

CHAPTER 5

NATURE OF CONTINUOUS PROFESSIONAL DEVELOPMENT PROGRAMMES AIMED TO ENHANCE INTERPROFESSIONAL COMPETENCIES OF INTENSIVE CARE TEAMS: PERCEPTIONS OF INTENSIVE CARE UNIT PROFESSIONALS, NORTH WEST PROVINCE, SOUTH AFRICA

¹. NE Zenani / ². S Scholtz / ³. Y Heymans

How to cite: Zenani, N.E., Scholtz, S. and Heymans, Y. (2026). Nature of Continuous Professional Development Programmes Aimed to Enhance Interprofessional Competencies of Intensive Care Teams: Perceptions of Intensive Care Unit Professionals, North-West Province, South Africa. In Pool, J., Lubbe, A., & Heymans, Y. 2026. *Reimagining Health Professions Education: Innovations and Insights for the 21st Century and Beyond*. Volume 1 of the Health Professions Education Book Series. ISBN 978-1-991239-44-0

¹. School of Nursing Science
Faculty of Health Sciences
North-West University, Mmabatho, South Africa
sunshine.zenani@nwu.ac.za
ORCID: 0000-0001-7397-6707

³. Centre for Health Professions Education
Faculty of Health Science, North-West University
Potchefstroom, South Africa
Yolande.heyman@nwu.ac.za
ORCID: 0000-0003-4459-2266

². School of Nursing Science, Faculty of Health Sciences
North-West University, Mmabatho, South Africa
suegnet.scholtz@nwu.ac.za
ORCID: 0000-0002-4316-5257

Abstract

Poor interprofessional collaborative practices in the intensive care units (ICUs) due to a lack of interprofessional collaborative competencies could lead to litigation cases. Continuous professional development (CPD) programmes are critical for strengthening the interprofessional collaborative competencies needed for safe, high-quality care in ICU. This chapter reports on the perception of ICU teams regarding the nature of a CPD programme to enhance the interprofessional collaborative competencies of ICU teams in the North-West Province (NWP), South Africa. Data were collected using 12 semi-structured focus groups with ICU teams across two public and two private hospitals in two districts of the NWP. The data were then thematically analysed and clustered around four themes with sub-themes. The findings underscore the importance of identifying contextual factors contributing to the lack of interprofessional collaboration among ICU teams. Factors include power dynamics and insufficient interprofessional communication stemming from role ambiguity. Consequently, learning outcomes should address the indicated factors to promote interprofessional collaborative practices among ICU teams. Thus, ICU teams should be made aware of the significance of shared leadership and collective decision-making. The study further advocates for the inclusion of interactive teaching and learning modalities supported by technology to maintain sustainability. Furthermore, the programme should be concise and repetitive to consolidate the acquired interprofessional competencies, facilitated by experienced ICU stakeholders. A neutral facilitator is advised to prevent power imbalances. Interprofessional competencies should be assessed in real time using checklists and surveys. The programme's effectiveness should be evaluated over time through quality improvement measures.

Keywords: continuous professional development programme, interprofessional collaborative competencies, intensive care unit teams

1 Introduction

Patients admitted to intensive care units (ICU) require comprehensive and complex care involving an interprofessional team and the use of advanced technology for treatment and monitoring (Gundo et al., 2019:1). This dynamic environment demands that the interprofessional team in the ICU collaborates interdependently and possesses specialised knowledge, skills, and attributes to make complex decisions essential for caring for critically ill patients (Mahomed & Mahomed, 2018:35). Interprofessional care, which is vital in the ICU, refers to the provision of services by a collaborative team of healthcare professionals with complementary knowledge who recognise the distinct contributions of each member in pursuit of a shared goal (Donovan et al., 2018:1). In the ICU, interprofessional care is affected by various factors, including processual, contextual, organisational, and relational factors, such as culture, professional authority, routines, and rituals (ref). If these factors that influence interprofessional care are not adequately identified and managed, they may lead to an unstable ICU team organisation, inefficient team collaboration, and subsequently, unmet patient needs and delays or errors in diagnosis. Several studies have been conducted to validate the importance of interprofessional care in the ICU. Chapman et al. (2021:980) conducted a pre-post-intervention study examining the advantages of collaborative interprofessional practice in the ICU. They determined that high-quality ICU care requires the active participation of all interprofessional team members, with deficiencies in teamwork and communication contributing to one-third of ICU medical errors. In contrast, successful collaborative care between professionals is correlated with reduced mortality, higher patient satisfaction scores, fewer health-associated infections in the ICU, and increased job satisfaction among ICU professionals (ref). Interprofessional collaborative care requires continuous professional development (CPD) programmes focused on skills, knowledge, and attributes that enhance interprofessional care in the ICU (Chapman et al., 2021:981).

Interprofessional care in the ICU can also be enhanced through CPD, which serves as a catalyst for assuring the competence of healthcare professionals

in the ICU (Gundo et al., 2019:1). Moreover, CPD programmes assist ICU collaborative teams – comprising doctors, nurses, pharmacists, and allied health professionals – in minimising practice errors that may compromise patient safety. Furthermore, Van Heerden (2021:1) discussed how CPD programmes improve job satisfaction by promoting professional growth and ensuring an understanding of contemporary evidence in the field and ICU practice. Van Heerden (2021:1) further observed that knowledge acquired during pre-licensure education often has a half-life of around two and a half years. Consequently, it is essential to enhance learning, skills, unique traits, and values to improve competency and safeguard patients in care (Van Heerden, 2021:1). To ensure optimal interprofessional care in the ICU through CPD, ICU healthcare professionals are expected to exhibit sound collaborative interprofessional competencies. Leal Silva et al. (2023:22) suggest that identifying interprofessional competencies is essential for foundational interprofessional care. The Canadian Interprofessional Health Collaborative (CIHC) and the United States Interprofessional Education Collaborative (IPEC) have jointly established an interprofessional competency framework that delineates the competencies necessary for effective interprofessional care in the ICU (CIHC, 2024:1). According to the interprofessional competency framework, the relationship-focused care competency requires that the ICU team develops and maintains good interdependent relationships to support effective partnerships in the ICU. Interprofessional communication competency requires that the ICU team communicates constructively using effective communication strategies that emphasise inclusion, equity, and diversity (CIHC, 2024:1). In terms of role clarity, the ICU team must understand the roles, knowledge, and expertise of each team member for effective collaborative practices. In team functioning, the ICU team is expected to understand the nature of interprofessional teams in the planning, implementation, and evaluation of care in the ICU. Developing these interprofessional collaborative competencies through CPD is crucial to the success of interprofessional collaboration (CIHC, 2024). Furthermore, the ICU team must exhibit competency in addressing disagreements to ensure a positive psychological environment and must value each member's unique contribution to the team (CIHC, 2024:1). The development of interprofessional collaborative

competencies requires the implementation of interprofessional education (IPE), which involves two or more healthcare professionals learning together to enhance interprofessional cooperation and ultimately improve patient health outcomes (Filies & Frantz, 2021:104).

2 Problem statement

The NWP is experiencing a significant deficiency in CPD programmes designed to augment the interprofessional collaborative competencies of ICU teams (Mboweni & Risenga, 2023:3). The absence of such CPD programmes that enhance interprofessional competencies creates a lack of effective interprofessional collaborative practices and impairs ICU teams' ability to respond effectively as a cohesive unit to complex critical demands. This shortfall in CPD programmes further contributes to fragmented care delivery, an increase in adverse events, and potential legal actions within the ICU (Ritchedze, 2024:7). The authors believe that CPD programmes can enhance collaborative skills, knowledge and attitudes, which are essential to ensure safe, coordinated, and high-quality critical care. Consequently, this study sought to address the following research question: What is the perception of ICU teams regarding the nature of a CPD programme to enhance the interprofessional collaborative competencies of ICU teams in NWP, South Africa?

3 Ethical considerations

Ethics approval was granted by the respective university (XXXX-0051-23-A1). Subsequently, goodwill permission was granted by the four Research Gatekeeper Committees representing two public and two private hospitals.

4 Study area

This study was carried out in the NWP of South Africa. The researchers investigated four hospitals located in two districts of the NWP. Two were public hospitals and two were private hospitals.

5 Population and sampling

The study's target population consisted of ICU nurses, ICU doctors, pharmacists, and clinical facilitators. The study employed non-probability sampling. A non-probability selection method was chosen because participant selection was based on their relevant experience, expertise, and the information they could contribute to address the study's objective (Brink & Van der Walt, 2006:67). Data saturation dictated the sample size for this study. Participants comprised ICU nurses, doctors, pharmacists, and clinical facilitators who had more than two years of work experience in the ICU on a permanent, contractual or flexible basis.

6 Data collection

The authors used a qualitative method to collect and analyse the data. After being fully informed, an independent research assistant obtained voluntary consent. Twelve focus groups, comprising x number of participants, were used to collect data from purposively selected ICU professionals. Author 1 conducted the focus groups. After the introduction, a brief overview of the study, and reminding participants that only partial confidentiality could be assured due to the nature of the focus groups, Author 1 requested permission to record the focus groups. To ensure anonymity and confidentiality, participants who consented used pseudonyms. To collect the data, the authors used a semi-structured interview guide comprising five open-ended questions and probing questions to gain insight into the proposed research question. Each focus group lasted 45-60 minutes.

7 Trustworthiness of findings

The trustworthiness of the study was ensured through the principles of credibility, dependability, confirmability, and transferability. Credibility was enhanced by a clearly defined research question, the use of a semi-structured interview guide validated by experts in ICUs and IPE, collaborative data analysis with a co-coder and promoters, and member checking through comparison of video recordings with cleaned

transcriptions to minimise bias and human error (Brink et al., 2018:112). Dependability was supported through peer debriefing, whereby the researcher engaged the two promoters to probe interpretations and clarify meanings, ensuring that similar findings could be obtained if the study were repeated in a comparable context (Brink et al., 2018:111). Confirmability was strengthened by maintaining an audit trail, including detailed field notes taken during online focus groups to support accurate and relevant data interpretation (Braun & Clarke, 2017:38). Transferability was achieved through thick description, providing detailed contextual accounts, comprehensive participant feedback, and in-depth analysis to demonstrate that the findings were grounded in extensive research and applicable to similar contexts (Brink et al., 2018:158).

8 Data analysis

Author 1 transcribed the focus group recordings verbatim and, to enhance anonymity and confidentiality, replaced any identified information with a code. Author 1 used member checking to ensure that the transcript was a true and honest reflection of the focus group. Data were thematically analysed using ATLAS.ti 23 (ATLAS.ti, 2025:1) and the steps outlined by Clarke and Braun (2017:45). Author 1 served as the primary coder, and to enhance the reliability of the data analysis procedure, Authors 2 and 3 served as co-coders. In step one, the authors familiarised themselves with the data to gain an understanding of the breadth and depth of the transcripts (Clarke & Braun, 2017:45). Step two entailed identifying codes, finalising the code list, and linking the data to the codes. Where new information emerged, new codes were added to the code list. In step three, codes were clustered into potential themes. In step four, the authors reviewed and refined the themes, ensuring an accurate reflection of the data set. Step five involved a deeper analysis, during which the authors clarified the aspects of each theme. The final step involved interpreting the data, where the authors explained the significance of the themes in answering the research question of this study. The authors further detailed the conclusions and provided a rich and detailed account of the findings (Clarke & Braun, 2017:45).

9 Findings

The authors delineated demographic characteristics and themes, along with their sub-themes, to achieve the objective of this qualitative study, which was to explore the perceptions of the ICU teams regarding the nature of a CPD programme to enhance the interprofessional competencies of ICU teams in NWP, South Africa.

9.1 Demographic characteristics of the participants

Sixty-two participants participated in the study, and more than half were female. All participants had formal education, held degrees in nursing, pharmacy, or medicine, and were licensed to practise by the appropriate regulatory authorities. In the discussion to follow, the authors outline the findings of the focus groups in terms of themes and their corresponding sub-themes.

The themes illustrate the development and design of CPD programmes. Each theme is substantiated by pertinent participant narratives, offering nuanced and contextual insights into ICU professionals' perspectives on the CPD programme designed to improve the interprofessional competencies of ICU teams.

9.2 Theme 1: Planning

Planning ensures that the learning objectives and instructional methodologies align with the requirements of the ICU team and the intensive care system. This theme is subdivided into four sub-themes: contextual factors, preferred venue selection, potential challenges, and barriers to effective CPD implementation.

9.2.1 *Contextual factors*

The study revealed that identifying contextual factors is a crucial component in planning a collaboratively based CPD programme. This allows CPD designers to ensure that the CPD programme meets the needs of participants and is aligned with the goals of ICU teams and the healthcare facility. In this study, the authors identified a need for a relevant CPD

programme that will be applicable in the ICU. There is a requirement to formulate CPD programmes accredited by statutory bodies, thereby primarily incentivising the participation of doctors in the ICU. Moreover, participants indicated that hierarchical systems and ambiguous positions pose considerable obstacles to efficient collaboration within ICU teams. This could pose a threat to engagement in the CPD programme, as power dynamics may influence the degree to which respect is fostered during the learning experience. Additionally, numerous professionals highlighted the lack of organised communication frameworks, which frequently leads to disjointed patient care. The ICU teams emphasised that interdisciplinary collaboration is often hindered by entrenched power dynamics.

There is a general lack of structured communication across disciplines sometimes, making it difficult to work as a team. (P8: Adult ICU Private: Pharmacist)

... one doctor comes, prescribes something on the patient and the other one comes and cancels. So, we need to be involved, and you know, to resolve that conflict and say ... But I think between the two of you; you need to discuss this and involve them in the discussion so that ... err ...you know, the patient, in the end, doesn't suffer because two people are not agreeing. (P16: High Care Private: Professional Nurse)

Some of the professionals felt unable to voice their concerns, even in situations where patient safety was at risk. This poses a threat to ensuring patient safety and honest, open engagement for the proposed CPD programme. Junior professionals and those within the ICU team may be reluctant to share their insights. Moreover, the lack of standardised communication frameworks further exacerbated interprofessional communication and clinical decision-making, leading to inconsistencies in clinical practice. As noted in the responses below, a lack of collaboration among ICU professionals, as well as disempowerment in conflict management and interprofessional decision-making in patient care, can be mitigated by the interprofessional CPD programme. Furthermore, the study revealed a lack of interprofessional collaborative protocols (which are

defined as...), which can also be addressed by the CPD programme to enhance the interprofessional competencies of the ICU team.

Collaboration is a problem here. Each profession works in their own corners, which impacts our work. (P3: NICU Public: Doctor)

I cannot handle conflict well. The other day, this one doctor's patient was sick, and the doctor was rude to me. I totally ignored her. I was like, I am not going to deal with her, even though I had to hand over the patient's progress, and that is wrong of me because the patient may suffer. I just left her to do all the wrong things and will speak with her the next day when her seniors are around. (P13: ICU Public: Professional Nurse)

There is [sic] no admission criteria for ICU, and it makes it worse that this is a multidisciplinary team. If the doctor who is overseeing ICU is guided to say: if I admit a gynae patient, I expect Dr So and So on such and such a date to follow up that patient, because there's nothing like that, that's why at the end gonna le di-conflict/[there are conflicts] because the patient will be admitted by this particular ICU doctor who just gives a bed and doesn't care for a patient. (P24: Adult ICU: Professional Nurse, Public Hospital)

Additionally, the relevance of CPD programmes to real-world ICU conditions was another concern raised by participants. Many emphasised that existing CPD programmes do not adequately reflect the complexity of ICU environments, and for doctors to engage and commit, they must be accredited CPD programmes. Training programmes often lack direct applicability to ICU practice and suggest topics that are irrelevant to the ICU.

I think hygiene matters in the ICU. In the course as the team, we can investigate what is causing infections in the ICU since it is bound to happen. (P55: ICU Private: Professional Nurse)

We can talk about responsiveness towards an emergency in the ICU because that is a problem currently. The doctors sometimes take a long time to come. (P8: NICU Private: Professional Nurse)

CPD should be structured to match ICU workflows; otherwise, it becomes difficult to apply. (P2: Private: Clinical Training coordinator)

Participants suggested that training sessions should be structured around real-life case studies and emergency scenarios to better prepare staff for high-pressure environments when working in teams in the ICU context.

Scenarios can be great so that when an actual emergency happens, we already know the response steps. (P3: ICU: Clinical training facilitator)

Participants also revealed that it will be of great importance to reward attendance at CPD by issuing certificates. Therefore, this illustrates how formal recognition of skills through certificates, when documented in a portfolio, could enhance a professional's qualifications and career trajectory.

They can get certificates at the end of the course, which must go into their portfolio of evidence. (P19: ICU Private: Clinical facilitator)

Additionally, the professional nurses included in the study, specifically those working in public hospitals, revealed that there are limited opportunities for CPD to enhance their skills, knowledge, and attributes in ICUs. This leads to a feeling of complacency, disconnected from the latest evidence-based practices and ICU-relevant protocols. This, therefore, is a gap that the CPD programme aims to address, promoting quality improvement within ICUs in NWP public hospitals.

... there are no refresher courses, there is no training; we just work. We do not know what are the latest developments that can help to improve our skills in a way ... (P20: ICU Public: Professional nurse)

... since the council has stopped the specialised training, we have less specialised ICU nurses in the ward, and there are no CPD courses for us to feel empowered to even help the students that come and locum in the unit. (P16 ICU Public: Professional Nurse)

9.2.2 Preferred venue selection

Participants observed that hospital-specific training venues could enhance attendance, as travel limitations and shift obligations often hinder healthcare workers from participating in CPD programmes.

I think that if maybe you'll do it in small groups and then maybe in the boardroom and then we take turns because our shifts are very busy. (P6: ICU Private: Pharmacists)

The training can be near the ICU to minimise disruptions to the care that patients will receive. (P48: ICU Private: Training coordinator)

Some CPD sessions are held off-site, making it difficult for staff to attend, particularly those on back-to-back shifts. (P3: ICU Private: Doctor)

Additionally, the participants revealed that the CPD programme could also use simulation settings for the training intervention. Not only are simulation settings a safe learning environment where patients are omitted, but the setting, according to the participants, facilitates cross-disciplinary communication, allowing each ICU team member to identify their role and responsibilities within the ICU. The latter aids in effective collaborative care.

I think for other professions in the team to know what we are going through; we can always role play in the simulation lab. One will see everyone's job, and they can take notes. (P31: ICU Private: Professional Nurse)

As a team, we can practise taking care of a patient in a small simulation and talk it through as the team. (P26: Private: Professional Nurse)

9.2.3 Potential challenges/barriers to effective collaborative CPD implementation

The study revealed that the obstacles to CPD success in ICU settings include time constraints, limited resources, a negative attitude among staff towards in-service training, and working shift patterns. Moreover, the ICU team often

faces an overwhelming workload, and they indicate that little time is spared for additional training. This is due to the urgency of patient care, which pushes CPD activities down the priority list.

The availability of personnel can be a problem because everybody's busy with their own setup and things, and then time, people don't have time to ... uh ... to abide by that. The visits are at 10 a.m., and this sister might not be coming, that cannot do ... and even things that are happening in ICU, there will be a patient admitted or maybe ... uhm ... a death or a resus, it will be disturbed by those things. (P26: ICU Public: Professional Nurse)

Moreover, working shift patterns may also complicate CPD scheduling. Thus, finding a suitable time that accommodates everyone might be challenging.

Like us, the other disciplines, they've got ... days are already occupied, I don't know which day is free. Because I was in NICU, there is a day that they discuss their deaths or have training. Maternity ... it's Wednesdays, Orthopaedic ... I don't know if it's Wednesday or ... surgical is another day. And then availability of a day here for us to squeeze, we might have a challenge because of that and the shifts we need all representatives from all the teams, and already they are having their own active programme. (P51: ICU Public: Professional Nurse)

Additionally, the clinical facilitators included in the study revealed that the ICU professionals may exhibit resistance and negativity towards in-service training. This further encourages the CPD programme designer to seek the reason behind the resistance. Could it be low morale, disengagement, or the irrelevance of the current CPD programmes offered to the ICU healthcare professionals? Knowing this will assist significantly in developing CPD programmes that are intriguing, gain interest, and encourage engagement from ICU professionals.

... as a clinical facilitator, I have noticed in the years that at times there is resistance and negativity from the staff when they are scheduled

for training. They are not always willing to attend. (P40: ICU Public: Clinical facilitator)

... I get a sense that the staff just complete the training simply just to get it over with. In some instances, it is just a cut-and-paste exercise where they just replicate the responses, and it makes me worry if learning takes place. (P19: ICU Private: Clinical facilitator)

In modern healthcare services, technology such as computers in ICUs is increasingly used for interprofessional communication and patient record management. In contrast, participants in public hospitals reported that access to computers and computer illiteracy can be a challenge if the CPD programme aims to include online training, as the facilities lack the necessary infrastructure to accommodate computer access for training purposes.

... to be honest, computer access and computer literacy can be a challenge. We don't have one for the staff, and there are older nurses, too. In my business plan, I have included an additional computer for the unit so that the staff can use it for research or any other information. (P35: ICU Public: Professional nurse/unit manager)

9.3 Theme 2: Aims and objectives

This theme focuses on the identified knowledge gap, skills gap, and attitude gap, which can be defined as the aims and objectives of the CPD programme.

9.3.1 Identified knowledge gap/Knowledge to include in the CPD programme

The study revealed limited interprofessional collaborative care and awareness, where the ICU team shared decision-making, demonstrated good communication, and the team worked collectively to achieve a common goal. Moreover, the lack of interprofessional collaborative care and awareness predisposes ICU team members to feel unheard and unseen, as well as undermined in their unique roles and the contributions each

member makes to the ICU team. Below are the transcripts to support the findings.

... there is no communication between the very same team. Surprisingly enough here, a Peds doctor can request a bed here in the ICU and will not follow up with the patient. The patient will be admitted, and when you call the doctor, he will say I requested the bed, but that is a surgical patient call the other doctors, and that confuses us ... (P10: ICU Public: Professional Nurse)

I am sometimes afraid to tell the doctor that but you prescribed this medication, but for this diagnosis and patient, it is wrong, or it is too much, and the doctor will say, No, just follow my orders ... if only we can accommodate each other's knowledge, I think the outcome of the patient can be better. (P14: ICU Public: Professional Nurse)

The whole team is supposed to have take over [sic] in each shift and know which patients are in ICU, but they don't come, they come only when it is a resus, by the time they are supposed to save a life you are supposed to bring him on board /that what is wrong with the patient, when was he admitted because he comes in clueless ... (P17: ICU Public: Professional Nurse)

9.3.2 Identified skills gap

The skills identified for inclusion in the collaborative competency-based CPD programme include communication, structured communication, and team decision-making. Thus, transparent and structured communication was highlighted as essential to ensuring patient safety and effective teamwork. Participants strongly advocated for CPD programmes that emphasise communication skills, including structured team communication training, particularly in high-pressure ICU settings. One participant summed it up by saying: Communication is a skill we have to have as a team because everything actually anchors from communication, respect, teamwork ... yeah, everything stems from there. (P28: ICU Public: Pharmacist). However, due to a lack of interprofessional communication, professionals in the study highlighted that critical patient information is often misinterpreted or lost

due to inconsistent handover practices, as one participant stated: Miscommunication between team members leads to adverse errors in patient management. We need structured ways to address this. (P3 ICU Private: Clinical Training coordinator)

Another skills gap that was identified is conflict resolution. The ICU professionals revealed that, due to reasons not limited to power dynamics and unclear roles and responsibilities, the ICU team struggles to address conflicts among themselves, which later affects the patients' treatment care plan and the morale of the ICU team.

From my experience, I have experienced a lot of conflict, especially between the ICU specialists, so we as pharmacists as well as the nurses must know how to manage conflict between the specialists for the sake of the patients here in ICU. (P22: ICU Private: Pharmacist)

I just feel that my opinions don't matter, so I decide that I won't speak up even when I see a problem, even though it is good for me to speak up and tell the doctor what I am seeing or thinking about a certain treatment plan. (P14: ICU Public: Professional Nurse)

Additionally, team decision-making skills were identified as a gap within the ICU team. The reasons brought forward included the lack of standard protocols recognised by the entire team. Additionally, due to limited ICU staff, the institutions have recruited new staff members on a flexible basis to meet the ICU's requirements. Some of the newly appointed staff members introduce treatment plans that are unfamiliar to the existing ICU team. This creates discord in decision-making, and in some instances, it is fuelled by hierarchical structures. The professional nurses felt that their opinions were suppressed and regarded as inferior in the decision-making process.

You know, we nurses assess the patient and see a need, and another discipline comes in, and the very same doctors come in who admitted the patient do the same and sometimes consult other disciplines to say that I've got this patient, I need this and this or can you come and

intervene with your expertise towards this patient. Only a few of the doctors do that ... (P22: ICU Private: Professional Nurse)

Moreover, the study revealed a need to strengthen means that promote collaborative care, where various healthcare professionals share their expertise and knowledge to provide comprehensive patient care.

I think, err, we need like a multidisciplinary approach, it's best for the patient to get, to obtain proper care ... Everybody put in their ideas, how are they going to be implemented, uhm, develop ways together to help the patient fully. (P42: ICU Private: Doctor)

9.3.3 *Identified attitude to be addressed by the CPD programme*

Professional respect and empathy are key to fostering strong collaborative relationships among ICU team members. Participants revealed that CPD could include teaching on demonstrating mutual respect and empathy by the team to reinforce good communication and collaboration within the ICU team. Moreover, the ICU team should be encouraged to acknowledge each other's roles, years of experience, and expertise in the ICU. Acknowledging the unique contributions of each team member will encourage interprofessional team members to share decisions and foster positive team cohesion.

A respectful environment encourages professional development and continuous learning. (P7: ICU Private: Clinical Training Coordinator)

... mutual respect, you know. I think as healthcare practitioners, we don't need to undermine or underestimate each one's suggestions or ideas. We can be encouraged to come up with those ideas instead of the other person saying, Who are you? I am this? we can speak with each other with respect, instead even when one brings a new protocol to check is it correct, this one we can use this one we cannot use and so and so ... (P14: High Care Private: Doctor)

Team cohesion and professional relationships were closely linked to patient safety and workplace morale. Many participants expressed the need for CPD programmes to integrate strategies that promote inclusivity and respect in

the workplace. One participant sums it up by stating: Doctors and nurses must respect each other's expertise and input in patient care. This needs to be in that training. (P2: ICU Private: Doctor)

9.3.4 *Benefits of participating in the CPD programme*

This sub-theme highlights the benefits of the interprofessional CPD programme for patients, their families, and ICU healthcare professionals who form part of the ICU team. For the patients, the participants revealed that the CPD programme has the potential to address communication flaws within the interprofessional ICU team. Attending to communication, the CPD programme could enhance how information is shared within the team, leading to improved patient care and better patient outcomes. Moreover, the CPD programme could reinforce collaboration when caring for a patient who requires interprofessional intervention from various healthcare disciplines within the ICU.

... as my colleague mentioned before, if the patient has a medical condition but is here for surgical intervention, the course can help the team to communicate and share information and how to take care of the patient so that the patient may receive a proper and total healthcare. (P4: High Care Private: Professional Nurse)

The participants revealed that the CPD programme has the potential to improve team performance. Furthermore, the CPD programme can aid in role clarification, where the team is aware of the unique contributions each member makes to the team, which will ultimately promote good teamwork and coordination in the ICU. As one participant noted:

It can help with teamwork and cooperation. If we don't cooperate, the patients will suffer. Yes, it is something we can try. (P8: ICU Private: Doctor).

Moreover, some of the participants revealed that the CPD programme could shift the focus towards holistic and family-centred care in the ICU. Therefore, acknowledging optimal health outcomes in the ICU, especially

for patients with cardiac conditions, engaging families in decision-making could be beneficial for quality care.

If the course involves the family, the family should be involved, nê? because they form part of the care of the patients, especially the cardiac patients that are in the ICU for a while. (P9 ICU Private: Clinical Facilitator)

9.4 Theme 3: Curriculum design and implementation

This theme highlights key factors influencing the delivery of CPD programmes, focusing on CPD facilitation, requirements for a facilitator, modes of delivery, programme duration, interactive teaching and learning strategies, technology that can be adopted for the CPD program, and evaluation of the CPD programme.

9.4.1 ICU healthcare professionals in leadership roles as facilitators of the CPD programme

Including ICU healthcare professionals in leadership positions was identified as a crucial determinant of CPD programme success. The participants highlighted that the heads of departments, nurse managers, and training coordinators within the hospitals should be the lead facilitators of the programme. These facilitators were mentioned mainly due to their expertise, vast experience, authority, accountability for the ICU team, and their level of communication with the rest of the ICU team. Additionally, their role in the ICU earns them respect and the ability to influence the ICU team, which could be useful in facilitating and promoting engagement in the CPD programme.

I think the head of the department of the ICU will be ideal. He has been working in the ICU for many years, and also because he is in the right position to bring the team and even the doctors and say, Dr, remember, we cannot do that. We need to sit down as the team. What do you think, Sister? We must revise these standing orders, or we must work on these protocols because you are confusing the staff,

and also, he has access to all of us. (P10: ICU Public: Professional Nurse)

... the nurse manager, she is the middle of the team. Everyone has the most respect for the unit manager, even the physicians and the surgeons, and everyone. (P33: ICU Public: Professional Nurse)

However, some participants further highlighted that the facilitators could also be neutral individuals. In this context, neutrality refers to an individual's capacity to remain objective and equitable and to refrain from imposing personal beliefs or ideas. Therefore, participants suggested that familiarity with the CPD facilitator might compromise fairness, objectivity, and mediation during CPD facilitation.

I think it will be best if it's a neutral person, but I don't know who, who everyone won't know, you see, and somebody who wouldn't be biased. (P6: ICU Private: Pharmacist)

The clinical trainers in the hospitals who are not assigned to the ICU for operations and have experience in teaching can be good because at least they will not be biased. (P7: ICU Private: Pharmacist)

9.4.2 Mode of delivery

Participants expressed diverse preferences on the mode of delivery for the CPD programme. Some participants highlighted the convenience and accessibility of adopting virtual platforms due to the demanding and complex work schedules, including the shift work of the ICU team. In contrast, many emphasised the importance of contact learning for team cohesion, building trust, clarifying roles, and team building. Overall, the findings were based on efficiency and relational depth, suggesting a hybrid approach for the best outcome of the CPD programme.

We can be very busy in the unit, so contact is not gonna work for us; also, we are also more practical. We need more time with the patients. We cannot all be in the class. Our patients will be left alone, you see, but when we do it online, it can be safer. (P59: ICU Private: Professional Nurse)

I was thinking if we can meet in contact, with the multidisciplinary team weekly, especially in the morning, so that ... err ... the doctor maybe will present the patient, diagnose and everything; then we discuss, physio has his own or her out ... in ... input ... err ... the doctor input and the plan and everything. We discuss we analyse, and then we see the loopholes so that next time we can improve, bed to bed. Then next week again, the very same day, same time in the morning. (P57: ICU Public: Professional Nurse)

Contact will do, but scheduled according to shifts so that we know each other better, but then virtual won't do ... (P60: ICU Public: Pharmacist)

9.4.3 Programme duration

The participants revealed that they prefer a shorter timeframe for the CPD programme. The duration provided included weeks, a couple of months, or was provided continuously. The short-term periods would ensure flexibility, making it easier for the ICU team to engage in ongoing training activities without disturbing their work–life balance. Moreover, it would be essential to ensure that the scheduled CPD caters inclusively to everyone in the ICU team, including flexible and agency employees.

Usually, a two-week timeframe is good because of the working shifts, like the others are off and the others are coming, so two weeks will cover both shifts. (P19: ICU Private: Clinical Facilitator)

I think from my side is ... err ... the timeframe can be like three months, where you introduce the CPD and every staff member goes through it, or you can do it collectively, but with every new employee and with us, we also have the agencies that ... that do not work in the unit. They ... they need to know what is happening in the unit. (P12: ICU: Professional Nurse)

Additionally, the participants revealed that the CPD programme could be done continuously to cater for the new staff who join the ICU team. Moreover, refresher courses could serve as a means of knowledge

reinforcement, as well as ensure optimal team functioning for achieving the best outcomes in the ICU. As one participant noted: It needs to be continuous, so I don't think there's a certain timeframe, cause ... especially with the new employees coming in, and some leaving, so it will have to be continuous. (P12: ICU Private: Professional Nurse)

9.4.4 *Interactive teaching and learning strategies*

The study has revealed that incorporating various interactive teaching strategies is vital for enhancing team-based communication, clarity of roles and responsibilities, teamwork, and critical thinking, which are fundamental in the ICU. These strategies include mixed-discipline discussions, reflective group discussions, team-building exercises, face-to-face workshops with small group discussions, and reviewing clinical treatment protocols as a team.

... I think the CPD can include multidisciplinary small discussions or activities that would make us work more closer and together is to have these multidisciplinary team in our unit because we don't have the major rounds whereby we have pharmacists, physiotherapists, Surgical; like we are a multidisciplinary ICU, everybody come for himself at any given time, so there's no proper handing-over to each other so maybe if we can have that major rounds, it can assist to reach everyone. (P10: ICU Public: Professional Nurse)

We can have case scenarios, and they should be very realistic to what can happen in the ICU. (P8: NICU Private: Professional Nurse)

I think a role-play will be good, and you give us a scenario for role play as a team (P13: ICU Private: Clinical Facilitator)

9.4.5 *Use of technology*

Given the pace, complexity, and demands of the ICU setting, the participants identified specific technological devices that could facilitate broader participation and enhance engagement and real-time learning. Technology devices include cell phones, computers, and the use of videos and the learning management system e.g., Moodle.

... because we work with younger people and younger people are more active on cell phones, it will be great to include using of cell phones. (P9: ICU Private: Clinical Facilitator)

... what will advantage us is if we are having a computer here so that everybody ... maybe on a Monday we sit we do the work together online. (P27: ICU Public: Professional Nurse)

For instance, we can have a short video on communication styles or professionalism in ICU, and we show them these short video clips, just to get their attention and later do role plays. (P9: ICU Private: Clinical Facilitator)

We can use what we already have. We use Moodle to circulate the training. And then you do the training on your own time and do the training. I think that's why also the staff like it. It's because it's on your own time, even at home. I can have access, and I can do my training. (P9: ICU Private: Unit manager (Professional Nurse))

9.4.6 Evaluation of the CPD programme using quality improvement programmes

Furthermore, the study revealed that quality improvement actions could be used to evaluate the efficiency and effectiveness of the CPD programme. Quality improvement programmes provide a framework for assessing and enhancing the knowledge, skills, attributes and team performance of healthcare professionals in the ICU.

Mm ... QIP, Quality Improvement Programme. When she picks up a problem in the ICU team, she'll develop a tool, and then she monitors maybe weekly to say are people doing what they are not doing. That can be adopted for the CPD. (P47: ICU Public: Professional Nurse)

9.5 Theme 4: Assessment strategies

The final theme examines the assessment strategies that could be employed to evaluate CPD effectiveness, with a focus on real-time skill evaluation using checklists and surveys. Participants indicated that direct observation

is a practical assessment strategy to ensure that ICU professionals can apply CPD learning in practice. Additionally, the study revealed that the CPD programme could adopt hospital-specific tools used to measure competency. These include a structured approach to measuring practical skills and task performance after training. Supporting quotations include:

We can have a ... maybe like a sheet where you're going to be ticking off stuff so that you can see that they are done, all that was taught in the CPD, and the shift leader can do that. (P25: ICU Public: Professional Nurse)

... if we have a patient who needs ... uh ... that multidisciplinary team, you can pick that patient and see what's happening there, check the documents and the staff and tick for competence. (P43: ICU Private: Clinical training coordinator)

... we've got what we call essential competencies, that ... that's the measure that we're using in the hospital. The essential competencies are about the practical part of what we are doing ... So that you can measure if this staff member can do a certain task properly. (P41: ICU Private: Professional Nurse)

10 Discussion

This study found that comprehensive planning is essential for successfully designing and implementing a CPD programme to enhance the interprofessional competencies of ICU teams. A thorough plan should include identifying the structural and logistical elements that could affect the efficacy of the CPD programme. Moreover, this study revealed that identifying contextual factors in the planning phase of the CPD programme helps to recognise the distinct demands, difficulties, and opportunities within the ICU and its personnel. This finding is similar to Pun et al. (2022:31) and Thethwayo et al. (2024:2098), who stated that ensuring effective planning in CPD programme design can assist in assessing the skills gap, available resources, and the presence or absence of collaborative practices across ICU teams effectively. Therefore, the authors of this chapter claim

that the knowledge, skills, and attitude gaps surrounding interprofessional collaborative care could be addressed in the aims and objectives of CPD programmes, and this could be reflected in the teaching and learning methods and techniques employed. This notion supports work by Sockalingam et al. (2022:432), who argue that incorporating the identified knowledge, skills, and attitude gaps into the CPD programme's aims and objectives aligns with the participants' needs, thereby fostering motivation to attend, engage, and commit to the programme. Therefore, the authors further mention that conducting a situational analysis during the planning phase of the CPD programme ensures that the CPD programme aligns with specific developments and facilitates a continuum of lifelong interventions to address the skills and knowledge requirements of healthcare workers, thereby becoming a learner-centred programme. The findings of this study align with those of Giusti et al. (2024:1570), who discussed the significance of actively involving staff members' needs through the training needs elicitation process, which shapes a more effective CPD and maximises training outcomes while minimising any resistance to change from staff members.

Similarly, Yaqub et al. (2020:112) in Ghana asserted that for organisations to fulfil the requirements and aims of the CPD programme, it is essential to conduct not only a needs analysis of the personnel, but also a comprehensive evaluation of the specific needs of the organisations and patients' families to ascertain that the patients' needs and those of the caregivers are the integral focus of the CPD programme. Consequently, the CPD programme must focus on the intricacies of and rectify inadequate performance in the ICU team, and by conducting a situational analysis, potential constraints could be managed by including them as scenarios in the CPD (Yaqub et al., 2020:112). Findings further align with the work of Holloway et al. (2018:12), who assert that CPD programmes must address the needs of the participants, address workplace-related matters, and involve leaders in the facilitation of the CPD. This study supports findings by Freeman et al. (2010:375) and Holloway et al. (2018:12), as it confirms that having leaders from different disciplines in the ICU and using them as

facilitators in the CPD programme could foster effective interprofessional collaboration.

However, despite the endorsement of interprofessional facilitators for IPE CPD programmes, some facilitators frequently perceive themselves as inadequately prepared and encounter challenges (Evans et al., 2016:702; Evans et al., 2019:1). It is therefore imperative to assist facilitators responsible for training IPE teams in developing the knowledge and skills they need to foster a culture of collaborative practice, allowing ICU team members to learn with, about and from each other. Providing training for CPD programme facilitators will enhance the confidence and proficiency of interprofessional team facilitators in assisting attendees (Xyrichis & Rose, 2024:1). Regarding the mode of delivery for the CPD programme, this study emphasised a need for flexibility, therefore encouraging a hybrid approach. The findings concur with Lazinski et al. (2021:15) and Oliveira et al. (2024:128), who state that the use of a hybrid approach could lead to positive attitude and knowledge change, which is a favourable reaction for IPE activities. Moreover, the hybrid approach holds great promise for fostering a cost-effective teaching approach in low-resourced settings, such as the NWP in South Africa, and offers flexibility to facilitators. This study additionally demonstrated that, due to the intricate and high-pressure environment of the ICU, interactive teaching and learning methodologies enhance the reinforcement of knowledge acquisition. Therefore, interactive teaching and learning methodologies enhance team collaboration in the ICU and facilitate team-based communication, fostering open dialogue among team members. Moreover, this study further reveals that employing pedagogical methods such as interdisciplinary conversations, role-playing, in-person workshops, team-building exercises, and collaborative tasks in small groups, as well as reviewing protocols as an ICU team, is recommended as an effective interactive teaching and learning method for promoting engagement in the CPD programme. The findings align with those of Amerongen et al. (2015:47), who demonstrated that interactive learning in IPE CPD programmes for ICU teams cultivates a culture of interprofessional collaboration that seeks to mitigate the power dynamics that arise in the absence of good interprofessional skills training.

Furthermore, the literature affirms that interactive modalities enhance knowledge of roles and duties, facilitate the exchange of expertise, and encourage shared leadership for improved patient care in the ICU.

This study found that incorporating technology, such as cell phones with applications or software containing CPD content, would be of great benefit to the CPD programme as it could provide easy access for shift workers and those working in high-demand settings, including the ICU. Additionally, using learning management systems (LMS) with videos featuring real-life case scenarios could promote critical thinking, reasoning, and better decision-making in the ICU. These findings support the work of Ngezi et al. (2021:245), who affirm that incorporating technology into the CPD programme will encourage engagement and ease of access to the CPD content for participants. However, Ngezi et al. (2021:245) further discuss that technology, for instance, LMS, must be designed to be interactive and provide automated access to various types of learning content to accommodate different learning styles. This study concurs with Gómez-Pérez et al. (2023:263), who also stated that various types of content, such as reading materials, audio recordings, video recordings, web conferences, learning games, chats, and forums, can be included. Therefore, the authors of this chapter believe that the use of a diverse range of content technologies would accommodate the varied learning styles exhibited by ICU teams. Moreover, the varied content technologies could reinforce collaboration and support the different stages that each profession is at in terms of its professional development. Moreover, to ensure that participants attend the interactive teaching programme, this study revealed that it would be beneficial to have a CPD programme for a short duration. That would accommodate high acuity with limited time for in-service training, and it would be less disruptive to patient care. Therefore, the brief period would attract more participants due to its feasibility and later create a culture of learning without overburdening the ICU team. Shuyi et al. (2024:74) concur with the findings of this study, which suggest that a short-period CPD programme, when developed according to the needs of the ICU team, offers clinically relevant, accessible, and practical learning that aligns with the demanding ICU environment. Noteworthy is that, despite the

availability of specific tools to assess interprofessional competencies, such as Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEEPPS) team survey tools, clinical survey tools, and relational teamwork scales, the interprofessional healthcare professionals who participated in this study, including the training coordinators, made no mention of using evaluation tools to assess interprofessional competencies. However, to measure competency, the study participants revealed that real-time assessments using checklists and surveys would be beneficial for the CPD programme. Ong et al. (2019:1) support the findings and state that real-time assessments provide instant feedback to participants, allowing them to either reinforce or correct the effective demonstration of interprofessional competencies. For the overall evaluation of CPD programmes, participants highlighted that incorporating quality improvement programmes, such as the implementation of the Plan–Do–Study–Act cycle, which is widely used in healthcare services, could be beneficial.

Lastly, this study revealed that implementing CPD programmes serves as a crucial element in empowering the ICU teams to provide safe and quality care. In instances where miscommunication may result from a lack of effective interprofessional communication and collaboration, the CPD programme could promote open discussion and opportunities to develop structured communication frameworks for the ICU team. Pun et al. (2022:31) concur with these findings and note that implementing interprofessional CPD programmes for the ICU team fosters a better workplace where effective interpersonal relationships are established, thereby enhancing job satisfaction and productivity. Pun et al. (2022:31) further allude that the outcomes of the CPD programme are often attributed to the enhanced interprofessional collaboration skills, cooperation, coordination, communication, and partnership that are embedded in the CPD programme. Moreover, this study further revealed that for patients, the CPD programme could reinforce the delivery of safe and high-quality care, which in turn minimises morbidity and mortality rates associated with poor interprofessional collaborative care. Therefore, the patients' needs will be identified promptly by the ICU team due to the

robust interprofessional communication and teamwork developed by the CPD programme. Thus, this leaves fewer opportunities for late diagnosis or specific treatment intervention by the team. The findings are supported by Ong et al. (2019:1), who state that high-quality healthcare must be clinically effective for the overall needs of the patients, effective, patient-centred, and safe. Interprofessional CPD programmes are integral to achieving the required outcomes. Ntinga (2017:1) also supports the findings that effective ICU care depends on effective collaborative teams; interprofessional CPD programmes in the ICU allow for enhanced patient safety, better utilisation of resources, avoidance of treatment duplication, and improved standards of patient care. Additionally, the participants revealed that if the CPD is implemented, even patients' families could benefit from the ICU teams who have received the training, as the programmes would encourage them to include patients' families in decision-making regarding the patient's care. Schot et al. (2020:34) align with the findings of this study and discuss how interprofessional CPD programmes help to build trusting relationships between patients' families and foster a humanistic approach. They further discuss how a humanistic approach provides patients' families with more respect, empathy, and compassion, as the ICU team is taught in the CPD programme to be culturally sensitive towards themselves as a team and towards the patients and their families (Schot et al., 2020:34). In settings such as the ICU, where optimal patient care relies on effective collaborative practice, developing interprofessional competencies through CPD programmes promotes safe and high-quality patient care. Moreover, the CPD programmes ensure that the ICU teams are encouraged to embrace a patient safety culture – a safety culture that augments shared commitment and dedication to patient safety in ICU, cohesive collaboration, and the minimisation of adverse events that compromise the livelihood of patients. Therefore, in essence, optimising CPD programmes for ICU teams fosters a culture of shared responsibility and a shared mental model, which is critical for creating a safe culture and positive psychological setting in the ICU.

11 Limitations and recommendations

The study was conducted only in the North West Province (NWP) of South Africa and only with ICU teams across two public and two private hospitals in two districts of the NWP. This implies that the voices of other ICU members in other provinces and in private and district hospitals were not included. Furthermore, the data were exclusively derived from ICU experts, which may have resulted in a lack of diverse viewpoints regarding team composition and healthcare procedures in non-ICU environments. Conducting this study in more than one province and in more private and public hospitals may yield additional insights into the perception of the ICU teams regarding the nature of a CPD programme to enhance the interprofessional competencies of ICU teams.

11.1 Acknowledgements

The authors would like to thank all the ICU professionals from the NWP in South Africa who shared their time and opinions to make this study possible.

12 References

- Amerongen, H. M., LeGros, T. A., Cooley, J. H., Schloss, E. P., & Theodorou, A. (2015). Constructive contact: Design of a successful introductory interprofessional education experience. *Currents in Pharmacy Teaching and Learning*, 7(5), 565–574.
<https://doi.org/10.1016/j.cptl.2015.06.013>
- ATLAS.ti. (2025). *What's new in ATLAS.ti 23*. Retrieved September 10, 2025, from <https://atlasti.com/what-s-new-in-atlas-ti-23>
- Brink, H., & Van der Walt, C. (2006). *Fundamentals of research methodology for health care professionals*. Juta.
<https://juta.co.za/pdf/24738/>
- Canadian Interprofessional Health Collaborative. (2024). *CIHC competency framework for advancing collaboration*. Retrieved December 20, 2024, from <https://www.cihc-cpis.com>

- Chapman, L. B., Kopp, K. E., Petty, M. G., Hartwig, J. L. A., Pendleton, K. M., Langer, K., & Meiers, S. J. (2021). Benefits of collaborative patient care rounds in the intensive care unit. *Intensive and Critical Care Nursing*, 63, 102974. <https://doi.org/10.1016/j.iccn.2020.102974>
- Clarke, V., & Braun, V. (2017). Thematic analysis. *The Journal of Positive Psychology*, 12(3), 297–298. <https://doi.org/10.1080/17439760.2016.1262613>
- Donovan, A. L., Aldrich, J. M., Gross, A. K., Barchas, D. M., Thornton, K. C., Schell-Chaple, H. M., Gropper, M. A., & Lipshutz, A. K. M. (2018). Interprofessional care and teamwork in the ICU. *Critical Care Medicine*, 46(6), 980–990. <https://doi.org/10.1097/CCM.0000000000003067>
- Evans, S., Shaw, N., Ward, C., & Hayley, A. (2016). Refreshed ... reinforced ... reflective: A qualitative exploration of interprofessional education facilitators' own interprofessional learning and collaborative practice. *Journal of Interprofessional Care*, 30(6), 702–709. <https://doi.org/10.1080/13561820.2016.1223025>
- Evans, S. M., Ward, C., & Reeves, S. (2019). Online interprofessional education facilitation: A scoping review. *Medical Teacher*, 41(2), 215–222. <https://doi.org/10.1080/0142159x.2018.1460656>
- Filies, G. C., & Frantz, J. M. (2021). Student readiness for interprofessional learning at a local university in South Africa. *Nurse Education Today*, 104, 104995. <https://doi.org/10.1016/j.nedt.2021.104995>
- Freeman, S., Wright, A., & Lindqvist, S. (2010). Facilitator training for educators involved in interprofessional learning. *Journal of Interprofessional Care*, 24(4), 375–385. <https://doi.org/10.3109/13561820903373202>
- Giusti, A., Pukrittayakamee, P., Wannarit, K., Thongchot, L., Janwanishstaporn, S., Nkhoma, K., Venkatapuram, S., & Harding, R. (2024). How to deliver person-centred care for people living with heart failure: A multi-stakeholder interview study with patients, caregivers and healthcare professionals in Thailand. *BMC Health Services Research*, 24(1), 1570. <https://doi.org/10.1186/s12913-024-11922-z>
- Gómez-Pérez, V., Escrivá Peiró, D., Sancho-Cantus, D., & Casaña Mohedo, J. (2023). In situ simulation: A strategy to restore patient safety in

- intensive care units after the COVID-19 pandemic? Systematic review. *Healthcare*, 11(2), 263. <https://doi.org/10.3390/healthcare11020263>
- Gundo, R., Mearns, G., Dickinson, A., Smythe, L., & Chirwa, E. (2019). *Development, implementation and evaluation of an in-service training programme for critical care nurses in Malawi* [Preprint]. Auckland University of Technology. <https://doi.org/10.4314/mmj.v33i4.3>
- Holloway, K., Arcus, K., & Orsborn, G. (2018). Training needs analysis — the essential first step for continuing professional development design. *Nurse Education in Practice*, 28, 7–12. <https://doi.org/10.1016/j.nepr.2017.09.001>
- Lazinski, M. J., Ross, L., Wolf, S., Finck, M., & Cherry, L. (2021). Interprofessional education at a distance: The hybrid interprofessional education model. *Internet Journal of Allied Health Sciences and Practice*, 19(3), 15. <https://doi.org/10.46743/1540-580X/2021.2011>
- Leal Silva, E. A., de Oliveira Silva, R. M., Arcanjo Oliveira Cordeiro, A. L., Reis da Silva, G. T., Pereira Velôso, R. B., & Santo da Silva, M. D. E. (2023). Interprofessional collaboration in the Program for Education at Work for Health. *Ciência, Cuidado e Saúde*, 2. <https://doi.org/10.4025/ciencuidsaude.v22i0.65958>
- Mahomed, S., & Mahomed, O. H. (2018). Cost of intensive care services at a central hospital in South Africa. *South African Medical Journal*, 109(1), 35–39. <https://doi.org/10.7196/SAMJ.2018.v109i1.13268>
- Mboweni, S. H., & Risenga, P. R. (2023). Experiences of patients with chronic diseases during the COVID-19 pandemic in the North-West province, South Africa. *South African Family Practice*, 65(3). <https://doi.org/10.4102/safp.v65i1.5643>
- Ngenzi, J. L., Scott, R. E., & Mars, M. (2021). Information and communication technology to enhance continuing professional development (CPD) and continuing medical education (CME) for Rwanda: A scoping review of reviews. *BMC Medical Education*, 21(1), 245. <https://doi.org/10.1186/s12909-021-02607-w>
- Ntinga, M. N. (2017). Physiotherapists' experiences of interactions with inter-professional team members in the adult intensive care unit (ICU) setting [Master's dissertation, University of the Witwatersrand].

WIREDSpace. <https://wiredspace.wits.ac.za/items/7334475a-2bba-4b78-8f5a-5f2e9eb63023>

Ntinga, M.N. 2017. Physiotherapists' experiences of interactions with inter-professional team members in the adult intensive care unit (ICU) setting. University of the Witwatersrand, Johannesburg (South Africa). <https://wiredspace.wits.ac.za/items/7334475a-2bba-4b78-8f5a-5f2e9eb63023>

Oliveira, A., Mezil, Y., Akhtar-Danesh, N., Palombella, A., Rockarts, J., Wojkowski, S., & Wainman, B. (2024). Student perceptions of hybrid delivery of interprofessional anatomy — the best of both worlds? *Anatomical Sciences Education*, 17(1), 128–138. <https://doi.org/10.1002/ase.2330>

Ong, I. L., Diño, M. J. S., Calimag, M. M. P., & Hidalgo, F. A. (2019). Development and validation of interprofessional learning assessment tool for health professionals in continuing professional development (CPD). *PLoS ONE*, 14(1), e0211405. <https://doi.org/10.1371/journal.pone.0211405>

Pun, B. T., Jun, J., Tan, A., Byrum, D., Mion, L., Vasilevskis, E. E., Ely, E. W., & Balas, M. (2022). Interprofessional team collaboration and work environment health in 68 US intensive care units. *American Journal of Critical Care*, 31(6), 443–451. <https://doi.org/10.4037/ajcc2022546>

Schot, E., Tummers, L., & Noordegraaf, M. (2020). Working on working together: A systematic review on how healthcare professionals contribute to interprofessional collaboration. *Journal of Interprofessional Care*, 34(3), 332–342. <https://doi.org/10.1080/13561820.2019.1636007>

Shuyi, A. T., Zikki, L. Y. T., Mei Qi, A., & Koh Siew Lin, S. (2024). Effectiveness of interprofessional education for medical and nursing professionals and students on interprofessional educational outcomes: A systematic review. *Nurse Education in Practice*, 74, 103864. <https://doi.org/10.1016/j.nepr.2023.103864>

Sockalingam, S., Rajaratnam, T., Gambin, A., Soklaridis, S., Serhal, E., & Crawford, A. (2022). Interprofessional continuing professional development programs can foster lifelong learning in healthcare

professionals: Experiences from the Project ECHO model. *BMC Medical Education*, 22(1), 432. <https://doi.org/10.1186/s12909-022-03500-w>

Thethwayo, M. S., Camp, P., Van Staden, D., Chetty, V., & Maddocks, S. (2024). Exploring interprofessional collaboration in the intensive care unit. *South African Journal of Physiotherapy*, 80(1), 2098. <https://doi.org/10.4102/sajp.v80i1.2098>

Van Heerden, W. J. (2021). Exploring continuing professional development in critical care: Registered nurses' perspectives of elements influencing completion of a CPD programme in a South African private hospital group [Master's dissertation, Stellenbosch University]. SUNScholar. <https://scholar.sun.ac.za/items/308a8542-bc80-458c-b08a-74696128de60>

Xyrichis, A., & Rose, L. (2024). Interprofessional collaboration in the intensive care unit: Power sharing is key (but are we up to it?). *Intensive & Critical Care Nursing*, 80, 103536. <https://doi.org/10.1016/j.iccn.2023.103536>

Yaqub, E. N., Owusu-Cole, C., & Ofosua, C. F. (2020). Challenges facing continuing professional development (CPD) of academic staff of the colleges of education in Ghana. *International Journal of Educational Administration and Policy Studies*, 12(2), 112–120. <https://doi.org/10.5897/IJEAPS2020.0653>