

Factors influencing knowledge translation into critical care practice: The reality facing intensive care nurses in Limpopo Province

M R Kgadima, MCur; I M Coetzee, PhD; T Heyns, PhD

Department of Nursing Sciences, Faculty of Health Sciences, University of Pretoria, Tshwane, South Africa

Corresponding author: IM Coetzee (isabel.coetzee@up.ac.za)

Background. Nurses working in intensive care units (ICUs) must incorporate new knowledge and evidence-based practice (EBP) into their daily routines to enhance patient outcomes. However, this integration often falls short in ICU settings. Weekly clinical audits reveal incidents where ICU nurses neglect evidence-based interventions, impacting patient outcomes and ICU stays.

Objective. To explore the factors influencing the translation of knowledge into ICU practice.

Methods. We conducted exploratory, qualitative research to investigate ICU nurses' perspectives on knowledge translation into ICU practices. The study employed purposive sampling to select ICU nurses. We used paired interviews and group discussions to gather insights from ICU nurses regarding the factors influencing the translation of knowledge into ICU practices. Data analysis was performed using Boomer and McCormack's nine steps of creative hermeneutic data analysis.

Results. One main theme, '*We are just surviving*' emerged, encompassing two sub-themes: management and workplace culture. Under management, participants described barriers, such as resource scarcity, behaviour, outdated evidence-informed protocols and workload. Under workplace culture, participants mentioned negative attitudes and a lack of teamwork, contributing to poor-quality care.

Conclusion. In ICUs, nurses are expected to integrate new knowledge and scientific evidence into their daily practice, yet they face challenges in doing so. Interventions should be implemented to address management and workplace culture.

Keywords. Critical care practice, critical ill/injured patient, intensive care nurse, intensive care unit, knowledge translation.

South Afr J Crit Care 2024;40(1):e1282. <https://doi.org/10.7196/SAJCC.2024.v40i1.1282>

Contribution of the study

This study raised awareness for the intensive care nurse practitioner to intergrate new knowledge and scientific evidence into clinical practice.

This study highlighted the importance of teamwork and collaboration between nurses and doctors to ensure knowledge translation and quality care of the critical ill/injured patients. This study confirmed that support from management is vital to address challenges such as workload, staff shortage, inadequate equipment and outdated protocols as these aspects impact negatively on intensive care nurses ability to transfer knowledge into clinical practice.

Intensive care unit (ICU) nurses are expected to integrate new knowledge and scientific evidence into daily practice. This promotes evidence-based practice (EBP), which has been linked to improved patient outcomes. Nurses who do not integrate the latest scientific evidence into patient care in the ICU may not be able to deliver optimal patient care, which may lead to complications, increased length of stay and higher costs of caring.

In ICUs, applying the latest scientific evidence is expected to improve practice and patient outcomes. EBP can be used to identify areas in practice that need improvement, specifically where patient safety and outcomes are compromised or are at risk.^[1] ICUs are characterised by innovative technologies, including advanced life support and lifesaving equipment to manage critically ill patients. There is an expectation for ICU nurses to be knowledgeable and skilled in using innovative scientific equipment, enabling them to better care for their patients.

Despite the availability of innovative scientific equipment, translating knowledge into practice remains a challenge that compromises patient safety, quality of care and health outcomes.^[2] According to Jabri *et al.*,^[3]

quality care and patient safety are synonymous, and all healthcare professionals should be able to assess patient safety. In ICUs, patient safety systems are in place to prevent adverse events and improve patient outcomes.^[4] The inability of ICU nurses to integrate and apply basic knowledge to practice when patients' conditions change indicates a deficiency in translating knowledge and EBP.^[5] A shortage of resources is not always the cause of patient deterioration in the ICU. Often, it is due to nurses' lack of the necessary knowledge to intervene. In this study, we qualitatively explored factors influencing knowledge translation into practices in the ICU. We interviewed nurses and thematically analysed transcripts to identify the factors influencing the translation of knowledge to intensive care practice.

Methods

This study used a qualitative, exploratory and descriptive design to explore nurses' views on factors influencing the translation of knowledge to intensive care practice. Paired interviews and group discussions were employed to gather the views of ICU nurses regarding these factors.

Study setting and participants

The study was conducted in a selected public hospital in Limpopo Province, accommodating 507 patients with an 80 - 100% bed occupancy. The ICU mostly accommodates 12 critically ill/injured patients.

We purposively selected 14 nurses who were trained in critical care and were permanently employed with at least 3 years of experience from a selected district hospital in Limpopo Province.

Participants were assured confidentiality as interview guides did not request names. The data were divided into themes and not associated with individual participants. Data were collected during paired interviews involving two-two ICU nurses, followed by a group discussion during a 1-day workshop held at a Health support board room. The workshop was facilitated by a senior researcher with more than 20 years of qualitative data collection and analysis experience. The participants were divided into four groups. The facilitator provided each group with flip charts to identify and document the factors influencing knowledge translation. Each group had a representative who shared their individual small group information with the big group. After sharing their views on facilitators and barriers to knowledge translation with the big group, the three groups reached a consensus on identified facilitators and barriers in knowledge translation and the facilitator consolidated the facilitators and barriers to knowledge translation into one document. Data were analysed using nine steps of creative hermeneutic data analysis (Table 1 and Table 2).^[6]

Ethical consideration

Informed written consent was obtained from all participants and the study was approved by the Faculty of Health Sciences Research Ethics Committee of the University of Pretoria (reference number: 283/2018), the Ministry of Health, Limpopo and the participating hospital.

Results and discussion

One overarching theme, *'We are just surviving'* emerged, with sub-themes, categories and sub-categories as presented in Table 3. From the overarching theme, two sub-themes emerged: (1) management and (2) workplace culture.

The overarching theme, *'We are just surviving'* indicated that the nurses were frustrated and overwhelmed in their working environment. ICU nurses explained that they conducted their duties just to survive and that they were doing their best under the circumstances. Here are some quotes from ICU nurses:

'Lack of staff affects my quality of work, as I have to look after two or more critical ill patients' [P1, 2, 5]

'Nursing two or more patients in ICU has become so overwhelming that attention to detail is not an option' [P2, 3]

'you just survive until the shift ends' [P2, 3, 5, 6, 8]

Management

The participants felt strongly that management did not provide support in terms of workload, equipment and staff, which prevented them from translating knowledge into care and negatively influenced the quality of patient care. The participants felt that management did not involve them in planning and decision-making processes, but instead handed decisions down to the ground level without negotiating or collaborating with staff. Participants struggled to translate knowledge into practice owing to a shortage of resources, specifically staff and equipment.

According to participants:

'Lack of trained ICU staff is hindering my ability to translate knowledge because I have no one to support or discuss my actions' [P4, 7, 8]

'Lack of staff affects my work as I have to look after two patients or more' [P2, 3]

'The lack of resources in the unit, such as staff and equipment, impacts negatively on quality of care and my ability to translate my knowledge into practice' [P1, 2, 3, 4]

Slemp *et al.*^[7] as well as Shah and Asad^[8] maintain that managers' behaviours drive the optimal functioning and motivation of employees. Nurses regularly lack support from management, which may harm their practice and hinder their ability to apply their knowledge and implement EBP.^[9] To overcome this, nurse managers have to recognise that they are key in supporting staff to identify and solve performance obstacles.^[10]

Participants were also disappointed with the management's negative attitude towards their concerns regarding staff shortages, lack of equipment and unrealistic workload. Participants felt management had a top-down management style and that management did not attend to the concerns of staff members. Participants also expressed that management was uninterested in involving them in decision-making regarding issues pertinent to both them and their unit. According to participants:

'Management's behaviour leaves us demoralised, discouraged and frustrated as knowledge translation cannot be enhanced under such negative circumstances' [P1, 2, 3, 4, 5]

'The negative attitude of the manager and some senior staff is demoralising us' [P1, 3, 5, 7]

Participants indicated that policies, protocols and standard operating procedures were not reviewed annually, and some had not been reviewed for the past 10 years. Participants expressed that it was difficult to manage critically ill patients with outdated guidelines, which led to conflict and uncertainty. According to participants:

'Policies and procedures are outdated and this does not support translation of knowledge' [P1, 2, 3, 4, 6, 8]

'There are no protocols and guidelines for specific procedures of importance' [P2, 3, 6, 7, 9]

'The situation of not having updated evidence informed protocols and guidelines leads to conflict when a new doctor is consulting who is not always on site' [P4, 5, 7, 9]

Darawad and Alfasfos^[11] suggest that the gap between guidelines and actual bedside practice is a barrier to managing and caring for critically ill patients. Similarly, Pelzang and Hutchinson^[12] indicated that without policies and standards, nurses do not have the opportunity to improve standards of care and health outcomes of patients. Araque *et al.*^[13] further emphasised that frequently updated EBPs and protocols guarantee the delivery of quality care to patients.

Workplace culture

Participants were overwhelmed by an unrealistic workload, staff shortages, inadequate equipment, outdated protocols and the current status quo in the intensive care working environment. Participants felt adrift and unsupported in providing quality nursing care to ICU patients. They also felt as if they were merely surviving, providing essential care to prevent complications with critically ill patients. Participants highlighted their workplace culture as unsupportive and hostile, which hindered their ability to translate their knowledge into practice. Participants indicated that some doctors and colleagues had

Table 1. Nine steps of creative hermeneutic data analysis

Step 1	Data were collected through paired interviews and group discussions during the workshop.
Step 2	The participants in each small group made notes while members of the group were sharing the information gathered during the paired interviews. During this process of data sharing participants formed their own overall impressions relating to factors influencing knowledge translation in ICU based on their observations, thoughts and feelings relating to the shared paired interview data.
Step 3	The participants were asked to create a picture that visually captured the main idea of what they had shared in the small groups. Each group collaboratively drew a picture on the provided flip chart of an ideal situation for the translation of knowledge into the intensive care practice.
Step 4	Each small group had a representative who presented the small group picture and told the story depicted on their picture to the rest of the big group, who listened and noted the main ideas of the story and picture on paper.
Step 5	All participants of the big group individually created themes using the information presented from the pictures and the main ideas captured, and those themes were written on a sheet of paper.
Step 6	Following the presentations of the pictures, participants went back to their small groups to discuss their individual themes within the small group and collaboratively constructed shared themes on which they reached a consensus.
Step 7	The small groups were then asked to present their collaborative themes to the big group. All participants in the big group then discussed the themes until a consensus was reached on the final themes and categories.
Step 8	The participants were asked to check the final themes as a group for the last time to ensure that the entire group agreed with the findings. The final themes were then displayed on separate A3 white sheets for all participants to see.
Step 9	Participants from each small group were asked to suggest three strategies by writing them on separate sticky notes that could be implemented in the ICU to enhance the translation of specialised knowledge into practice. The participants were given an opportunity to display their strategies by sticking them onto the A3 flip chart sheet under the applicable themes.

ICU = intensive care unit.

Table 2. Measures to ensure trustworthiness

Strategy	Application
Credibility	The researcher spent adequate time with participants during data collection to develop an in-depth understanding of the participants and to create a relationship with participants to strengthen the trust relationship. Data were collected through the recording of information during the interview.
Confirmability	The researcher ensured that collected and analysed data were continually checked to exclude biases and ensure the results could be confirmed or validated by other researchers.
Transferability	The researcher applied thick description, which comprised the provision of detailed information about participants through purposeful sampling for data collection.
Dependability	The researcher ensured consistency in the evidence of the study and ensured that the evidence would remain the same if repeated with the same participants in the same context by inspecting the results thoroughly.
Authenticity	The researcher ensured authenticity by ensuring that informed consent was obtained, understanding and relationships that were trusting were maintained, and study procedures made clear to all participants.

Table 3. Theme, sub-themes, categories and sub-categories that emerged from interviews with ICU nurses on their perceptions of factors influencing knowledge translation into practice

Theme	Sub-themes	Categories	Sub-categories
We are just surviving	Management	Resources	Staffing Equipment
		Behaviour	Top-down approach Involvement
		Evidence-informed (outdated)	-
	Workplace culture	Workload	
		Attitude	Doctors Nurses
		Teamwork	-
		Quality care	-

'We are really demotivated by our own colleagues who are our seniors in years of ICU experience but have a negative attitude towards us' [P2, 5, 7, 8]

Mannion and Smith^[14] highlight that in hospitals, a constructive and supportive workplace culture has a positive impact on the quality of care provided to patients and the health outcomes of critically ill patients. Participants were unhappy with the current workload allocation because it prevented them from translating knowledge into practice. Participants felt that their ideas and inputs were not valued or appreciated. According to participants:

'I will always be focussed on how to manage two critical ill patients and get the most important tasks done' [P2, 4, 5, 7, 8]

'We are continuously resuscitating and are unable to concentrate on our own patients and translation of knowledge into practice is impossible due to unrealistic workload' [P 1, 2, 3, 5, 7]

negative attitudes and were barriers to the translation of knowledge. These are some quotes of participants:

'We are discouraged by older (more senior) staff members who will tell you they are used to do it like that and don't want to hear new things' [P1, 4, 6, 9]

'Most doctors ignore us during ward rounds and we find it extremely difficult to function without them sharing their knowledge with us about the patients' [P3, 4, 7]

'Everything I do must come from the doctor, even if I have the knowledge and skills to improve the patient's outcome' [P5, 6, 8]

'We are suffering from burnout due to the workload' [P1, 2, 3, 4, 5, 7, 8]

Rajaeian and Alavi^[10] emphasise that failing to address work overload can result in disgruntled staff who are unable to perform their duties, causing dissatisfaction and occupational stress. Oppenauer and Van De Voorde^[15] further indicate that increased workload leads to increased pressure, necessitating the completion of tasks at a faster pace without compromising the quality of care. Perreira *et al.*^[16] highlight that negative attitudes in healthcare settings are associated with poor performance, reduced patient safety and compromised quality care. Poor attitudes may be driven by the tendency of more experienced workers to resist change, especially if innovations are suggested by newly trained counterparts.^[17] Lögde *et al.*^[18] further highlight that strained, negative nurse-to-nurse and physician-to-nurse relations lead to high stress levels and depression.

In this study, participants felt that doctors did not regard them as co-workers who were part of the multidisciplinary team. Participants explained that they were just given instructions and rarely discussed the patients with senior healthcare providers. Participants emphasised that doctors did not appreciate nurses' input on managing critically ill patients. Participants felt that doctors were undermining them. According to participants:

'Some doctors do not appreciate suggestions from nurses' [P1, 3, 4, 6]
'Everything we do has to be requested from the doctor or prescribed by the doctor even if we see we can intervene to improve the patient's condition' [P2, 4, 5, 8]

In Iran, Mahmoodi and Tahrekhani^[19] showed that professional relationships were disrupted when doctors did not value nurses' inputs regarding patient care. Karki *et al.*^[20] explain that good working relationships between doctors and nurses working in hospital environments are essential for managing highly stressful situations. In this study, participants mentioned that lack of teamwork was a major obstacle in the unit because some nurses were unwilling to assist each other. The lack of teamwork contributed to frustration and inability to translate knowledge into practice. Participants cited that lack of teamwork negatively impacted the quality of patient care. According to participants:

'There is no teamwork among most of the staff' [P1, 2, 5, 7, 9]
'The shift leader does not encourage teamwork in the unit' [P1, 2, 3, 4, 5]

Donovan *et al.*^[21] explain that teamwork in healthcare refers to care provided by a team of healthcare professionals who value individual contributions towards improving patient health outcomes. In the Democratic Republic of Congo, Mitonga-Monga *et al.*^[22] found that satisfied, collegial employees developed a sense of belonging and had high levels of job satisfaction and commitment. Nurses need to work as a team and accommodate each other to increase motivation and enhance teamwork, which will enhance the quality of patient care.^[20]

Participants felt strongly that their work lacked quality. Their ability to translate knowledge into practice was hindered in the ICU working environment. According to participants:

'Lack of resources contribute largely to poor quality care' [P1, 3, 6, 8]
'Lack of teamwork and poor working conditions impact negatively on patients' health outcomes' [P2, 4, 5, 7, 9]
'Where there is no collaboration between management, nurses and doctors, there will never be quality patient care' [P1, 2, 3, 4, 5]

In Saudi Arabia, Alzahrani *et al.*^[23] found that a poor physical work environment and lack of human resources influenced the quality of

care negatively. In Nigeria, Ada Oyije *et al.*^[24] indicated that employees who were involved in decision-making proactively suggested ideas and solutions to improve the quality of service provided. The workplace culture is driven by management, who are ultimately responsible for providing employees with adequate power, information, reward and knowledge to ensure optimal care.^[25]

Findings

In our study, participants mentioned factors influencing the translation of knowledge to practice, highlighting the lack of resources, both human and material. Nurses in ICUs face challenges in translating knowledge to practice owing to broken equipment, outdated protocols and guidelines and staff shortages. The unrealistic workload hindered the translation of knowledge, as ICU nurses struggled to render care to critically ill/injured patients in their care. Ineffective teamwork and collaboration between doctors and nurses further impede knowledge translation efforts. ICU nurses relied on management for support in their professional development to effectively translate knowledge into practice. In this study, ICU nurses identified workplace culture as the primary enabler of knowledge translation among ICU nurses. The authors gained valuable insights into the barriers hindering within ICUs, through the voices of ICU nurses relating their challenges.

Study limitations

A limitation of this study was its focus on a single ICU within a specific public hospital in Limpopo Province.

Recommendations

It is recommended that management revise and consider with thoughtfulness their obligated responsibilities towards the provision of resources, both human and material. All guidelines and protocols should be revised every year. Management should address staff shortages and ensure a realistic patient-to-nurse ratio and realistic workload to ensure quality patient care. This would ensure that intensive care nurses can translate knowledge into clinical practice. Moreover, it is essential to initiate a collaborative teamwork approach in the unit, enabling doctors and intensive care nurses to work together and provide input on clinical decisions and patient management planning and care.

Conclusion

This study revealed that ICU nurses were overwhelmed by the unrealistic workload and faced challenges with staff shortages, equipment and outdated guidelines and protocols. They expressed feeling as though they were merely surviving in the work environment. Interventions should aim to address the identified challenges hindering knowledge translation. Special consideration should be given to providing ICU nurses with a conducive and safe work environment where they can effectively translate knowledge into clinical practice, ensuring quality patient care.

Declaration. Approval for the study was obtained from the ethics committee of the Faculty of Health Sciences of the University of Pretoria and the Limpopo Department of Health. Permission was also sought from the ethics committee of the hospital and from the managers of the respective units where the study was conducted. Informed consent was obtained from the participants and they were also made aware of their right to withdraw from the study at any given time, without explanation.

Acknowledgements. The authors wish to thank the critical care nurses who participated in this study as well as Dr. Cheryl Tosh for editing the manuscript.

Author contributions. All three authors were involved in the conceptualisation, data collection, data analysis, writing and reviewing of the manuscript.

Funding. None.

Conflicts of interest. None.

- Wensing M, Grol R. Knowledge translation in health: How implementation science could contribute more. *BMC Med* 2019;17(1):88. <https://doi.org/10.1186/s12916-019-1322-9>
- Mallidou AA, Atherton P, Chan L, et al. Core knowledge translation competencies: A scoping review. *BMC Health Serv Res* 2018;18(1):502. <https://doi.org/10.1186/s12913-018-3314-4>
- Jabri F, Docent T, Azimirad M, Turunen H. A systematic review of healthcare professionals' core competency instrument. 2021, 23(1), 87-102. <https://doi.org/10.1111/nhs.12804>
- Sujan MA, Furniss D, Anderson J, Braithwaite J, Hollnagel E. Resilient Health Care as the basis for teaching patient safety – A Safety-II critique of the World Health Organisation patient safety curriculum. *Safety Science* 2019;118:15-21. <https://doi.org/10.1016/j.ssci.2019.04.046>
- Chen W, Hu S, Liu X, et al. Intensive care nurses' knowledge and practice of evidence-based recommendations for endotracheal suctioning: A multisite cross-sectional study in Changsha, China. *BMC Nurs* 2021;20(186):1-12. <https://doi.org/10.1186/s12912-021-00715-y>
- Boomer CA, McCormack B. Creating the conditions for growth: A collaborative practice development programme for clinical nurse leaders. *J Nurs Manage* 2010;18(6):633-644. <https://doi.org/10.1111/j.1365-2834.2010.01143.x>
- Slemp GR, Kern ML, Patrick KJ, Ryan RM. Leader autonomy support in the workplace: A meta-analytic review. *Motiv Emot* 2018;42(5):706-724. <https://doi.org/10.1007/s11031-018-9698-y>
- Shah M, Asad M. Effect of motivation on employee retention: Mediating role of perceived organisational support. *Eur Online J Nat Soc* 2018;7(2):511. <https://european-science.com/eojnss/article/view/5280>
- Schaefer JD, Welton JM. Evidence based practice readiness: A concept analysis. *J Nurs Manage* 2018;26(6):621-629. <https://doi.org/10.1111/jonm.12599>
- Rajaeian Z, Alavi N. Barriers to Nursing Performance from the perspective of nurses working in intensive care units. *J Crit Care Nurs* 2018;11(1):1-6.
- Darawad MW, Alfasos N, Zaki I, et al. ICU nurses' perceived barriers to effective enteral nutrition practices: A multicenter survey study. *Open Nurs J* 2018;12:67-75.
- Pelzang R, Hutchinson AM. Patient safety policies, guidelines, and protocols in Bhutan. *Int J Health Plan M* 2019;34(2):491-500. <https://doi.org/10.1002/hpm.2729>
- Araque KA, Kadayakkara DK, Gigauri N, et al. Reducing severe hypoglycaemia in hospitalised patients with diabetes: Early outcomes of standardised reporting and management. *BMJ Open Quality* 2018;7(2):e000120. <https://doi.org/10.1136/bmjopen-2017-000120>
- Mannion R, Smith J. Hospital culture and clinical performance: where next? *BMJ Quality Safety* 2018;27(3):179-181. <https://doi.org/10.1136/bmjqs-2017-007668>
- Oppenauer V, Van De Voorde K. Exploring the relationships between high involvement work system practices, work demands and emotional exhaustion: A multi-level study. *Int J Hum Resour* 2018;29(2):311-337. <https://doi.org/10.1080/09585192.2016.1146321>
- Perreira TA, Berta W, Ginsburg L, Barnsley J, Herbert M. Insights into nurses' work: Exploring relationships among work attitudes and work-related behaviours. *Health Care Manag Rev* 2018;43(4):315-327.
- Patel J, Tinker A, Corna L. Younger workers' attitudes and perceptions towards older colleagues. *Work Older People* 2018;22(3):129-138. <https://doi.org/10.1108/WWOP-02-2018-0004>
- Lödge A, Rudolfsson G, Broberg RR, et al. I am quitting my job. Specialist nurses in perioperative context and their experiences of the process and reasons to quit their job. *Int J Quality Health Care* 2018;30(4):313-320. <https://doi.org/10.1093/intqhc/mzy023>
- Mahmoodi K, Tahrekhani M. The relationship between physicians and nurses in hospitals affiliated with Zanjan University of Medical Sciences, Iran. *J Nurs Educ Pract* 2018;8(1). <https://doi.org/10.5430/jnep.v8n1p33>
- Karki A, Thapa S, Thulung B. Attitude towards collaborative care among nurses and physicians at a teaching hospital, Chitwan. *J Chitwan Med Coll* 2018;8(4):47-53. <https://www.jcmc.com.np/jcmc/index.php/jcmc/article/view/735>
- Donovan AL, Aldrich JM, Gross AK, et al. Interprofessional care and teamwork in the ICU. *Crit Care Med* 2018;46(6):980-990.
- Mitonga-Monga J, Flotman A-P, Cilliers F. Job satisfaction and its relationship with organisational commitment: A Democratic Republic of Congo organisational perspective. *Acta Commercii* 2018;18(1):1-8. <https://hdl.handle.net/10520/EJC-f3c69945f>
- Alzaharani N, Jones R, Abdel-Latif ME. Attitudes of doctors and nurses toward patient safety within emergency departments of two Saudi Arabian hospitals. *BMC Health Serv Res* 2018;18(1):736. <https://doi.org/10.1186/s12913-018-3542-7>
- Ada Oyjije AF, Funmilayo DC, Obiageri AJ. Participative decision making and employee job performance in Nigerian academic libraries. *Inf Technol* 2018;4(7):15-28.
- Guest DE. Human resource management and employee well-being: Towards a new analytic framework. *Hum Resour Manag J* 2017;27(1):22-38. <https://doi.org/10.1111/1748-8583.12139>

Received 17 July 2023. Accepted 14 February 2024.