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Lived Experiences of ICU Nurses in Controlling Healthcare-Associated Infections

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ABSTRACT

Healthcare-associated infections (HAIs) remain a persistent challenge in intensive care units (ICUs), contributing to increased morbidity, mortality, and healthcare expenditures. Despite established infection prevention and control (IPC) protocols, gaps persist between institutional policies and actual nursing practices, particularly in resource-constrained health-care settings. Limited qualitative evidence from the Philippines highlights the need to understand the lived experiences of ICU nurses in controlling healthcare-associated infections within clinical environments. This study explored the lived experiences of ICU nurses in controlling healthcare-associated infections in selected tertiary care hospitals in the Philippines. An exploratory-descriptive qualitative design grounded in descriptive phenomenology was utilized. Registered ICU nurses with 2–5 years of clinical experience were recruited through snowball sampling until data saturation was achieved. Data saturation was reached during the eighth interview, after which two additional interviews were conducted to confirm the recurrence of themes, resulting in a total of ten participants. Data was collected through semi-structured online interviews. Bracketing, member checking, and investigator triangulation were employed to ensure rigor and trustworthiness. Data were analyzed using Colaizzi's phenomenological method. Three overarching themes emerged. Infection Prevention as an Organizing Framework of Care illustrated how protocols and collaborative endeavors shape daily practice despite occupational depletion. Permeative Vigilance described infection prevention as an embedded ethical orientation sustained through habituation and reciprocal preservation. Cumulative Clinical Evolution reflected the progressive advancement of practices through continuous learning and technological opportunities. Collectively, these themes demonstrate that infection prevention is integrated into nurses' professional identity and ethical accountability.

INTRODUCTION

Healthcare-associated infections (HAIs) are infections acquired during medical care, occurring at least 48 hours after hospitalization or within 30 days of receiving treatment (Weiner-Lastinger *et al.*, 2020; Escobar & Pegues, 2021). These preventable infections are a major cause of morbidity, mortality, and increased healthcare costs (Sartelli, 2022; Onosakponome *et al.*, 2022). Common HAIs include surgical site infections, urinary tract infections, pneumonia, and bloodstream infections (Sartelli, 2022). Risk factors include invasive devices, surgical procedures, microbial agents, environmental factors, and patient characteristics (Onosakponome *et al.*, 2022). HAI surveillance is crucial for measuring burden, identifying high-risk populations, and guiding prevention efforts (Murhekar & Kumar, 2022).

Healthcare-associated infections (HAIs) remain a significant concern in intensive care units (ICUs), contributing to increased morbidity, mortality, and costs (Mazzeffi *et al.*, 2021; Ikuta *et al.*, 2022). A global study found a high prevalence of suspected or proven infections in ICU patients, with ICU-acquired infections associated with higher mortality risk compared to community-acquired infections (Vincent *et al.*, 2020), which resonated with the report by the European Center

for Disease Prevention and Control in 2019. The World Health Organization (2022) reported that over 24% of patients affected by HAIs and 52.3% of those patients treated in an intensive care unit die each year, which reflects the observations of Markwart *et al.* in a previous study in 2020.

Common HAIs in ICUs include bloodstream infections, pneumonia, and urinary tract infections, often caused by multidrug-resistant organisms like *Acinetobacter baumannii* and *Klebsiella pneumoniae* (Alfouzan *et al.*, 2021). While successful reductions in device-related HAIs have been achieved, emerging pathogens and the COVID-19 pandemic have presented new challenges (Blot *et al.*, 2022). Prevention strategies involve basic hygiene practices, quality improvement initiatives, and antimicrobial stewardship (Onosakponome *et al.*, 2022). Advanced microbiological techniques and increased understanding of patient-microbiota interactions are reshaping approaches to HAIs diagnosis, treatment, and prevention in ICUs (Blot *et al.*, 2022).

While implementing standardized surveillance systems remains challenging in low- and middle-income countries, prioritizing minimum infection prevention and control requirements in hospitals is essential for reducing HAIs and improving overall healthcare quality (Murhekar

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& Kumar, 2022). Lee *et al.* (2020) proposed that long-term care facilities should prioritize the thorough implementation of basic infection control practices in daily care, and efforts should be focused on encouraging healthcare workers to adhere to the fundamental practice of infection control in a consistent and ideal manner. For Debesai (2019), strategies encompass training, competency evaluations for physicians and staff, introduction of new products, heightened awareness of HCAs, and the employment of board-certified personnel.

There is an urgent need to improve the execution of global and local infection prevention and management strategies to lower the high prevalence of infection among hospitalized patients. There is a need for more studies in the ICU settings as recommended by Kollef *et al.* (2021). Few studies have been conducted on healthcare-associated infections in the ICU locally. To fill this gap, this study explored the nurses' opportunities in controlling healthcare-associated infections in the ICU in a selected tertiary care hospital in the Philippines.

This study explored the lived experiences of ICU nurses in controlling healthcare-associated infections in selected tertiary hospitals utilizing an exploratory qualitative research design. Therefore, this study aimed to answer the following research questions:

- What are the experiences of Nurses in relation to healthcare-associated infections in tertiary care hospitals?
- What are the perspectives of the nurses in relation to healthcare-associated infections that are currently in place for preventing and controlling healthcare-associated infections in tertiary care hospitals?
- What are the opportunities for common healthcare-associated infections' practices for nurses within the tertiary care hospitals?

MATERIALS AND METHODS

This section of the study discusses the methodology and research design used, data collection approach, research instruments, and research data treatment and analysis. Methodologically, this study utilizes qualitative research methods. According to Merriam and Grenier (2019), the qualitative research method examines how individuals interpret their experiences and how they systematically construct their thoughts. Similarly, Creswell and Poth (2016) defined this method as a process of "describing the meaning for several individuals of their lived (or shared) experiences or a phenomenon" (p.57).

Research Design

In line with the research problem, this study employed a qualitative research method, utilizing an exploratory, descriptive, qualitative (EDQ) research design. According to Hunter *et al.* (2019), exploratory-descriptive qualitative design enables the researcher to investigate a topic with limited coverage in the literature, allowing participants in the study to contribute to the development of new knowledge in that area. Besides, George (2021)

emphasized that exploratory research is a methodology approach that investigates research questions that have not previously been studied. It can help researchers increase their understanding of a given topic, ascertain how or why a particular phenomenon is occurring, and predict future occurrences.

Likewise, George (2021) suggested that qualitative study is a research method where the characteristics or qualities of a phenomenon are described without using any quantitative measurements or data. Also, Stebbins (2001), as cited in Hunter *et al.* (2019), defined exploratory research as a broad-ranging, purposive, systematic, prearranged undertaking designed to maximize the discovery of generalizations leading to the description and understanding of an area of social or psychological life. Descriptive phenomenology is a qualitative research methodology used to investigate lived experiences and perceptions (Sinfield *et al.*, 2023). Whereas descriptive phenomenology constitutes a qualitative research methodology aimed at exploring and unraveling the lived experiences of individuals. Grounded in the philosophical contributions of Edmund Husserl (1970), this methodological approach underscores the importance of capturing the essence of experiences as they are perceived by individuals (Oluksa, 2025), free from the imposition of preconceived theories or interpretations (Nahari *et al.*, 2025).

The principal aim is to give a thorough, authentic description of how participants interpret their own experiences. In practical terms, researchers gather data through extensive interviews or written narratives, subsequently engaging in a systematic analysis to extract key themes. In contrast to interpretive phenomenology, which endeavors to comprehend meanings within a broader context, descriptive phenomenology is primarily concerned with accurately representing the perspectives of participants without imposing additional interpretations (Haun *et al.*, 2025). Descriptive phenomenology's ability to shed light on the complexity of human experience is one of its key advantages, which makes it especially useful in medical research. (Nahari *et al.*, 2025).

The design is appropriate because it allowed the researcher to contextualize how the participants perceived their activities and environment, their role within the context of the study, and provide a picture of what naturally occurred in the intensive care unit (ICU) of the hospital (Hunter *et al.*, 2019). Also, the descriptive exploratory qualitative approach is useful in this study because it will enable the researcher to summarize and understand the area of interest. Similarly, the research design is appropriately selected for this study to describe and explore the experiences, perceptions and meanings of ICU nurses attached to infection prevention and control practices in selected tertiary hospitals. Therefore, research design fits this study since the focus is to explore and describe the lived experiences of ICU nurses in controlling healthcare associated infections in tertiary care hospitals.

Population and Sampling Techniques

This study utilized a combination of purposive sampling and snowball sampling techniques in selecting both the hospitals and the participants. Purposeful sampling is widely used in qualitative studies where participants or sites for study are deliberately chosen to offer information about the phenomenon being studied (Campbell *et al.*, 2020). Purposive sampling was initially employed to identify the two tertiary hospitals included in the study. Both facilities are tertiary hospitals, they provide the specialized ICU environments and complex clinical setups necessary to explore the research topic. Additionally, these hospitals were chosen for geographic convenience, as both are located near the researcher's place of residence, making data collection manageable. Finally, these two sites were selected because the initial key informants who fit the study's criteria were employed across these two settings, with one nurse coming from each hospital.

Snowball sampling technique was utilized to choose the study's participants. Participants for this study were carefully selected based on specific criteria. Specifically, registered nurses in a tertiary hospital working in the intensive care unit with 2-5 years of ICU experience were employed for this academic inquiry. Nurses who have less than two years of ICU experience, those not currently assigned to the ICU, nurses employed in non-tertiary hospitals or non-hospital settings, and those who do not provide informed consent were excluded from the study. For recruiting the participants the researcher started with two key informants in both hospitals. The initial participants were the chain-referrers, referring other ICU nurses willing to be involved in the study to the researcher.

Ten ICU nurse participants were involved in this study coming from two tertiary care hospitals. Five participants were obtained from the hospital situated in Sta. Rosa, Laguna, while five participants were obtained from the hospital situated in Lipa City, Batangas. Participants were all registered nurses working in the ICU who had been working in the ICU for 2-5 years.

Snowball sampling is a way for researchers to study groups that are usually hard to reach. It works by asking a few people who meet the study's needs to participate. Then, these people suggest to others they know who a good fit would also be. It is like a snowball getting bigger as it rolls, as more people join the study (Gierczyk *et al.*, 2024; Lister *et al.*, 2025). This method is helpful when studying specific groups because it uses the trust and social circles of the participants. (Messiha *et al.*, 2025). Data Saturation was observed to determine respondent number. Data saturation in qualitative research refers to the point where no new information emerges from additional data collection. It is crucial for ensuring robust findings and fully exploring data potential (Naem *et al.*, 2024). Saturation is a complex phenomenon influenced by various factors, including triangulation of sources, disciplinary traditions, and participants' willingness to

share (Chitac, 2022).

Data saturation was achieved during the eighth interview because there was no more information provided by him/her which could be regarded as significant to this study. Nonetheless, as additional verification, two more interviews were performed on two other participants. As such, the number of participants who took part in this study totaled ten.

Instrumentation

The research instrument was a researcher-developed semi-structured questionnaire. The questionnaire used during the interview covered every aspect of the phenomenon to have a broad and in-depth understanding of the participant's lived experiences in controlling health care -associated infections in ICU. For designing the semi-structured interview questions, the framework laid out by Moustakas for phenomenological interviews was followed. Semi-structured interviews (SSIs) are a valuable tool in qualitative research, offering flexibility and depth while maintaining focus (Ruslin *et al.*, 2022). They allow researchers to explore emerging themes and adapt questions as needed (Kakilla, 2021). To ensure rigor, pre-testing SSI questions using expert reviews and cognitive interviews is recommended (Bhalla *et al.*, 2023). This process helps refine the interview protocol and enhance construct validity and reliability. Overall, SSIs are a powerful method for gathering in-depth information in qualitative studies across various fields, including education and healthcare.

Data Gathering Procedures

Before conducting the interviews, the researcher subjected the research protocol for review and approval from the university Ethics Review Board. A pilot interview was first conducted to two competent participants, who also signed an informed consent, and participated in a zoom or google meet online interview. To reduce biases, the study participant and the researcher did not have a dual connection. The final study did not include the findings from the pilot trial. After the pilot study, the researcher conducted the actual study. Snowball sampling was utilized in selecting the participants due to the difficulty and lengthy process of securing hospital clearances, as well as the sensitive nature of the study topic. Professional networks and referrals were used to find these initial participants. Two Intensive care unit nurses who fit the inclusion criteria were identified by the researcher with one participant coming from each selected tertiary hospital.

Also, an invitation letter was sent to participants in the study and both agreed to participate in the study. Then the researcher asked these nurses to recommend other nurses who fit the inclusion criteria. The researcher then set an appointment for an online interview with the ICU nurses and secure consent forms seeking voluntary participation. The respondent consent form detailed the essence of the study, possible benefits, and risks

(if any), and the right to withdraw from the study at any time. Once the participants' agreement and willingness have been obtained, the researcher began questioning the subjects to collect data.

The interview was audio recorded online through (google meet or zoom) to guarantee accurate documentation and enable transcription and analysis. Prior to the scheduled interviews, the participants received the questions so they can review them, get ready for the real interview, and determine whether they are still willing to continue. Opening questions were asked to build rapport and put the nurses at ease before the interview starts. The semi-structured interview guide's main questions were then asked. In order to elaborate on participants' answers, the researcher actively listened, took notes, and employed probes as needed.

The researcher thanked the participants after the interview. Even after the interview, participants could still get in touch with the researcher about the study. To guarantee that the data is correct and consistent, the participants were emailed the interview results.

Bracketing

Bracketing was used during the study to avoid any bias on the part of the researcher. In this case, the researcher was careful to bracket out his personal assumptions, beliefs, and previous experiences regarding infection control practices in order to be more receptive to the views of the participants. Bracketing is a fundamental concept in phenomenological and qualitative research, involving the suspension of preconceptions to enhance objectivity (Thomas & Sohn, 2023). However, recent studies challenge this view, suggesting that bracketing embraces subjectivity rather than achieving objectivity (Dörfler & Stierand, 2020). The process can be educational for novice researchers, heightening awareness of presuppositions and fostering researcher identity (Thomas & Sohn, 2023). Some scholars argue for a deeper examination of the prerequisites for bracketing, emphasizing the importance of recognizing the embeddedness of research practices (Emiliussen *et al.*, 2021). Bracketing, along with bridling, can be used as methodological tools to confront researcher bias and the impact of social identity in historical studies (Janak, 2022). These techniques not only supplement and clarify research findings but also contribute to a better understanding of phenomenology as a theory of mind (Dörfler & Stierand, 2020).

Triangulation

Triangulation in qualitative research is a strategy that enhances credibility, reliability, and scientific accuracy by examining phenomena from multiple perspectives (Santos *et al.*, 2020). It encompasses various types, including methodological, data, researcher, and environmental triangulation (Santos *et al.*, 2020; Vivek, 2023). Environmental triangulation, in particular, explores phenomena across diverse contexts, offering unique insights but presenting challenges in logistics

and data interpretation (Vivek, 2023). The approach is distinct from mixed methods research, though systematic perspective triangulation can bridge the two (Flick, 2020). Triangulation's application in social sciences has increased due to its merits in conducting in-depth studies through multiple inquiries. However, it faces criticism and misconceptions regarding its use and the credibility of findings. Despite challenges, triangulation remains a valuable tool for researchers, with potential for integration with emerging technologies and expansion into digital landscapes (Vivek, 2023).

Member Checking

Member checking is a widely recognized strategy in qualitative research for enhancing credibility and trustworthiness. It involves seeking feedback from participants to validate the accuracy of research findings, interpretations, and conclusions (Sahakyan, 2023). This method serves as a safeguard against researcher bias by allowing participants to confirm whether the derived insights genuinely reflect their experiences. In this study, following data collection and thematic analysis, the researcher returned to the participants and presented the emergent themes derived from their responses and the interpretations. Participants were asked whether they agree with these themes and whether the interpretations align with their intended meaning. They were encouraged to offer corrections, clarifications, or additional input.

The participants affirmed that the results were in line with their actual experiences. This process ensures that participant perspectives are accurately represented, reducing biases resulting from the researcher's interpretations. As Vella (2024) notes, involving participants in this stage of the research reinforces the trustworthiness of the findings by validating the interpretations from those who provided the data.

Investigator Triangulation

Investigator triangulation is employed through a multi-analyst coding approach, aimed at enhancing the dependability and confirmability of the study's findings. The researcher has formally invited his thesis adviser to act as a secondary reviewer throughout the data analysis phase. The adviser's role involved reviewing the initial coding framework, offering critical feedback on theme development, and participating in periodic discussions to ensure that interpretations remain grounded in the data. This collaboration was documented as part of the methodology chapter to provide transparency in the analytic process. Utilizing multiple analysts helps in capturing a range of interpretations, which can lead to more nuanced and well-rounded findings (Meydan & Akkaş, 2024). Moreover, involving multiple coders enables cross-checking of codes and interpretations, thereby minimizing individual researcher bias and increasing the reliability of qualitative data analysis (Santos *et al.*, 2020). This analytic dialogue also served to refine emergent themes and ensure that they accurately reflect

the data rather than any single researcher's assumptions or biases. In doing so, the study adheres to best practices in qualitative rigor by promoting analytic transparency, reflexivity, and credibility.

Theoretical Triangulation

Theoretical triangulation was applied in this study. According to Holloway and Galvin (2023), theoretical triangulation occurs when the researcher utilizes multiple theoretical interpretations in the research. Conflicting explanations or interpretations are formulated and compared with one another to identify the one most likely to clarify or account for the phenomenon. Although the study was primarily guided by the Agent–Host–Environment Model, related concepts and perspectives from existing literature were also considered during the interpretation of the findings. The researcher attempted to reveal divergent or complementary explanatory pathways by examining emergent themes through related conceptual perspectives presented in the literature. This enhanced conceptual comprehension and lessened the bias that comes with interpretations that rely on just one framework. This process also helped the researcher better understand the lived experiences, perceptions, and meanings shared by ICU nurses while ensuring that the participants' narratives remained central throughout the analysis. This process aligned with Ramakrishnan *et al.* (2023), who emphasized that the utilization of a variety of theoretical perspectives fosters a more comprehensive and nuanced comprehension of intricate social phenomena.

Ethical Considerations

Ethical consideration is one of the most important parts of the research. Thesis and dissertation may even be doomed to failure if this part is missing (Dudovskiy, 2016). This study ensured that the participant is not subjected to harm in any way whatsoever. Respect for the dignity of research participants was prioritized. Privacy and confidentiality were assured during the data collection and data analysis by not bearing the participants' names or the names of their hospitals.

Also, the survey did not require participants to provide information that would identify the sources. Participation in this study was voluntary, and participants have the right to withdraw from the study at any time and stage if they wish to do so. In addition, the participants signed the informed consent to participate, providing sufficient information and assurance about taking part in the research without the exercise of any pressure. Acknowledgement of works of other authors used in any part of this study, with the use of the (Harvard APA format) referencing system.

Analysis of Data

The study data transcripts were coded with an interview number to link extracts from an individual to their reports. Also, the interpretative approach and thematic approach

were used in the analysis of the study findings in harmony with the perceptions and interpretation of the participants' understanding of their lived experiences in controlling healthcare-associated infections. Thematic analysis (TA) is a widely used qualitative method for identifying and analyzing patterns of meaning in data (Clarke & Braun, 2017; Morin *et al.*, 2021). It is a flexible approach that can be applied across various theoretical frameworks and research paradigms (Clarke & Braun, 2017). TA involves immersing oneself in the data to identify common themes that align with research questions. TA can be implemented through different approaches, including basic thematic analysis, grounded theory, and discourse analysis (Peterson, 2017). Researchers actively engage in the coding and theme development process, with some versions emphasizing an organic approach to these tasks (Clarke & Braun, 2017). For this study, the Colaizzi Method was utilized for thematic analysis.

The Colaizzi method is a valuable approach for analyzing qualitative data in health research, particularly in phenomenological studies exploring lived experiences (Praveena & Sasikumar, 2021). Methods such as this can reveal nuanced aspects of participants' lives, including aspirations and resilience, that may not be captured by traditional research approaches (Mackworth-Young *et al.*, 2020). To add, this method demonstrates the value of engaging participants as active collaborators in health research, leading to more authentic and comprehensive understandings of their experiences. Colaizzi's (1978), as cited in Morrow *et al.* (2015), collected the descriptions of the Phenomenon from the participants and meticulously went over each participant's narrative multiple times to become familiar with the data. (2) finding statements in the narrative that are substantial and relevant to the phenomenon being studied. (3) determining meanings that are pertinent to the phenomenon after carefully reading substantial statements, and bracketing presumptions. (4) Clustering the meanings identified into themes that are consistent throughout all accounts. 5) Composing a thorough description of the phenomenon, taking into account every produced theme. (6) Simplify the detailed descriptions down to a concise, dense statement that only includes facets that are vital to the phenomenon structure. (7) returning the fundamental structure statements to all to each participant, asking if the statements accurately described their experiences before writing full descriptions of themes to validate the findings. (Colaizzi, 1978; Morrow *et al.*, 2015).

RESULTS AND DISCUSSION

This section contains the results of the study. The purpose of this study was to explore the lived experiences of ICU nurses in controlling healthcare-associated infections. Utilizing an explorative, descriptive, qualitative research design, data were collected through semi-structured interviews conducted online. The participants comprised registered ICU nurses with 2-5 years of experience in the intensive care unit.

All interviews were recorded with an audio device, adhering to the protocols in the informed consent, and were transcribed verbatim to ensure the reliability and credibility of the data. The information obtained from the interviews was analyzed using Colaizzi's (1978) phenomenological methodology to ensure a systemic and rigorous examination of the lived experiences of ICU nurses in controlling healthcare-associated infections, and that approach included: (1) meticulously going over each participant's narrative multiple times to become familiar with the data. (2) finding statements in the narrative that are substantial and relevant to the phenomenon being studied. (3) determining meanings that are pertinent to the phenomenon after carefully reading substantial

statements, and bracketing presumptions. (4) Clustering the meanings identified into themes that are consistent throughout all accounts. (5) composing a thorough and comprehensive description of the phenomenon, taking into account every produced theme. (6) Simplify the detailed descriptions down to a concise, dense statement that only includes facets that are vital to the phenomenon structure. (7) returning the fundamental structure statements to all participants, asking if the statements accurately described their experiences before writing full descriptions of themes to validate the findings. Showing the themes extracted from the responses of nurses. It also includes a discussion with literature supporting the themes that have emerged from the data.

Table 1: Themes and Subthemes Related to the Lived Experiences of ICU Nurses in Controlling Healthcare-Associated Infections in Tertiary Care Hospitals.

Themes	Subthemes	Definition	Nurse's responses
Infection Prevention as an Organizing Framework of Care	Awareness	Deep knowledge of infection risks in the intensive care unit through ongoing watchfulness, risk assessment, and intentional focus on sources of contamination in routine nursing practice.	N5: "Based on my experience as an ICU nurse, Health care associated infections often begin in intubated patients, with <i>Pseudomonas</i> being a common cause of pneumonia. I have observed that if one patient becomes positive with <i>Pseudomonas</i> , another patient in another cubicle will eventually be positive with <i>Pseudomonas</i> as well." N7: "Health care associated infections are hospital acquired infections that patients may develop while admitted to any ward in the hospital. Patients who are admitted in the ICU have multiple medical devices such as endotracheal tubes, IV lines, central lines, and drainage systems. Because of these contraptions ICU patients are at high risk of developing infections."
	Standardized Protocols	Experiences with following defined criteria for infection control, such as hand cleanliness, the use of personal protective equipment, and institutional policies that govern nursing practices.	N1: "To deal with health care associated infections, we reinforce infection control. The very basics is handwashing. We inform the infectious disease doctor and as nurses we follow the ordered medications." N2: "Here is how we deal with them. In the hospital we have a protocol where we assess early signs of infections and if we detect them we have to report immediately to the attending physician so they can order for blood cultures or sputum cultures, stool cultures. After that we have to collaborate with the attending physician to have the antibiotic started. The aseptic techniques, the infection control. It's proven to be more effective to prevent the infection than to cure it." N5: "As per hospital protocol, first we do a swap test usually through sputum culture and sensitivity to identify the causative organism. Based on the results, the physician will prescribe the appropriate antibiotics and determine necessary precautions such as contact

			or droplet isolation, to prevent transmission and further spread of the organism. Infection control protocols are reinforced, including limiting movement between patients. Infection control nurses also conduct rounds in the ICU to check whether infection control measures are being properly followed. Applying infection control requires a high level of responsibility.” N6: “We often can not be certain if an infection is hospital acquired or pre-existing until the doctor orders necessary tests. Our goal is to break the cycle of infection as much as possible. We do this through proper hand hygiene, following precautions, wearing PPE when caring for the infected patient, and administering antibiotics as prescribed by the doctor to target the specific infection. I learned that simple practices, such as proper hygiene, may seem basic, but they are highly effective in preventing infections and protecting both patients and health care workers”
	Comprehensive care	A nurse’s approach that treats the full individual rather than just physical ailment by combining technical infection control procedures with the psychological, ethical, and relational aspects of bedside practice.	N2: “We protect the patient from the infection during the time we administer the medication through IV’s by cleaning the ports and making sure the ventilators have filters and there is no moisture during use. We prevent infection by hand washing. Since we holistically care for the patient, mostly the prevention of infection by breaking the infection chain. Hand washing is the most important infection control practice to break the chain of infection especially that I have been handling multiple patients.” N3: “The aspects of patient care that stand out most to me are ethical, safe and holistic care. I believe in caring for each patient as if they were a member of my own family, not just out of responsibility, but with genuine compassion. At the same time, providing good care also means being competent and professional. Infection control is also a critical dimension of care. For me, best practices include using new or clean patient equipment, such as new suction tubing, and performing hand hygiene before and after every patient interaction.” N4: “The psychological dimension of care is something that always stands out to me. I make it a point to ensure that my patients are cared for not only physically, but also psychologically, and that their overall well-being is considered. In terms of infection control, the most important measure for me is handwashing. It is the most accessible and basic practice, yet it plays a crucial role in minimizing the spread of infection to my patients.” N7: “What stands out to me most is the comfort I provide and the rapport I build with my patients. Once trust is established, patients are

			more receptive and trusting in whatever care is provided at the bedside. Building this rapport creates a strong connection with the patient and helps ensure effective and compassionate care. Hand hygiene also stands out as a very basic but extremely important aspect of patient care.”
	Occupational Depletion	Experiences of physical, mental, and emotional weariness brought on by constant exposure to infection-related dangers, rigorous procedure adherence, and prolonged vigilance.	N1: “These practices are so rigorous that they become a constant physical sacrifice, leaving my hands dry and cracked from the endless cycle of sanitizing. Maintaining infection control creates a constant state of physical tension. Emotionally, I struggle with the paradox of being a protector who might also be a source of harm, often feeling ‘contaminated’ or like a walking biohazard to my own family.” N3: “As I work in the ICU, one thing that has occurred to me is that I have weak lungs, which seems to have become weaker as I continue working in the ICU. I experience fatigue and often need to call in sick when I work for long periods in the ICU, especially during twelve-hour shifts. It gives me a great deal of stress, as the ICU is a highly stressful environment.” N5: “Since I started working in the ICU I feel more tired than usual and physically exhausted because I felt like working a lot of hours in the ICU took a toll on me. I have also noticed that since I started working in the ICU I catch coughs and colds more frequently. After I worked a 16-hour shift I felt so exhausted, so drained, dizzy, and physically overwhelmed. Emotionally, I also felt so tired and low. I needed to sleep for a whole day to recover.”
	Professional Transformation	The growth of enhanced professional identity, competence, and discipline as a result of extended involvement in infection prevention and control procedures.	N2: “This experience has taught me that prevention is better than cure because it is still in my practice. I have learned to be consistent because whenever I start my work it is good.” N4: “This experience has taught me to be very mindful of everything I do in my practice.” N5: “This experience made me eager to learn. I always review my notes, study reference books, to improve my competency in managing ICU.” N10: “My experience taught me to be a more vigilant and accountable nurse.”
	Collaboration Endeavour	The unified work of nurses in sustaining infection control through group accountability, mutual reminders and coordinated safety procedures within ICU.	N1: “I always talk with my co-workers about adherence to infection control standards.” N2: “My colleagues also have expressed that whenever we remind ourselves of hand washing, disinfect lines, we have positive feedback from our staff and personnel.” N4: “At work some colleagues initially thought I’m mismanaging resources because I usually double gloving but I use these measures intentionally to prevent contaminating one patient with pathogens from another. Over time, however, our team developed a culture of trust.

			My colleagues began to recognize the value of these practices.” N7: “This shared responsibility has strengthened our team work in the ICU and created a culture where we look out not only for our patients, but for one another’s safety.”
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Experiences of Nurses in Relation to Healthcare-Associated Infection

To answer Research question 1, “What are the experiences of nurses in relation to healthcare-associated infections in tertiary care hospitals?” One theme emerged: Infection prevention as an organizing framework of Care while six subthemes emerged from the data. This includes awareness, standardized protocols, comprehensive care, occupational depletion, professional transformation, and collaborative endeavor.

Infection Prevention as an Organizing Framework of Care

This theme captures ICU nurses’ work in handling and preventing healthcare-associated infections (HCAIs) at tertiary care hospitals. Infection prevention formed the core guide for their daily care. It shaped clinical work decisions. It sets the structure for their job tasks. Nurses shared how their skills, alertness, and strict use of protocols shaped their steps. These steps build better teamwork with others. They kept patients safe in a high-risk setting.

Awareness

Awareness emerged as a crucial element and foundational force as nurses described healthcare-associated infections through their lens of experience. The nurses showed both conceptual knowledge and hands-on comprehension of healthcare-associated infections, along with risk factors and ways of transmission.

Nurse 7 stated: “Healthcare-associated infections are hospital-acquired infections that patients may develop while admitted to any ward in the hospital. Patients who are admitted to the ICU have multiple medical devices such as endotracheal tubes, IV lines, central lines, and drainage systems. Because of these contraptions, ICU patients are at high risk of developing infections.” Dawit *et al.* (2021) found that patients with nosocomial sepsis had a greater mortality rate. The use of mechanical ventilators and a prolonged ICU stay were found to be significant indicators of nosocomial sepsis. The nurse’s awareness of the definition of healthcare-associated infections and the particular risk factors seen in the intensive care unit is reflected in this statement. The nurse’s accurate understanding of how medical devices increase infection risk demonstrates the importance of such clinical knowledge incorporated into practice to enable nurses to recognize and report HCAs reliably.

Nurse 5 expands on this, stating, “Based on my experience as an ICU nurse, healthcare-associated infections often begin in intubated patients, with *Pseudomonas* being a

common cause of pneumonia. I have observed that if one patient becomes positive with *Pseudomonas*, another patient in another cubicle will eventually be positive with *Pseudomonas* as well.” Nurse 5 demonstrated experiential knowledge, identifying *Pseudomonas* as a prevalent pathogen in ventilator-associated pneumonia, and observing patient transmission patterns. This awareness by nurses 5 and 7 is important because Alanazi *et al.* (2023) found that “The frequency of CLABSI and VAP reported by nurses was positively correlated with the incidence of these conditions in intensive care units. As a result, nurses offer trustworthy information on infection control in intensive care units. Because nurses who are aware of risk variables are better able to recognize infections when they happen, this understanding probably helps explain why nurse-reported infection rates match real occurrences.

Standardized Protocols

Hospital protocols were frequently mentioned by the nurses as the fundamental framework that directs their infection control procedures. When healthcare-associated infections (HCAIs) are suspected or confirmed, these guidelines offer precise routes for evaluation, reporting, and response.

Nurse 1 shared, “To deal with healthcare-associated infections, we reinforce infection control. The very basic is handwashing. We inform the infectious disease doctor, and as nurses, we follow the ordered medications.” The statement shows that by converting organizational expectations into day-to-day nursing behaviors, protocols operationalize infection control, as this statement illustrates.

Nurse 5 added: “As per hospital protocol, first we do a swap test, usually through sputum culture and sensitivity to identify the causative organism. Based on the results, the physician will prescribe the appropriate antibiotics and determine necessary precautions, such as contact or droplet isolation, to prevent transmission and further spread of the organism. Infection control protocols are reinforced, including limiting movement between patients.” The workflow stated by N.5 directly mirrors the findings by Li *et al.* (2023). The incidence of HCAs in the intensive care unit could potentially be reduced by ongoing target monitoring, routine analysis of high-risk indicators, and prompt intervention strategies. Moreover, Nurse 2 explained, “Here is how we deal with them. In the hospital, we have a protocol where we assess early signs of infections, and if we detect them, we have to report immediately to the attending physician so they can order blood cultures, sputum cultures, and stool cultures. After

that, we have to collaborate with the attending physician to have the antibiotic started. The aseptic techniques and the infection control. It's proven to be more effective to prevent the infection than to cure it."

Nurse 6 added: "We often cannot be certain if an infection is hospital-acquired or pre-existing until the doctor orders necessary tests. Our goal is to break the cycle of infection as much as possible. We do this through proper hand hygiene, following precautions, wearing PPE when caring for the infected patient, and administering antibiotics as prescribed by the doctor to target the specific infection. I learned that simple practices, such as proper hygiene, may seem basic, but they are highly effective in preventing infections and protecting both patients and health care workers." These practices are supported by research evidence. Majrashi *et al.* (2024) results showed that infection transmission is greatly decreased when any one link in the chain is broken. The most effective strategy is still practicing good hand hygiene, which can reduce HAI rates by as much as 50%. Infection control is further improved by complementary measures such as stringent sterilization procedures and the proper use of personal protective equipment. It was also discovered that surveillance systems and interdisciplinary cooperation were essential to maintain control efforts.

Comprehensive Care

Comprehensive care emerged as a multilayered experience where nurses characterized infection prevention as integral to the ethical, professional, psychological, and physical facets of patient care. Nurses described infection control as part of a holistic bedside practice that takes care of the full individual rather than as a stand-alone technical duty.

Nurse 7 stated: "What stands out to me most is the comfort I provide and the rapport I build with my patients. Once trust is established, patients are more receptive and trust in whatever care is provided at the bedside. Building this rapport creates a strong connection with the patient and helps ensure effective and compassionate care. Hand hygiene also stands out as a very basic but extremely important aspect of patient care. The nurses' statement emphasized the importance of rapport in nursing practice. Comfort and trust at the bedside serve as both emotional support and processes that increase patient responsiveness to care. This shows that a psychological bond strengthens infection control in holistic care by improving collaboration with preventive measures.

Hansen *et al.* (2023) found that Critical care nurses recognized the importance of remaining involved in intensive care. Depending on the patient's ability to participate in care, the nurses maintained patient involvement in three approaches, which included continuously adjusting care activities based on the patient's bodily responses, developing a relationship with the patient to enable personalized care, and allowing for self-determined care as the patient's recovery progressed. Additionally, Gilbert *et al.* (2024) revealed that 70% of

ICU nurses considered health-acquired illnesses to be serious and susceptible, whereas 83.1% recognized the importance of proper hand hygiene. This supports nurse 7's stance that basic hand hygiene is a critical aspect of patient care in the ICU. In this setting, hand hygiene is shown as an integral aspect of a larger effort to protect patient health, rather than just as a procedural act.

Nurse 4 stated: "The psychological dimension of care is something that always stands out to me. I make it a point to ensure that my patients are cared for not only physically, but also psychologically, and that their overall well-being is considered. In terms of infection control, the most important measure for me is handwashing. It is the most accessible and basic practice, yet it plays a crucial role in minimizing the spread of infection to my patients." This highlights the nurse's integration of holistic care and essential infection prevention protocols. The statement demonstrates how psychological care and preventive awareness coexist in comprehensive intensive care unit practice. Pavlish *et al.* (2020) found that encouraging ICU health care teams to communicate consistently about goals of care resulted in more patients receiving required help and minimizing barriers to communication. Such communication increases psychological support while encouraging adherence to critical measures such as hand hygiene, boosting both patient well-being and infection control.

Additionally, Nurse 3 said: "The aspects of patient care that stand out most to me are ethical, safe, and holistic care. I believe in caring for each patient as if they were a member of my own family, not just out of responsibility, but with genuine compassion. At the same time, providing good care also means being competent and professional. Infection control is also a critical dimension of care. For me, best practices include using new or clean patient equipment, such as new suction tubing, and performing hand hygiene before and after every patient interaction." This shows the merging of ethical sensitivity, competent expertise, and compassionate practice in preventing infection. Here, infection control procedures are ingrained in professional ethics and moral duty, highlighting the fact that holistic treatment includes both technical accuracy and ethical intent. Similarly, Aligholipour *et al.* (2025) suggested that an increase in moral sensitivity improves compassion fulfillment while decreasing compassion fatigue. Furthermore, numerous facets of moral sensitivity, including consideration for patient autonomy, professional expertise, ethical decision-making, and honesty, were related to increased compassion satisfaction and emotional fatigue. This shows that ethical understanding improves both compassionate participation and compliance with safe infection control procedures.

Nurse 2 stated: "We protect the patient from the infection during the time we administer the medication through IV's by cleaning the ports and making sure the ventilators have filters and there is no moisture during use. We prevent infection by hand washing. Since we holistically

care for the patient, mostly the prevention of infection by breaking the infection chain. Hand washing is the most important infection control practice to break the chain of infection, especially since I have been handling multiple patients.” This statement presents a layered infection control strategy that combines device-specific precautions with continuous hand washing to prevent infection. The nurse demonstrates how comprehensive care combines rigorous physical interventions with overall patient safety by clearly framing these technical procedures within holistic care. Medioli et al (2025) reported that effective Infection prevention and Control in the ICU necessitates a complex and adaptable approach that combines universal precautions and tailored strategies against specific infections. Consistent application of horizontal strategies, such as proper hand hygiene, is fundamental. These findings further support the idea that coordinated physical, ethical, and preventive aspects must all be provided concurrently to provide comprehensive care in the intensive care unit.

Occupational Depletion

Occupational depletion reflects the significant physical, mental, and psychological toll that intensive care unit nurses endure while performing their taxing duties. Nurses are frequently emotionally and physically exhausted by the ongoing attention to detail needed to uphold stringent infection control procedures.

Nurse 1 shared that” These practices are so rigorous that they become a constant physical sacrifice, leaving my hands dry and cracked from the endless cycle of sanitizing. Maintaining infection control creates a constant state of physical tension. Emotionally, I struggle with the paradox of being a protector who might also be a source of harm, often feeling ‘contaminated’ or like a walking biohazard to my own family.” This statement emphasizes the physical, emotional, and psychological burden embodied in strict infection control practices. Shorakie (2025) noted that Nurses in the ICU are subjected to a variety of threats to their social, Physical, mental, technological, and environmental health, which might be regarded as a work-related syndrome known as “nurse ICU syndrome.” Another nurse discussed the long-term physical effects of ICU shifts, saying, N3: “As I work in the ICU, one thing that has occurred to me is that I have weak lungs, which seem to have become weaker as I continue working in the ICU. I experience fatigue and often need to call in sick when I work for long periods in the ICU, especially during twelve-hour shifts. It gives me a great deal of stress, as the ICU is a highly stressful environment.” Her statement demonstrates how extended exposure to high-stress situations causes emotional strain in addition to physical health problems, which ultimately leads to occupational depletion.

This depletion is worsened by long shifts and intense workloads. As Nurse 5 expressed, “Since I started working in the ICU, I feel more tired than usual and physically exhausted because I feel like working a lot of hours in

the ICU took a toll on me. I have also noticed that since I started working in the ICU, I catch coughs and colds more frequently. After I worked a 16-hour shift, I felt so exhausted, so drained, dizzy, and physically overwhelmed. Emotionally, I also felt so tired and low. I needed to sleep for a whole day to recover.” These statements illustrate how susceptible nurses are to emotional exhaustion, sickness, and tiredness. Cooper (2024) emphasizes that ICU nurses are especially vulnerable to burnout due to the demands of their profession, which include working long hours, caring for critically ill patients, making high-stress decisions regarding patient care, dealing with staffing issues, and witnessing patients suffering regularly, all of which can harm their well-being.

Professional Transformation

Long-term involvement in controlling healthcare-associated infections transformed the ICU nurses’ professional practice through experiential refinement. Nurses expressed a transformation in how they provided care, becoming more precise, disciplined, vigilant, and consistent in applying infection prevention measures.

Nurse 2 shared “This experience has taught me that prevention is better than cure because it is still in my practice. I have learned to be consistent because whenever I start my work, it is good.” This statement highlights how repeated involvement with HCAI prevention reinforced the nurse’s routine practice. Ahmed *et al.* (2021) found that high-level adherence of healthcare workers with preventive strategies to control healthcare-associated infections is reflected by the low rate of healthcare-associated infections. Through experiential learning, vigilance and intentionality were further enhanced. Besides, Nurse 3 shared, “This experience has made me more vigilant and intentional, knowing that careful attention to these details is essential to prevent the spread of infection.....It taught me to be more precise because I need to perform specific tasks at specific times, and I have to think carefully before doing anything.” Similarly, N10 stated, “My experience taught me to be a more vigilant and accountable nurse.” These statements are supported by Najafi *et al.* (2021) as the study’s findings showed that the mean vigilance score of our ICU nurses was higher than expected, demonstrating their high degree of clinical practice attentiveness.

Mindfulness and reflective practice also appeared as part of professional development. Nurse 4 stated, “This experience has taught me to be very mindful of everything I do in my practice. “Alongside attentiveness, nurses also took actions to grow stronger in knowledge and skills through continuous learning. Nurse 5 stated, “This experience made me eager to learn. I always review my notes and study reference books to improve my competency in managing the ICU.” Working in a critical environment where everything is evolving, especially healthcare-associated infections, nurses acted to grow professionally. A study by Yu *et al.* (2022) showed that, despite the difficulties they faced, nurses had a positive

attitude toward continuing professional development.

Collaborative Endeavor

Collaborative endeavor captures the nurses' experiences of preventing healthcare-associated infection as coordinated practice. Infection control shifted from being a personal duty to a team endeavor sustained by constant communication, reminders to one another, building trust, and proactive leadership support.

Nurse 1 expressed this ongoing collaboration, "I always talk with my co-workers about adherence to infection control standards." Likewise, N2 shared "My colleagues also have expressed that whenever we remind ourselves of hand washing, disinfectant lines, we have positive feedback from our staff and personnel. "These statements show that reminders were conveyed in a respectful work environment where communication served as a means of upholding and encouraging standard practices. Morris & Jakobsen (2022) found that Nurse-to-nurse interaction demonstrated by a professional workplace atmosphere encouraged adherence to protocol. Their interactions fostered a sense of team spirit as they collaborated to enhance patient safety. Thus, Peer communication serves as a means of normalizing and maintaining infection prevention inside the unit.

Collaboration evolved as misunderstanding and miscommunication shifted into trust. N4 stated, "At work,

some colleagues initially thought I was mismanaging resources because I usually double-gloving, but I use these measures intentionally to prevent contaminating one patient with pathogens from another. Over time, however, our team developed a culture of trust. My colleagues began to recognize the value of these practices." Direct involvement of nurse leaders in the ICU reinforced this collaborative framework. N6 shared, "When I was promoted to team leader in the ICU, maintaining strict infection control practices became even more important to me. I regularly reminded my team to wash their hands, properly discard gloves after every patient care, and strictly follow infection control protocols. According to Cappelli (2024), head nurses' input and leadership involvement are seen as beneficial resources that promote the adoption of best practices rather than as barriers.

The result of these peer interactions, means of establishing trust, and leadership reinforcement is reflected in Nurse 7 statement, "This shared responsibility has strengthened our teamwork in the ICU and created a culture where we look out not only for our patients, but for one another's safety." This shared sense of responsibility is consistent with the findings of Jankowski *et al.* (2023), who found that, over the course of two years, the ICU unit achieved a 50% reduction in CAUTIs and an 87.5% reduction in CLABSIs due to cooperation, consistency, and communication.

Table 2: Themes and Subthemes Related to ICU Nurses' Perspectives on Existing Healthcare-Associated Infections Prevention and Control Measures in Tertiary Care Hospitals.

Themes	Subthemes	Definition	Nurses' statements
Permeative Vigilance	Inherent habitation	The internalization of infection control practices to the extent that they become instinctive, routine habits and ingrained in day-to-day activities both inside and outside the workplace.	N1: "I began washing my hands more often. When I go home after being outside, I don't go straight to bed, I make sure I'm clean and I take a bath. I always carry alcohol to sanitize my hands." N2: "Since nursing is part of our lives, I have been more aware and diligent with hand washing, alcohol rubbing before and after I touch the patients. Even when I touch dirty things in my house, I have to wash my hands. I think it has been embedded in me to be clean, and it has protected me, my family and my patients whom I look after every day." N6: "I have become more strict and mindful of what I touch and what I come into contact with. Hand hygiene has become a priority, especially before touching my children, and I always remind them to wash their hands before eating. These practices have become part of my daily routine and everyday activities, both at work and at home." N7: "There is a constant awareness of what I touch and what I may come in contact with, knowing that it might be something that transmits infection. These habits do not stay in the hospital; I carry them with me at home as well."

			N8: "Even at home doing handwashing became a normal habit."
	Ethical guardianship	Is a lived sense of moral obligation to avoid infection in patients, coworkers, and family members by using diligent and persistent preventive measures.	N1: "As a nurse working to control health care associated infections, means taking every possible precaution to ensure that I don't add any additional burden to an already vulnerable patient. This sense of responsibility is an integral part of what nursing means to me..... Health care associated infections are largely preventable, and I believe that healthcare providers play a vital role in preventing them." N2: "For me it means protecting and advocating for the patients who are vulnerable and can't protect themselves. So, nurses play a critical role in preventing the infection through early detection of the infection, so our every action has a very big impact on controlling the outcomes of their health during their stay in the hospital." N4: "As a nurse working in the ICU, controlling health care associated infections means preventing further harm to my patients while ensuring that I provide safe and high-quality care. At its core, my role as a nurse is to prevent any additional harm and ensure that my care doesn't cause further physical, emotional, spiritual, or financial burden to my patients, especially since health care in the Philippines is costly." N5: "Preventing the spread of infection is therefore one of the highest priorities nurses must uphold in their daily duties." N6: "It's part of being a nurse since one of our primary responsibilities is to promote care and prevent any harm to our patients. This includes ensuring that our patient doesn't as much as possible acquire health care associated infections." N7: "Being a nurse who can prevent, and control infection is an important role because some patients come to the hospital for infection free but may acquire an infection after staying for some time. This makes the nurse's role very important, since nurses are the primary caregivers at the bedside and are with the patients throughout their shifts."
	Empowerment	The confidence and motivation ICU nurses gain from family support, enabling them to consistently practice infection control.	N1: "As for my family, they are very supportive and more aware of infection prevention control." N2: "My family also is not that very scared of me, especially during the pandemic when the infection was very scary. My family has been very understanding and supportive knowing the nature of my work." N3: "I found myself teaching my family and reminding my nurses and medical staff of practices such as hand washing.....wearing face mask when someone is sick. I don't think it

			has been a major burden for my family that I work in an ICU because they understand the risks and have become more knowledgeable about infection control. Before, they were very careful every time I came home from work, I had to shower immediately, and they would help manage my clothes after my shift. Over time, these routines became part of our normal life, and they helped create a shared sense of responsibility for keeping everyone safe.” N4: “Sometimes my family has concerns for me. When I go sick or ill they think I might have acquired it from the hospital, but they don’t let their anxiety prevent them from supporting me. They actually care about me.” N5: “Initially, my family was very cautious, especially because I work in the ICU where patients are usually in critical conditions. They were worried that I might bring an infection or disease from work to the house. Because of this, my work clothes are placed in a separate laundry basket and washed separately, particularly my scrubs. After every shift, I immediately take a shower and take vitamins to help boost my immune system.” N7: “When I started working in the ICU, I had to live away from home because it was during the pandemic .My family, especially my parents, were worried about my safety and the possibility of getting infected, particularly since I have a history of asthma. Despite the distance and their concerns, my father was very supportive and encouraging of my work.”
	Reciprocal preservation	The understanding that infection prevention safeguards both caregivers and care users, emphasizing shared well-being and safety as interrelated outcomes.	N3: “Over time, I came to understand that protecting myself is inseparable from protecting my patients and the people around me.” N4: “If I fail to take care of myself, I will not be able to take care of my patients effectively.” N5: “As a health care provider, one must prioritize personal well-being in order to provide safe and effective care to others. One should always think of their welfare first so they can render their services to their patients.” N7: “Sometimes I go through a twelve hour shift without eating, as long as the patient’s glucose levels are normal and their needs met, I feel that everything is fine. In doing so, nurses including me forget to take care of themselves, which can eventually lead to physical and emotional exhaustion. This experience served as a reminder that I need to take care of myself in order to effectively care for my patients.” N10: “This work made me more mindful and careful in everything I do, at work and home, to protect myself and others around me.”

Perspectives of Nurses in Relation to Healthcare-Associated Infection Practices

To answer research question 2, “What are the perspectives of nurses in relation to healthcare-associated infection practices that are currently in place for prevention and controlling healthcare-associated infections in tertiary care hospitals?” One theme emerged: Permeative vigilance while four subthemes emerged from the data. This includes inherent habituation, ethical guardianship, empowerment, and reciprocal preservation.

Permeative Vigilance

Permeative vigilance describes the intrinsic transformation that occurs when infection control is incorporated into a nurse’s everyday life and personal identity, extending beyond the clinical setting. As nurses apply prevention and control of healthcare-associated infection practices daily in the clinical setting, they develop a permeating awareness that turns safety protocols instinctive and inherent habits. Nurses have a strong sense of ethical duty that motivates them to be vigilant because they understand how important it is to preserve their own health in order to protect their patients and families. As a result, preventing healthcare-associated infections is not just a professional responsibility but also becomes a personal commitment to mutual safety and well-being.

Inherent Habituation

Inherent Habituation illustrates how infection prevention has evolved from conscious compliance to deeply ingrained, automatic actions in nurses’ day-to-day work. These activities have become second nature and are easily incorporated into both personal and professional routines, rather than being carried out just when reminded or directed.

The progression from intentional activity to automatic habit is illustrated by N1 and N8 statements. N8 stated, “Even at home, doing handwashing became a normal habit.” N1 expanded on this habitual behavior by stating, “I began washing my hands more often. When I go home after being outside, I don’t go straight to bed; I make sure I’m clean, and I take a bath. I always carry alcohol to sanitize my hands. “These claims show a distinct path; preventing infections starts out as a deliberate effort and progressively becomes an ingrained habit. A study by Sands and Aunger (2024) showed that implementation intention didn’t affect the nurse’s performance as hand hygiene practice became embedded through years of repeated performance. The nurses’ experiences reflect this embedding, showing that working to control health care associated automatic infection in protective behaviors at home and work.

N2 also highlights how Infection prevention has become an integral component of one’s identity: “Since nursing is part of our lives, I have been more aware and diligent with hand washing, alcohol rubbing before and after I touch the patients. Even when I touch dirty things in my house, I have to wash my hands. I think it has been

embedded in me to be clean, and it has protected me, my family and my patients whom I look after every day.” The expression “Embedded in me” conveys the idea that these actions are neither elective nor externally imposed; they are absorbed as part of the nurse’s identity. Artuvan and Ceten (2022) argued that nurses’ positive attitudes toward hand hygiene and their actual hand hygiene habits showed a strong correlation. It illustrates how practice and belief reinforce one another, resulting in habitual, consistent behavior.

N7 demonstrates how these behaviors persist in both the personal and professional domains: N7, “There is a constant awareness of what I touch and what I may come in contact with, knowing that it might be something that transmits infection. These habits do not stay in the hospital; I carry them with me home as well. “This demonstrates how vigilance has become an integral part of everyday life, transcending the workplace.”

Watson (2024) disclosed that ICU nurses’ professional identity is not static but evolves dynamically as they provide critical care for the patients, and this shapes nurses’ quality of life in meaningful ways. These habits extended into family stewardship as N6 stated, “I have become stricter and more mindful of what I touch and what I come into contact with. Hand hygiene has become a priority, especially before touching my children, and I always remind them to wash their hands before eating. These practices have become part of my daily routine and everyday activities, both at work and at home.” The statements shared by the participants demonstrated how infection-prevention processes slowly developed into deeply rooted routines that became part of their everyday lives. According to Gesser-Edelsburg *et al.*, (2021), when health practitioners constantly engaged in safer infection-prevention behaviors, these actions developed into automatic actions and transformed into good habits and norms. supporting the statement provided by one of the participants indicating that she was practicing proper hand hygiene and infection prevention procedures because hand hygiene and infection prevention had become “embedded” into their lives as nurses.

Nonetheless, existing literature on the topic also indicated some negative aspects and risks linked to too much automaticity among healthcare professionals in the ICU. A study by Dekker *et al.* (2024) Indicated that in highly complex and demanding circumstances, nurses might engage in automatic decision making. Their findings revealed that there was low compliance regarding the use of the combined approach of wearing gloves and conducting hand hygiene at the same time while undertaking several medical procedures. These findings indicate that even though inherent habituation is beneficial in sustaining infection prevention practices, mindfulness and reinforcement should be taken into account to avoid complacency and preserve patients’ safety in ICU.

Ethical Guardianship

Ethical guardianship reflects the strong moral compass

that directs intensive care nurses in their day-to-day work. It represents a personal and professional obligation to protect patients from avoidable harm and goes beyond merely adhering to infection control procedures. For ICU nurses, preventing healthcare-associated infections is not just a clinical duty but a moral commitment based on the patient's safety and dignity preservation, advocacy, and accountability.

Participants repeatedly underlined this intense sense of professional and personal accountability. Nurse 1 stated, "As a nurse working to control health care-associated infections, it means taking every possible precaution to ensure that I don't add any additional burden to an already vulnerable patient. This sense of responsibility is an integral part of what nursing means to me..... Health care associated infections are largely preventable, and I believe that healthcare providers play a vital role in preventing them." The advocacy dimension of this accountability was strongly emphasized by N2, "For me, it means protecting and advocating for the patients who are vulnerable and can't protect themselves. So, nurses play a critical role in preventing the infection through early detection of the infection, so our every action has a very big impact on controlling the outcomes of their health during their stay in the hospital. "A study by Aghaie (2021) found that intensive care unit nurses perceived their role as being patient advocates by honoring patients' values, fostering patient safety, and keeping patients informed of their conditions and being their voice.

The ICU nurses' ethical obligation was an intrinsic moving force that was extended to averting harm and guaranteeing complete patient safety, as expressed by Nurse 4: "As a nurse working in the ICU, controlling health care-associated infections means preventing further harm to my patients while ensuring that I provide safe and high-quality care. At its core, my role as a nurse is to prevent any additional harm and ensure that my care doesn't cause further physical, emotional, spiritual, or financial burden to my patients, especially since health care in the Philippines is costly." Strengthening this sense of responsibility, Nurse 5 adds, "Preventing the spread of infection is therefore one of the highest priorities nurses must uphold in their daily duties." Alharbi *et al.* (2025) stressed that, Effective nursing-led infection control practices dramatically lower health care associated infections and foster better healthcare environments where patients are safe.

The way the ICU nurses described infection prevention as a core part woven into their daily practice and the importance of their presence at bedside revealed their ethical guardianship. N6 expressed: "It's part of being a nurse since one of our primary responsibilities is to promote care and prevent any harm to our patients. This includes ensuring that our patients don't acquire health care-associated infections as much as possible." Similarly, Nurse 7 reflected: "Being a nurse who can prevent and control healthcare-associated infections is an important role because some patients come to the

hospital infection-free but may acquire an infection after staying for some time. This makes the nurse's role very important, since nurses are the primary caregivers at the bedside and are with the patients throughout their shifts. According to Ghabayen *et al.* (2023), nurses play a key role in preventing and managing hospital infections through their responsibility for a large proportion of patient treatment and care.

Reciprocal Preservation

Reciprocal preservation represents the intrinsic transformation that took place as nurses working to control health care associated with infections and the ongoing risks of exposure to them. Thus, ICU nurses realized that protecting themselves and their patients is a mutually sustaining act rather than separate responsibilities. Gradually, what started out as following infection control procedures turned into an inner awakening that changed nurses' perceptions of their own bodies, boundaries, and professional identities. This inner awakening is evident in N3's statement, "Over time, I came to understand that protecting myself is inseparable from protecting my patients and the people around me." The expression "over time" indicates change. This insight was not immediately apparent; rather, it developed as a result of repeated experiences with risk, fatigue, and accountability in intensive care settings. Infection control was no longer viewed as now seen as an institutional compliance but as an integrated system wherein harm to the nurse might have consequences on patients and family members. This change in perspective is marked by Nurse 4 statement, "If I fail to take care of myself, I will not be able to take care of my patients effectively." N5 elaborated on this growing conviction, "As a health care provider, one must prioritize personal well-being in order to provide safe and effective care to others. One should always think of their welfare first so they can render their services to their patients. "This experiential turning point aligns with the findings of Nkabinde-Thamane *et al.* (2025), which showed that nurses wanted to take care of themselves. Because individuals could see the detrimental effects of neglecting self-care, they shared their plans and commitment to make self-care practices a reality, because they could see the detrimental effects of neglecting self-care.

The internal conflict that preceded this transformation is conveyed by N7's statement, "Sometimes I go through a twelve-hour shift without eating, as long as the patient's glucose levels are normal and their needs met, I feel that everything is fine. In doing so, nurses, including me, forget to take care of themselves, which can eventually lead to physical and emotional exhaustion. This experience served as a reminder that I need to take care of myself to effectively care for my patients. "The nurse faces the paradox of providing care, where putting the patient's needs ahead of one's own may eventually lead to a lack of attentiveness. Diminishing physical strength, emotional exhaustion, or cognitive strain may gradually

weaken adherence to preventive measures in infection-sensitive environments. Zeb *et al.* (2022) found that low levels of practicing mindful self-care among nurses may hinder their engagement with patients and their families and the overall care delivered.

Furthermore, Perveen (2022) emphasized that to work with critically sick patients and their families, intensive care unit nurses need to be emotionally, cognitively, and physically strong. This realization leads to an identity shift rather than a short-term adjustment. This permeability is demonstrated in N10 statement, 10: “This work made me more mindful and careful in everything I do, at work and home, to protect myself and others around me.”

Empowerment

Empowerment reflects how ICU nurses experience their families’ empathy and support while still taking precautions to keep them safe. This family support of their work nature gives ICU nurses the emotional fortitude, drive, and self-assurance they need to continue being cautious about infection control in both their personal and professional lives. This relationship encourages shared responsibility at home and fortifies nurses’ dedication to infection prevention.

The nurses mentioned their families’ awareness and direct support, as N1 stated, “As for my family, they are very supportive and more aware of infection prevention and control.” Sato *et al.* (2025). Before deciding to work in the hazardous, infectious ICU setting during covid.19 pandemic, several volunteers spoke with family members to get their understanding. Most of the time, family members agreed to cooperate to lower the risk of infection after understanding the nurse’s reasons. Nurses were empowered by family support both at home and when living apart, as expressed by Nurse 2: “My family also is not that very scared of me, especially during the pandemic when the infection was very scary. My family has been very understanding and supportive, knowing the nature of my work.”

Additionally, Nurse 7 stated, “When I started working in the ICU, I had to live away from home because it was during the pandemic. My family, especially my parents, were worried about my safety and the possibility of getting infected, particularly since I have a history of asthma. Despite the distance and their concerns, my father was very supportive and encouraging of my work. These statements demonstrate how families’ practical and emotional support boosts nurses’ resilience and

confidence. A study by Antolí-Jover *et al.* (2024) showed that a higher quality of life for nurses is positively correlated with the existence of social and familial support networks.

Family helped create a shared protective routine at home, fostering a sense of shared responsibility, and nurses actively participated in educating their loved ones. Nurse 3 stated: “I found myself teaching my family and reminding my nurses and medical staff of practices such as hand washing... wearing a face mask when someone is sick. I don’t think it has been a major burden for my family that I work in an ICU because they understand the risks and have become more knowledgeable about infection control. Before, they were very careful every time I came home from work; I had to shower immediately, and they would help manage my clothes after my shift. Over time, these routines became part of our normal life, and they helped create a shared sense of responsibility for keeping everyone safe. This is supported by Widiasih *et al.* (2021), who found that, in order to prevent the spread of COVID-19, nurses actively protect their families. They improved their environment and habits. They also give their family members supplements and wholesome foods to boost their immunity. Additionally, nurses educate their families and raise their understanding of the value of preserving health.

Families were occasionally anxious but still supportive, which provided nurses with emotional encouragement. P4: “Sometimes my family has concerns for me. When I get sick or ill, they think I might have acquired it from the hospital, but they don’t let their anxiety prevent them from supporting me. They actually care about me.” Nurses took proactive steps to prevent infections at home, fostering mutual safety and empowerment. P5: “Initially, my family was very cautious, especially because I work in the ICU where patients are usually in critical conditions. They were worried that I might bring an infection or disease from work to the house. Because of this, my work clothes are placed in a separate laundry basket and washed separately, particularly my scrubs. After every shift, I immediately take a shower and take vitamins to help boost my immune system. According to the study’s findings by Elneblawi *et al.* (2022), most nurses believed that they had a high risk of contracting COVID-19 and that they could spread the virus to their family members with ease. As a result, they take precautions to keep themselves safe and prevent infections from spreading to their loved ones.

Table 3: Theme and Subthemes Related to Opportunities for Enhancing Infection Prevention Practices Among ICU Nurses in Tertiary Care Hospitals?

Themes	Subthemes	Definition	Nurse’s responses
Cumulative Clinical Evolution	Adherence gap	Disparities between actual clinical practice and established standards are revealed by observed	N1: “I always talk with my co-workers about adherence to infection control standards, “I hope more health care providers will be more serious in adhering to infection control standards and facilities protocols.”

		inconsistencies, hurdles, or restrictions in infection control compliance.	N2: “nurses who consistently follow the protocols continue to protect the patients and they have effectively helped in reducing the infections in the unit and the hospital as a whole.” N3: “Usually the infection spreads to other patients because of the nurses themselves.” N5: “This lack of consistent adherence to infection control measures is one of the major gaps that needs to be addressed. I was influenced by my senior nurses who emphasized the importance of diligence and adherence to unit routines.” N6: “I have seen cases of cross infection happening just because of poor hand hygiene.” N7: “These basic measures remain important in preventing healthcare associated infections and should never be neglected.
	Continuous Learning	Ongoing initiatives to improve infection prevention knowledge and abilities by independent study, training, introspection, and active participation in practice updates.	N3: “I think more education and education are needed. It is important for nurses to stay updated with knowledge and skills related to infection control, we didn’t have proper training. We just knew the basics, but not the specifics on how to really control infections. I wish we had training” N5: “As ICU nurses we are mostly taught the basics of infection control, but there are no training drills or thorough sessions to reinforce these measures, There is a need for training and educating nurses regarding controlling health care associated infections.” N6: “Unfortunately the hospital didn’t provide the necessary tools or formal education needed to fully understand and manage infections. Much of what I learned came from observing doctors, studying independently, and conducting personal research, there is a need for more advanced training in infection control, particularly in the ICU setting.”
	Technological Opportunities	The potential of integrating technological systems and instruments into nursing practice to improve infection monitoring, surveillance, and overall prevention approaches.	N3: “Because infection evolves, nurses must be more proactive in preventing further spread. Future nurses will be more proactive with infection control. In the future, I see education becoming more expanded, and nurses will learn more and have better technology available to them.” N5: “Innovations like air purifiers and HEPA filters in ICU cubicles have already helped reduce allergens and improve the environment for patients, and similar technology could be applied broadly. I believe that technological advancements will play a key role in improving infection control in the future.” N6: “Technology has been a positive force in nursing, as it removes some routine tasks and enables nurses to focus more on critical patient care and infection control.

			I think technology will play a major role in how nurses manage healthcare associated infections. Artificial intelligence and automation are likely to reduce the number of tasks ICU nurses need to perform, particularly administrative responsibilities.” N10: “I see future nurses taking advantage of future technology as a tool to prevent health care associated infections while following policies and measures for infection control.”
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Opportunities for Common Healthcare-Associated Infection Practices

To answer Research question 3, “What are the opportunities for common health care-associated infections ‘practices for nurses within the tertiary care hospitals?’” One theme emerged: Cumulative clinical evolution while three subthemes emerged from the data. This includes adherence gaps, continuous learning, and technological opportunities.

Cumulative Clinical Evolution

This theme describes the journey of nurses evolving from simply doing tasks to becoming proactive stewards of safety. It’s a progressive improvement of nurses’ competence in controlling and preventing healthcare-associated infections as a result of accumulated clinical experience, continuous education, and adaptation of modern technologies. Through this ongoing process, infection control procedures are not only maintained but consistently improved as nurses acquire more knowledge and practical experience in handling healthcare-associated infection threats.

Adherence Gap

Adherence gap encapsulates the ongoing disparity between recognized infection control guidelines and their regular application in day-to-day intensive care unit practice. Even though protocols are well-established and generally recognized as necessary, ICU nurses disclosed that differences in adherence nevertheless jeopardize patient safety. This gap is the result of a complex interaction between individual responsibility, habitual behavior, leadership influence, and organizational enforcement rather than just a knowledge deficiency.

Nurse 1 shared that she would like to see greater dedication to her career. Stating, “I hope more health care providers will be more serious in adhering to infection control standards and facilities protocols.” This remark highlights a perceived discrepancy between policy awareness and actual behavioral compliance, implying that the problem is not with the lack of standards but rather with how seriously they are applied. Similarly, Nurse 2 highlighted the positive impact of rigorous adherence. “Nurses who consistently follow the protocols continue to protect the patients, and they have effectively helped in reducing the infections in the unit and the hospital as a whole.” This aligns with the findings of Blot (2022), who stressed

that Intensive care unit nurses have a unique role in the prevention and management of healthcare-associated infections. They are involved in basic hygiene care, quality improvement programs, proper microbiological sampling, and antibiotic stewardship.

Nevertheless, nurses also acknowledged that poor practices have a direct role in the spread of infection. Nurse 3 said, “Usually the infection spreads to other patients because of the nurses themselves.” This admission demonstrates a deep understanding of professional responsibility and emphasizes how protocol violations might unintentionally turn caregivers into transmission vectors. N6 confirmed this concern: “I have seen cases of cross-infection happening just because of poor hand hygiene.” Chang *et al.* (2021) found that healthcare personnel in the intensive care unit were inclined to wash their hands after contaminated assignments, compared to before important tasks, indicating that hand hygiene compliance may be influenced by habits and a sense of disgust. This behavioral inconsistency highlights how basic practices, when carried out selectively, increase the adherence gap despite awareness of their significance.

Nurse 7 addressed the fundamental importance of basic measures, stating, “These basic measures remain important in preventing healthcare-associated infections and should never be neglected.” This remark indicates a shared understanding that controlling health care-associated infections relies on disciplined implementation of fundamental precautions rather than only relying on advanced interventions. Besides, Nurse 5 said “This lack of consistent adherence to infection control measures is one of the major gaps that needs to be addressed...I was influenced by my senior nurses who emphasized the importance of diligence and adherence to unit routines.” Arshad *et al.* (2026) concluded that the care of ICU patients under the supervision of an infection control nurse is crucial. In terms of infection prevention and control, as well as appropriate sampling for accurate results, so that early intervention and timely management could be carried out to improve patients’ outcomes. This implies that in high-risk settings like the intensive care unit, role modeling and organized supervision are critical instruments for reducing adherence irregularities.

Beyond individual actions, nurses recognized systemic responsibility. N8 said, “I hope that better management will implement better and stronger protocols so that infection control practices are followed by everyone

in the healthcare team.” Madran *et al.* (2025) stressed that compliance may be greatly increased by removing obstacles and putting customized solutions in place. Hospital managers and IPC committees can promote a safer environment for patients, healthcare workers, and the public by incorporating cutting-edge training programs, enhancing working conditions, and improving enforcement procedures.

Continuous Learning

In the nursing profession, continuous learning pertains to the proactive and continuous process of gaining knowledge as well as abilities to keep up with the quickly changing healthcare landscape. The transition from fundamental academic proficiency to a comprehensive, evidence-based mastery of infection prevention and control is represented by this activity, which is not just an elective in the intensive care unit but is a vital prerequisite for “Cumulative Clinical Evolution.” Without dedication to ongoing education, a nurse’s clinical development stalls, creating a gap between outdated practices and contemporary safety regulations.

A gap between initial academic education and the intricate, dynamic reality of the intensive care setting frequently impedes the development of a nurse’s practice. As N3 stated: “I think more education and education are needed. Nurses need to stay updated with knowledge and skills related to infection control...we didn’t have proper training. We just knew the basics, but not the specifics on how to really control infections. I wish we had training.” This apparent lack of specialized training is a major obstacle to clinical advancement. In line with this, Batran *et al.* (2025) emphasized that, even though the ICU nurses have a high level of IPC practice compliance, knowledge and perception gaps point to the need for more extensive educational programs and institutional support to raise IPC adherence even further to guarantee long-term compliance.

Nurses are frequently compelled to oversee their own clinical development through observation and independent research when official institutional systems are unable to offer a path for advancement and growth. N6 expressed, “Unfortunately, the hospital didn’t provide the necessary tools or formal education needed to fully understand and manage infections. Much of what I learned came from observing doctors, studying independently, and conducting personal research... There is a need for more advanced training in infection control, particularly in the ICU setting. This dependence on personal initiative highlights a structural need for organized professional growth. According to Ayed *et al.* (2024), maintaining nurses’ knowledge, attitudes, and practices regarding infection control precautions requires regular training workshops, knowledge updates, and improving the workplace through the implementation of infection control policies and guidelines, as well as the provision of adequate tools and resources to guarantee safe practices.

For clinical evolution to be genuinely cumulative, novel knowledge needs to be ingrained through unit-wide cultural changes and active reinforcement. This was highlighted by nurse 5, “As ICU nurses, we are mostly taught the basics of infection control, but there are no training drills or thorough sessions to reinforce these measures. There is a need for training and educating nurses regarding controlling healthcare-associated infections.” Professional growth frequently requires going beyond “the basics” and embracing an active safety culture. He *et al.* (2025) concluded that improving the knowledge, attitude, and practice of intensive care unit nurses may be achieved by organizing training in refreshing, utilizing the leadership roles of experienced nurses, and reforming the safety culture.

Technological Opportunities

ICU nurses have a positive outlook on the future of infection control in hospital settings. They see technological advancements, new instruments, and digital systems as chances to improve patient safety and better manage infections. As part of their continuous clinical development, nurses are embracing cutting-edge technology that improves accuracy and lowers human error in the hectic hospital setting. In addition to improving infection control, this change gives nurses the ability to provide safer, more effective treatment. The adoption of automated technology to maintain a clean intensive care unit is one significant opportunity.

As Nurse 5 highlighted, “Innovations like air purifiers and HEPA filters in ICU cubicles have already helped reduce allergens and improve the environment for patients, and similar technology could be applied broadly. I believe that technological advancements will play a key role in improving infection control in the future.” Tehro *et al.* (2025) findings demonstrated that robotic disinfection was more effective than manual disinfection of hospital surfaces. Therefore, contactless robotic disinfection is advised for sanitizing hospital and clinical surfaces because it protects patients against global priority pathogens. ICU nurses acknowledge that technology not only enhances the physical environment but also lessens the workload associated with administrative and repetitive tasks. N6 explains, “Technology has been a positive force in nursing, as it removes some routine tasks and enables nurses to focus more on critical patient care and infection control. I think technology will play a major role in how nurses manage healthcare-associated infections. Artificial intelligence and automation are likely to reduce the number of tasks ICU nurses need to perform, particularly administrative responsibilities.

In addition to lowering workload, nurses anticipate that technology will enable predictive infection control strategies. N10 noted, “I see future nurses taking advantage of future technology as a tool to prevent healthcare-associated infections while following policies and measures for infection control. “These points of view imply that in the future of intensive care unit

practice, technological innovation and rigorous adherence to infection control protocols will go hand in hand. “A study by Godbole *et al.* (2025) found that AI can predict and reduce HCAIs more accurately than traditional techniques. AI-powered real-time patient monitoring and alarm systems have been demonstrated to improve patient outcomes and infection detection.

Proactive technological integration is even more crucial due to the ongoing evolution and progression of healthcare-associated infection risks. Nurse 3 highlighted “Because infection evolves, nurses must be more proactive in preventing further spread. Future nurses will

be more proactive with infection control. In the future, I see education becoming more expanded, and nurses will learn more and have better technology available to them.” Mendonça *et al.* (2024) point out that, in the context of the intensive care unit, nursing is essential to the management of infections linked to medical services. To improve adherence to patient safety procedures, several tactics have been used. However, one especially promising strategy has been found to be the use of technology to improve the procedure and make it easier to reduce infections in the intensive care unit.

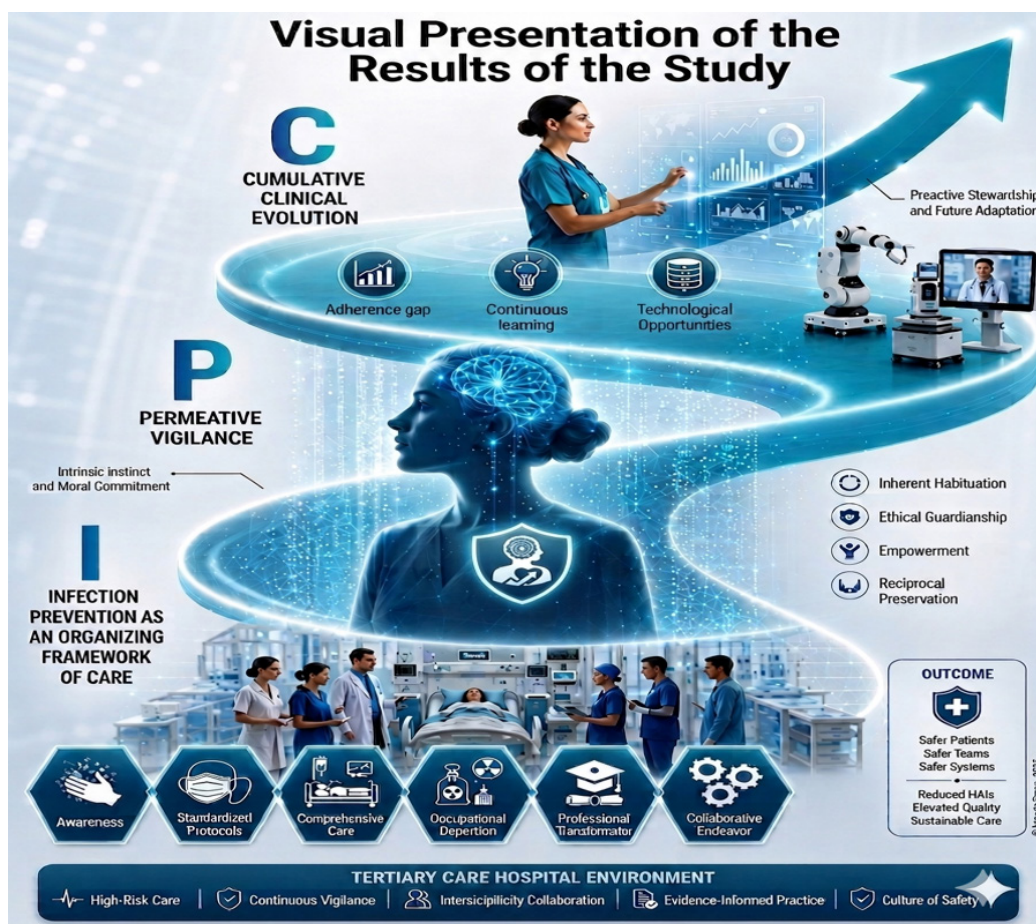


Figure 1: Visual Presentation of the Results of the Study

Summary, Conclusion and Recommendations

This section summarizes the findings of the study based on the objectives and research questions. It also draws conclusions and recommendations based on the results.

Summary of Findings

The results of the study revealed that ICU nurses experienced the prevention and control of healthcare-associated infections not merely as a routine clinical responsibility, but as a foundational aspect of patient care that shaped their everyday nursing practices. Conceptual knowledge and hands-on comprehension are the basis of this framework, which rests on all the

clinical care in the ICU. Nurses did not limit care to the physical aspect to control and prevent infection, but provided comprehensive care to the patients, in which infection prevention is an included and crucial part of it. By adhering to the standardized protocols, nurses had a reliable road map of comprehensive care to follow, in which patient safety is integrated into every interaction with the patient rather than being limited to a single task. As nurses executed these protocols and provided such comprehensive care during long working hours, challenges arose. Nurses experienced physical fatigue and emotional exhaustion and successfully navigated these challenges while maintaining commitment to patient

safety. Their lived experiences revealed that prolonged exposure to infection prevention responsibilities gradually transformed their professional practice and personal outlook. Nurses became disciplined, vigilant, and consistent with the application of infection prevention measures. Through experience, nurses have come to know their work nature is not a work of one but all working as one. Through teamwork, they collaborated toward one purpose, which is to prevent and control healthcare-associated infections in the unit.

The results also showed that permeative vigilance reflected the intrinsic transformation that occurred in the nurses in their work to control and prevent healthcare-associated infections. External compliance, such as applying precaution measures and adhering to protocols, transitioned into their internal character. Controlling and preventing healthcare-associated infections evolved from being a required task into an instinctive and habitual way of thinking and practicing nursing care.

Infection control activities permeated into their daily life activities outside work and in their homes. Nurses were vigilant in preventing and controlling healthcare-associated infections, and it became woven into their character that they perceived themselves as safety guardians of their patients and acted as their advocates. Nurses perceive themselves as an important asset of care, and in order to preserve themselves and provide care, they have to protect themselves and prioritize their self-care. Also, Nurses were empowered by their families as they supported them and understood the nature of their work.

As much as nurses adhere to the protocols to control and prevent healthcare-associated infections, there is the challenge of someone not adhering to them, which creates a gap in care, putting patients at risk. The need for stronger protocol and better management was highlighted. Nurses voiced the lack of training and continuous education in the hospitals where they work. Nurses were proactive in learning independently; some learned through observation, others bought books and took notes and researched. Technology played a big role in nursing care and enhanced the fight against healthcare-associated infections. Nurses look to the future optimistically as they view opportunities in continuous learning and the integration of advanced technology, enabling nurses to prevent and control healthcare-associated infections.

CONCLUSION

The results of this study show that controlling and preventing healthcare-associated infections is a key component of nursing practice in critical care settings. The participants' experience shows how infection prevention is ingrained in their daily duties and professional practice. Accordingly, the results highlight that infection prevention within the ICU nursing context helps in making decisions, setting priorities, coordinating activities and performing other duties in this environment. However, there is evidence of a contradictory situation

experienced by ICU nurses characterized by occupation exhaustion, which requires the development vigilance and discipline amid physical and psychological fatigue.

A significant insight in this study is the development of what can be called permeative vigilance among nurses. A heightened awareness and dual realization appeared among nurses in which nurses perceive safeguarding patients and protecting oneself are interdependent obligations. This reciprocal preservation constitutes an important conceptual finding of the study, revealing that infection prevention extends beyond patient care and becomes a common framework of safety involving nurses, patients, and families. The findings further emphasize how crucial cumulative clinical evolution is to strengthen health care associated infection prevention and control practices. Additionally, participants expressed optimism about the future integration of technology in controlling HCAI and stressed the need for continuous education and training to stay updated with the evolving infection prevention practices. However, the study also acknowledges that adherence gaps persist due to the systemic pressures within the health care setting.

The findings of the study also demonstrated the relevance of the Agent–Host–Environment Model by Leavell and Clark (1965) in understanding the lived experiences of ICU nurses in controlling healthcare-associated infections. Moreover, the findings expanded the application of the framework by revealing that infection prevention is not solely dependent on protocols and environmental systems, but is also shaped by nurses' internalized vigilance, ethical responsibility, adaptation, and professional identity developed through lived experience. Overall, the study highlights how vital nurses are to prevent and control healthcare-associated infections and maintain a safe environment in the healthcare setting.

Recommendations

The findings confirm the relevance of hospital leadership, and administrators in addressing the physical and psychological health concerns associated with occupational stress among ICU nurses. This suggest that regular health monitoring, wellness programs, and access to occupational health services should be provided to detect early signs of burnout and work-related fatigue. It follows that this can be achieved through effective and efficient institutional support systems, including counseling services and appropriate rest-recovery measures to help nurses manage emotional and physical exhaustion associated with intensive care work. Moreover, the findings indicate the indispensability of nursing practices in the ICU, and encourage nurses to remain vigilant and follow infection prevention protocols when providing care for patients. Likewise, the study underscores the importance of nursing education, especially undergraduate nursing education programs should strengthen infection prevention and control as a core part of undergraduate training.

However, based the methodological and sample size of

the study, future researchers are encouraged to validate and expand the findings of this study by conducting quantitative or mixed-methods research involving a larger and more diverse sample. This will help expand the generalizability of the identified themes and provide statistical support for the lived experiences of ICU nurses in infection prevention and control. Further studies may also explore similar phenomena in other hospital units or healthcare settings to deepen understanding of infection control practices across different clinical environments.

Dissemination of the Findings

The findings of this study will be communicated to the relevant hospital by means of presenting them and submitting the research report at the level of nursing services and the infection control committee of the hospital. Additionally, results may be published in a peer-reviewed journal to enrich academic knowledge. The findings of this study are interpreted from the perspective of the Agent-Host-Environment Model proposed by Leavell and Clark (1965). This model explains how healthcare-associated infections occur and can be prevented through the interaction of infectious agents, hosts susceptible to pathogens, and the environment in which the infections arise.

REFERENCES

- Aghaie, B., Norouzadeh, R., Sharifipour, E., Koohpaei, A., Negarandeh, R., & Abbasinia, M. (2021). The experiences of intensive care nurses in advocacy of COVID-19 patients. *Journal of Patient Experience*, 8, 23743735211056534. <https://doi.org/10.1177/23743735211056534>
- Ahmed, A., Dujaili, J. A., Hashmi, F. K., Awaisu, A., Chaiyakunapruk, N., & Hasan, S. S. (2021). The economic impact of pharmacist care for people living with HIV/AIDS: A systematic review. *Exploratory Research in Clinical and Social Pharmacy*, 3, 100066. <https://doi.org/10.1016/j.rcsop.2021.100066>
- Alanazi, F. K., Lapkin, S., Molloy, L., & Sim, J. (2023). Healthcare-associated infections in adult intensive care units: A multisource study examining nurses' safety attitudes, quality of care, missed care, and nurse staffing. *Intensive and Critical Care Nursing*, 78, 103480. <https://doi.org/10.1016/j.iccn.2023.103480>
- Alfouzian, W., Dhar, R., Abdo, N. M., Alali, W. Q., & Rabaan, A. A. (2021). Epidemiology and Microbiological Profile of Common Healthcare Associated Infections among Patients in the Intensive Care Unit of a General Hospital in Kuwait: A Retrospective Observational Study. *Journal of Epidemiology and Global Health*, 11(3), 302. <https://doi.org/10.2991/jegh.k.210524.001>
- Alharbi, T. S., Alahmari, K. A., Al-Osaimi, J. G. a. A., Alhafie, T. R., Al-Harbi, S. a. R., Almalki, A. S. S., Althobaiti, B. S. M., Al-Thaqafi, A. a. M., Al-Thaqafi, M. a. M., & Alahmari, K. a. M. (2025). Nurses at the Frontline: A comprehensive review of nursing contributions to infection prevention and patient safety. *Journal of Posthumanism*, 4(1), 478–492. <https://doi.org/10.63332/joph.v4i1.3608>
- Aligholipour, M., Ramezani-Badr, F., Hanifi, N., Beig, Z. H. O., & Khezerlou, Z. (2025). Examining the relationship between moral sensitivity and compassion satisfaction and fatigue among icu nurses: A correlational study. *Preventive Care in Nursing and Midwifery Journal*, 15(2), 13–22. <https://doi.org/10.61882/pcnm.15.2.13>
- Antoli-Jover, A. M., Gázquez-López, M., Río, P. B., Pérez-Morente, M. Á., Martín-Salvador, A., & Álvarez-Serrano, M. A. (2024). Impact of Work–Family Balance on nurses' perceived quality of life during the COVID-19 Pandemic: A scoping review. *Nursing Reports*, 14(4), 4022–4038. <https://doi.org/10.3390/nursrep14040294>
- Arshad, Z., Srivastava, V., Singh, G., & Venkatesh, V. (2026). The role of Infection Control Nurse in prevention and control of hospital acquired infection in ICU. *Iranian Journal of Nursing and Midwifery Research*, 31(1), 27–30. https://doi.org/10.4103/ijnmr.ijnmr_143_23
- Artuvan, Z., & ÇetiN, H. (2022). Hand Hygiene Beliefs and Practices Conditions of Nurses in the Intensive Care Unit: Descriptive study. *Türkiye Klinikleri Journal of Nursing Sciences*, 14(2), 407–414. <https://doi.org/10.5336/nurses.2021-85041>
- Ayed, A., Malak, M. Z., Ayed, M., Allayed, R., & Shouli, M. (2024). Knowledge, attitudes, and practices toward infection control precautions among nurses in Palestinian hospitals. *International Journal of Nursing Education Scholarship*, 21(1). <https://doi.org/10.1515/ijnes-2023-0117>
- Batran, R., Ayed, A., Batran, A., Ejheisheh, M. A., Alassoud, B., Hayek, M. F., & Batran, A. (2025). Determinants of Nurses' Compliance with Infection Prevention and Control Practices in Critical Care Units. *SAGE Open Nursing*, 11, 23779608251339193. <https://doi.org/10.1177/23779608251339193>
- Bhalla, S., Bahar, N., & Kanapathy, K. (2023). Pre-testing semi-structured interview questions using expert review and cognitive interview methods. *International Journal of Business and Management*, 7(5), 11–19. <https://doi.org/10.26666/rmp.ijbm.2023.5.2>
- Blot, S., Ruppé, E., Harbarth, S., Asehnoune, K., Poulakou, G., Luyt, C., Rello, J., Klompas, M., Depuydt, P., Eckmann, C., Martin-Loeches, I., Pova, P., Bouadma, L., Timsit, J., & Zahar, J. (2022). Healthcare-associated infections in adult intensive care unit patients: Changes in epidemiology, diagnosis, prevention and contributions of new technologies. *Intensive and Critical Care Nursing*, 70, 103227. <https://doi.org/10.1016/j.iccn.2022.103227>
- Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: complex or simple? Research case examples. *Journal of Research in Nursing*, 25(8), 652–661. <https://doi.org/10.1177/1049731520955555>

- org/10.1177/1744987120927206
- Cappelli, E., Fiorini, J., Canzan, F., Livigni, L., Carnevale, A., & Sili, A. (2024). Healthcare Associated Infections Management inside Intensive Care Units: "What do nurses think about their head nurses?" A qualitative pilot study. *Infermieristica Journal*, 3(4), 231–238. <https://doi.org/10.36253/if-2923>
- Chang, N. N., Reisinger, H. S., Schweizer, M. L., Jones, I., Chrischilles, E., Chorazy, M., Huskins, C., & Herwaldt, L. (2020). Hand hygiene compliance at critical points of care. *Clinical Infectious Diseases*, 72(5), 814–820. <https://doi.org/10.1093/cid/ciaa130>
- Chitac, I. M. (2022). The Rationale for Saturation in Qualitative Research: When Practice Informs Theory. *Central and Eastern European Online Library*. <https://www.cceol.com/search/article-detail?id=1060257>
- Clarke, V., & Braun, V. (2016). Thematic analysis. *The Journal of Positive Psychology*, 12(3), 297–298. <https://doi.org/10.1080/17439760.2016.1262613>
- Colaizzi, P. F. (1978). Psychological research as the phenomenologist views it. In R. S. Valle & M. King (Eds.), *Existential-phenomenological alternatives for psychology* (pp. 48–71). New York, NY: Oxford University Press.
- Cooper, A. S. (2024). High-Level burnout in physicians and nurses working in adult intensive care units. *Critical Care Nurse*, 44(4), 70–71. <https://doi.org/10.4037/ccn2024113>
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications. https://www.google.com.ph/books/edition/Qualitative_Inquiry_and_Research_Design/DLbBDQAAQBAJ
- Dawit, T. C., Mengesha, R. E., Ebrahim, M. M., Tequare, M. H., & Abraha, H. E. (2021). Nosocomial sepsis and drug susceptibility pattern among patients admitted to adult intensive care unit of Ayder Comprehensive Specialized Hospital, Northern Ethiopia. *BMC Infectious Diseases*, 21(1), 824. <https://doi.org/10.1186/s12879-021-06527-4>
- Debesai, Y. (2019). *Strategies healthcare managers use to Reduce Hospital-Acquired Infections*, ProQuest. <https://www.proquest.com/openview/cc1f034448b210cabda4e51aad3ca4d3/1?pq-origsite=gscholar&cbl=18750&di ss=y>
- Dekker, M., Van Mansfeld, R., Borgert, M., Maaskant, J., Paulus, F., Seller, A., & Jongerden, I. P. (2024). The combined application of hand hygiene and non-sterile gloves by nurses in a tertiary hospital: a multi methods study. *Antimicrobial Resistance and Infection Control*, 13(1), 23. <https://doi.org/10.1186/s13756-024-01378-5>
- Dörfler, V., & Stierand, M. (2020). Bracketing: a phenomenological theory applied through transpersonal reflexivity. *Journal of Organizational Change Management*, 34(4), 778–793. <https://doi.org/10.1108/jocm-12-2019-0393>
- Dudovskiy, J. (2018). The ultimate guide to writing a dissertation in business studies: A step-by-step assistance. Pittsburgh, PA: Author. Retrieved from <https://static1.squarespace.com/static/5530dddf4b0679504639dc1/t/65f9bbd052269a478741e89c/1710865372066/The+Ultimate+Guide+to+Writing+a+Dissertation.pdf>
- Elnablawi, N. H., Elshatarat, R. A., Elhefnawy, K. A., Ebeid, I. A., Aljohani, M. S., Alzahrani, N. S., Almarwani, A. M., & Saleh, Z. T. (2022). Nurses' Perceptions Regarding Exposure to COVID-19 Risks, and Impact of COVID-19 Outbreak on their Work and Psychosocial Health: A Cross-sectional Study. *The Open Nursing Journal*, 16(1). <https://doi.org/10.2174/18744346-v16-e221031-2022-51>
- Emiliussen, J., Engelsen, S., Christiansen, R., & Klausen, S. H. (2021). We are all in it!: Phenomenological Qualitative Research and Embeddedness. *International Journal of Qualitative Methods*, 20. <https://doi.org/10.1177/1609406921995304>
- Escobar, D., & Pegues, D. (2021). Healthcare-associated infections: where we came from and where we are headed. *BMJ Quality & Safety*, 30(6), 440–443. <https://doi.org/10.1136/bmjqs-2020-012582>
- European Centre for Disease Prevention and Control. (2019). Healthcare-associated infections acquired in intensive care units - Annual Epidemiological Report for 2019. <https://www.ecdc.europa.eu/en/publications-data/healthcare-associated-infections-intensive-care-units-2019>
- Flick, U. (2020). Triangulation. In *Springer Reference Psychologie* (pp. 1–15). https://doi.org/10.1007/978-3-658-18387-5_23-2
- George, T. (2021). Exploratory research: Definition, guide, & examples. <https://www.scribbr.com/methodology/exploratory-research/>
- Gesser-Edelsburg, A., Cohen, R., Halavi, A. M., & Zemach, M. (2021). Motivating healthcare professionals (nurses, nurse assistants, physicians) to integrate new practices for preventing healthcare-associated infections into the care continuum: turning Positive Deviance into positive norms. *BMC Infectious Diseases*, 21(1), 495. <https://doi.org/10.1186/s12879-021-06215-3>
- Ghabayen, F., ALBashtawy, M., Abdelkader, R. H., Jarrah, S., Eshah, N., Abdalrahim, A., Saifan, A., Alkhawaldeh, A., Rayan, A., Ayed, A., Al-Amer, R., Mohammad, K. I., Al-Dwaikat, T., Omari, O. A., ALBashtawy, S., ALBashtawy, B., & Dameery, K. A. (2023). Knowledge and compliance with standard precautions among nurses. *SAGE Open Nursing*, 9, 23779608231189966. <https://doi.org/10.1177/23779608231189966>
- Gierczyk, M., Gromkowska-Melosik, A., Scott, S. S., & Parker, C. (2024). The Snowball Sampling Strategy in the field of Social Sciences. Contexts and Considerations. *Przegląd Badań Edukacyjnych*, 2(43), 87–104. <https://doi.org/10.12775/pbe.2023.029>
- Gilbert, A. K. H., Adejumo, O., & Liberatha, R. (2024). Nurses' Perception, Barriers and Associated Factors

- towards Hand Hygiene Practices for Prevention of Healthcare Acquired Infections in the Intensive Care Units. *Asian Journal of Medicine and Health*, 22(12), 65–76. <https://doi.org/10.9734/ajmah/2024/v22i121137>
- Godbole, A. A., Paras, Mehra, M., Banerjee, S., Roy, P., Deb, N., & Jagtap, S. (2025). Enhancing infection control in ICUS through AI: A literature review. *Health Science Reports*, 8(1), e70288. <https://doi.org/10.1002/hsr2.70288>
- Hansen, A. E., Lehmkuhl, L., & Nielsen, A. H. (2022). Critical care nurses' perception of patient involvement in care: A qualitative focus group. *Nursing in Critical Care*, 28(6), 878–884. <https://doi.org/10.1111/nicc.12815>
- He, X., Li, C., Wang, Z., Yang, M., Zhou, T., Gu, Y., Zhang, Y., Wang, W., & Hu, Y. (2025). Knowledge, attitude and practice concerning Central Line-Associated Bloodstream Infection Prevention among ICU nurses in China: a Multicenter, Cross-Sectional study. *Nursing in Critical Care*, 30(3), e70047. <https://doi.org/10.1111/nicc.70047>
- Holloway, I., & Galvin, K. (2023). *Qualitative research in nursing and healthcare* (5th ed.). Wiley-Blackwell. <https://books.google.com.ph/books?id=8ZHPEAAAQBAJ>
- Hunter, D. J., & Howes, D. (2020). Defining exploratory-descriptive qualitative (EDQ) research and considering its application to healthcare. *GSTF Journal of Nursing and Health Care (JNHC)*. <http://dl6.globalstf.org/index.php/jnhc/article/view/1975>
- Ikuta, K. S., Swetschinski, L. R., Aguilar, G. R., Sharara, F., Mestrovic, T., Gray, A. P., Weaver, N. D., Wool, E. E., Han, C., Hayoon, A. G., Aali, A., Abate, S. M., Abbasi-Kangevari, M., Abbasi-Kangevari, Z., Abd-Elsalam, S., Abebe, G., Abedi, A., Abhari, A. P., Abidi, H., Naghavi, M. (2022). Global mortality associated with 33 bacterial pathogens in 2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet*, 400(10369), 2221–2248. [https://doi.org/10.1016/s0140-6736\(22\)02185-7](https://doi.org/10.1016/s0140-6736(22)02185-7)
- Janak, E. (2018). Bracketing and Bridling: Using narrative reflexivity to confront researcher bias and the impact of social identity in a historical study. *Philanthropy & Education*, 1(2), 82. <https://doi.org/10.2979/phileduc.1.2.04>
- Jankowski, M., Reynolds, E., Montgomery, E., Burke, J., & Aguilar, J. (2023). Collaboration, consistency, and communication- Oh my! Decreasing Hospital-Acquired infections in a tertiary hospital's medical surgical intensive care unit. *American Journal of Infection Control*, 51(7), S31. <https://doi.org/10.1016/j.ajic.2023.04.052>
- Kakilla, C. (2021). Strengths and Weaknesses of Semi-Structured Interviews in Qualitative Research: A Critical essay. Preprints.org. <https://doi.org/10.20944/preprints202106.0491.v1>
- Kollef, M. H., Torres, A., Shorr, A. F., Martin-Loeches, I., & Micek, S. T. (2021). Nosocomial infection. *Critical Care Medicine*, 49(2), 169–187. <https://doi.org/10.1097/ccm.0000000000004783>
- Lee, M. H., Lee, G. A., Lee, S. H., & Park, Y. (2020). A systematic review on the causes of the transmission and control measures of outbreaks in long-term care facilities: Back to basics of infection control. *PLoS ONE*, 15(3), e0229911. <https://doi.org/10.1371/journal.pone.0229911>
- Leavell, H. R., & Clark, E. G. (1965). *Preventive medicine for the doctor in his community* (3rd ed.). New York, NY: McGraw-Hill.
- Li, R., Wu, Y., Huang, K., Hu, X., Zhang, J., Yang, L., & Yang, X. (2023). A prospective surveillance study of healthcare-associated infections in an intensive care unit from a tertiary care teaching hospital from 2012–2019. *Medicine*, 102(31), e34469. <https://doi.org/10.1097/md.00000000000034469>
- Lister, H. E., Mostert, K., Botha, T., Field, E., Knock, D., Mubi, N., Odendaal, S., Rohde, M., & Maric, F. (2025). Development and validation of a Knowledge, Attitudes and Practices (KAP) questionnaire for healthcare professionals on environmental sustainability in healthcare in Southern Africa. *F1000Research*, 13, 1308. <https://doi.org/10.12688/f1000research.157487.2>
- Mackworth-Young, C. (2020). *An ethnographic study of the everyday lives of young women living with HIV in Zambia*. In LSHTM Research Online (London School of Hygiene and Tropical Medicine). <https://doi.org/10.17037/pubs.04656839>
- Madran, B., Demir, Z. I., Yalcin, B., Ayaz, O. T., Iyikosker, K., Keskin, A., Gorel, A., Aksoy, Y., Sagaltici, N., Hacıoglu, K., Kayi, I., Ergönül, Ö., Sakarya, S., & Keske, Ş. (2025). Reasons for insufficient compliance with infection prevention and control measures in the intensive care unit: a qualitative study conducted in Türkiye in 2024. *Antimicrobial Resistance and Infection Control*, 14(1), 71. <https://doi.org/10.1186/s13756-025-01544-3>
- Majrashi, W. M. (2024). Breaking the chain of transmission: Infection control in clinical environments. *The Review of Diabetic Studies*, 84–100. <https://doi.org/10.70082/1kxj9555>
- Markwart, R., Saito, H., Harder, T., Tomczyk, S., Cassini, A., Fleischmann-Struzek, C., Reichert, F., Eckmanns, T., & Allegranzi, B. (2020). Epidemiology and burden of sepsis acquired in hospitals and intensive care units: a systematic review and meta-analysis. *Intensive Care Medicine*, 46(8), 1536–1551. <https://doi.org/10.1007/s00134-020-06106-2>
- Mazzeffi, M., Galvagno, S., & Rock, C. (2021). Prevention of healthcare-associated infections in intensive care unit patients. *Anesthesiology*, 135(6), 1122–1131. <https://doi.org/10.1097/aln.0000000000004017>
- Medioli, F., Franceschini, E., Mussini, C., & Meschiar, M. (2025). Update on infection prevention in the ICU. *Current Opinion in Critical Care*, 31(5), 529–538. <https://doi.org/10.1097/mcc.0000000000001313>

- Mendonça, G. V. G., Da Silva Belém, J. C., Pinheiro, K. D., De Sousa Guedes, S. P., Aguiar, A. K. O. D. S., Ambé, A. a. M., Rodrigues, B. L. M., Souza, R. D. N., Coêlho, K. a. A., Carvalho, B. L. M. N., Teles, S. M., De Vasconcelos, L. A., De Nazaré Soares, T., Peixoto, I. V. P., & Sardinha, D. M. (2024). Care and Infection Control Measures in the Intensive Care Unit with Emphasis on Nursing Roles: Narrative Review. *Journal of Advances in Medicine and Medical Research*, 36(9), 256–264. <https://doi.org/10.9734/jammr/2024/v36i95573>
- Merriam, S. B., & Grenier, R. S. (2019). *Qualitative research in practice: Examples for discussion and analysis* (2nd ed.). Jossey-Bass. https://www.google.com.ph/books/edition/Qualitative_Research_in_Practice/u9WCDwAAQBAJ
- Messiha, K., Thomas, N., Brayne, C., Agnello, D. M., Delfmann, L. R., Giné-Garriga, M., Lippke, S., & Downey, J. (2025). Correction: Grey literature scoping review: a synthesis of the application of participatory methodologies in underrepresented groups at an elevated risk of dementia. *BMC Medical Research Methodology*, 25(1), 160. <https://doi.org/10.1186/s12874-025-02614-1>
- Meydan, C. H., & Akkaş, H. (2024). The role of triangulation in qualitative research. In *Advances in library and information science (ALIS) book series* (pp. 101–132). <https://doi.org/10.4018/979-8-3693-3306-8.ch006>
- Morin, J.-F., Olsson, C., & Atikcan, E. Ö. (2021). Research methods in the social sciences: An A–Z of key concepts. *Oxford University Press*. <https://doi.org/10.1093/hepl/9780198850298.001.0001>
- Morrow, R., Rodriguez, A., & King, N. (2015). Colaizzi's descriptive phenomenological method. *University of Huddersfield Repository*. https://eprints.hud.ac.uk/id/eprint/26984/1/Morrow_et_al.pdf
- Morris, K. Y., & Jakobsen, R. (2022). Central venous catheter access and procedure compliance: A qualitative interview study exploring intensive care nurses' experiences. *Intensive and Critical Care Nursing*, 69, 103182. <https://doi.org/10.1016/j.iccn.2021.103182>
- Murhekar, M. V., & Kumar, C. G. (2022). Health-care-associated infection surveillance in India. *The Lancet Global Health*, 10(9), e1222–e1223. [https://doi.org/10.1016/s2214-109x\(22\)00317-5](https://doi.org/10.1016/s2214-109x(22)00317-5)
- Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2024). Demystification and actualisation of data saturation in qualitative research through thematic analysis. *International Journal of Qualitative Methods*, 23. <https://doi.org/10.1177/16094069241229777>
- Nahari, A., Moafa, H., Almotairy, M. M., Hakamy, E., Alhamed, A., Alkhafif, S., & Aljohani, T. (2025). Lived experiences of nurse practitioners in Saudi Arabia: a phenomenological study. *BMC Nursing*, 24(1), 510. <https://doi.org/10.1186/s12912-025-03137-2>
- Najafi, M., Ajri, M., & Karimollahi, M. (2021). Vigilance in Iranian nurses working in intensive care units. *Research Square*. <https://doi.org/10.21203/rs.3.rs-729382/v1>
- Nkabinde-Thamane, G., & Downing, C. (2025). Recommendations to facilitate self-care practices among professional nurses. *Curationis*, 48(1), e1–e9. <https://doi.org/10.4102/curationis.v48i1.2755>
- Oluka, A. (2025). Phenomenological Research Strategy: Descriptive and Interpretive approaches. *F1000Research*, 14, 725. <https://doi.org/10.12688/f1000research.166273.1>
- Onosakponome, E. O., Nyenke, C. U., & Okafor, R. A. (2022). Health care associated infections. *Journal of Advances in Microbiology*, 104–115. <https://doi.org/10.9734/jamb/2022/v22i930496>
- Pavlish, C. L., Henriksen, J., Brown-Saltzman, K., Robinson, E. M., Warda, U. S., Farra, C., Chen, B., & Jakel, P. (2020). A Team-Based Early Action Protocol to address ethical concerns in the intensive care unit. *American Journal of Critical Care*, 29(1), 49–61. <https://doi.org/10.4037/ajcc2020915>
- Perveen, K. (2022). Role of nurses in intensive care unit. *NURSEARCHER (Journal of Nursing & Midwifery Sciences)*, 01. <https://doi.org/10.54393/nrs.v2i01.22>
- Peterson, B. L. (2017). Thematic Analysis/Interpretive Thematic Analysis. *The International Encyclopedia of Communication Research Methods*, 1–9. <https://doi.org/10.1002/9781118901731.iecrm0249>
- Praveena, P., & Sasikumar, S. (2021). Application of Colaizzi's method of data analysis in phenomenological research. *Medico-Legal Update*, 21(2), 914–918. <https://doi.org/10.37506/mlu.v21i2.2800>
- Ramakrishnan, R. (2023). A comprehensive review of environmental triangulation in qualitative research: Methodologies, applications, and implications. DSpace at West Ukrainian National University. <https://dspace.wunu.edu.ua/items/b925d7fc-b927-4432-93f3-76536ca77beb>
- Ruslin, R., Mashuri, S., Rasak, S., Alhabsyi, F., & Syam, H. (2022). Semi-structured interview: A methodological reflection on the development of a qualitative research instrument in educational studies. *IOSR Journal of Research & Method in Education*, 12(1), 22–25. <https://www.iosrjournals.org/iosr-jrme/papers/Vol-12%20Issue-1/Ser-5/E1201052229.pdf>
- Sahakyan, T. (2023). Member-Checking through Diagrammatic Elicitation: Constructing Meaning with Participants. *TESOL Quarterly*, 57(2), 686–701. <https://doi.org/10.1002/tesq.3210>
- Santos, K. D. S., Ribeiro, M. C., Queiroga, D. E. U., Silva, I. A. P. D., & Ferreira, S. M. S. (2020). The use of multiple triangulations as a validation strategy in a qualitative study: O uso de triangulação múltipla como estratégia de validação em um estudo qualitativo. *Ciencia & Saude Coletiva*, 25(2), 655–664. <https://www.scielosp.org/article/csc/2020.v25n2/655-664/en/>
- Sands, M., & Aunger, R. (2023). Process evaluation of an Acute-Care Nurse-Centred hand hygiene intervention in US hospitals. *Evaluation Review*, 48(4), 663–691.

- <https://doi.org/10.1177/0193841x231197253>
- Sartelli, M. (2022). Healthcare-Associated infections in the surgical setting. *Advances in Human Biology*, 12(2), 127–137. https://doi.org/10.4103/aih.b.aihb_53_22
- Sato, A., Sasaki, Y., & Imazu, Y. (2025). Determining how nurses living with their families decide to work in a COVID-19 intensive care Unit: Grounded Theory study. *SAGE Open Nursing*, 11, 23779608251345709. <https://doi.org/10.1177/23779608251345709>
- Shorakie, H. Z., Ebadi, A., Vahedian-Azimi, A., & Saeid, Y. (2025). Threats to nurses' health in Intensive Care Unit: A Qualitative content analysis. *Nursing in Critical Care*, 31(1), e70257. <https://doi.org/10.1111/nicc.70257>
- Sinfield, G., Goldspink, S., & Wilson, C. (2023). Waiting in the Wings: The enactment of a descriptive phenomenology study. *International Journal of Qualitative Methods*, 22. <https://doi.org/10.1177/16094069231207012>
- Terho, K., Löyttyniemi, E., Rintala, E., & Salanterä, S. (2025). Infection prevention knowledge related to central line infections and ventilator-associated pneumonias: A survey of Finnish intensive care units. *American Journal of Infection Control*, 53(6), 690–695. <https://doi.org/10.1016/j.ajic.2025.01.021>
- Thomas, S. P., & Sohn, B. K. (2023). From Uncomfortable Squirm to Self-Discovery: A phenomenological analysis of the bracketing experience. *International Journal of Qualitative Methods*, 22. <https://doi.org/10.1177/16094069231191635>
- Vella, J. (2024). In pursuit of credibility: Evaluating the divergence between member-checking and hermeneutic phenomenology. *Research in Social and Administrative Pharmacy*, 20(7), 665–669. <https://doi.org/10.1016/j.sapharm.2024.04.001>
- Vincent, J., Sakr, Y., Singer, M., Martin-Loeches, I., Machado, F. R., Marshall, J. C., Finfer, S., Pelosi, P., Brazzi, L., Aditjaningsih, D., Timsit, J., Du, B., Wittebole, X., Máca, J., Kannan, S., Gorordo-Delsol, L. A., De Waele, J. J., Mehta, Y., Bonten, M. J. M., . . . Investigators, F. T. E. I. (2020). Prevalence and outcomes of infection among patients in intensive care units in 2017. *JAMA*, 323(15), 1478. <https://doi.org/10.1001/jama.2020.2717>
- Vivek, R., Nanthagopan, Y., & Piriyaarshan, S. (2023). Beyond Methods: Theoretical Underpinnings of Triangulation in Qualitative and Multi-Method Studies". *SEEU Review*, 18(2), 105–122. <https://doi.org/10.2478/seeur-2023-0088>
- Watson, A. L. (2023). The evolution of professional identity in intensive care nurses during COVID-19 – An interpretive phenomenological study. *Intensive and Critical Care Nursing*, 80, 103538. <https://doi.org/10.1016/j.iccn.2023.103538>
- Weiner-Lasting, L. M., Abner, S., Edwards, J. R., Kallen, A. J., Karlsson, M., Magill, S. S., Pollock, D., See, I., Soe, M. M., Walters, M. S., & Dudeck, M. A. (2019). Antimicrobial-resistant pathogens associated with adult healthcare-associated infections: Summary of data reported to the National Healthcare Safety Network, 2015–2017. *Infection Control and Hospital Epidemiology*, 41(1), 1–18. <https://doi.org/10.1017/ice.2019.296>
- Widiasih, R., Ermia, E., Emaliyawati, E., Hendrawati, S., Susanti, R. D., Sutini, T., & Sari, C. W. M. (2021). Nurses' Actions to Protect Their Families from COVID-19: A Descriptive Qualitative Study. *Global Qualitative Nursing Research*, 8, 23333936211014851. <https://doi.org/10.1177/23333936211014851>
- World Health Organization. (2022). Global report on infection prevention and control. *World Health Organization*. <https://www.who.int/publications/i/item/9789240051164>
- Yu, X., Huang, Y., & Liu, Y. (2022). Nurses' perceptions of continuing professional development: a qualitative study. *BMC Nursing*, 21(1), 162. <https://doi.org/10.1186/s12912-022-00940-z>
- Zeb, H., Arif, I., & Younas, A. (2021). Mindful Self-Care Practice of Nurses in Acute Care: a Multisite Cross-Sectional survey. *Western Journal of Nursing Research*, 44(6), 540–547. <https://doi.org/10.1177/01939459211004591>