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INTERNATIONAL PERSPECTIVES IN EMERGENCY, TRAUMA AND CRITICAL CARE NURSING

STUDENT JOURNAL






About the International Perspectives in Emergency, Trauma and Critical Care Nursing Journal

The International Perspectives in Emergency, Trauma and Critical Care Nursing is the journal for students completing the Birmingham City University Professional Practice Adult Critical Care and Cardiac Care programmes and is published in collaboration with the Critical Care Nurses Association of Zambia (CCNAZ). The journal is managed by the BCU HELS Centre of International Health Partnerships and on completion of the education programmes, CCNAZ have agreed to continue the journal using it as a vehicle to promote emergency, trauma and critical care nursing across Zambia and the wider central Africa region. The journal spans the whole continuum of acute and critical care nursing and includes all aspects of adult, paediatric and neonatal critical care nursing including surgery, medicine, cardiac, renal, neurosciences and rehabilitation.

This peer reviewed international journal provides a platform for emergency, trauma and critical care nurses across our partnership to share nursing practice, research, education, or management relating to emergency, trauma and critical care nursing. This will support and facilitate opportunities for nurses to learn publication skills, to enable them to share and disseminate best practice. The ethos of the journal is the promotion of quality and excellence of care for acute and critically ill patients. The journal will be published twice yearly and will be open access.

The journal is registered with an International Standard Serial Number (ISSN) reference number: 2976-9523

For more information please email: CIHP@bcu.ac.uk

Editorial Board

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Welcome

This edition marks the start of the third year of the journal, and we have some exciting news. Since the last edition, the team have successfully, registered the journal with an International Standard Serial Number (ISSN) (reference number: 2976-9523). The advantage of an ISSN number includes increased visibility and recognition of the journal. When the journal was established, the aim was to provide a platform to share ideas and best practice. To do this mentoring and capacity building of local nurse researchers to undertake research is crucial and we are delighted that in this edition we include several study protocols, information of a special edition on rehabilitation following critical illness and abstracts from the Birmingham City University Master of Science showcase.

Over the last 2 years, the journal has published 13 peer reviewed articles, 7 guest editorials / opinion pieces, 3 Lessons from practice and 3 Conference proceedings / Professional Practice research showcases. Authors from Zambia, Malawi, Botswana and UK have all contributed to the success of the journal. The journal now includes students from the UK, and we are delighted that in this edition, we have two papers on sepsis, one on education (from Zambia) and one from clinical practice (UK). We are also including two research protocols and the abstracts from the Birmingham City University Professional Practice MSc Research Showcase.

This edition also includes news about a special edition on rehabilitation following critical illness and details of this year's Critical Care Nurses Association of Zambia (CCNAZ) conference. To achieve these successes, we need an editorial board, and the team recently meet, and a number of exciting plans are in place for the next two years. These include special editions on Emergency and Trauma Nursing, Cardiovascular Nursing and Renal Nursing. We look forward to providing an update at the forthcoming CCNAZ conference and we hope that you will be able to join us in Ndola.

Call for Papers: Special edition Resilience and Recovery: Transforming Rehabilitation Post-Critical Illness in Zambia

Guest Editor: Mrs Sabelo Maphenduka, President Critical Care Nurses Association of Zambia

Executive Editors: Assoc Prof Chris Carter & Prof Joy Notter, Centre for International Health Partnerships, Birmingham City University

Access to critical care services in Zambia has been improving over the last decade, with increasing specialisation for example, cardiac surgery, renal transplants and dedicated paediatric intensive care units. Rehabilitation both during and after critical care, is key to maximizing recovery from critical illness, however, it is often neglected. In consequence, a special edition will focus on rehabilitation following critical illness in autumn 2025.

Post-intensive care syndrome (PICS or PICS-P in children) is defined as new or worsening physical, cognitive, or psychological impairment resulting from prolonged critical illness (Manning et al., 2018; Rawal et al 2017). Baumgarten and Poulsen (2015) highlights critical care as a place, which makes people feel vulnerable, isolated, exhausted, and overly dependent on others. Schofield-Robinson et al's (2018) Cochrane systematic review identified the need for more research into this topic from low- and low-middle income countries. However, while it is evident we see patients with PICS and PICS-P and complications including ICU acquired muscle weakness, delirium and malnutrition, it is often not addressed. Nurses are change agents and often the conduit between the multi-disciplinary team and the patient.

International Perspectives in Emergency, Trauma and Critical Care would like to invite the submission of papers to contribute to this special issue focused on the provision of rehabilitation during and after critical illness. Papers reporting primary research, literature reviews, case studies, quality improvement and critical commentaries related to rehabilitation in and after neonatal, paediatric and adult critical care are welcome.

If you are interested in contributing but would like support, the journal does offer a mentorship / buddy scheme where you can work with an experienced author.

Papers should be submitted via email to CIHP@bcu.ac.uk with the subject title *'Special Edition: Rehabilitation'.*

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Critical Care Nurses Association of Zambia 3rd Annual Scientific Conference

The Critical Care Nurses Association of Zambia (CCNAZ) was established in 2022, and we are delighted to announce our 3rd Annual Scientific Conference for Critical Care and Emergency & Trauma nurses. The conference will take place at the Njele Country Park in Ndola from 24th to 25th June 2025.

The theme of this year's conference is the '*Critical Care Without Walls: From Emergency Department to Rehabilitation'*. The World Health Organization (2023) focus is on strengthening emergency and critical care services aiming to increase access and improve outcomes. This will result in increasing numbers of critical care survivors over the next decade. However, it is a cause for concern that rehabilitation following critical illness is often neglected and only becomes apparent when problems arise (WHO, 2024). Therefore, it is important as a specialist nursing group representing Emergency and Trauma and Critical Care Nurses, this conference will on capacity strengthening the entire patient pathway of adults, children and neonates.

Emergency and Trauma and Critical care education and practice has undergone significant changes in the last five years, and we now need to discuss ways to embed these changes into practice. In consequence, this conference will bring together critical care and emergency and trauma nurses from across the country, to add your voices to the national agenda.

This is your conference, therefore, we encourage you, as critical care and emergency and trauma nurses and students, to submit oral and poster presentation abstracts, as everyone has something to share and contribute. This will also provide an opportunity to share and celebrate research activities, quality improvement projects and best practice.

We look forward to seeing you at the conference, in what will be an exciting, informative, and packed conference.

Key dates for Abstracts

- Submission opens: 17th February 2025
- Submission closes: 17th April 2025
- Submissions should be emailed to: chris.carter@bcu.ac.uk

Abstract & Poster Information

The abstract template should be typed using Arial 11 pt; the full abstract should fit on one page and should be no longer than approx. 300 words.

The title should be as brief as possible, but long enough to indicate clearly the nature of the work. The title of the presentation should be in bold with no full stop at the end. Name(s) of author(s) should follow with their respective school(s) and department(s) etc.

Abstracts should generally conform to the following format:

- Introduction: Give a brief introduction/background to the study/project.
- Aim: Clearly state the aim and/or objectives.
- Method: Briefly describe your selection methodology: how it was undertaken, what did you do.
- Results/findings: Present your results/findings in a logical sequence in text. Please do not use tables or illustrations.
- Discussion/conclusion: Emphasise new and important aspects of the study/project and conclusions that are drawn from them.

Abstracts should include at least one and up to three academic references using the Harvard system that supports your paper.

Headings should be in bold. The title and authors should be centred, and the text justified. Abstract should not exceed 300 words (excluding references).

Poster Presentation Details

Posters must be displayed during the whole of the Conference period. Selected poster presenters will be expected to provide up to a 5-minute presentation on their poster during the poster walks. It is essential that poster authors include their email address on their poster for identification purposes. Posters for this year's conference will be displayed as electronic posters.

Abstracts must be submitted in the format outlined above. The e-poster must be no more than 1 PowerPoint slide in landscape format.

General Information

All oral and poster presentation abstracts will be published in the International Perspectives in Emergency, Trauma and Critical Care Nursing journal. Examples of previous CCNAZ Conference Abstracts can be found in:

- Selected Abstracts from Critical Care Nurses Association of Zambia (CCNAZ) 2nd Scientific Conference. *International Journal of Emergency, Trauma and Critical Care Nursing*. 1(4): 21-29
- Conference Proceedings: Future Directions in Critical Care Nursing in Zambia. *International Journal of Emergency, Trauma and Critical Care Nursing.* 1(2): 28

Any queries should be sent to chris.carter@bcu.ac.uk / CIHP@bcu.ac.uk

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A Case study on Knowledge, Attitudes and Practices of Sepsis Diagnosis, Stratification and Management Among Master of Science Emergency and Trauma Students in Zambia.

Martha Mbewe

Email: martha.mbewe@mail.bcu.ac.uk

Abstract

Background: Sepsis is a global health challenge which is a life-threatening, time-critical medical emergency. However, it is a cause for concern that healthcare workers, particularly in low- and middle-income countries (LMICs), often lack adequate knowledge and training in sepsis recognition and management. This paper critically evaluates the knowledge, attitudes, and practices (KAP) related to sepsis diagnosis, stratification, and management among Master of Science (MSc) Emergency and Trauma Nursing (ETN) students in Zambia.

Method: A critical review of the literature was conducted using PubMed, CINAHL, and peer reviewed journals in January 2025.

Findings: Key themes identified included knowledge deficits, outdated curricula, and limited exposure to standardized protocols hinder effective sepsis management. In Zambia, infectious diseases are a leading cause of mortality, therefore emergency and trauma nurses must be equipped with the necessary competencies to respond swiftly. However, the current MSc ETN curriculum dedicates insufficient time to sepsis education, exacerbating gaps in knowledge and preparedness.

Conclusion: Findings suggest that enhancing sepsis training through structured educational interventions, case-based learning, and simulation-based teaching can improve proficiency. The study underscores the importance of integrating evidence-based sepsis protocols, such as Sepsis-3 criteria and early warning tools, into nursing curricula. Additionally, fostering clinical leadership among MSc ETN students can drive improvements in sepsis care.

Keywords: Sepsis, Emergency and Trauma Nursing, Knowledge-Attitude-Practice (KAP), Curriculum Reform, Sepsis Management

Sepsis is a global health problem, causing one in five deaths around the world (World Health Organization 2025). It is a life-threatening emergency and time-dependent condition that requires timely management to reduce mortality (Guarino et al., 2023). Without timely treatment, sepsis can rapidly lead to tissue damage, organ failure and death. This paper will use a case study to critically evaluate the knowledge, attitudes and practices of sepsis diagnosis, stratification and management among Master of Science (MSc) Emergency and Trauma Students at a medical University in Zambia. It will also include a critical review of the literature, change management in the context of sepsis care, areas of improvement, conclusion and recommendations. The sources of literature include databases for published research such as Pub med, CINAHL, book chapters and peer reviewed journals.

Over 140 million patients access emergency and urgent care each year in a range of settings and services worldwide (Cairns et al., 2023). Central to each of these services are the nursing teams working alongside other professional colleagues to ensure that these patients and their families receive world-class care. In 2017, an estimated 48.9 million incident cases of sepsis were reported worldwide with 11.0 million sepsis-related deaths (Rudd et al,.2020). Respiratory, gastrointestinal, genitourinary, skin and soft tissue infections are the most common sources of sepsis with pneumonia being the most common cause of sepsis (Gauer et al., 2020). A significant proportion of these cases occur in low- and middle-income countries (LMICs), where limited resources and inadequate training often hinder optimal care.

Sub-Saharan Africa has a high burden of sepsis, attributed to factors such as infectious diseases (e.g., malaria, HIV/AIDS, and tuberculosis) and delayed healthcare access (Fleischmann-Struzek et al., 2020). Keeley and Nsutebu (2021) point out healthcare workers in the region often lack sufficient training in early sepsis recognition. Therefore, it is important that Emergency and Trauma nurses who are often the first point of contact for patients with sepsis in the Emergency Department (ED) possess adequate knowledge in the

management of medical surgical emergencies including sepsis. Alaro et al (2024) point out that nurses who lack adequate knowledge of sepsis management have a detrimental impact on the quality of patient care. It is therefore, a cause for concern that there is no published evidence regarding Zambian nurses' expertise of sepsis diagnosis, stratification and management, particularly student nurses pursuing a master's degree in trauma and emergency nursing (ETN).

ETN is a specialty in which the nurse cares for patients in the emergency or critical phase of their illness or injury, focusing on the level of severity and timely interventions and are often the patient's first point of contact (Emergency Nurses Association, 2019). The role they play in assessment and triage can be crucial in initiating treatment. However, recent studies have shown that nurses do not have adequate knowledge and training in sepsis assessment and management (Rahman et al., 2019, Storozuk 2019, Van den 2016). These inexperienced nurses run the risk of giving students false information, which jeopardizes the early detection of sepsis. It is also a cause for concern that standards of emergency nursing in Africa remain variable with no formal specialization as is the case in Zambia. In Zambia, ETN is a relatively new speciality in nursing, with specialist nurse education commencing in 2023 at Masters level, 2022 at Bachelor of Science and 2018 at Advanced diploma level. However, the challenge the health care system faces in Zambia is that there still remains a lack of trained ETNs able to respond to emergencies in the first critical hours with the required knowledge, skill, speed and attitude.

At a leading university in Zambia, in response to the above challenge, the ETN programme where students are prepared to manage different emergency medical and surgical conditions including sepsis education and training was recently introduced. The course requires ETNs to gain a diverse knowledge base and skill mix, to provide care that is integrated to address all time-sensitive conditions that may rapidly progress to death or disability if left untreated. ETNs are the mainstay of the emergency care workforce in the ED and many clinical settings (Nyhus and Kamara, 2017). Graduates of this programme are expected to possess the highest levels of clinical knowledge and expertise which enables them to respond to the unique needs of every patient presenting with a medical emergency or traumatic condition. This is crucial in Zambia, given the limited numbers and availability of doctors and specialist emergency medicine physicians (Kayamba et al., 2022).

The current ETN curriculum review identified that the sepsis component is inadequate as it accounts for only one hour for students to learn the theoretical component, worse still, there is no independent study content regarding the issue of sepsis and its management. In consequence, there is urgent need to review and revise the curriculum to enable students to master the knowledge, skills and develop positive attitudes to respond to this complex condition. This situation is not unique to Zambia, Rababa (2022) reported that most nursing curricula lack focus on the management of sepsis, meaning that many nursing graduates have insufficient knowledge, poor attitudes and practices related to the early assessment and management of sepsis. The situation is compounded because recent studies suggest that knowledge gaps in LMICs often stem from outdated curricula and limited exposure to standardized sepsis protocols (Otu et al., 2024; Alaro et al., 2024; Rudd et al., 2020). Further, Keeley and Nsutebu (2021) demonstrated that healthcare workers in the region often lack sufficient training in early sepsis recognition. Many African healthcare workers recognize sepsis as a critical issue but cite challenges such as understaffing and lack of diagnostic tools as barriers to timely management (Ackers et., 2020). This is supported by Simbeya et al's (2023) findings in Zambia which highlighted low awareness of the Sepsis-3 criteria among healthcare workers, with many relying on clinical intuition rather than structured diagnostic tools. However, Reynolds et al (2012) reported training of healthcare workers in Tanzania improved sepsis knowledge.

This situation needs to be urgently addressed, because as Singer et al (2016) point out that patient survival depends on an early and precise diagnosis of sepsis. In the light of this, guidelines and protocols have been developed to improve understanding of sepsis (Singer et al., 2016). Therefore, integrating advanced diagnostic tools and case-based learning could improve proficiency into the Master's programme would have two advantages, it would update the curricula and improve nurses knowledge and practice.

Keeley and Nsutebu (2021) concluded that one of the challenges faced in practice is that healthcare workers particularly those in training may view sepsis management as less critical than trauma or other emergencies due to competing priorities. Chua et al (2021) support this concluding that there is still limited knowledge among nursing students about sepsis and recommended that educational curricula of nursing studies should increase the number of sepsis lectures and use innovative techniques. Mandatory inclusion of sepsis module at all stages of nursing training, early recognition and management approach using care bundles such as

Sepsis 6 or SSC Care Bundles could improve timely response (Kim and Park, 2019). In addition, the use of structured assessment tools such as triage, early warning scoring tools and the qSOFA (quick Sequential Organ Failure Assessment) score could help to improve the quality of care and change perceptions of sepsis (Simbeya et al., 2023).

In Zambia, infectious diseases remain a leading cause of hospital admissions and mortality (Mara, 2016). However, as cited above data on sepsis-related Knowledge Attitudes and Practices (KAP) among health workers is sparse, underscoring the need for targeted studies. Effective diagnosis and management depend on healthcare workers' KAP. This is critical for addressing sepsis effectively. This is supported by Gizaw et al (2018) Ethiopian study which recommended that nurses must have a broad understanding of sepsis, as they found many nurses had misconceptions about sepsis.

It is well known that sepsis is a significant contributor to morbidity and mortality in Zambia, as in many sub-Saharan African countries (Kayamba et al., 2022). Rhee et al (2019) highlighted that 40% of sepsis-related deaths in the hospital were due to delays in ED care. However, accurate national statistics on sepsis mortality rates in Zambia are limited due to challenges in data collection and reporting (Simbeya et al., 2023; Chimese, 2012). Rababa et al (2020) assert that ETNs have a key role in the early assessment and management of sepsis, which is crucial for optimal quality of care and better patient outcomes. They argue that sepsis in critically ill patients is under-recognised and untreated due to nurses' poor knowledge and decision-making skills. From the limited evidence available inclusion of KAP for ETNs would be of benefit, because it would improve knowledge of sepsis diagnosis, stratification, and management. It is a challenge that repeatedly that global studies highlight gaps in health workers' knowledge regarding sepsis diagnosis, with many unable to identify early warning signs or apply updated guidelines such as the Sepsis-3 Definition (Singer et al., 2016; Chua et al., 2023; Friganovic et al., 2024; Fusco et al., 2023; Maina et al., 2023). Fusco et al (2023) highlights that nurses often spend the most amount of time with patients and are often the first responder when a patient deteriorates. Therefore, ETNs must have adequate knowledge of sepsis and the sepsis guidelines.

Globally, attitudes towards sepsis management are shaped by workload, perceived efficacy of interventions, and access to resources. Healthcare workers in high-income countries (HICs) often prioritize sepsis, as there has been a focus on introducing education, resources and protocols (Alhazzani et al., 2021). In contrast in many African healthcare workers recognize sepsis as a critical issue but cite challenges such as understaffing and lack of diagnostic tools as barriers to timely management (Ackers et al., 2020). Simbeya et al (2023) Zambian study found that healthcare workers often view sepsis management as less urgent compared to other critical conditions, partly due to competing priorities and resource limitations. Therefore, MSc level ETNs need to not only know about sepsis recognition and management but accept that they have a responsibility for clinical leadership and to challenge decisions made by other professional groups who may not recognize or prioritize sepsis.

Sepsis is multi-faceted and requires accurate clinical decision making and a multidisciplinary approach (Kayamba et al., 2022). Nurses contribute significantly to enhanced patient outcomes, timely diagnosis, coordinated care, improved medication management, and ongoing patient support. They accomplish this through their expertise, assessments, interventions, and close monitoring (Harrison 2023). Therefore, training MSc ETN students in early sepsis recognition and management using simplified, evidence-based guidelines would also help to bridge the student’s knowledge gaps. Kalusopa et al (2023) affirmed in their study that early clinical experience improved students' clinical abilities, confidence, and preparedness for professional practice. The expected course outcomes could be reinforced by embedding them into curricula as core competences to be attained. Also outlining assessment tools and clinical rotations with the number of hours for adequate exposure. Clinical teachers or clinical faculty members must be aware of barriers that may be experienced and ensure that potential barriers are removed. The use of sepsis education strategies such as simulations, interactive case discussions, case base scenarios with protocolised posters could improve knowledge and skills (Gönülcan et al., 2024; Fernández-Ros et al., 2021). Direct observation of practical skills (DOPS), objective structured clinical examination (OSCE) and clinical competencies are also needed to assess and embed changes in practice (Fathi & Ibrahim, 2023). Further, there is a need to advocate for national sepsis guidelines that incorporate resource-limited adaptations.

Sepsis is a critical global health issue with high morbidity and mortality, particularly in resource-limited settings. Education is one way to improve the recognition and management of sepsis. Therefore, it is crucial that ETNs possess sufficient knowledge and competencies to identify and initiate appropriate management protocols for sepsis. There is a pressing need to develop educational programmes tailored to equip future

healthcare professionals with the necessary skills and knowledge to recognise and respond to sepsis cases competently. This includes increasing the number of hours and teaching strategies used regarding sepsis and only through this can the high mortality of sepsis in Zambia be reduced.

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Bridging the Gap in Sepsis Care: The Case for Enhanced Care Areas in Acute Hospitals

Martine Rooney

Email: martine.rooney@mail.bcu.ac.uk

Abstract

Background: This paper critically evaluates the care provided to a patient admitted to a high-income country (HIC) hospital with sepsis, highlighting key lapses in care that contributed to a missed diagnosis and subsequent deterioration.

Method: Using a case study approach, the paper identifies systemic gaps in patient monitoring and escalation, particularly for those who require a higher level of care than standard ward-based management but do not meet the criteria for critical care admission.

Findings: This case study underscores the risks associated with the absence of an intermediate level of care, where patients are too ill for standard ward management but not deemed critical enough for critical care. The paper argues for the establishment of an enhanced care area (ECA) within acute hospitals, bridging the gap between ward-based care and critical care.

Conclusion: ECAs must be staffed by specially trained nurses with close ties to critical care. They could provide early interventions, continuous monitoring, and timely escalation for deteriorating patients for emergency patients. While resource implications must be considered, the high cost of sepsis-related complications justifies investment in enhanced care provision. This paper concludes that implementing ECAs could play a vital role in improving sepsis management, reducing mortality, and enhancing the overall quality of care for critically ill patients.

This paper critically evaluates the care provided to a patient admitted to a hospital in a high-income country (HIC) with a diagnosis of sepsis. Sepsis is defined as a life-threatening organ dysfunction resulting from an impaired host response to infection (Singer et al., 2016). The management of sepsis is reliant on early recognition, early administration of appropriate antibiotic therapy, and the management of patient's haemodynamic status (Lin, 2020). Internationally, sepsis is one of the greatest burdens on all health care systems (Meyer and Prescott, 2024). The UK Sepsis Trust (2024) estimated 245,000 people in the UK alone develop Sepsis annually, of which 48,000 will die. Therefore, to reduce its impact, health care professionals should focus on ruling sepsis out, rather than waiting to rule it in (Baker, 2022; National Institute for Clinical Excellence, 2024). Using a case study approach this paper will critically review the care provided to a critically ill patient with a missed diagnosis of sepsis and identify where care could have been improved.

The early recognition of sepsis is vital as prompt intervention has the potential to improve patient outcomes. Sepsis requires greater and more frequent levels of monitoring and treatments, possibly necessitating admission to a critical care unit (CCU) or high dependency unit (HDU) (Singer et al., 2016). There are four levels of adult critical care (CC), these include ward-based care, level 1 enhanced care area (which can be provided in a ward area), level 2 care (HDU) and level 3 (CCU) (Pittard and Parry-Jones, 2022). However, the Guidelines for the Provision of Intensive Care Services [GPICS] (Pittard & Parry-Jones, 2022) recognise these are not absolutes and there is a blurring of provision. As this case study illustrates, there are a group of patients who require higher level ward care but not HDU care. It is also important to note that whilst there is a level 1 enhanced care area within the hospital, it is solely for elective overnight recovery patients. In consequence, there is a void in the current system where emergency admissions and in-patients who deteriorate are classed as too sick for the wards but not sick enough for CC are at risk.

To protect the anonymity of the patient in this case study and to uphold the Nursing and Midwifery Council Code [NMC] (2018), the patient will be referred to as Patient X. Patient X is a 61-year-old male previously fit and well with no known previous medical history. He presented to the emergency department (ED) with a history of feeling unwell at home for several days and a recent positive Covid-19 test. The initial diagnosis was chest related sepsis, and he was prescribed antibiotics and admitted to a monitored bed in a side room

on a general medical ward. He was assessed as being stable with a National Early Warning Score (NEWS) (Royal College of Physicians, 2017) of 4.

Table 1: Admission observations and investigations			
Respiratory Rate	12breaths/min	Venous blood Gas	Lactate 3.1mmols
Oxygen Saturations	97% on Room Air	CRP	351mg/L
Blood Pressure	100/50 mmHg	WCC	9.1
Hear Rate	124b/min	ECG	Nil Acute
Consciousness	Confused-new onset	Chest X-ray	No abnormalities No consolidation
Temperature	36.8 Degrees centigrade	Creatinine	130umol/L
Capillary refill	Greater than 2		

As outlined in table 1, the patient had a raised lactate level and was hypotensive, while the sepsis 6 was initiated, it was a cause for concern that he was prescribed one litre of IV fluids to be administered over a four-hour period, along with maintenance fluids, Rhodes et al, (2017) recommend 30mll/kg of IV fluids to be administered in the first three hours for initial resuscitation; Patient X weighed 78kg, equating to 780mls/hr, however, it is important to note that no weight was recorded until the patient was admitted to CC. Although there is international consensus recommending the 30ml/kg figure (Macdonald, 2022), Rhodes et al (2017) acknowledges that there is insufficient evidence to support this arbitrary figure. This is supported by Meyer and Prescott (2024) who report that 30ml/kg fluid bolus is associated with improved survival rates and advocate for close monitoring of any adverse effects. Marik et al (2019) also highlights concerns with this recommendation as it does not state whether to use, actual, predicted or ideal body weight to determine the volume of fluid to be given. Additionally, they also state that estimations of weight are generally unreliable.

Restrictive fluid practices in early management of sepsis have gained recent attention with several studies having been carried out (Macdonald, 2022). The CLASSIC trial suggests that conservative fluid management may be beneficial in certain patient groups (Meyhof et al., 2022). Their results concluded that there was no increase in mortality at 90 days in patients treated with conservative fluid management as to those treated with a more liberal approach. However, the CLOVERS trial looked at patients who received a restrictive fluid strategy and use of early vasopressors verses liberal higher volumes of fluid before vasopressor use (Monnet et al., 2023). They found that the restrictive fluid strategy group did not result in significantly lower mortality at 90 days. In consequence, the optimal volume of fluid resuscitation remains contentious and remains an ongoing debate. It also underscores the complexity of fluid management in sepsis highlighting the need for further research. (Monnet et al., 2023).

NICE (2024) have provided further guidance on fluid resuscitation in sepsis and stipulates that if a patient was hypotensive with a lactate greater than two, 500mls of IV fluids should be administered immediately. As Patient X meets the NICE (2024) criteria, had adequate fluids been administered this could have resulted in increased cardiac output and improved tissue oxygenation. However, it is important that patients such as Patient X who are at risk of deterioration are closely monitored to assess its effects and potential side effects such as organ fluid overload, pulmonary oedema and dilutional coagulopathy (Shapiro et al, 2024). If necessary, further fluid boluses should be administered, however, in Patient X's case there was no reference made to capillary refill or urine output which may have helped guide further fluid management, despite his blood pressure improving slightly and him being less tachycardic. It is a cause for concern that a brief rise in blood pressure response to fluid bolus often results in this cohort of patients being wrongly placed on general ward beds where there is limited monitoring, and deterioration may go unnoticed (Morgenstern, 2023). While Dilman et al (2024) recommends that patients requiring ongoing fluid resuscitation should be admitted to a CCU where they can receive close monitoring and have immediate access to CC nurses who are also capable of evaluating fluid responsiveness. As no referral was made to CC at this time, his bed allocation in a medical ward would have made it difficult to provide the level of close monitoring to safely and effectively care for him.

Although chest sepsis was initially suspected to be the source of sepsis due to Patient X's recent COVID-19 infection, there was no supporting evidence on his X-ray. De Waele (2024) and Lin (2020) emphasise the importance of gaining and confirming the source of sepsis promptly to target treatment. Initial review showed some improvement in his laboratory findings and vital signs however his lactate level remained elevated. However, Mr X complained of a "sore leg", yet he indicated he "felt better" resulting in a continuation of current treatment. On review of Patient X's admission documentation there was no record of skin assessment, body map, or references to his leg noted for 72 hours post-admission. The Surviving Sepsis Campaign (2018) advocates that source control measures are executed within 12 hours of diagnosis, meaning it is imperative that a full A-E assessment is carried out on admission. In addition, Grant (2018) stresses the importance of carrying out ABCDE assessments in conjunction with monitoring vital signs. However, the fact that the red area on Patient X's thigh was not identified until 72 hours later highlights further lapses in his care. Further, there is no evidence that this was then escalated over the following days (table 2). Had the red area on Patient X's thigh been identified as a possible source of infection earlier, and appropriate antibiotics initiated he may not have deteriorated further.

Table 2 - Vital signs and Interventions: Day 1-3

Vital signs and Interventions	**Day 1**	**Day 2 Peri-Arrest**	**Da y 3 Peri Arrest**
Respiratory Rate (RR) b/min	Not recorded	Not recorded	28
Spo2 Scale 1 (%)	90%	95%	99%
Air or oxygen	Room Air	2 litres	4 litres
Systolic blood pressure (mm/Hg)	88	112	120
Pulse (per min)	180	160	120
Consciousness	Alert	Confused	Confused
Temperature*C	37.9ºC	38.1ºC	38.5ºC
NEWS Score	6 - RR not record	8 absence of RR record	9
Intervention	No referral made to Critical Care. Tachycardia resolved spontaneously.	Reviewed by ICU not for admission at present. Further 500mls fluid to be given and electrolytes to be topped up. Tachycardia to be treated with adenosine and digoxin if no improvement.	Reviewed by medical Dr and leg examined, referred to surgeons as possible cellulitis. Critical Care reviewed not for admission, to monitor leg and repeat bloods next day. Change in antibiotics to treat cellulitis. Plan for theatre for exploration and debridement of wound.

Despite the spiral of deterioration over several days, Patient X was deemed not critically ill enough to necessitate admission to CC. However, at the same time it was evident he was too ill for standard ward care, highlighting the need for an enhanced care area (Pittard et al., 2020). Patient X had a further peri-arrest, and he was subsequently admitted to CC in multi-organ failure and sadly died. Baker (2022) highlights that all healthcare professionals are duty bound to have the necessary skills and knowledge to be aware of the signs and symptoms of sepsis and perform effective screening. NICE (2024) produced guidelines as to when healthcare professionals should suspect sepsis and when to rule it in. However, sepsis can be very difficult to diagnose as it often presents with non-specific characterisations, patients may not always display classic signs of sepsis which may result in over or under diagnosis resulting in delayed treatment or initiation of unnecessary treatments which may affect patient outcomes (Pandey et al., 2024).

While the NEWS tool has been used in the UK for over a decade and has been revised several times to its current version (NEWS-2). It has been identified as a standardised tool which can be interpreted by staff

easily, providing a track and trigger system identifying deterioration and improves communication (Nazarko, 2019; Welch, Dean and Hardin, 2022; Milne- Ives et al., 2024). For patients with suspected or confirmed sepsis, Zhang et al (2021) highlights the NEWS2 proficiently predicts mortality and diagnostic accuracy in septic patients outside of CC. Therefore, using this tool has advantages in the ward setting.

However, the effectiveness of NEWS2 has been questioned with critics arguing it is too heavily reliant on numerical scoring, it does not consider individual circumstances or trends in vital signs indicative of deterioration which could potentially influence clinical decisions (Grant, 2018). Additionally, there could be a risk of delayed intervention or inappropriate escalations as other factors such as co-morbidities and age are also not reflected in the score. The score should not be used in isolation it must be used in conjunction with clinical judgement and patient assessment (Welch, Dean and Hardin, 2022). NICE (2024) also identifies the importance of clinical decision and not an over-reliance on NEWS2.

Patient X was identified as being septic on admission and despite omissions in recorded vital signs such as respiratory rate, he triggered the NEWS2 score on several occasions, emphasis should have been placed on transferring him to a more acute area enabling a higher level of monitoring and facilitate earlier interventions (Morgenstern, 2023). It is widely accepted that rapid treatment is essential for survival. (Levy, Evans and Rhodes, 2018; Singer et al., 2018; Lin, 2021). An enhanced care area is generally set up on a general ward and staffed by nurses with additional knowledge and skills in the management of the acutely ill patient and have close ties to CC. It is designed to help minimise the risk to patients who require higher levels of monitoring and interventions that can be delivered on a ward but do not require admission to CC (Pittard and Parry-Jones, 2022). Currently only elective and emergency surgical patients are admitted to enhanced care areas, but there is a necessity to develop this service to safely care for deteriorating patients like Patient X. On review of literature little information was found regarding alternatives to post-operative enhanced care areas. This is a potential missed opportunity because, CC services provision is limited, and it is well evidenced (Pittard et al., 2020) that early CC improves outcomes. Therefore, enhanced care areas have the potential to reduce the burden of inappropriate admissions to CC but also prevent patients who are missed on the wards from further deterioration.

The case in this paper highlights the urgent need for an enhanced care area for in-patients who deteriorate. Had Patient X been admitted to an enhanced care area which could safely and effectively provide the increased level of monitoring and timely interventions his condition required, it could have prevented his death. Whilst acknowledging there are multiple lessons to be learned from this incident to prevent a recurrence, for the purpose of this assignment the development of an enhanced care area will be discussed.

The need for specialist care has become increasingly evident in today's healthcare, especially for patients who require higher levels of medical and nursing care. (Pittard and Parry-Jones, 2022) Over a decade ago, Goulding et al (2011) highlighted that it is a common occurrence within the National Health Service (NHS) to place patients in beds where their needs cannot be safely met due to shortages of beds and peak seasonal pressures, such as winter. However, it is a cause for concern that this puts patients at risk as staff often do not have the skills and knowledge to safely care for these patients. (Goulding et al., 2011). Smallwood et al (2023) produced guidelines for the Intensive Care Society (ICS) for enhanced care areas to ensure patients receive the appropriate level of care whilst bridging the gap between ward-based care and CC. Therefore, it is recommended that an enhanced care area within the hospital with close links to CC be established.

In conclusion, the establishment of an enhanced care area within acute hospitals is a necessary addition to meet the demands of the high acuity patients at risk of deterioration from sepsis. Although there will be a cost pressure with its introduction and resources required, it is worth remembering that the cost of sepsis is currently 1% of the NHS budget (The UK Sepsis Trust, 2024). The recognition and management of sepsis is one of the biggest challenges faced by todays healthcare systems (Berg et al., 2022). With careful planning, training and on-going support enhanced care areas can significantly improve outcomes for septic patients and prevent costly admissions to CC.

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Global Connections: An Independent Evaluation of a remote international mentorship scheme for neonatal and critical care nurses

Sabelo Maphenduka, Rutendo Tembo, Lungowe Muyunda, Chris Carter, Prof Joy Notter

Email: rutendo.tembo@mail.bcu.ac.uk

Abstract

Introduction: Mentorship is globally accepted as an important approach to developing nursing practice and careers. The term mentorship has different meanings and is often used interchangeably with other terms, which can result in confusion. This proposed research study will evaluate the experiences of mentors and mentees involved in a remote mentorship project.
Aim: To evaluate the experiences of critical care and neonatal nurses involved in a remote mentorship project between Zambia, Australia and the UK.
Methods & analysis: Documentary data analysis of partnership project documentation will be used to provide context and detail to the evaluation. An exploratory descriptive qualitative methodology using individual interviews will facilitate exploration of both mentors and mentees' experiences. Daglish et al (2018) READ framework will be used to complete the documentary data analysis. Framework analysis will be used to analyse the qualitative data sets as it will allow for patterns, trends and themes to emerge.
Ethics and dissemination: As this study will involve participants from Zambia, Australia and the UK, ethics approval will be sought in both the UK and Zambia. The study will be registered with the National Health Research Authority (Zambia).
Implications for Practice: There is limited research on the impact of an international virtual mentorship programme for specialist nurses. In consequence, this research study will generate new knowledge and insights into the barriers and enablers regarding international mentorship programmes for specialist nurses.

Introduction

Mentorship is globally accepted as an important strategy for enhancing nursing practice and careers (Kulik and Nguyen, 2017). However, the term mentorship has different meanings and is often used interchangeably with other terms such as coaching (Manzi et al, 2017). Setati and Nkosi (2017) suggest that confusion has arisen due to the different roles mentors and mentees undertake, resulting in what they describe as a 'mentoring chameleon'. Therefore, for this study the term mentorship is applied horizontally with mentee and mentors seen as peers. The advantage of this approach is that contributions from each participant seen as having equal value which facilitates knowledge exchange and transfer through bi-directional learning, recognising that different context and health systems need to share expertise to move the nursing agenda forward (Bain et al, 2023; Kulik and Nguyen, 2017). Therefore, in 2024, Birmingham City University in collaboration with the Ministry of Health in Zambia successfully gained funding to implement a remote international mentorship partnership scheme project, which involved linking critical care and neonatal intensive care nurses in the UK, Australia and Zambia. This proposed research study has been designed to evaluate the experiences of all mentors and mentees involved in the project.

Methods and Analysis

The research question for this proposed study is:

> What are the experiences of participants involved in a remote mentoring programme between critical care and neonatal nurses in Zambia, Australia and the UK?

General Objective:

- Evaluation of the experiences of critical care and neonatal nurses involved in a remote mentorship project between Zambia, Australia and the UK.

Specific Objectives:

- Examination of the impact of the mentorship programme on individuals' professional development.
- Development of a mentorship model for the partnership
- Identification of lessons learnt as part of the project evaluation.

Research Design

To evaluate the impact of a remote international mentorship scheme for neonatal and critical care nurses an exploratory descriptive qualitative methodology using an interpretive methodology will be used. Semi-structured interviews will facilitate exploration of participants' experiences, as this approach seeks to investigate unknown or poorly understood topics. It also allows participants to describe their experiences in their own words, to address the questions raised in this proposed study (Thompson et al., 2021). Framework analysis will be used to analyse the qualitative data sets as it will allow for patterns, trends and themes to emerge and is designed to address specific questions (Gale et al., 2013). However, it is recognised that experience can only be appraised in the health system and policies in which they are implemented, therefore, documentary data analysis will be used to explore and extract from national and project documentation.

The Critical Care Nurses Association of Zambia (CCNAZ) will complete the evaluation with participants in Zambia and the Birmingham City University, Centre for International Health Partnerships will complete the evaluation with UK and Australian participants. The international research team will complete documentary data analysis of national policies and partnership project documents (evaluations, reports, communications from funders) to provide context and detail for the evaluation. Daglish et al (2018) READ framework will be used to complete the documentary data analysis. This includes reading the materials, extracting data, analysing and distilling the findings.

Study Setting

This proposed study involves participants from Zambia, Australia and the UK. Participants in Zambia work in Ministry of Health hospitals across five Provinces. UK and Australian participants work in public hospitals, NGOs or universities.

Sample size determination and sampling

Participants who were involved in the remote mentorship project and consent to participate in this study will be included. A maximum of 19 participants (11 International and 8 Zambian) will be invited to participate in the study. As this study will use total population sampling from the remote mentoring project; sample size estimation will not be used. A participant information sheet will be shared via email and potential participants will be asked to contact the researchers. Participants who agree to participate will be re-sent the participant information sheet and consent form one week prior to the interview.

The participant information sheet includes a section on withdrawal. Participants can withdraw from the study at any point up until the analysis of the findings. However, it is important to note that no pressure will be used for participants to join the study, and the data collection will take place once the mentorship has completed (June 2025). The participant information sheet also includes details of the researchers and both University of Zambia and Birmingham City University ethics offices.

Inclusion and exclusion criteria

Inclusion criteria:

- Mentors and Mentees who participated in the remote mentorship project and consent to participate.

Exclusion criteria:

- Participants not involved as mentors or mentees in the remote mentoring project
- Participants from the remote mentoring project who do not consent to participate.

Data Collection

To evaluate the impact of a remote international mentorship scheme for neonatal and critical care nurses a qualitative study using documentary data analysis and individual interviews will be conducted. Documentary data analysis of partnership project documents (evaluations, reports, communications from funders) will be used to provide context and detail to the evaluation. A grid will be used using the Daglesh et al (2018) criteria and each document will be reviewed by the International Research Team (Zambia / UK). This approach will also provide transparency.

All individual interviews will be conducted virtually via BCU MS Teams. Virtual individual interviews were chosen as participants are geographically spread internationally and it will not be possible to co-ordinate the availability for face-to-face interviews of participants due to shift work. This approach will allow all participants regardless of location to participate and share their perceptions and experiences through their own words and perspectives (Clarke et al., 2021).

Interviews will be audio recorded via MS Teams and automatically transcribed by the programme. Transcripts will then be checked for accuracy and anonymized before analysis, by the international research team, who will use framework analysis to identify patterns, trends and themes.

Data Analysis

Documentary data analysis using Daglish et al (2018) READ framework will be used to structure the review, by the international research team. Framework analysis will be used to address the questions raised during interviews, to identify patterns, trends and themes (Goldsmith, 2021. Klingberg et al., 2024). During the transcription stage, all personal identifiable information will be removed to ensure anonymity and confidentiality. Transcripts will then be checked by the international research team with the recordings of the interviews to confirm the transcription is accurate. The two datasets will be presented in an integrated format as they are complimentary for reports and publication.

Methodological Rigour

As this is a qualitative study trustworthiness and authenticity will be used to assess the rigour of the research process (Johnson et al., 2020). Credibility will be assessed through reviewing the prolonged engagement with participants. Dependability will be maintained through a clear and systematic approach to data collection and analysis. A detailed audit trail will be maintained, documenting all decisions made throughout the research process. Confirmability will include using a reflexive approach by all researchers who acknowledge and critically reflect on their own positions, potential biases, and influences on data interpretation (Johnson et al., 2020. Tobin & Begley., 2004). Regular peer debriefing and independent coding by multiple researchers further enhances this aspect of trustworthiness. Transferability although originally designed to consider whether findings could be theoretically transferred, it is now increasingly used to access whether findings could be applied to other similar groups (Johnson et al., 2020). The study will yield rich, thick descriptions of the research context, participant demographics, and study findings, allowing readers to assess the applicability of the results to their own settings. Authenticity the second concept for qualitative studies can only be assessed on completion of the study as the different components are dependent on the outcomes (Ahmed., 2024). Therefore, authenticity will be assessed as the final stage within the evaluation. By incorporating these strategies, this study will be conducted using a rigorous and trustworthy exploration of the remote international mentorship scheme's impact on neonatal and critical care nurses.

Discussion

Remote mentorship between international partners became a mainstay method to support activities during the Covid-19 pandemic and proved to be successful and in consequence, has continued. The benefits of virtual activities include reduced costs spent on local, national and international travel. Making fewer international flights and participants attending workshops reduces the environmental impact and increases the opportunities for engagement, as more participants across a wider geographical area can participate. However, there are several limitations, including the cost of using the internet and problems with access to laptops and the internet. In addition, evidence has shown that nurses may have limited digital e-health literacy, which may be a barrier to engaging in virtual activities (Shiferaw et al, 2020). However, it is important to note

that although knowledge can increase through virtual activities, this approach cannot replace clinical competence (Notter et al., 2024. Carter et al., 2022).

Remote mentorship programmes have shown mixed success, there is limited research on the impact of virtual activities for specialist nurses, in consequence, this research study will generate new knowledge and insights into the barriers and enablers regarding international mentorship programmes for specialist nurses. This will be one of the first studies exploring the experiences of all participants (mentors and mentees). Previous studies have focused on one aspect only, for example, the mentors or mentees. Therefore, the emphasis on this project has been both roles being equal, with all participants seen as experts in their specialist areas. This will give data on equal mentoring and the impact on all participants, this is seen as important as often as the flow of information can be seen as one way i.e. from a high-income country to a low-income country. However, increasingly there is recognition that both sides benefits and in previous projects UK Emergency and Critical Care Nurses who have worked in-country have reported improvement in their practice and leadership skills (Skopec et al., 2019; Issa et al., 2021). Whilst this study is about remote / virtual mentoring, the principles of knowledge, exchange and transfer are still relevant.

Ethics and Dissemination

Ethics approval has been gained from Birmingham City University (Ref: #14312 /sub2 /R(C) /2025 /Feb /HELS FAEC. Dated 17th February 2025) and will be sought from University of Zambia. The study will also be registered with the National Health Research Authority in Zambia.

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Patient Consent for Publication: Not applicable

Cross Sectional Survey of Critical Care Provision in Zambia

Richard Kahalu, Chris Carter, Joy Notter

Email: richard.kahalu@mail.bcu.ac.uk

Abstract

Introduction: Zambia has been providing education programmes for critical care nurses for over a decade and during that time critical care services have been gradually increasing. However, the recent Covid-19 pandemic revealed gaps remained pervading critical care service provision in many low-income countries including Zambia. In consequence, there is urgent need to understand the national provision and utilisation of critical care services in Zambia.

Aim: To undertake a survey in identified hospitals in each Province to evaluate current critical care staffing, service provision and patient case-mix post Covid-19.

Methods and analysis Using a cross-sectional survey methodology an e-survey questionnaire of 13 hospitals representing all hospitals in Zambia will be included in this study.

Ethics and dissemination: Ethics approval has been gained in both Zambia and the UK. The study has also been registered with the National Health Research Authority.

Implications for Practice: It is accepted that critical care is a cross cutting acute service that is an essential component of health systems and universal healthcare access. Critical care services need to be integrated into healthcare systems; however, it is important these services are appropriately used to maximise efficiency and effectiveness of a resource intensive service.

Introduction

The World Health Organization (WHO) (2025a), argues that robust critical care services, are integral for effective healthcare system delivery. Critical care services are essential for managing severe and life-threatening conditions. However, it is a cause for concern that globally provision remains unevenly distributed, particularly in low-income countries (LIC) (Spencer et al., 2023). The recent Covid-19 pandemic highlighted the wide gaps in critical care provision in many LIC (Arabi et al., 2021). Following the pandemic it has been increasingly accepted that critical care is an essential part of healthcare systems and universal healthcare access (Spencer et al., 2023).

Zambia is a LIC in central Africa, with a population of approximately 22 million people, with most of the population living in the rural setting (WHO, 2025b). Critical care nurses and physician anaesthesia education commenced over a decade ago and provision of critical care services have been increasing during this time (Carter & Notter, 2023). Therefore, this proposed study will review the current provision of critical care services nationally, which will increase understanding of the organisation, workforce and resourcing, which will support policy planning for critical care services. This will allow for benchmarking of service provision against other countries within the region and make recommendations to enhance access and provision of critical care. Currently, Zambia, lacks comprehensive data on the organisation, resources, and capacity of critical care units (CCUs). The limited availability of data adversely affects efforts to improve critical care services and outcomes.

A critical review of the literature confirmed the need for this study as no cross-sectional studies from Zambia were found. From the evidence available, critical care services must not be seen in isolation within a healthcare system and the review highlighted that there was a focus on equipment, resourcing and workforce, rather than the nursing workforce. Therefore, this proposed cross-sectional survey was identified as necessary step to assess the current state of CCUs, identify key challenges, and provide data-driven recommendations for enhancing critical care delivery. A detailed report will be compiled and submitted to Ministry of Health (MOH) for the purpose of developing local and national policies.

Methods and Analysis

Research Design

A cross-sectional survey has been chosen as it will allow participation from identified critical care units across the country and is a cost-effective approach as it also allows for collection of data on multiple variables at a single time point. The data collection tool has adapted from a cross-sectional survey carried out in Malawi by Sonethal et al (2022). Sharma et al (2021) point out responses from e-questionnaire can be more accurate

due to non-third-party handling and misinterpretation and respondents may be more honest when they are responding in their own space online as compared to a face-to-face administered questionnaire, as the respondent is almost certain of anonymity. Therefore, this survey uses an e-questionnaire.

It is accepted that a limitation of using an e-questionnaire is that responses may contain some errors due to misunderstanding of the questions and a lack of access to the researcher preventing clarification. Using a previously published questionnaire as the basis for this study potentially reduces misunderstandings. In addition, the email and phone number for the principal investigator will be provided to enable participating hospitals to address any concerns when completing the questionnaire. Approval to complete this study has been given from the Ministry of Health, with each Senior Medical Superintendent approving for the study to take place in their hospitals, therefore, an acceptable response rate is likely.

Study Setting

This study will involve 13 Ministry of Health hospitals with representation from each Province in Zambia. The hospitals selected have functioning critical care units and thus, the findings may be generalised to other hospitals. Proposed hospitals include 2 national referral hospitals, 3 university teaching hospitals, 7 general hospitals and 1 district hospital. The study focus will be on adult and paediatric ICUs, no neonatal ICU will be included in the study.

Target Population

Data will include a retrospective review of admission data over a 7-day period. Information regarding the critical care workforce and provision will be collected and analysed. The study will be conducted during a 3-month period.

Sample size determination and sampling

This study will employ purposive sampling by identifying hospitals in every province that have a functioning critical care unit. A total of 13 hospitals have been identified by the Ministry of Health. Records of patients admitted to critical care during the last 7 days (approximately 100 files) will also be included in total with each hospital contributing 5 to 8 files each with the bigger and busy hospitals contributing a higher number of files and finally the workforce records regarding rotas, staff qualifications (approximately 100 in total) will be used in this study.

Inclusion and exclusion criteria

Inclusion criteria hospitals identified by the Ministry of Health and those that agree to participate in the study through their SMS. Exclusion criteria include hospitals not identified by the Ministry of Health, those that choose not to participate in the study and hospitals with neonatal intensive care units.

Data collection

Potential participants will be contacted by letter from the SMS, this will include an information leaflet detailing the study. Once approval has been given, the questionnaires will be sent out via email using a unique URL, therefore, all responses returned will be anonymous. The URL link will take participants to the form to guarantee anonymity and names and contact details will not appear on the data capturing tool.

Participants will be allowed to ask any questions they may have on the project by contacting the Principal Investigator. The questionnaire link will be sent to each hospital point of contact, provided by the SMS and therefore the Principal Investigator will have no contact / access with databases. Data will be stored on Birmingham City University's OneDrive, access through a password protected computer. Only the project team will have access to the raw data. When reviewing the raw data all data will be anonymised.

Hospitals and participants can withdraw from the study up until submission of their questionnaire. However, once the questionnaire has been submitted it will not be possible to withdraw from the study, as the researcher has no means of identifying individuals' responses. Participants will be made aware of this in the information sheet. As this study will use anonymised data that is routinely collected and available in hospitals, the Ministry of Health does not require individual patient consent for the data collection

Data analysis

This research project involves retrospective data collection of information routinely available within CCU, therefore, no physical risks have been identified. However, it is accepted data collection by hospitals will involve time, therefore, sufficient time will be given to allow for data collection. Also, as outlined above, the Principal Investigator will be available via telephone to answer any queries or provide support.

The closed questions will be analysed using SPSS with a focus on descriptive statistics. Where possible test for significant difference such as Chi Squared will be used as much of the data will be nominal or ordinal data. A T-test will be used for parametric data. For open ended questions, data will be coded and analysed using thematic analysis.

Methodological rigour

Using a previously validated and published questionnaire conducted within the region will support reliability and validity (Ahmed, 2024). To enhance validity triangulation of the different datasets will be used. As this study will involve hospitals from every province within Zambia the findings may be generalisable to other hospitals within the country. A comprehensive audit trail documenting research decision, procedures and any changes to the study will enhance reliability and validity. Monthly supervisory meetings with research supervisors and reflexive diary will be used to improve the audit trail.

Discussion

This protocol aims to undertake country-wide survey research and evaluate levels of critical care staffing, service provision and patient case-mix. The findings from this study will provide recommendations to guide policy development into critical care education, admission guidelines, safe staffing and provision of adequate medical surgical supplies to all CCUs in the country. This will allow for benchmarking of service provision against other countries within the region and make recommendations to enhance access and provision of critical care in Zambia.

Research findings will be disseminated locally and nationally, through research dissemination events. This will include publication of a Master of Science dissertation, conference presentations and publications in peer-reviewed journals. Preparation of peer reviewed publications will be in accordance with the standards for reporting cross sectional surveys (von Elm et al., 2017). It is also important to note, that research generated by local researchers and resulting recommendations may have a better uptake among African policy markers than research produced internationally as it is culturally and context specific (London et al., 2014; Morel et al., 2018; Kasprowicz et al., 2020).

Ethics and dissemination

The study protocol has been approved by both UK and Zambian research ethics committees (University of Zambia Biomedical Research Ethics Committee. Reference: 6115-2024. Dated 18th December 2024 and Birmingham City University, Faculty of Health, Education & Life Sciences Ethics Committee. Reference: #13680 /sub3 /R(C) /2024 /Oct /HELS FAEC. Dated 5th November 2024). The study has also been registered with the National Health Research Authority in Zambia a legal requirement Reference: # NHRAR-R-2326/20/12/2024. Dated 23rd December 2024. In addition, the Ministry of Health in Zambia has approved this study and provided permission for this study to be undertaken in public hospitals.

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Patient Consent for Publication: Not applicable.

MSc Professional Practice Dissertation Showcase

Each academic year as part of the Birmingham City University Professional Practice provision in Zambia, final year MSc students participate in an MSc Dissertation Showcase. The event provides them with an opportunity to share the findings from their studies and presented their work to date. We are delighted to include some selected abstracts to demonstrate the breadth and depth of the work completed to date. This year, the event was chaired by Prof Maxine Lintern, Pro-Vice Chancellor for Research and guests from our collaborating partners at the Lusaka College of Nursing and University Teaching Hospital, as well as current and former BCU students.

Exploring the roles and function of critical care nurses as clinical leaders in Botswana

Itumeleng Michael

Email: itumeleng.michael@mail.bcu.ac.uk

KEYWORDS: Critical Care Nurses (CCNs), Roles, Functions, Grounded Theory (GT), Clinical Leadership (CL)

INTRODUCTION: Critical care nursing in Botswana is a new addition to the nursing profession and is still evolving with approximately 40 trained critical care nurses (CCNs). CCNs require both clinical competencies and clinical leadership (CL) skills, the higher-level knowledge and skills essential to improve outcomes, implement evidenced based practice and influence health policy development (Fakuda et al, 2020; Mankinson et al, 2018).

AIMS: This presentation gives an overview of the method chosen for this study which aims to understand the roles and function of CCNs, CL and the factors facilitating or hindering their leadership development.

METHOD: Straussian Grounded Theory (GT) (1978) will be used with the aim of beginning theory development (Saunders et al, 2023). Purposive sampling will be used to identify appropriate participants. Simultaneous data collection and analysis, is a core component of GT, using the accepted strategies for analysing and interpreting collected data, constantly comparing codes, concepts and categories (Turner et al., 2021). In line with the GT approach chosen, relevant literature will be incorporated throughout the study.

FINDINGS: GT is designed to enable researchers to work towards consensus from participants and ultimately, if possible, to develop tentative theoretical concepts and ultimately theories.

IMPLICATIONS FOR PRACTICE: The findings from this study will provide increased insight into how CCNs perceive their roles as CL, thereby supporting the design of focused leadership development programmes in Botswana.

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Exploring the views of Emergency Department Nurses at a Tertiary Hospital in Zambia on Emergency Preparedness

Ireen Kabwe

Email: ireen.kabwe@mail.bcu.ac.uk

KEYWORDS: Emergency Preparedness, Emergency Nursing, Grounded Theory

BACKGROUND: The Global Burden of Disease (2019) records 7% of all deaths in Zambia are caused by trauma. Emergency preparedness is one of the main components in the management of emergencies and determines the outcome of emergency situations (Todorovic et al., 2020). Research studies have also reported that inadequacies of ED Nurses in emergency preparedness can lead to poor outcomes (Chegini et al., 2022; McNeill et al., 2020).

AIMS: This presentation is to provide critical overview of the chosen approach to understand the views of emergency department nurses on Emergency Preparedness.

METHOD: This proposed study explores the views of ED nurses on preparedness for emergencies in their department. This study will take the interpretivist paradigm as it has been designed to explore the perceptions and experiences of participants (O'Donoghue, 2018). Using a Grounded Theory approach data collection and analysis will be undertaken concurrently (Bryant and Charmaz, 2014). The method of data collection will be through face to face semi structured interviews, a primary mode of data collection in qualitative research (Campbell et al, 2017). Face to face interviews are the are gold standard method of interviews (Deakin and Wakefied, 2014).

Analysis will follow Charmaz (2014) approach for coding and data will be grouped according to patterns and variations to contribute to formation of a core category. Patterns and relationships will emerge through an ongoing simultaneous cyclic process of data collection and analysis. Categories will be collected together to form constructs and connections as a first step towards tentative theory development (Urquhart, 2013).

IMPLICATIONS FOR PRACTICE: Emergency preparedness is a crucial element of emergency care, and it is essential that nurses have the knowledge and skills to provide optimum care for patients. In the absence of current evidence in Zambia, this study will one of the first nurse led studies by Emergency and Critical Care Nurses for Emergency Nurses.

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A Quality Improvement Project to Evaluate the Use of the Ventilator Care Bundle

Ndaona Regina Botha

Email: Ndaona.Botha@mail.bcu.ac.uk

KEYWORDS: Ventilator Associated Pneumonia (VAP), Ventilator Care Bundle (VCB), Plan-Do-Study-Act (PDSA), Quality Improvement Project (QIP)

BACKGROUND: Ventilator Associated Pneumonia (VAP) accounts for approximately 9-27% of all hospital-acquired infections in Intensive Care Units (ICU). The Ventilator Care Bundle (VCB) consisting of evidence-based practices has shown to reduce incidences of VAP; however, the effectiveness of its use in Malawi's ICUs is unknown.

AIM: To present and discuss the use of the Plan, Do, Study Act (PDSA) as part of a Quality Improvement Project (QIP) to introduce the VCB into an ICU in Malawi.

METHOD: The PDSA is an accepted approach to QIP, it facilitates ongoing adjustments based on emerging findings and feedback, supporting continuous improvement in clinical practice. This proposed study will complete one PDSA cycle as outlined below:

- Plan: Preparation and planning the following three phases, this will include force field analysis, logical framework, Gantt chart, risk analysis and stakeholder engagement.
- Do: Baseline data collection, identify current ventilator care practices with the ventilator care bundle and current VAP rates. Develop and deliver a train the trainer package in response to findings from the plan phase. Introduce the VCB bundle in ICU and record progress, adjustments of previous VCB protocols.
- Study: Record and analyse results to identify the impact of the VCB and any additional measures needed.
- Act: Reflect on the adoption of the VCB into standardised practice into daily ICU routine and review the effectiveness of the PDSA cycle.

RESULTS: Qualitative data will be analysed using thematic data analysis by categorising common themes and coding them for qualitative data. Quantitative data will be analysed using descriptive statistics for the retrospective data review of quantitative datasets such as VAP incidence and prevalence, identified pre and post intervention.

IMPLICATIONS FOR PRACTICE: Despite VCB proven to be effective in reducing VAP incidence, it remains to be a common complication in mechanical ventilation. There is need for further research on enhancing consistency efficacy across all ICU settings, hence the need for this study, one of the first nursing QIP in Malawi.

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Utilisation of Ventilator Care Bundle for Patients in the Emergency Department

Patricia Banda

Email: patricia.banda@mail.bcu.ac.uk

KEYWORDS: Ventilator care bundle, mechanical ventilation, Emergency Department, utilisation.

BACKGROUND: It is internationally recognized that all mechanical ventilated patients must have immediate access to a critical care nurse with a post-basic qualification in critical care (World Federation of Critical Care Nurses (2019). However, Bayrama and Sancıb (2019) points out, ventilated patients can also be found in other critical care areas such as Emergency Department (ED). If they remain in ED for more than 5 hours, their mortality is significantly higher than that of patients admitted a critical care unit. Safety strategies such as Ventilator Care Bundle are recognised as reducing ventilator associated pneumonia (VAP), ventilator days and mortality. However, their use in the ED in low-resource setting is unknown.

AIM: To critically review the literature relating to the use of the ventilator care bundle in the ED.

METHODS: A systematic literature review was conducted on PubMed, CINAHL, and Science Direct databases from 2018 to 2024.

FINDINGS: Hassan and Elsaman (2022) and Mastrogianni (2023) indicated in units where there was compliance with ventilator care bundles had VAP reduction as well as reduced morbidity and mortality, reduced time on mechanical ventilation and reduced hospital stay. Rehmani (2024) report that in low-income countries, nurses had low to moderate knowledge and compliance in using the ventilator care bundle.

IMPLICATIONS FOR PRACTICE: Evidence has shown use of the ventilator care bundle reduces VAP and duration of mechanical ventilation. Further research is needed to assess compliance and consistency of use of ventilator care in low-income countries.

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A Quality Improvement Project to Improve the Nursing Care of Critically Ill Patients with Burns

Mable Nsonga

Email: Mable.Nsonga@mail.bcu.ac.uk

KEYWORDS: Burns, treatment, care, management

BACKGROUND: It is a cause for concern that an estimated 1.4 million burn injuries occur in Sub-Saharan Africa (SSA), accounting for over 15% of all worldwide burns with a significant morbidity and mortality (Zachary, et, al.,2021). Burns in central SSA have the highest significant impact on those under the age of 5 years, although southern SSA reports the greatest number are the 15-to-49-year age group. Barriers to quality care, include financial constraints, social stigma, political strife, inaccessible healthcare facilities, limited peri-operative resources and low workforce capacity.

AIMS: To present the Plan, Do, Study, Act (PDSA) cycle that will be used to improve nursing care of critically ill patients with burns.

METHODOLOGY The PDSA cycle, a systematic process will be used. It consists of four phases:

- Plan: will include developing the force field analysis, local frameworks, Gant Charts, risk analysis and stakeholder engagement and working groups.
- Do: will involve several research activities including a retrospective review of documentation and a pre-study knowledge test which will be used to develop a train the trainer package and introduce the role of Burns Link Nurses to cascade train, mentor and guide other nurses. A repeat retrospective chart review will be conducted and a further knowledge test after 3 months.
- Study will involve recording and analysing each stage to identify the impact of the role of Burns Link Nurses. offer the pre-test to participants and observation from clinical practice by use of a checklist. A post-test to evaluate knowledge retention and to determine the next phase of the project whether to reinforce, re-train. Pilot the implementation and integrate new practice.
- Act: critically reflect on the introduction of the Burns training package and Burns Link Nurses

IMPLICATIONS OF PRACTICE: Critically ill patients with burns require complex care and are frequently admitted to critical care units in LIC. In consequence, it is crucial that critical care nurses have the knowledge and skills in order to improve patient outcomes

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Cross Sectional Survey of Critical Care Provision in Zambia

Richard Kahalu

Email: Richard.Kahalu@mail.bcu.ac.uk

KEYWORDS: Critical Care, Low-income country, Literature Review

INTRODUCTION: Zambia has been offering education programmes for critical care nurses for over a decade and critical care services have been gradually increasing. However, the recent Covid-19 pandemic revealed gaps pervading across critical care service provision in many low-income countries including Zambia (Siaw-Frimpong et al, 2020). In consequence, there is urgent need to understand the national provision and utilisation of critical care services in Zambia.

AIM; To critically examine the literature relating to critical care provision and utilisation in low-income countries in sub-Saharan Africa.

METHODS: Detailed systematic literature review was carried out using CINAHL, Cochrane, Pub Med and Medline from 2020 to 2024. 98 articles were found, but only 7 could be included in the study. From these 7 articles, 2 articles will be critically appraised using the CASP tool for their applicability to this proposed study.

FINDINGS: The 2 studies identified were cross-sectional studies from Malawi and Ghana. These were chosen as two of the few articles published within the sub-Saharan Africa region.

CONCLUSION: While these two studies have been used as an insight into critical care provision in Malawi and Ghana, they lacked information on capacity to train their own specialist nurses and doctors. In the absence of datasets from Zambia it supports this proposed study to complete a national cross-sectional survey.

IMPLICATIONS FOR PRACTICE: It is accepted that critical care is a cross cutting acute service that is an essential component of health systems and universal healthcare access. Critical care services need to be integrated into healthcare systems; however, it is important these services are appropriately used to maximise efficiency and effectiveness of a resource intensive service.

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Enhancing Knowledge and Skills of Critical Care Nurses In Wound Care at a Leading Referral Hospital in Zambia: A Quality Improvement Project

Mwaka Angela Chongwe

Email: mwaka.chongwe@mail.bcu.ac.uk

KEYWORDS: Wounds, Wound care assessment, Aseptic technique.

BACKGROUND: Wound care is integral in prevention of wound infection and promoting recovery. Poor wound care results in undesirable outcomes including mortality and delayed recovery (Lacey, 2018; Canton et al., 2020). Key elements of wound care include aseptic wound care, pre-dressing pain assessment and management and comprehensive wound care documentation. Critical Care Nurses are in a unique position to improve wound care and outcomes (Conley, 2019). Therefore, it is essential that CCNs be trained to have the extended knowledge, skill and competence to lead and co-ordinate the multi-disciplinary team to improve wound care.
AIMS: To change and improve Critical Care Nurses practice in wound care through the implementation of a quality improvement project.
METHOD: Plan Do Study Act (PDSA) Change model was used (NHS, 2018).

- **Plan**: Gain approval from hospital management, form technical groups, review clinical practice, complete the forcefield analysis, logical framework, Gant chart, Risk assessment and mitigation, Stakeholder engagement, and develop communication strategy
- **Do**: Development of teams, Review of RN & RCCN curriculum, Development of wound care training package & materials, Development of wound care documentation chart. Implementation of training.
- **Study**: Analysis of RCCNs (pre, post, sustainability test), Pain assessment and management, Wound care documentation chart, development of a additional resources identified including a Decision Making Tool/ Algorithm.
- **Act**: Critical reflection and review of the QIP, Lessons learnt in project management and conclusion, recommendations for the QIP and future initiatives

IMPLICATIONS FOR PRACTICE: RCCNs' knowledge and skills' levels improved post training and was sustained after a further 2 months. Demonstrating the need ongoing assessment of the embedding of the changes in wound care practice in the Critical Care Unit. Importance of standardised wound care documentation and algorithm to support clinical decision making by critical care nurses.

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Reduction of complications in critically ill patients needing enteral feeding in the Main Intensive Care Unit at a tertiary hospital in Zambia: A Quality Improvement Project

Sabelo Maphenduka

Email: sabelo.maphenduka@mail.bcu.ac.uk

KEYWORDS: Enteral Nutrition, Quality Improvement, Clinical Decision Making

BACKGROUND: Enhanced knowledge regarding provision of enteral nutrition (EN) for critically ill patients is essential for patient safety and to reduce complications. Metin et al's (2020) argue that the root cause of poor nutrition globally is lack of knowledge and practice. EN is a key nursing intervention for the critically ill, therefore, critical care nurses must have consolidated knowledge and skills to safeguard patients, reducing complications associated with undernutrition (Kurt & Ceyland, 2023).
AIM: To change and improve enteral nutrition practice through the development and implementation of a train-the-trainer toolkit.
METHOD: PLAN, DO, STUDY, ACT (PDSA) methodology was used over a period of three (3) months. This allowed project leads to assess nursing actions, design, change and monitor and evaluate the implementation process.

- **PLAN**: Planning and feasibility for the QIP, Force field analysis, Logical framework, Communication strategy, Stakeholder engagement and analysis, Risk assessment, Methods for data collection for the QIP and Ethics approval.
- **DO**: Implementation of key activities**,** gap analysis of curricula**,** baseline patient data collection**,** development of training materials, including pre and post testing. The start of peer mentorship by ten RCCNs.
- **STUDY:** Analysis of data sets from pre and impact testing, analysis of patient data to assess if change occurred and the development and implementation of additional resources to support sustainability e.g. EN algorithm for Critical Care Nurses.
- **ACT**: Reflections, conclusions and recommendations.

OUTCOMES: The pre-test results (65%) showed limited knowledge regarding EN. Post training showed an improvement with post-test results (85%) and impact assessment results (94%) overall. The results from the patients' records showed an 85% (n=17) improvement in delivery of the target 24-hour feeds.
IMPLICATIONS FOR PRACTICE: This study demonstrates the need for ongoing in-service training and that the QIP approach can change practice improving patient care and safety. However, additional context specific resources may be needed for sustainability such as the EN algorithm developed post training.

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Author Guidelines

International Perspectives in Emergency, Trauma and Critical Care Nursing Journal

Guidance for Authors

The International Perspectives in Emergency, Trauma and Critical Care Nursing is the journal for students completing the Birmingham City University Professional Practice Adult Critical Care and Cardiac Care programmes and is published in collaboration with the Critical Care Nurses Association of Zambia (CCNAZ). The journal is managed by the BCU HELS Centre of International Health Partnerships and on completion of the education programmes, CCNAZ have agreed to continue the journal using it as a vehicle to promote emergency, trauma and critical care nursing across Zambia and the wider central Africa region. The journal spans the whole continuum of acute and critical care nursing and includes all aspects of adult, paediatric and neonatal critical care nursing including surgery, medicine, cardiac, renal, neurosciences and rehabilitation.

This peer reviewed international journal provides a platform for emergency, trauma and critical care nurses across our partnership to share nursing practice, research, education, or management relating to emergency, trauma and critical care nursing. This will support and facilitate opportunities for nurses to learn publication skills, to enable them to share and disseminate best practice. The ethos of the journal is the promotion of quality and excellence of care for acute and critically ill patients. The journal will be published twice yearly and will be open access.

The journal is registered with an International Standard Serial Number (ISSN) reference number: 2976-9523

Articles from the following categories will be considered:

- Original research
- Quality improvement reports
- Systematic reviews with/without meta-analysis
- Reviews
- Current insights in emergency, trauma and critical care nursing
- Case studies
- Letters to the Editor
- Conferences & scientific meetings

Guidance for Authors

- Peer reviewed articles should be a maximum of 3,500 words (including references)
- Opinion pieces should be a maximum of 1,000 words (including references)
- Harvard Referencing should be used.
- Submissions double spaced and must include:
    - Abstract (maximum 300 words)
    - Key words
    - Front cover including:
        - All authors (in order of contribution)
        - Professional Qualifications for each author
        - Role and organisation for each author
- Contributors' photographs can be submitted – as separate JPGs, not embedded in Word documents. These must have permission from all participants, patient consent and for under-18s parental consent. Authors must adhere to any data protection for their establishment/Institution. Proof of consent must be supplied with articles and ideally photos should be at least 300dpi (at least 1mb).
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