process, increase staff satisfaction, and provide an effective tool for assessing ongoing competency.

### Abstract

The theoretical-practical gap is a well-documented phenomenon evident not only in academia, but also continues throughout the nursing career. Whether teaching a student an unfamiliar skill or refreshing a seasoned nurse on a skill not used for an extended period, simulation is highly effective in engaging learners and assessing competency. This didactic approach to teaching has demonstrated an increase in knowledge, confidence, and practical skill (Parry & Fey, 2019). It is well documented that the number of experienced critical care nurses working in intensive care units is on the decline (CCSO, 2022). This speaks to a clear need for ongoing dynamic education and learning opportunities to support nurses in critical care. With high-fidelity simulators costing anywhere from \$70,000 to \$100,000, simulation can appear unattainable. However, simulation can be done on a minimal budget and still achieve the same learning outcomes and performance development. Team simulation can even improve staff satisfaction by creating a safe learning environment and encouraging comradery through shared experiences (Leclair et al., 2018). This session will outline how a rural hospital implemented simulation experiences for critical care nurses with available resources. This included finding space, utilizing ICU supplies and equipment, borrowing biomed calibration equipment, and piecing together a variety of simulators including a basic life support (BLS) mannequin, and dated cardiac rhythm and lung sound simulators. Despite the amateur approach, the tactile experience and open discussion forum created an environment free of judgment that engaged the staff in practicing new or infrequently used critical care skills and provided opportunity for competency assessment.

## REFERENCES

- Critical Care Services Ontario (CCSO), (2022). *Critical Care 2.0: Renewal of Perspectives & Priorities*. Town Hall Meeting Ontario Health East Region, June 13, 2022
- Leclair, L. W., Dawson, M., Howe, A., Hale, S., Zelman, E., Clouser, R., Garrison, G., & Allen, G. (2018). A longitudinal interprofessional simulation curriculum for critical care teams: Exploring successes and challenges. *Journal of Interprofessional Care*, 32(3), 386–390. <https://doi-org.stlawrence.idm.oclc.org/10.1080/13561820.2017.1405920>
- Parry, M., & Fey, M. K. (2019). Simulation in Advanced Practice Nursing. *Clinical Simulation in Nursing*, 26, 1-2. <https://www.nursingsimulation.org/action/showPdf?pii=S1876-1399%2818%2930295-0>

## ABSTRACTS

# Extraordinary EVERY DAY

## Rapid Assessment of Critical Events (RACE) team in a rural hospital setting: Program development, implementation, and evaluation

Brad Joosse, BScN, RN, Harley, ON, Marianne Rowland, RN, Thorndale, ON and Paula North, BScN, RN, Otterville, ON

**Keywords:** Rapid response, RRT, Rapid Assessments of Critical Events (RACE), telemetry, human health resources, education

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** This presentation will discuss the formation of a nurse-led rapid response team (RRT) in a 170-bed rural hospital without additional provincial funding. Benefits to patient outcomes, telemetry monitoring, intensive care unit (ICU) staffing and patient flow will be discussed. The presentation will also include a strategy to defer transfers from inpatient nursing units to the ICU while incorporating education of inpatient staff on management of deteriorating patients.

### Learning Objectives:

1. Explain the successes of the Rapid Response Team (RRT).
2. Outline intensive care unit (ICU) workflows and reduction of transfers from medical units to ICU.
3. Compare pre and post Rapid Assessments of Critical Events (RACE) team implementation metrics.

### Abstract

Rapid response teams (RTT) have been shown to improve the timely implementation of treatment for deteriorating patients. A 170-bed rural hospital introduced a rapid assessments of critical events (RACE) team in 2022, as wave four (4) of the coronavirus (COVID-19) pandemic was winding down and intensive care unit (ICU) staffing stabilized. The goal was to provide support and education to inpatient nursing staff, increase the staffing complement by one registered nurse (RN), and add a dedicated nurse to monitor our complement of remote telemetry units. Training staff to be "RACE Certified" started late Autumn 2021 and complete implementation of the nurse-led rapid response team was achieved by February 2022. Senior team members supported a self-funded model based on key performance indicators and improved overall patient care. The key performance indicators impacted were reduced patient transfers to ICU, decreased cardio-respiratory arrests in inpatient units, and improved nursing staff education for both ICU and medical/surgical nurses. One challenge that was identified was the feasibility of maintaining the RACE team during periods of staffing challenges. To meet this challenge, a primary RACE response team was created to provide education, guidance, and direction to ward nurses over the phone if the RACE nurses were not available to attend in person. This helped to maintain availabilities even during periods of staffing shortages.

## Searching for hope after the storm: Exploration of a workplace reintegration program for nurses after operational stress injury (OSI)

Elly O'Greysik, RN, Edmonton, AB, Brenda Juby, MScN, RN, Thornbury, ON, Chelsea Jones, OT, Edmonton, AB, Suzette Brémault-Phillips, PhD, Edmonton, AB, Shaylee Spencer, Edmonton, AB, Michelle Vincent, Minett, ON, Colleen Mooney, Edmonton, AB and Lorraine Smith-MacDonald, Edmonton, AB

**Keywords:** workplace reintegration, operational stress injury, mental health, trauma, return-to-work

**Educational Stream:** Research

**Patient Population:** All Ages

**Description:** Nurses are exposed to potentially psychologically traumatic events, which can cause operational stress injuries (OSI). This can contribute to nurses requiring time off work or leaving the profession which exacerbates current human resource challenges. This presentation will describe the need for workplace reintegration practices for nurses with OSIs, present a workplace reintegration program that may be contextualized for nurses, and discuss results of ongoing studies on return-to-work and nurses. This research includes a scoping literature review and qualitative thematic analysis. Recommendations for the implementation, contextualization, and adaptation of the reintegration program for nurses will also be presented.

### Learning Objectives:

1. Identify operational stress injuries (OSIs).
2. Understand nurses experiences with OSIs which could lead to time off work or exiting the profession.
3. Explain the importance of evidence-based workplace reintegration practices for nurses with mental health challenges.
4. Understand how a workplace reintegration program may assist nurses returning to work after a mental health challenge.

### Abstract

Nurses are at risk of operational stress injuries (OSI), which can result in staff requiring time away from work. Unsuccessful return-to-work (RTW) processes can be career limiting for nurses and contribute to an exodus of human capital within healthcare systems. Despite this, literature on the RTW processes of nurses is scarce. An existing workplace reintegration program (RP), originally developed for police officers, may hold potential for improved workplace reintegration outcomes for nurses who have been off work due to OSI; however, more investigation is required prior to implementation efforts. The objective of this presentation is to present a scoping literature review regarding the current evidence and state of work reintegration policies, practices, and procedures for nurses who have experienced OSIs and to explore the perceived need, potential adaptation, contextualization, and implementation of an existing RP for critical care nurses. Audiences will be engaged through theoretical review of current evidence and study results via a variety of teaching and learning strategies with video and

a case study. Research methods included the PRISMA guided scoping literature review, and qualitative thematic analysis of interviews (n=7) and focus groups (n=12) with nurses working in urban centers. Six manuscripts were identified through the scoping review. Thematic analysis identified three themes regarding the current state of return-to-work, needs of a RP, and hope for the future. Looking forward it is imperative that research focuses on understanding the experiences of nurses during workplace reintegration. Further advocacy is needed to assist nurses with improving workplace reintegration and outcomes.

## Sepsis and septic shock. Best practice nursing care management

Myriam Breau, MSN, RN, and Ann Rhéaume-Brüning, PhD, RN, Moncton, NB

**Keywords:** sepsis, septic shock, best practices

**Educational Stream:** Education

**Patient Population:** Adult

**Description:** This presentation will focus on septic shock and how intensive care unit (ICU) nurses can rapidly detect it and increase patient survival. Given their omnipresence, nurses are well positioned to deliver timely and evidence-based care to septic patients. The latest Surviving Sepsis 2021 Campaign Guidelines (Society of Critical Care Medicine, 2021) will be outlined including ICU impact on long-term care. A review of recommendations, changes, an update of the 2021 guidelines will be presented. A discussion on routine screening and early recognition will be included. Discrepancies between the guidelines and your practice will also be explored.

### Learning Objectives:

1. Distinguish criteria for infection, sepsis, and septic shock.
2. Understand the latest update on the sepsis guidelines relating to nursing care.
3. Understand routine screening and early recognition.
4. Understand discrepancies between the guidelines and individual practice settings.

### Abstract

A review of sepsis and septic shock is proposed. This session will present autonomous and collaborative nursing interventions that are relevant for intensive care unit (ICU) nurses in the continuum of care of sepsis. Best practices elaborated by the Surviving Sepsis Campaign 2021 Guidelines with a focus on long-term care will be shared. Comparison of current sepsis management with the updated guidelines will also be explored.

## REFERENCES

Society of Critical Care Medicine. (2021, October 4). Surviving Sepsis Campaign Guidelines 2021. <https://www.sccm.org/Clinical-Resources/Guidelines/Guidelines/Surviving-Sepsis-Guidelines-2021>

## Spot the critically ill child! The use of rapid response teams (RRT) in paediatric centres

Alexandra O'Hanley, BScN, RN, Kurt Brothers, BScN, RN and Marie-Dominique Leger, RN, Halifax, NS

**Keywords:** paediatric, high-flow, intensive care, rapid response

**Educational Stream:** Clinical Practice

**Patient Population:** Paediatric

**Description:** This presentation will introduce nurses to the use of specialized rapid response care teams (RRTs) in paediatric centres. The session will also discuss the benefits and challenges of implementing a paediatric RRT and will review current practice around using high-flow nasal cannula on general paediatric wards. Discussion will include RRT use in helping to identify early warning signs and the prevention of deterioration in the paediatric patient through data and case studies. There will be a particular emphasis on rapid response activations of respiratory patients.

**Pre-requisites:** Basic understanding of paediatric vital signs.

### Learning Objectives:

1. Describe early warning signs of clinical deterioration.
2. Describe the role of a specialized paediatric outreach team nurse.
3. Identify the roles of specialized paediatric outreach team members.
4. Identify the benefits and challenges of implementing a rapid response team (RRT) in a paediatric centre.

### Abstract / Résumé

In an effort to provide early detection of deteriorating patients and intervene at an appropriate time, Rapid response teams (RRT) have become a core element of critical care. Although rare, inpatient, and out of hospital arrests in the paediatric population have a high mortality rate. By implementing RRTs, they are able to assess patients for possible intensive care, and also provide suggestions to stabilize the patient while having them remain on the inpatient ward. This team can also be used to prevent re-admissions to the intensive care unit (ICU) by following patients upon discharge to the ward. During viral respiratory season, RRTs are often activated for patients requiring a higher level of care. The use of high-flow nasal cannula in the bronchiolitic patient population is common; however, increased use of this therapy can cause over-admissions to ICUs. This can be prevented by initiating high-flow oxygen early on the inpatient paediatric ward. This plan of care is still a newer concept for inpatient wards. By implementing a specialized paediatric outreach team, the inpatient wards will be able to have support in managing these specific paediatric patients.

ABSTRACTS

# Extraordinary EVERY DAY

## Supporting travel nurse orientation in a rural intensive care unit setting

Kelly Bellamon, RN, CNCC(C) and Taylor (Helen) Kerr, MN, RN, Yarmouth, NS

**Keywords:** orientation, travel nursing, rural nursing

**Educational Stream:** Education

**Patient Population:** All Ages

**Description:** Maintaining adequate staffing in a rural intensive care unit (ICU) has been a longstanding challenge. Over the past two years, one rural ICU has orientated approximately 40 travel nurses for varying lengths of tours. This presentation will explain the journey one rural hospital has taken from having minimal resources to developing supportive approaches, helpful resources, and accessible tools to support our ICU team. This presentation will delve into the challenges of supporting travel nurses who are onboarding – including the tools developed and approaches used to facilitate the orientation process, which is often fast-paced and needs to be adapted to the individual learner.

### Learning Objectives:

1. Identify the challenges of orienting travel nurses to a rural intensive care unit (ICU) setting.
2. Review tools and approaches to support onboarding travel nurses in a rural ICU.

### Abstract

After several years of pandemic pressures and the nursing staffing shortage, it has been increasingly challenging to maintain safe staffing levels in a rural hospital. In 2020, the rural hospital began supplementing core staff with travel nurses, often times with contracts of varying lengths. This was a new process for clinical nurse educators (CNEs) there were limited supportive resources and minimal understanding of the needs of travel nurses; particularly for those who were new to working in a rural hospital setting. One study by Bethel et. al (2019) found that more than 90% of the travel nurses in their cohort felt their orientation should be hospital- and unit-specific while covering unit routines, equipment, and hands-on practice. A recommendation from that study was to tailor the orientation session to specific units and individual learning needs. Through collaborating with management, core staff, and travel nurses, CNEs developed a structured orientation process to support the timely orientation of travel nurses.

## REFERENCES

- Bethel, C., Olson, S., Bay, C., Uyeda, T., & Johnson, K. (2019). Travel nurse onboarding: current trends and identified needs. *The Journal of Nursing Administration* 49(9), 436-440. <https://doi.org/10.1097/NNA.0000000000000781>

## Surviving the intensive care unit (ICU): Consequences of care

Carmel Montgomery, PhD, RN, Lisa Gaglione, BN, RN, Angie Grewal, RN, Nancy Hammer, RN, Lazar Milovanovic, MD, FRCPC, Edmonton, AB

**Keywords:** critical illness, intensive care (ICU), post-ICU syndrome, PICS, ICU survivorship

**Educational Stream:** Education

**Patient Population:** Adult

**Description:** This presentation will discuss key aspects of post intensive care syndrome (PICS), assessment and prevention and will highlight, the role of intensive care unit (ICU) nurses in identifying patients at risk, follow-up that can be beneficial to patients, and the ICU nurse's role in educating patients and families about PICS.

### Learning Objectives:

1. Understand post intensive care syndrome (PICS).
2. Identify the prevalence of PICS.
3. Describe PICS assessment, prevention, and treatment.
4. Understand the role of intensive care unit (ICU) nurses in educating patients and families about PICS.

### Abstract

Patients admitted to intensive care units (ICU) are at considerable risk of developing complications from their stay. Increasing numbers of survivors are demonstrating signs of post-intensive care syndrome (PICS), a constellation of symptoms of impaired physical, psychiatric, and neurologic function that significantly affect patient outcomes. PICS develops following critical illness and persists after discharge from the ICU and hospital. Multidisciplinary post-intensive care clinics have been implemented to support patients with PICS, to assess their symptoms and implement treatments to improve overall function, survival, and quality of life.

## Technology for lifesaving: Resuscitation with artificial intelligence, wearable technology, video analysis and more!

Matthew Douma, MN, RN, ENC(C), CNCC(C), CCN(C), Edmonton, AB

**Keywords:** resuscitation, technology, artificial intelligence, cardiac arrest

**Educational Stream:** Clinical Practice

**Patient Population:** All Ages

**Description:** This presentation will provide a fast-paced overview of the technology of resuscitation and cardiac arrest care. Hot topics like artificial intelligence, video analysis, predictive models, wearable technology, massive datasets, automated medication delivery, artificial blood products, robotics, remote nurse support, and more, will be discussed.

### Learning Objectives:

1. Identify emerging technology for improving the detection of cardiac arrest.
2. Explain how emerging technology is likely to change nursing work.
3. Apply recent technology strategies to support critical nursing practice.

### Abstract

This presentation will provide a comprehensive overview of new and emerging technologies in the field of resuscitative and cardiac arrest care including: chatGPT, lapel cameras, trauma resuscitation 'black box' technology and its potential impact for improvement, and vasopressor automated infusion systems. This session will share the patents, feasibility tests, and scientific literature associated with artificial intelligence, real-time video analysis, predictive models for deterioration and survival, wearable technology for patients and providers, automated medication and care delivery systems, artificial blood products, robotics in hospitals, online and remote nurse support, and so much more.

## The benefit of interdisciplinary education during times of rapid change: A local experience

Vanessa Doiron, BN, RN, and Laura Robinson, BScN, RN, CNCC(C), Calgary, AB

**Keywords:** change management, education, interdisciplinary, simulation

**Educational Stream:** Education

**Patient Population:** Adult

**Description:** The unique challenges presented during the Covid-19 pandemic required the ability to quickly adapt to change to ensure staff were prepared, informed, and supported during this time of uncertainty. Despite the circumstances, one team determined potential safety issues and developed in-time education and solutions to mitigate these risks. In this presentation, various methods of interdisciplinary education that was offered at a large level 1 trauma centre will be explored, including low- and high-fidelity simulation, videos, and development of on unit resources. Lessons learned to help with future fast paced change that healthcare teams may encounter such as mass casualty incidents, pandemics, or alterations to unit capacity will be shared.

### Learning Objectives:

1. Identify various methods of education delivery to interdisciplinary teams.
2. Understand the benefit of in situ and interdisciplinary simulation to build skills.
3. Understand the potential benefits or barriers of allotting human resources and time, for education.

### Abstract

Change under any circumstance is challenging. Implementing numerous adaptations to established processes within a short timeframe requires dedicated effort to strategize competing priorities. Exploration of how a large level 1 trauma centre during the COVID-19 pandemic response navigated doubling patient capacity, pivoting to implement protocols for in unit cannulation for extracorporeal life support (ECLS), urgent transfers and intubations, and training for team nursing. Throughout, emphasis on importance of isolation practices was incorporated. These efforts were supported by leadership as a safety priority to ensure the intensive care unit (ICU) team, regardless of discipline, had opportunity to learn and practice prior to being immersed in unfamiliar processes. To achieve this, a clinical nurse educator (CNE) was made available to prioritize education before being assigned as bedside staff. The CNEs collaborated with biomedical engineers, simulation consultants, the ECLS team and other departments to establish a streamlined approach to anticipated workflows and developed safeguards to prevent errors.

## The critical care response team (CCRT) nurse's involvement in end-of-life (EOL) discussions

Marley Gregorio, BScN, RN, CNCC(C)®, London, ON

**Keywords:** Critical care response team nurse, end-of-life

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** This presentation will review the critical care response team (CCRT) nurse's role in end-of-life (EOL) discussions. Current literature will be presented, and the use of a case study will be used to highlight how CCRT nurses are engaging in EOL discussions in their practice. Audience feedback regarding their own experiences is strongly encouraged. Exploring this topic in an interactive way will help bridge the gap between the literature and clinical practice and encourage greater discussion about this area of nursing practice.

**Pre-requisites:** A basic understanding of the role of the critical care response team is encouraged but not required.

### Learning Objectives:

1. Identify the current role of the critical care response team (CCRT) nurse in end-of-life (EOL) discussions.
2. Outline relevant factors that influence the CCRT nurse's involvement.

### Abstract

Critical care response teams (CCRT) also known as 'medical emergency teams' (METs) or 'rapid response teams' (RRTs) are a group of specialty critical care practitioners who extend the skills and resources of critical care units to the general ward.

ABSTRACTS

# Extraordinary EVERY DAY

THE CCRT is typically led by a registered nurse (RN) and supported by a respiratory therapist (RT) and a physician (MD). The CCRT provides consultation on patients needing additional care or services. CCRT nurses provide rapid assessment and mobilization of resources to patients requiring critical care, leading to further discussion about patients' wishes and advanced care directives. Studies have shown that CCRT nurses consistently and routinely engage patients and their families in end-of-life (EOL) discussions and this role is embedded in their practice. However, the role of the CCRT nurse has only been developed in the last thirty years and is not well outlined by bodies who define the role. Therefore, current research will be reviewed to identify the current role of the CCRT nurse in end-of-life discussions. In addition, factors that influence the CCRT nurse's involvement will be outlined. Lastly, a case study example will be presented to demonstrate the CCRT nurse's involvement in end-of-life discussions in clinical practice. Exploring this topic in an interactive way will help bridge the gap between the literature and clinical practice and encourage greater discussion about this area of nursing practice.

## The shocking truth: Double sequence defibrillation or vector change

*Shirley Marr, MHScN, MHEd, RN, CNCC(C), Mississauga, ON and Catherine Judd-Morin, Amaranth, ON*

**Keywords:** resuscitation, double sequence defibrillation (DSD)

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** This presentation will review the recent research on double sequential defibrillation (DSD) and vector change to discuss its safety, how to use it and when to consider using it. Additionally, this presentation will discuss how to fit this new intervention into current advanced cardiac life support (ACLS) guidelines.

### Learning Objectives:

1. Discuss the patient population for whom these interventions could be applied.
2. Discuss how this intervention can fit into current advanced cardiac life support (ACLS) guidelines.
3. Identify interventions that should be in place prior to utilizing double sequential defibrillation (DSD) and/or vector change.

### Abstract

Despite advances in resuscitation, some patients with refractory shockable cardiac arrest never regain a pulse. Double sequence defibrillation (DSD) and vector change have been topics that have been discussed for several years as being a

possible alternate treatment that may improve outcomes. Recent research carried out by emergency medical services (EMS) provides new information to consider. DSD and/or vector change has been shown to be an adjunct to normal advanced cardiac life support (ACLS) care for out of hospital refractory ventricular fibrillation (RVF) under certain conditions. Although this new information is important, it does not stand alone and all aspects of ACLS need to be well established to gain the best outcomes. Safety of both the caregiver and the victim are critical to either of these interventions being carried out and will be discussed.

## There's no place like prone: A pilot implementation of the PronatorPlus™ in critical care units (CCUs)

*Karolynn Holland, RN, Brookside, NS, Cynthia Isenor, MScN, RN, Lantz, NS, Logan Lawrence, PhD, Halifax, NS, Vishal Sahijwala, MHA, Halifax, Meaghan Sim, PhD, Halifax, NS and Shayln Henley, BSc, Halifax, NS*

**Keywords:** proning, acute respiratory distress syndrome (ARDS), quality improvement, medical device

**Educational Stream:** Quality

**Patient Population:** Adult

**Description:** Historical approaches to patient proning required regional intensive care units (ICUs) to transfer patients to the tertiary care centre. This presentation will describe the outcomes and key lessons learned from the pilot implementation of the PronatorPlus™, a Health Canada-approved device used to prone patients, across one province's ICUs. This pilot study explores whether the PronatorPlus™ reduces the number of staff required to safely prone patients, time to prone, and potential for healthcare worker injury, thereby supporting patients to receive optimal care, closer to home. A video demonstration of the PronatorPlus™ will be provided, together with a report on the findings of the pilot project, describing uptake, lessons learned from implementation, and considerations for future use and widespread adoption.

### Learning Objectives:

1. Describe the PronatorPlus™ and indications for its use.
2. Identify the benefits of the use of the PronatorPlus™ for patients and care team members.
3. Understand key considerations for the implementation of the PronatorPlus™ on critical care units.

### Abstract

The COVID-19 pandemic changed the way that care is delivered in critical care units across the globe. Proning has once again been established as a practice to improve outcomes and recovery in patients experiencing acute respiratory distress. While proning can provide considerable benefits to patients, the process is time consuming, resource-intensive, and physically demanding for the care team. During peak COVID-19 waves, in some intensive care units (ICUs) across one province, it was impossible to keep up with demand, necessitating patient



transfer outside of their geographical region to gain access to proning as part of their care. The PronatorPlus™ is an innovative medical device developed to address the concern of safely and efficiently prone patients with less care team involvement and reducing physical strain on team members. Preliminary research conducted in one province was supportive of the benefits of the PronatorPlus™ for patients and units alike. In the summer of 2022, a pilot project for the broad implementation of PronatorPlus™ in critical care units across the province began. The implementation consisted of training care team members on the use of the device and identifying “superusers” who could champion and train additional team members on the unit. Evaluation following the quadruple aim framework includes an audit of the use of the PronatorPlus™, economic evaluation (including reduction in risk of staff injury due to proning) and eliciting care team feedback pertaining to proning.

## Transition support for novice critical care nurses: Making the connection

*Caroline Penner, RN, CNCC(C), Langley, BC and Alana Larkin Grant, MSN, RN, Pitt Meadows, BC*

**Keywords:** novice nurse, transition to practice, connection, support

**Educational Stream:** Leadership

**Patient Population:** All Ages

**Description:** Critical care units have increased numbers of novice nurses. Time, practice, and connections are required for nurses to move from novice to experienced nurse. In one health authority, a transition clinical nurse educator (CNE) role was created to provide a personal connection during the challenging role of a novice critical care nurse. This presentation will discuss the implementation of this invaluable role.

### Learning Objectives:

1. Describe the creation of the transition clinical nurse educator (CNE) role.
2. Identify the support needs of novice critical care nurses.
3. Understand measures to assist novice nurses in critical care.

### Abstract

Relative to robust pandemic-induced training efforts, an unprecedented influx of novice critical care (CC) registered nurses (RNs) joined each of the critical care units in a western health authority. Unfortunately, the net gains were leveled due to the departure of existing CC RNs. The lack of experienced mentors encouraged educators to conduct regular follow-up visits with the novice CC RNs, during which time the importance of establishing a personal connection became apparent. Curation of ongoing visit field notes and both historic and forecasted graduate volume data, coupled with engagement with site based operational and educational leadership, motivated the creation of a permanent transition clinical nurse educator (CNE) role. Supporting RNs prior, during, and for two years following CC education, the transition CNE serves as a consistent guide to RNs navigating the career change. Initial connection is invited via email; once established online support

and in person clinical visits are offered based on a collaborative assessment of needs. Emerging commonalities include education stream selection, listening following a difficult experience, coaching and encouragement to recognize opportunities for advancing competencies, and discussion of professional opportunities. Further, shoulder to shoulder clinical support ensures novice CC RNs can translate their education into practice in a non-evaluative, and quality and safety focused manner. All conversations are kept confidential, with units being provided themed analyses representing the novice CC RN's experiences. With the primary goal of retention, the transition CNE role has become an invaluable aspect of CC RN education and practice.

## Understanding critical care nurses' prioritization of care in relation to delirium prevention

*Sarah Crowe, MN, PMD-NP(F), NP, CNCC(C), Langley, BC and Fuchsia Howard, PhD, RN, Vancouver, BC*

**Keywords:** delirium, prioritization, patient care

**Educational Stream:** Research

**Patient Population:** Adult

**Description:** Delirium is a significant complication experienced by many critically ill patients. Research has provided evidence for early recognition, mitigation, and management, however, many of these practices are not consistently implemented. This session will present the findings of a mixed method study that examines how critical care nurses prioritize care and the relationship to delirium and will provide ideas for changes to improve delirium prevention practices within the critical care context.

### Learning Objectives:

1. Review the literature on delirium prevention and treatment in critical care.
2. Describe the results of a mixed method knowledge to action study examining how nurses prioritize care and the relation to delirium.
3. Provide ideas for system change based on the study findings to improve delirium prevention practices within critical care.

### Abstract

Delirium is a serious complication associated with a critical care stay. Delirium-associated complications are profound for patients and the healthcare system including prolonged length of stay in critical care and hospital, and increased mortality and morbidity. Considering the significance of delirium, researchers have focused on identifying delirium risk factors, developing tools for screening, and recognizing delirium, and testing interventions to treat those diagnosed with delirium. Despite this evidence, the implementation of known delirium prevention and management strategies remains abysmal.

**ABSTRACTS**

# Extraordinary EVERY DAY

Hospitals that have implemented multicomponent processes for the prevention, assessment, and treatment of delirium have reduced their incidence of delirium, however few hospitals have consistently adopted these practices. This implementation is completely dependent on nurses who must prioritize and integrate these strategies within the context of multiple competing care demands and established critical care practices and routines. This presentation will describe the results of a mixed method study examining how critical care nurses prioritize patient care and the relation to delirium prevention and management. The preliminary findings suggest patient acuity, unit culture and routines, resource availability, and interprofessional relationships to be the main influencing factors. The presentation will describe these findings and potential strategies to improve patient outcomes.

## Using co-design to introduce purpose-built bite blocks for mechanically ventilated neurotrauma patients: Outcomes and lessons learned

*Sherry O'Connor, BScN, RN, Toronto, ON, Beth Linseman, RN, CNCC(C), Toronto, ON, Kimberley Capoccitti, MN, RN, Richmond Hill, ON, Julia Zamperion, RRT, Mississauga, ON, Linda Rawe, MEd, BSc, RRT, Oshawa, ON, Margaret Lo Dico, RN, Maple, ON and Craig Dale, PhD, CNCC(C), Toronto, ON*

**Keywords:** bite block, neurotrauma, oral care, implementation science

**Educational Stream:** Quality

**Patient Population:** Adult

**Description:** This presentation will describe the introduction of purpose-built bite blocks to facilitate oral cavity access and care among mechanically ventilated neurotrauma patients in the intensive care unit (ICU) using the principles of co-design. Key challenges in providing evidence-based oral care to neurotrauma patients will be highlighted as a basis for a quality improvement initiative comprising the selection and pilot introduction of purpose-built bite block devices in a level three ICU. Project outcomes including knowledge gained pertaining to successful implementation science strategies, including co-design and theoretically informed evaluation outcomes (acceptability, appropriateness, feasibility), will be shared.

**Pre-requisites:** General knowledge of and/or clinical experience providing oral care to intubated and mechanically ventilated adult patients; caring for neurotrauma patients; using the oropharyngeal airway.

### Learning Objectives:

1. Understand key challenges in providing evidence-based oral care to mechanically ventilated neurotrauma patients.
2. Identify differences in acceptability between different bite block devices for achieving oral care practice standards.
3. Understand lessons learned when using implementation science principals in practice innovation.

### Abstract

**Background:** Oral care is essential for positive intensive care unit (ICU) patient outcomes. A neurotrauma diagnosis is an independent predictor of extreme oral care difficulty due to biting reflexes and low cooperation, suggesting this population may not receive adequate oral care. Up to 10% of patients receive oral care in the presence of an oropharyngeal airway (OPA) as an off-label bite block. Purpose-built bite blocks are strongly recommended to improve oral access and care delivery, yet no literature documents their successful implementation.

**Purpose:** The purpose of this quality improvement initiative was to select, and pilot evaluate purpose-built bite block devices that better facilitate oral access and care for neurotrauma patients compared to using the OPA. Secondary objectives include development of knowledge regarding device selection and implementation methods.

**Theoretical Frameworks:** This project employed the theory of acceptability and principals of co-design to guide device selection and piloting.

**Process:** A baseline bite block state analysis and needs assessment was conducted using a validated (acceptability, appropriateness, feasibility) questionnaire and qualitative interviews. End-users voted amongst six prototype bite block options which were sequentially piloted in practice with repeated questionnaire measures and qualitative interview data for comparison from baseline.

**Findings:** Baseline OPA practice demonstrated low mean acceptability (2.7/5) appropriateness (2.6/5) and feasibility (3.5/5) scores. Purpose-built bite block pilot trial results and methods to engage end-users in device implementation will be described.

**Conclusions:** Engaging end-users in the selection and evaluation of oral care tools may serve to increase their successful implementation and achievement of oral care standards.

# Concurrent – 60 minutes

## A hybrid educational approach to prepare novice nurses for success in an accelerated critical care nursing program

*Klara Malkova, MEd, BScN, RN, CCNC(C) and Stefanie Lamoureux, RN, Toronto, ON*

**Keywords:** Critical care, education, novice nurses, new graduate nurses

**Educational Stream:** Education

**Patient Population:** Adult

**Description:** In recent years, accelerated critical care nursing programs (CCNP) have experienced a substantial increase in the number of novice and new graduate nurses enrolling. This presentation will discuss the development stages of a new hybrid transitional education approach that was implemented to prepare novice and new graduate nurses for the successful completion of an accelerated CCNP, including an exploration of the impact of this education on the novice/new graduate nurse experience in an accelerated CCNP.

### Learning Objectives:

1. Identify challenges new graduate/novice nurses experience in an accelerated critical care nursing program (CCNP).  
Review the development stages of a new hybrid educational approach for new graduate/novice nurses prior to enrollment in a CCNP.
2. Identify the impact that knowledge and skill building prior to CCNP education has on the learner's experience in an accelerated CCNP.

### Abstract:

For years, critical care nursing has been challenged with recruiting qualified nurses and this challenge was further exacerbated through the COVID-19 pandemic. Conventionally, hospital institutions preferred recruiting registered nurses (RNs) with 2+ years of nursing experience, prior to being sponsored through an accelerated critical care nursing program (CCNP). However, in recent years, there has been a substantial increase in the number of novice nurses and even newly graduated nurses enrolling into CCNPs. This shift in student demographic has revealed gaps in learners' foundational nursing knowledge and critical thinking, which reflects as a risk for unsafe critical care nursing clinical practice and impedes the successful completion of the post graduate certificate program. To address this challenge, a hybrid educational approach was developed and launched to provide novice and newly graduated registered nurses with the opportunity to build foundational knowledge and skills prior to enrolling in a CCNP. This newly constructed

educational approach has been executed in a hybrid learning environment, which includes an online learning component followed by an interactive workshop that is hosted in a high-fidelity simulation lab. The evaluation will include a student survey at the end of this educational approach as well as student interviews upon completion of the accelerated CCNP. By September 2023, there will be approximately 20 learners that have completed both the educational approach, as well as the CCNP. At this time, data will be analyzed to indicate how this educational approach impacts the novice nurse's learning experience in the CCNP.

## Accidental hypothermia

*Tom Scullard, MSN, RN, CCRN, Farmington, MN*

**Keywords:** accidental hypothermia, cardiac arrest, rewarming

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** This presentation will define accidental hypothermia, discuss how it affects different body systems and review current rewarming practices and will provide the critical care nurse with the knowledge to recognize and care for the patient with accidental hypothermia. A case study will be analyzed to assist the nurse in applying the information learned from this presentation into everyday practice.

### Learning Objectives:

1. Identify what accidental hypothermia is.
2. Identify patients at risk for accidental hypothermia.
3. Understand the complications of accidental hypothermia.
4. Identify the different options for rewarming a patient experiencing accidental hypothermia.

### Abstract

Accidental hypothermia is defined as a drop of core temperature to less than 35 degrees Celsius. This presentation will provide the critical care nurse with the knowledge to recognize and care for the patient with accidental hypothermia. The most common causes of accidental hypothermia will be covered and the various stages of accidental hypothermia, based on clinical signs and symptoms, will be reviewed. Accidental hypothermia affects multiple organ systems. The pathophysiology related to the effects on these organ systems will be discussed to help provide the critical care nurse with the skills to minimize complications and mortality. Treatment revolves around preventing further heat loss while rewarming the patient. Finally, various rewarming techniques ranging from passive rewarming to extra-corporeal life support will be explored.

# Extraordinary EVERY DAY

## Enhancing acute stroke treatment

Lindsey Patterson, BScN, RN, CCNP, CNCC(C), Westville, NS  
and Amelia MacKenzie, BScN RN, ENP, Antigonish, NS

**Keywords:** acute stroke, best practice, thrombolytic, endovascular

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** Thrombolytic therapy and endovascular thrombectomy (EVT) for stroke are time dependent therapies with nationally recognized benchmarks. An interdisciplinary team came together to review local thrombolytic data and current processes. The local code stroke protocol was revised and changes in process implemented, which resulted in increased efficiency in patient assessment and treatment for patients presenting with acute stroke. This presentation will provide the results of the review and revision of the local code stroke protocol.

**Pre-requisites:** Acute stroke treatment knowledge would be an asset but is not required.

### Learning Objectives:

1. Explain best practice for thrombolytics and endovascular thrombectomy (EVT) for acute stroke treatment.
2. Outline strategies utilized to improve acute stroke treatment times.

### Abstract

Thrombolytic therapy and endovascular thrombectomy (EVT) for stroke are time-dependent therapies with nationally recognized benchmarks. The Canadian Stroke Best Practice Recommendations (CSBPR) state that patients presenting to the emergency department with acute onset of stroke symptoms (< 4.5 hours) should receive a computed tomography (CT) scan head within 15 minutes (door to CT= DTCT) and, if eligible for thrombolytic, should receive thrombolytic in less than 60 minutes. National benchmarks for lytic door to needle time (DTN) are a median of 30 minutes with 90th percentile being within 60 minutes. The CSBPR states that eligible patients should be treated with EVT as soon as possible and no later than 24 hours of last known well time. Benchmark for door into door out (DIDO) time for patients being transferred for EVT is 45 minutes. Local data indicated that benchmarks were not being met. An interdisciplinary team came together to review local thrombolytic data and current processes. The local Code Stroke protocol was revised to include prehospital code stroke activation, registered nurse (RN) blood draw if on anticoagulation, brief neuro assessment, CT, and CT angiogram for potential EVT candidates, and two verbal radiology reports. Implementation of these changes resulted in increased efficiency in patient assessment, improved DTCT and DTN times, and an increased focus on DIDO times for potential EVT patients. The interdisciplinary team will continue to track cases and monitor opportunities for improvement.

## Euglycemic diabetic ketoacidosis (EuDKA): Are you kidding me?

Shirley Marr, MHSn, MHEd, RN, CNCC(C), Mississauga, ON

**Keywords:** SGLT-2 inhibitors, euglycemic diabetic ketoacidosis (EuDKA)

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** With the advent and increasing use of *sodium-glucose cotransporter-2 inhibitors* (SGLT2), there has been a seven-fold increase in diabetic ketoacidosis (DKA) despite normal blood sugar levels. The presentation, treatment and recovery of these patients is different than normal DKA. This presentation will discuss this novel patient presentation, treatment and will share an order set designed to support care.

**Pre-requisites:** A knowledge of ketoacidosis would be beneficial but is not required.

### Learning Objectives:

1. Understand why *sodium-glucose cotransporter-2 inhibitors* (SGLT2) inhibitors increase the risk of Euglycemic DKA (EuDKA).
2. Understand the common presenting symptoms.
3. Understand the main differences in lab work from diabetic ketoacidosis (DKA) and EuDKA.
4. Understand the major treatment changes including fluid management and insulin administration.
5. Understand the selective patient's needs to be safe while taking SGLT2 inhibitors.

### Abstract

Sodium-glucose cotransporter 2 (SGLT2) inhibitors were originally designed to improve glycemic control and prevent cardiac renal syndrome in patients with type 2 diabetes (T2DM). However, their use has evolved beyond that, and they are now used to promote weight loss in both diabetic and non-diabetic patients. This medication inhibits glucose reabsorption in the proximal tubules of the nephron, thus lowering blood glucose, independent of insulin secretion. This, however, has brought on several risks and complications, including euglycemic diabetic ketoacidosis (EuDKA). The EuDKA patient presents with a slightly elevated blood glucose level, a severe metabolic acidosis, gastrointestinal (GI) issues, and ketonemia. Treatment involves providing glucose, fluid resuscitation, and insulin all while monitoring electrolyte and the acid-base levels. Correction of EuDKA takes longer than typical diabetic ketoacidosis (DKA) and must be done slowly while monitoring the anion gap, GI symptoms, and electrolytes. Conventional DKA treatments and order sets do not support the management of EuDKA, as less insulin and more glucose and electrolytes replacements are needed. Older patients are at an increased risk of developing this complication, on top of all the other SGLT2 inhibitor side effects.

## Goals of care (GOC): Taken for granted language in the intensive care unit (ICU) - A concept analysis

Nathalie DiLabio, BScN, RN, Ottawa, ON

**Keywords:** GOC, ICU, concept analysis

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** The COVID-19 pandemic has created an urgent need for clear and concise communication in the intensive care unit (ICU) regarding goals of care (GOC). The ambiguity surrounding the concept of GOC in the ICU can lead to confusion and miscommunication between patients, families, and health-care providers. This presentation will clarify the complexities and nuances of GOC, drawing from critical care cases and a concept analysis using Walker and Avant's approach. The goal of this session is to provide a deeper understanding of the concept GOC and how clarifying this concept can improve patient care for those experiencing life-threatening illnesses.

### Learning Objectives:

1. Identify the challenges of defining the concept of Goals of Care (GOC) in the intensive care unit (ICU).
2. Understand the complexities and nuances of GOC and its impact on patient care.
3. Understand the operational and conceptual definition of GOC using Walker and Avant's concept analysis framework.
4. Understand how clarifying the concept of GOC can improve patient care for those experiencing life-threatening illness.

### Abstract

The COVID-19 pandemic has emphasized the need for clear and effective communication in the intensive care unit (ICU) regarding goals of care (GOC). Despite the critical importance of this topic, GOC is often taken for granted language in ICU and leads to confusion and miscommunication between healthcare providers, patients, and their families. The concept GOC has been used in healthcare research since the 1970s, however it remains vague and lacks operational consensus. The term carries different meanings depending on the healthcare context, ranging from treatment-focused to person-focused viewpoints. Despite the efforts to develop an operational definition, this ambiguity contributes to confusion and suboptimal care. The inconsistencies in GOCs operational definition create barriers in clinical practice and healthcare research. This presentation employs Walker and Avant's approach to conduct a concept analysis of GOC in the ICU context. The aim is to describe the complexities and nuances of the concept while addressing the challenges in defining it and exploring its impact on patient care. The analysis will encompass GOCs defining attributes, antecedents, consequences, and empirical referents, thus offering a comprehensive understanding of the concept. To further illustrate the application of the concept in the ICU context, a range of cases will be presented as examples. Intended as a preliminary exploration of GOC as a concept, this presentation and included analysis will serve as the foundation for further study to improve GOC discussions in the ICU and provide critical care nurses with an in-depth understanding of the concept itself.

## REFERENCES

- Secunda, K., Wirpsa, M. J., Neely, K. J., Szmuiłowicz, E., Wood, G. J., Panozzo, E., McGrath, J., Levenson, A., Peterson, J., Gordon, E. J., & Kruser, J. M. (2020). Use and meaning of "Goals of Care" in the healthcare literature: A systematic review and qualitative discourse analysis. *Journal of General Internal Medicine*, 35(5), 1559–1566. <https://doi.org/10.1007/s11606-019-05446-0>
- Stanek, S. (2017). Goals of care: A concept clarification. *Journal of Advanced Nursing*, 73(6), 1302–1314. <https://doi.org/10.1111/jan.13243>
- Walker, L. O., & Avant, K. C. (2019). Chapter analysis. In *Strategies for theory construction in nursing* (pp. 167–193). Pearson.

## Just breathe: Emergency airway management, an interactive experience

Kendrah Krouskos, BScN, RN, CNCC(C) and Michelle Stephens, RRT, London, ON

**Keywords:** emergency, airway, nursing, tracheostomy, simulation

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** This presentation is an interactive, hands-on approach to reviewing emergency airway equipment use, sharing clinical tips and tricks when using the various airway devices. Discussion will include experiences with the implementation of checklists, cognitive aids, and use of simulation to provide emergency airway management education to nursing staff. Examples of cognitive aids, specifically designed to support interprofessional team members when caring for tracheostomy and laryngectomy patients during an emergency will be provided.

**Pre-requisites:** Be prepared to step outside of your nursing comfort zone and seize the chance to develop your airway management skill.

### Learning Objectives:

1. Describe various airway equipment utilized during an airway emergency.
2. Identify cognitive aids to support the performance of clinical staff during an airway emergency.

### Abstract:

Medical emergencies are common in critical care. When anxiety and stakes are high, healthcare provider and team performance can fall in the absence of prior planning and practice. Following a review of practice in one institution, a number of multidisciplinary tools, guidelines, and simulation exercises to aid in the management of airway emergencies were developed. During this interactive workshop, participants will have hands-on opportunities to exam and practice the various airway devices and utilization techniques. Clinical tips, checklists, and cognitive aids specifically designed for tracheostomy and laryngectomy patients will be shared.

ABSTRACTS

# Extraordinary EVERY DAY

## Keep it SIM-ple: Creating a safe simulation space during the pre-brief and debrief

Lisa Gillis Rochon, BN, RN, CNCC(C), Lawrencetown, NS, Rachel Rizcallah, BScN RN CNCC(C), Halifax, NS and Jamie Ingram, MN, RN, Hammonds Plains, NS

**Keywords:** simulation, pre-brief, debrief, safety, critical care.

**Educational Stream:** Education

**Patient Population:** All Ages

**Description:** This presentation will introduce nurses to pre-brief and debrief techniques to create a safe simulation space within critical care education. Strategies for pre-briefing and debriefing critical care learners while promoting psychological safety will be discussed using examples and demonstrations. Given the influx of younger and less-experienced nurses, the need for initial and continuing education featuring high-risk, low-frequency (HALO) situations in a safe environment can enable learners to become comfortable with rare occurrences. Simulation can assist newer critical care nurses in increasing their understanding, applying newly acquired knowledge, and developing their critical thinking skills.

### Learning Objectives:

1. Describe the value of integrating simulation into critical care nursing education.
2. Explain key aspects of simulation including the pre-brief, debrief and safety.
3. Identify positive and negative aspects of a pre-brief and debrief during a simulation.
4. Apply the principles of safety in simulation to future simulation experiences.

### Abstract

Simulation provides a well-documented educational strategy to assist in preparation for high-stakes, low-frequency occurrences (HALO), which has become increasingly important within critical care nursing education. Research has shown evidence of the benefits of incorporating simulation into the healthcare setting, especially for the intensive care unit (ICU) population. Given the high number of novice nurses entering the critical care area, simulation is an excellent strategy to integrate into their education and transition to practice. There is, however, associated anxiety with learners who participate in the simulation. The presentation will also discuss strategies educators can implement to help minimize learner anxiety and promote learning through effective pre-briefing and debriefing during simulation. Providing this education will allow participants to optimize their learning experience while also providing the knowledge and tools needed to promote the application of

these principles in their home units. The pre-brief and debrief portions of simulation will be examined during this session. The process of establishing safety will be discussed, including demonstrations of these processes. As well, a review of The International Simulation Standards of Best Practices will highlight strategies to increase psychological safety for participants during the pre-brief and the debrief within the ICU setting.

## REFERENCES

- Boling, B., & Hardin-Pierce, M. (2016). The effect of high-fidelity simulation on knowledge and confidence in critical care training: An integrative review. *Nurse Education in Practice, 16*(1), 287–293. <https://doi.org/10.1016/j.nepr.2015.10.004>
- International Nursing Association for Clinical Simulation and Learning. (2021). *Healthcare Simulation Standards of Best Practice*. <https://www.inacsl.org/healthcare-simulation-standards>
- Rudolph, J. W., Raemer, D. B., & Simon, R. (2014). Establishing a safe container for learning in simulation: The role of the presimulation briefing. *Simulation in Healthcare, 9*(6), 339–349. <https://doi.org/10.1097/SIH.0000000000000047>

## Targeted refreshers: A retention strategy for experienced critical care nurses

Rebecca Park, BScN, RN, Sarnia, ON and Brenda Morgan, MSc, RN, CNCC(C), London, ON

**Keywords:** education, self-directed, retention, HALO

**Educational Stream:** Education

**Patient Population:** Adult

**Description:** This presentation will share a retention strategy consisting of a funded four-hour self-directed, self-scheduled refresher program where high-acuity, low-occurrence (HALO) concepts will be shared. This presentation will describe the process, strategies, and evaluation of this novel approach to ongoing nursing education.

### Learning Objectives:

1. Identify strategies for nursing retention through education.
2. Identify strategies for promoting self-directed nursing reviews.
3. Describe topics that could be developed using a similar approach.

### Abstract

Retaining experienced nurses is essential to the stability of our healthcare system and requires urgent attention. Critical care nurses (CCNs) require a broad knowledge and skill set. It often takes several years to confidently care for patients of all acuity levels, and to demonstrate strong critical thinking skills. Recruitment without retention results in an overall net loss of expertise and unit capability and robs us of the mentors we need to integrate new staff successfully. One critical care unit conducted a nursing retention survey that identified several areas for improvement. One area was the need for increased ongoing education funding. The majority of the unit's full-time nurses work four consecutive 12-hour shifts followed by five days off. To fulfill the 1950-hour obligation, the staff are required to work three additional 12 hour shifts each year.

Many nurses identified these shifts as dissatisfiers and wanted to apply them to mandatory education (such as annual skills review). Approval was obtained to apply one 12-hour shift towards education. High-acuity, low-occurrence (HALO) areas for refresher education were identified. These included: Intracranial pressure (ICP) monitoring, temporary transvenous pacing (TVP) and pulmonary artery catheters. The four-hour review day consisted of a brief video, hands-on technology access, online knowledge translation exercises, and a validation quiz. Participants self-scheduled four-hour education days with participation verified through completion of online activities. Education time was funded from the extra shift.

## The transition shock of newly graduate registered nurses in the intensive care unit (ICU)

*Myriam Breau, MSN, RN, Stéphanie Maillet, PhD, Ann Rhéaume-Brüning, PhD, RN, Moncton, NB*

**Keywords:** mentoring, intensive care unit, ICU new graduates, shock transition

**Educational Stream:** Leadership

**Patient Population:** All Ages

**Description:** This presentation will explore transition theories explaining the challenges and needs of newly graduated nurses in the intensive care unit (ICU). The session will also explore senior nurses' feelings of added pressure and key strategies to improve their mentorship. Managerial strategies to ease the transition will be discussed. Finally, critical care nursing entry-to-practice programs will be reviewed.

### Learning Objectives:

1. Describe transition theories pertaining to new graduate nurses.
2. Understand the application of transition theories in the intensive care unit (ICU).
3. Discuss implications for mentors and managers.
4. Identify innovative entry-to practice ICU programs.

### Abstract

Intensive care units (ICUs) across the country are experiencing an unprecedented shortage of nurses. A new occurrence in the ICUs is the hiring of new graduate nurses. Most baccalaureate programs do not prepare new graduate registered nurses to care for the critically unstable patient in ICU settings. Therefore, new graduates may be unprepared and require additional mentoring when entering this chaotic work environment. This presentation focuses on the importance of understanding the transition shock that new graduates experience in ICU. Enhancing knowledge on new graduate nurses' needs is the first step to provide meaningful support at the bedside. Healthcare organizations must be proactive and address new graduate nurses' needs during the transition. Understanding theories on new graduate nurses entering ICU practice may guide senior nurses who act as mentors. The role of managers in supporting both senior and new graduate nurses will be discussed. Successful innovative programs in North America will be explored.

## Under pressure: Intracranial pressure monitoring in patients with acute liver failure

*Sheila Hunt, BScN, RN, and Ian Dashnay, BScN, BSc Biology, RN, CNCC(C), London, ON*

**Keywords:** intracranial pressure monitoring (ICP), hepatic encephalopathy

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** This presentation will review the pathophysiology of cerebral edema in acute liver failure patients. Two case studies will be presented to describe the use and principles of intracranial pressure (ICP) monitoring in this patient population. This will be followed by a discussion of the benefits and risks of ICP monitoring, implications to practice and lessons learned along the way.

### Learning Objectives:

1. Understand how cerebral edema develops in acute liver failure patients.
2. Identify the principles of intracranial pressure (ICP).
3. Identify the risks and benefits of ICP in acute liver failure patients.

### Abstract

Patients with hepatic failure may present with changes in level of consciousness for a variety of reasons. Those admitted to critical care with chronic liver disease may have altered level of consciousness due to hepatic encephalopathy. Their neurological status may also be influenced by comorbidities or confounding factors such as sepsis. By contrast, acute liver failure (ALF) carries the additional risk of developing cerebral edema. Nurses who care for these patients require knowledge in the management of intracranial hypertension, and intracranial pressure (ICP) monitoring may be indicated. This presentation will review liver anatomy and physiology, the pathophysiology of ALF and the proposed mechanism for hepatic encephalopathy and cerebral edema. Two case studies will be presented to demonstrate the use of ICP monitoring in ALF. Principles of ICP monitoring will be reviewed and a protocol and education plan shared. The potential risks and benefits of ICP monitoring in patients with ALF will be discussed, and implications for practice identified.

# Extraordinary EVERY DAY

## Will critical care nursing survive? It is up to you! Reflecting on the past and present: Building YOUR extraordinary future

*Brenda Morgan, MSc, RN, CNCC(C), London, ON*

**Keywords:** critical care nursing (CCN), interactive technology, reflection, motivation, provocative.

**Presentation Type:** Concurrent

**Educational Stream:** Leadership

**Patient Population:** All Ages

**Description:** This session will examine the current state of critical care nursing (CCN), allowing individuals to reflect on a vision for a better CCN future. Interactive polling technology will be used to build a SWOT analysis to guide change. Participants will be challenged to consider strategies from the following perspectives: their personal needs, their patients and families, the nursing team, the employer, and the government.

### **Learning Objectives:**

1. Identify strategies for the recruitment and retention of critical care nurses (CCN).
2. Explore barriers and threats to critical care nursing (CCN) advancement.
3. Identify the impact of potential strategies on patients, families, the nursing team, employer, and government.

### **Abstract**

Critical care nursing (CCN) is at a perilous juncture. Facing the greatest threat in CCN history, SARS-CoV2 pandemic appeared as the culprit. However, the crisis in CCN has actually been smoldering for years; SARS-CoV2 just ignited the rocket fuel. SARS-CoV2 also brought CCN to the world stage. Critical care nurses must leverage the exposure during the pandemic to reset the future. The rapid capacity expansion came at overwhelming costs. Experienced nursing mentors were replaced with nurses new to critical care at an unparalleled rate. These new nurses were thrust into the chaotic fray, often without the supports needed to flourish. Confronted with terrifying new experiences, the mental health of nursing teams began to unravel. While SARS-CoV2 has not left, hospital admissions are more manageable. The makeup of teams and the characteristics of patients has changed. Beds are now filled by patients with complex and diverse diagnostic challenges. Young nursing teams are being challenged again, as they care for unfamiliar patient populations with advanced diseases. Many of these patients are unintended casualties of SARS-CoV2 prioritization. Critical care nurses save lives every day, especially when nurses have become the best version of themselves. To be Extraordinary Every Day, nurses need the knowledge, skill, and opportunity for growth. Nurses need healthy teams, healthy mental health, and to feel valued, respected, and heard. Drawing upon research evidence, and past and present reflections, this interactive session will use a SWOT framework to build YOUR CCN future. CCN is at a crossroad; the time for meaningful change has never been more right. Collectively nurses can change the future!



# Poster Abstracts (oral and printed)

## A clinical nurse-led quality improvement initiative to ensure best practice in peripherally inserted central catheter (PICC) daily line care and maintenance in the intensive care unit (ICU)

Rozmin Momin, RN, North York, ON and Jennifer Reguindin, MScN, RN, GNC(C), CCNE, Toronto, ON

**Keywords:** quality improvement, CLABSI, infection control, PICC Line, documentation

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** This oral poster presentation will discuss a nurse-led quality improvement (QI) initiative launched at an urban community hospital intensive care unit (ICU) where most patients have peripherally inserted central catheters (PICCs). The “3D PICC defense” initiative aims to enforce best practice PICC line care to prevent infection. PICCs provide a direct route to the heart for administering vital medications, but they expose patients to potentially fatal bloodstream infections, increasing hospital costs and mortality. Included will be discussions on why PICC line care is so critical, how and what this QI initiative measures, and will highlight the quality improvement journey and creative solutions, including visual management systems, standard operating procedures, and electronic medical record team recommendations.

### Learning Objectives:

1. Recognize the importance of daily peripherally inserted central catheters (PICC) line care and maintenance.
2. Identify the barriers to daily PICC line care standards in critical care units.
3. Learn about creative solutions implemented in an academic community hospital intensive care unit (ICU).

### Abstract

Central line-associated bloodstream infection (CLABSI) can develop in patients with central vascular access devices. CLABSIs are common in Canada, resulting in higher hospital costs, extended stays, and higher mortality rates. For example, The Canadian Nosocomial Infection Surveillance Program (CNISP) (CNISP, 2020) reported CLABSIs account for 69% of device-related infections in adult mixed ICUs, with a 32.2% all-cause mortality rate within 30 days of the first positive culture. At an urban community hospital’s mixed adult intensive care unit (ICU), 60-80% of admitted patients require peripherally inserted central catheters (PICC). Since PICC lines provide a direct medication administration route near the heart, CLABSI prevention strategies are essential in this unit. In addition, over 50% of daily nursing staff are new ICU registered nurses or nurses from a nursing agency. To improve PICC line care

and reduce the risk of infections, a nurse-led quality improvement initiative called “3D PICC Defense” was launched in collaboration with a joint academic practice fellowship. This initiative focuses on improving compliance with daily care, which includes aseptic non-touch techniques, dressing changes, site assessment, vascular access device (VAD) functionality assessment, changing needleless connectors, flushing, and documentation in an urban community hospital critical care unit. Using the Infusion Nursing Society (INS, 2021) practice recommendations, the quality improvement methodology included engaging an interprofessional team, analyzing gaps, using the plan-do-check model for improvement, applying audit and feedback methods, education, and creating sustainability plans.

## REFERENCES

- Canadian Nosocomial Infection Surveillance Program. (2020). Device-associated infections in Canadian acute-care hospitals from 2009 to 2018. (2020). *Canada Communicable Disease Report*, 46(11/12), 387–397. <https://doi.org/10.14745/ccdr.v46i1112a05>
- Gorski, L. A., Hadaway, L., Hagle, M. E., Broadhurst, D., Clare, S., Kleidon, T., Meyer, B. M., Nickel, B., Rowley, S., Sharpe, E., & Alexander, M. (2021). Infusion Therapy Standards of Practice, 8th Edition. *Journal of Infusion Nursing*, 44(1S), S1–S224
- Infusion Nursing Society. (2021, July 14). *Infusion therapy standards of practice*. Infusion Nursing Society. <https://www.ins1.org/publications/infusion-therapy-standards-of-practice/>
- Laupland, K. B., Lee, H., Gregson, D. B., & Manns, B. J. (2006). Cost of intensive care unit-acquired bloodstream infections. *Journal of Hospital Infection*, 63(2), 124–132. <https://doi.org/10.1016/j.jhin.2005.12.016>

## “Pause for the Cause”: Post-cardiac arrest hot debriefing

Sarah Bate, RN, Toronto, ON

**Keywords:** post-cardiac arrest, debriefing, interdisciplinary, STOP-5

**Educational Stream:** Quality

**Patient Population:** All Ages

**Description:** This oral poster presentation will focus on the integration and importance of hot post-cardiac arrest debriefing facilitated by intensive care unit (ICU) teams. Discussion will outline the aims, measurements, goals achieved, and lessons learned from this quality improvement initiative. Additionally, the presentation will outline the benefits of post-cardiac arrest debriefing for both systemic organizational levels and local unit levels. A description of specifically how the hot post-cardiac arrest debriefing tool STOP- 5, can be used in practice to facilitate collective reflection and complete hot

ABSTRACTS

# Extraordinary EVERY DAY

debriefing will be provided, along with exploring the barriers to complete post-cardiac arrest debriefing and how to mitigate these factors.

**Pre-requisites:** Experience participating in a cardiac arrest may be beneficial for context.

## Learning Objectives:

1. Describe the definition of hot debriefing.
2. Identify the benefits and importance of post-cardiac arrest debriefing for organizations and frontline healthcare professionals.
3. Understand how the hot post-cardiac arrest debriefing tool can be used in practice.
4. Discuss factors that prevent hot post-cardiac arrest debriefing from taking place.

## Abstract

Cardiac arrest events are not an uncommon occurrence in the intensive care unit (ICU), emergency department (ER) or medical wards, but there is no evidence-based method identified to evaluate the outcomes of these events. The literature and leading organizations which set out guidelines for resuscitation outline the benefit for hospital systems to incorporate assessment of performance measures and clinical debriefings to enhance resuscitation events. In keeping with these priorities, it has been critically important to acknowledge the need to humanize the traumatic resuscitation events to provide psychological safety for morally injured staff, as a result of the COVID-19 pandemic and by nature of working in critically high-stress environments. To integrate and improve completion of post-cardiac arrest hot debriefing within an urban community ICU, a collaborative interdisciplinary quality improvement initiative named "Pause for the Cause" was started. The quality improvement project aimed to create a sustainable method for intensive care unit resuscitation teams to facilitate, participate and collect quality improvement data after cardiac arrest events. Priorities of enhancing team engagement, attributing value to participation to enhance patient outcomes and promote continual learning have guided the initiative. Adoption of the STOP-5 debriefing method was used to create a scripted debriefing tool to facilitate collective conversations and serve a dual purpose as a documentation form for auditing purposes.

## The Pressure Injury Prevention and mAnagement (PIPA) Project: A quality improvement project in the paediatric intensive care unit (PICU) and acute care unit (ACU)

*Serina Colatrella, BSc(Kin), MSc(A) Student, Montréal, QC*

**Keywords:** pressure injury (PI), prevention, management, paediatric intensive care unit (PICU)

**Educational Stream:** Quality

**Patient Population:** Paediatric

**Description:** This oral poster presentation will introduce nurses to an algorithm including current evidence-based paediatric pressure injury (PI) prevention and management strategies developed in the context of a quality improvement (QI) initiative. The steps undertaken to develop the algorithm, including needs assessment, barriers and facilitators analysis, and tool implementation will be reviewed. Critical care nurses play a vital role in preventing and managing PIs in their patients, notably in intensive care unit (ICU) settings. In practice, the Pressure Injury Prevention and management (project can be used to optimize nurses' knowledge and autonomy in identifying, preventing, and managing PIs in the paediatric intensive care (PICU) setting.

## Learning Objectives:

1. Describe current evidence-based prevention and management strategies for pressure injuries (PI) in the paediatric setting.
2. Understand the methods and components of a knowledge translation project.
3. Understand how the Pressure Injury Prevention and Management (PIPA) project can be used in practice.

## Abstract

Paediatric patients hospitalized in the intensive care unit (PICU) are at a higher risk of developing pressure injuries (PI) due to prolonged immobilization, malnutrition, exposure to moisture, and medical devices. Hospital acquired pressure injuries (HAPI) are associated with increased morbidity, mortality, pain, infection, and length of stay. Medical device-related pressure injuries (MDPRI) are the most common type of HAPI. The majority of PIs can be prevented, leading to reduced psychological toll for children and their families. A paediatric intensive care unit (PICU) and an acute care unit (ACU) experienced a high incidence of PI, coupled with a low rate of nurse documentation about skin. A knowledge translation (KT) project was initiated to implement evidence-based PI prevention and management practices to meet the unique needs of PICU/ACU nurses and achieve the target of zero PI incidence. This session will outline current best practice recommendations for PI prevention and management and explore the methods used in the KT project, including needs assessment performance, barriers and facilitators assessment, algorithm development and implementation, outcome evaluation, and sustainability planning.

## Supporting children visiting the critically ill patient

Carissa Waddell, RN, Oromocto, NB and Lana McLean, Fredericton, NB

**Keywords:** children, family centered care, visitation policy, adult intensive care, nursing

**Educational Stream:** Clinical Practice

**Patient Population:** All Ages

**Description:** Children visiting in adult intensive care units (ICUs) are often perceived negatively by healthcare workers. In order to challenge these beliefs staff, require education and tools to best support children and families during stressful situations. A structured visitation policy relative to family-centred care needs to be developed to support individual needs of the patient and their loved ones. The aim of this oral poster presentation is to explore the barriers to children visiting the adult ICU, provide education and support to nurses and implementation of a visitation policy.

**Learning Objectives:**

1. Understand the definition of family-centred care.
2. Identify the positive impact of incorporating children into family-centred care within the intensive care unit (ICU).

3. Identify policies regarding visitation of children in the adult intensive care unit (ICU).
4. Identify education tools to assist with the implementation of a visitation policy.

**Abstract**

When it comes to family-centred care in adult intensive care units (ICU) infants, toddlers, school aged children, and adolescents are part of the whole family. The aim of this presentation is to explore the barriers to children visiting the adult ICU and provide education and support to nurses with the implementation of a visitation policy. Using family-centred care as a foundation will positively impact the critically ill patient. Restrictive visitation policies could induce separation anxiety and distressing fantasies relative to a critically ill family member. Giving age-appropriate information and support to children and families, flexible visitation can result in improved patient health outcomes. When available, psychosocial support should be implemented, such as child life specialist or social worker. Importantly, nurses require adequate education to understand and engage children in family-centred care. Encouraging age-appropriate interaction with loved ones in ICU restores a sense of inclusion with the family member.

---

## Poster Abstracts (printed)

### Five-minute audit: A novel approach to nursing quality improvement (QI)

Brenda Morgan, MSc, RN, CNCC(C), London, ON, Rebecca Park, BScN, RN, Sarnia, ON and Tiffany Dubreuil, RN, London, ON

**Keywords:** Quality Improvement, Nursing Engagement, Audit, Practice Standards

**Educational Stream:** Quality

**Patient Population:** All Ages

**Description:** This poster will describe a novel approach for real-time nursing practice audits. This strategy provides rapid reviews of expected practice and engages nurses to ensure practice standards are achieved.

**Learning Objectives:**

1. Describe the process of a 5-minute audit.
2. Interpret a run chart.
3. Identify additional topics that could be evaluated using a Five-Minute Audit.

**Abstract**

Critical care nurses (CCNs) practice in complex environments with rapidly changing practice expectations. Nurses must engage in continuous quality improvement (CQI) and remain life-long learners; the magnitude of expected CCN knowledge is daunting. Rapid nurse turnover has also made

it difficult to ensure standards are met consistently. A multi-pronged approach is needed to evaluate performance. Patient outcomes, care process, adverse events and clinical observations provide rich sources of data. Some outcomes are difficult to measure reliability (e.g., ventilator-associated pneumonia (VAP)) or are dependent on several process standards (e.g., central line-associated bloodstream infection (CLABSI)). Some practices and outcomes can be assessed through the electronic patient record, while others require real-time observations (e.g., hand hygiene). Quarterly quantitative reports provide important trending information, but do not offer context or practice reinforcements. The delay in reporting can make it difficult to connect individual practices to patient outcomes. This poster will present an innovative and real-time approach to CQI that gives nurses control over their practice quality and incorporates immediate practice reminders/education. Each 5-minute audit evaluates one aspect of care with results immediately entered into an online program by the auditing nurse. Topics are selected based on nurse feedback, adverse events and observed improvement opportunities. Audit forms are distributed at shift change. Nurses are instructed to report findings observed at the start of the shift. The patient and audited nurse are not identified. Results are downloaded into Microsoft® Excel® and analyzed to produce run charts by audited shift.

**ABSTRACTS**

# Extraordinary EVERY DAY

## A tale of two countries

Kathie Cowie, RN, Ilderton, ON

**Keywords:** Inspiration, collaboration, education

**Educational Stream:** Education

**Patient Population:** Adult

**Description:** This poster will share how Canadian nurses can share knowledge and experience to make a true impact on the lives of others around the world. Additionally, the poster will briefly outline the latest advances in recognition, prevention, and treatment of delirium in mechanically ventilated patients and will share stories about nursing in Việt Nam.

### Learning Objectives:

1. Identify the benefit of international nursing collaboration.
2. Understand the latest advances in intensive care unit (ICU) delirium.

### Abstract

One is rich, one is in need. One is east, one is west. One is spacious, one is crowded. From the outside, Canada and Việt Nam appear to be worlds apart. Intensive care unit (ICU) nurses worldwide are striving to reduce the incidence of delirium among their patients. Despite the serious consequences of delirium, such as an increase in mortality in the hospital, long-term cognitive decline, loss of autonomy and increased risk to be institutionalized, studies worldwide have demonstrated that although monitoring of delirium was implemented in 70% of ICUs, a proven diagnostic tool was used only in 42%. This is a tale of a Canadian nurse who has been traveling to Việt Nam for more than 25 years in order to share her knowledge with Vietnamese nurses and a Vietnamese nurse whose master's thesis focused on the recognition and treatment of delirium in mechanically ventilated patients. Together these nurses have a shared passion for improving the outcomes of their patients. In one nurse's words "I have the conviction that I want to change the role of nurses, I will go to great lengths to study hard, work hard and then inspire others with that knowledge, just as I have been inspired by the other nurse's visits."

## Exploring intensive care unit (ICU) nurses' clinical decision making in alarm management: An interpretive description study

Nikola Krakova, BScN, Calgary, AB

**Keywords:** Alarms, Management, Decision-Making

**Educational Stream:** Research

**Patient Population:** Adult

**Description:** The proliferation of physiologic monitoring is a central element of nursing in an intensive care unit (ICU). This poster will explore ICU nurses' clinical decision-making in alarm management, as it is important to the development of more effective alarm-related strategies and reducing alarm fatigue. The poster will focus on three steps of decision-making that capture the nurses' alarm management response: awareness, triage, and response.

### Learning Objectives:

1. Describe the factors that contribute to alarm fatigue and its impact on patient safety.
2. Identify nurses' clinical decision-making behind alarm management.
3. Describe strategies nurses can use to reduce non-clinically significant alarms to help reduce alarm fatigue.

### Abstract

Alarm fatigue, which occurs when the exposure to increased amount of false or nonactionable alarms lead to alarm desensitization and reduced clinical response by the healthcare provider and can pose a significant risk to patient safety. With the increasing advances in technology and frequency of alarms in our healthcare system, alarm fatigue is an important and growing safety concern that needs to be addressed. Exploring alarm-related clinical decision-making is key in reducing alarm fatigue, as it is important to the development of alarm management related initiatives, education, and policies. To examine this, interpretive description methodology was used to explore factors that influence intensive care unit (ICU) nurses' clinical decision-making regarding alarm management, specifically how they triage and respond to various alarms. This study included 12 participants, comprised of nurses with varying levels of experience, working in three different ICUs. The results of the interviews suggest that the nurses' decision-making consists of three steps that capture their alarm management response: awareness, triage, and response. Based on these results, establishing a positive alarm management culture, and providing recurring alarm-related education should be evaluated to implement an effective alarm management response to reduce alarm fatigue.

## “I need a minute” - Promoting wellness in critical care

Kimberley Capoccitti, MN, RN, Richmond Hill, ON, Julie Nardi, RRT, Markham, Beth Linseman, RN, CNCC(C), Toronto, ON and Heather Harrington, BScN, RN, CNCC(C), CCN(C), Ajax, ON

**Keywords:** well-being, burnout, wellness, staff retention, self-care

**Educational Stream:** Quality

**Patient Population:** Adult

**Description:** Evidence-based literature describes the level of burnout, moral distress, and dissatisfaction among healthcare providers. It is essential to identify and address these factors among critical care staff in order to maintain high-functioning teams and provide quality patient care. This poster will share how a hospital implemented strategic initiatives for critical care staff and how it has improved the well-being of staff while at work. The goal of this poster is to promote awareness of the successful wellness initiatives implemented within the critical care areas of the organization that could prove beneficial to other healthcare institutions with similar concerns.

### Learning Objectives:

1. Describe the affect of staff burnout on teamwork and patient care.
2. Describe the affect of burnout on the individual and overall well-being.
3. Identify areas of opportunity for staff well-being while at work.

### Abstract

Staff well-being and retention within the critical care environment was an ongoing challenge pre-pandemic, leading into a staffing shortage crisis post-pandemic. The consequences of burnout on the individual include exhaustion, worry, stress, poor decision-making, pessimism and feeling disconnected. Meanwhile, the impact on teams includes reduced team morale, poor communication, and negative emotional contagion. By placing emphasis on self-care, the hope is to improve team morale, which will promote better teamwork and provide high-quality patient care, staff retention and recruitment, which is a critical issue in the current healthcare environment. The strategic initiatives for critical care staff implemented within the organization, includes a quiet rejuvenating space with massage chairs and light refreshments, an iPad, with a meditation app, for music. Providing staff with pet therapy, a recognition program, and promoting awareness of the organization's wellness resources via an app used within critical care. A modified perceived stress scale was used pre and post intervention to determine the effect the wellness space had on provider perceived stress with effect. A visual analog scale was also used to understand the baseline stress levels of intensive care unit (ICU) staff prior to use of the wellness intervention bundle. This successful wellness initiative implemented within the critical care areas of the organization could prove beneficial to other healthcare institutions with similar concerns.

## Identifiable clinical characteristics of pulmonary embolisms in cancer patients

Valerye Ng, RN, New York, NY

**Keywords:** pulmonary embolism, cancer patients

**Educational Stream:** Research

**Patient Population:** Adult

**Description:** Incidence of pulmonary embolism in high-risk cancer patients is now a common occurrence often with fatal outcomes. Clinical evidence and strategies are still not clear on the differentiation and early detection of pulmonary embolisms in cancer patients. This poster aims to review and identify clinical manifestations of pulmonary embolism specific to cancer patients to provide earlier detection and clinical management.

### Learning Objectives:

1. Identify clinical manifestations of pulmonary embolism in cancer patients.
2. Understand early detection and clinical management.

### Abstract

**Background:** Incidence of pulmonary embolism in high-risk cancer patients is now a common occurrence often with fatal outcomes. Clinical evidence and strategies are still not clear on the differentiation and early detection of pulmonary embolisms in cancer patients.

**Objective:** This research aims to review and identify clinical manifestations of pulmonary embolism specific to cancer patients to provide earlier detection and clinical management.

**Methods:** A review of current literature including clinical manifestations and symptoms of pulmonary embolism in cancer patients was conducted.

**Results:** Many cancer patients presented with dyspnea, syncope, chest pain with high percentages of patients presenting with no symptoms before the diagnosis of a pulmonary embolism. Elevation of laboratory findings in patients with cancer and pulmonary embolism were fibrinogen, C-reactive protein, procalcitonin, *acid-base (pH)*, and lactic acid.

**Conclusions:** More research is needed for the identification of unique and specific characteristics of pulmonary embolism in the cancer patient population.

ABSTRACTS

# Extraordinary EVERY DAY

## Mentorship program for newly graduated critical care nurses

Fiona Howarth, BA, BScN, RN, Abbotsford, BC

**Keywords:** mentorship, new graduates, transition to practice, professional growth, leadership

**Educational Stream:** Leadership

**Patient Population:** All Ages

**Description:** This poster will introduce nurses and leaders to the importance of having a formalized mentorship program within the intensive care unit (ICU) for new critical care nurses to help guide their transition to practice in critical care. A formalized program can help reduce anxiety of novice nurses and provide a trusted role model to turn to for assistance. A mentorship program builds leadership abilities in experienced critical care nurses who take on the role of a mentor and provides experienced critical care nurses insight into the common experiences of novice nurses transitioning to critical care. This in turn helps them support other novice nurses.

### Learning Objectives:

1. Describe a mentorship program.
2. Describe the impact of a mentorship program on novice and experienced critical care nurses.
3. Identify common new graduate nurses concerns in their first year of practice.

### Abstract

A formal mentorship program was developed to provide structure for new critical care nurses that informal mentorship lacks during the early phase after their graduation. This program was designed to help new nurses better adjust to the culture of the unit and address common concerns that arise during the first year of practice. Mentoring focuses on a collaborative relationship over a year where the relationship is built upon mutually defined goals. A mentor is an advisor, skills consultant, and role model for the mentee. The mentor makes a conscious effort in a nurturing relationship to foster their mentees potential. Ideally, mentors provide support, challenge, and vision to their mentee through a formal or informal process. Mentoring builds leadership in experienced staff which, in turn, promotes professional growth and expands their use of evidence-informed practice. Goals and expectations are established between mentor and mentee and are reviewed monthly. The mentor's role is intended to provide direction to the mentee in their transition to critical care, as well as help them achieve their self defined goals. Participation in the mentorship program is monthly, voluntary, and paid for both mentor and mentee.

## Orientation – how we doing? Exploring the design, delivery, and revisions of orientation to meet the needs of new critical care nurses

Tiffany Dubreuil, RN, London, ON, Rebecca Park, BScN, RN, Sarnia, ON, Kendrah Krouskos, BScN, RN, CNCC(C), London, ON, Ian Dashnay, BScN, BSc Biology, RN, CNCC(C), London, ON and Sheila Hunt, BScN, RN, London, ON

**Keywords:** orientation, nurse, education

**Educational Stream:** Education

**Patient Population:** Adult

**Description:** This poster will feature a large multi-site academic centre that uses a hospital-based, cross-site critical care program to onboard new nurses. The program incorporates critical care theory, simulation, and supernumerary clinical experiences. The original program was modelled to support the intake of nurses with prior medical or surgical experience who had previously completed an electrocardiogram (ECG) interpretation course. To facilitate the intake of nurses without historical prerequisites, new graduates and internationally educated nurses, program modifications were implemented to support their learning. Information presented will include the framework for the critical care program including strategies used to deliver content and engage learners, as well as program modifications to accommodate those entering critical care without historical prerequisites and the challenges, lessons learned and successes of those changes.

### Learning Objectives:

1. Understand the program orientation design.
2. Identify orientation modifications to accommodate learner needs.
3. Identify challenges encountered, lessons learned and future opportunities for growth.

### Abstract

Educating new critical care nurses is vital to developing and supporting their transition to competent entry level practice. A large multi-site academic centre with 75 adult critical care beds uses a hospital-based, cross-site critical care program to onboard new nurses. The program incorporates critical care theory, simulation, and supernumerary clinical experiences. This approach to education has enabled the centre to integrate core critical care knowledge and skill preparation with unit specific standards, policies, and protocols. The program was modelled to support the intake of nurses with prior medical or surgical experience who had previously completed an electrocardiogram (ECG) interpretation course. In response to critical staffing concerns the educator team was urgently called-upon to modify the program to facilitate the intake of new graduates, internationally educated nurses and nurses without an ECG interpretation course. The team responded rapidly by customizing the existing program to ensure that new team members received the additional education and support required to ensure their success. Information around the framework for the critical care program including strategies used to deliver content and engage learners, program modifications to accommodate those entering critical care without historical prerequisites and the challenges, lessons learned, and successes of those changes will be shared.

## Restoring the humanity in healthcare: A quality improvement journey to rebuild joy in the workplace

Karolynn Holland, RN, Brookside, NS, Christopher Fraser, Halifax, NS and Cynthia Isenor, MScN, RN, Lantz, NS

**Keywords:** joy, morale, burnout, quality improvement

**Educational Stream:** Quality

**Patient Population:** All Ages

**Description:** This poster will highlight the importance of joy in work and describe the methods a leadership team utilized to implement a quality improvement (QI) project aimed at improving joy in work for critical care team members. Focusing QI on what matters most for staff creates the opportunity to bring a deeper sense of meaning and connection to purpose, both of which are integral to joy in work. The poster will present key change ideas, including what worked well, and what did not.

### Learning Objectives:

1. Identify the importance of joy in work.
2. Describe key change ideas for improving joy in work.
3. Identify assessment tools used for gauging efforts to improve joy in work.
4. Facilitate the use of teams to make improvement and empower people to act.

### Abstract

Caregiver burnout and loss of morale are well documented in the literature and are on the rise. Burnout and loss of morale negatively affect the quality of care, patient safety, organizational performance, and contribute to a lack of commitment, engagement, and satisfaction of the team. An important part of the solution for burnout and loss of morale is focusing on restoring joy in our workforce. With this in mind, a leadership group shifted focus from the deficits or gaps to an approach that leveraged their assets and focused on solutions. It was recognized that the compassion and dedication of their teams are key assets that, if cultivated and not impeded, could lead to effective and empathetic care, and most importantly joy within the teams. Utilizing three of the key steps from the IHI framework Joy in Work, the leadership group began to see an evolving path forward. 'Loving Rounds' were implemented in three intensive care units (ICUs). Members of the leadership team entered into candid conversations with front line staff to discuss what mattered most to them, identify the unique local impediments to joy in work, and to demonstrate to staff their commitment to making joy at work a shared responsibility at all levels. It was discovered that by approaching issues from a different perspective, designing innovative team-based solutions, and focusing on joy through improving and enhancing the connections to meaning and purpose, healthcare leaders can reduce burnout and increase reported morale while simultaneously building on the resilience healthcare workers rely on each day.

## Transvenous pacemakers (TVPM): It is electrifying how easy they can be!

Karen Raz, BSN, RN, CNCC(C), Chilliwack, BC and Caroline Penner, RN, CNCC(C), Langley, BC

**Keywords:** pacemaker, transvenous, capture, threshold, introducer

**Educational Stream:** Clinical Practice

**Patient Population:** Adult

**Description:** Critical care nurses encounter, provide physician assistance for insertion, and care for patients who have temporary transvenous pacemakers. This poster will describe the indications for a flow-directed transvenous pacemaker (TVPM), review the set up of a TVPM and provide guidance on how to assess for appropriate pulse generator function and safety checks.

### Learning Objectives:

1. Identify the indications for a transvenous pacemaker (TVPM).
2. Identify the process of a flow directed TVPM insertion and generator set up.
3. Understand the safety measures for a patient with a TVPM.
4. Identify the potential complications and troubleshooting of a TVPM.
5. Understand the assessment of electrocardiogram (ECG) rhythms to determine appropriate pacemaker function.

### Abstract

Transvenous pacemakers (TVPM) are inserted in patients with bradyarrhythmias of various etiologies. When a TVPM is required, due to hemodynamic instability, the situation is often urgent. The critical care nurse, both novice and experienced, need the assessment skills to recognize the critical situations that require a TVPM. Review of the indications, set up of equipment, tasks during insertion, assessment of the patient, electrocardiogram (ECG) interpretation and safety checks will be explained in the presentation. Critical care nurses will be provided with the skill set and competency knowledge required to assist with insertion, assessment, and care for a patient with a temporary flow directed TVPM.

