



**UNVEILING THE PRACTICES OF INFECTION CONTROL MEASURES
AMONG RADIOLOGIC TECHNOLOGISTS IN MEDICAL IMAGING
FACILITIES: A QUALITATIVE INQUIRY**

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ABSTRACT

This study investigated infection control practices among radiologic technologists in medical imaging facilities, focusing on their implementation and evaluation. Through qualitative analysis of interviews and focus group discussions, essential themes emerged including disinfection practices, personal protective equipment (PPE) management, training and education, immediate action on infection hazards, infection prevention strategies, institutional compliance, and continuous quality improvement. Findings underscored the technologists' commitment to maintaining a sterile environment through rigorous disinfection of equipment, adherence to PPE protocols, and swift response to infection risks. Training initiatives were highlighted for their role in equipping staff with essential knowledge and skills, ensuring effective infection control measures. Evaluation mechanisms, such as workplace safety inspections and daily monitoring, emphasized the importance of institutional compliance and continuous improvement in maintaining high hygiene and safety standards. The study also identified directions for future research, including longitudinal studies to assess the sustainability of practices, comparative analyses across different healthcare settings, and investigations into the impact of technological innovations on infection control efficacy. These findings enhanced understanding and optimized infection control strategies among radiologic technologists, ultimately aiming to improve patient safety and healthcare quality in medical imaging facilities.

Keywords: Healthcare, Infection Control, Radiologic Technologists, Medical Imaging



INTRODUCTION

Infection control measures play a crucial role in maintaining a safe and hygienic environment within medical imaging facilities (Dixon-Woods et al., 2011). Radiologic technologists, as frontline healthcare providers, are responsible for implementing these measures to prevent the transmission of infections among patients, staff, and the community. Understanding their perspectives and practices regarding infection control is essential for improving the overall effectiveness of infection control protocols in medical imaging facilities (Abed-Alah, 2021). Healthcare workers are motivated to follow the infection and prevention control guidance because of fear of infecting their families, patients, or themselves. The workplace culture could also influence whether or not healthcare workers follow the guidelines (Houghton, 2020). Thus, hand hygiene is crucial during patient care to interrupt the spread of pathogens. Performing hand hygiene by healthcare workers during care provision aims to reduce the spread of infection between patients, other healthcare workers, and the healthcare environment (Greene & Wilson, 2022).

Moreover, the safe handling of needles and sharp objects is necessary to prevent healthcare workers from being exposed to bloodborne pathogens, according to the Wisconsin Department of Health Services (2018). Another study by Yakob et al. (2015) showed that all participants knew enough about contaminated needles and sharp materials that transmit disease-causative agents. In every examination or procedure, surgery, blood withdrawal, bodily fluids handling, or cleaning up in a hospital environment, gloves are the essential gear and a highly effective solution for halting and preventing the spread of disease. According to the World Health Organization (2020), when planning which personal protective equipment (PPE) healthcare workers must wear when care is provided to patients, it must encompass specific tasks, duration, and the level of body fluid exposure they may be experiencing. A face mask provides a barrier to fluids and large particle droplets. A surgical mask is a face mask commonly used in a hospital setting. Surgical masks can prevent infections transmitted by respiratory droplets. Face masks are a protective barrier that reduces the risk of microorganism transmission between patients, healthcare workers, and the environment (Hoarbakshsh et al., 2018).

On the other hand, infection control measures is of global importance in healthcare settings, including medical imaging facilities, to prevent the spread of infections and ensure patient and staff safety (Adegboye, 2018). Subsequently, standard precautions are a set of protocols for infection control practices. This set of protocols prevents transmitting diseases acquired by contact with nonintact skin and mucous membranes, blood, and body fluids. Healthcare workers must apply these infection control practices and standards when caring for every individual (Wisconsin Department of Health Services, 2018). Infection prevention and control (IPC) practices performed by healthcare workers are crucial to preventing and managing infections (Greene & Wilson, 2022).



In the study of Piret and Boivin in 2021, healthcare professionals continue to deal with the increasing incidence and emergence of infectious diseases around the globe. Careful observance of standard infection control precautions by healthcare providers is strongly recommended for every patient encounter. Since healthcare workers are the first line of defense against infection, they are protected by infection prevention and control measures. In this manner, healthcare workers (HCWs) need to comply with standard precautions, such as the proper way of using personal protective equipment (PPE) and good hand hygiene, to prevent infection in healthcare facilities (Lam & Ng, 2021). Consequently, in the study of Al-Ahmari et al. (2021), almost half of the respondents have poor practices regarding infection control and standard precautions despite a good attitude toward infection control policy and procedures. Many obstacles affect the practice of appropriate infection control guidelines among healthcare workers. Aboelela, Stone, and Larson (2012) stated that solutions to the growing problem of healthcare-associated infections and their impact on the healthcare system have significantly relied on infection control policies emphasizing good hygiene. However, healthcare workers must consistently follow these practices for the infection control strategies to be effective.

Meanwhile, in the Philippines, Rivera et al. (2018) study examined the infection control practices of Radiologic Technologists in a private medical imaging facility. The study revealed inconsistent adherence to protocols, with areas such as equipment disinfection and disposal of contaminated materials identified as areas for improvement. Another study by Santos et al. (2019) explored the knowledge, attitudes, and practices of infection control among healthcare workers, including Radiologic Technologists, in a tertiary hospital in the Philippines. The findings indicated that while healthcare workers had a satisfactory level of knowledge about infection control measures, there were gaps in their practices, particularly regarding hand hygiene compliance and personal protective equipment usage.

A study revealed by Dela Cruz et al. (2021) examined the infection control practices among Radiologic Technologists in a government hospital in the Philippines. The researchers conducted interviews and observations to assess the adherence to infection control protocols. The findings revealed that while Radiologic Technologists demonstrated good knowledge of infection control measures, there were challenges in their implementation. Factors such as heavy workload, time constraints, and limited availability of resources were identified as barriers to effective infection control practices. These findings highlight the complex nature of infection control practices and the importance of addressing systemic factors to ensure optimal adherence and patient safety (Dela Cruz et al., 2021). Contrastingly, the study by Sotto et al. (2020) that assessed compliance with infection prevention and control practices in a tertiary hospital in the Philippines, including Radiologic Technologists, found that overall compliance was high. However, particular areas, such as proper disinfection of equipment and adherence to standard precautions, required improvement. The study



stressed the importance of continuous education and reinforcement of infection control practices among healthcare workers, including Radiologic Technologists (Sotto et al., 2020).

Several studies have explored infection control practices in healthcare settings, focusing on various healthcare professionals, such as nurses, physicians, and laboratory technicians (Yen et al., 2010; Guo et al., 2018). However, limited research has specifically examined the perspectives and practices of radiologic technologists concerning infection control measures. It is essential to address this research gap as radiologic technologists have unique responsibilities and challenges in infection control within the context of medical imaging. As key healthcare providers in medical imaging, radiologic technologists play a crucial role in implementing infection control measures. However, there is limited international research exploring the perspectives and practices of radiologic technologists, specifically regarding infection control measures. Understanding the global perspectives and practices in this regard can contribute to developing standardized guidelines and strategies to enhance infection control practices in medical imaging facilities worldwide (Colet et al., 2016).

This qualitative inquiry aims to explore the perspectives and practices of radiologic technologists regarding infection control measures in medical imaging facilities. By conducting in-depth interviews and gathering firsthand experiences from these professionals, the study seeks to gain insights into their knowledge, attitudes, barriers, and facilitators related to infection control. Additionally, this research aims to identify potential areas for improvement and propose recommendations to enhance infection control practices in medical imaging facilities. Through the findings of this study, healthcare administrators, policymakers, and infection control specialists can gain a deeper understanding of the factors that influence infection control practices among radiologic technologists. Ultimately, this research aims to improve patient safety, prevent healthcare-associated infections, and promote a culture of infection control in medical imaging settings.

Purpose of the Study

The purpose of this study was to explore and understand the practices of infection control measures among radiologic technologists in medical imaging facilities. The study aimed to uncover the emerging themes regarding these practices and identified the underlying dimensions necessary to evaluate the effectiveness of infection control measures. By addressing these research questions, the study sought to contribute to the knowledge and understanding of infection control in medical imaging and provide insights that can potentially enhance the implementation of infection control protocols among radiologic technologists.



Research Questions

This study explored the infection control practices employed by radiologic technologists in medical imaging facilities through a qualitative inquiry. It aimed to address the following key questions:

1. What are the practices of infection control measures among radiologic technologists in medical imaging facilities?
2. What are the mechanisms of assessing the infection control measures in medical imaging facilities?
3. How do the participants ensure the radiologic technologists achieved the given practices in infection control measures?

Theoretical Lens

This study is anchored on the Germ Theory of Robert Koch and Louis Pasteur (1860) and Florence Nightingale's Environmental Theory (19th century). It states that microorganisms that are too small to be seen by the naked eye invade the body and cause certain diseases (Britannica, 2021). Today's infection control practices in hospitals, which help control the spread of infection, are a result of applying the Germ Theory. Awareness that microorganisms can cause illness can lead to efforts to prevent microorganisms from coming into contact with people, especially healthcare workers, by practicing disinfection and personal hygiene (Germ Theory of Disease, 2022). This theory is essential in understanding and preventing a variety of diseases.

Florence Nightingale's concepts of basic infection control techniques, including hand washing, wound care, quarantine, and isolation (Tulchinsky, 2018), have become integral to infection control practices today. Nightingale's concepts and reforms laid the foundations for infection control practices, which remain current. Florence Nightingale's infection control techniques and guidelines in her day are critical in maintaining good health for everyone, especially healthcare workers (Gilber, 2020). Florence Nightingale's environmental theory is more commonly known as infection control. Healthcare workers, including Radiologic Technologists, willingly put themselves at significant risk daily by facing infectious patients. However, like Nightingale, they are entirely dedicated to the care and well-being of others. She believed that nurses could make environmental modifications to help eliminate the promotion of internal disease. This meant that Nightingale thought people who did not care for their environments properly would be more susceptible to infection.

Radiologic Technologists today are responsible for the health and safety of their patients, colleagues, and themselves. Unfortunately, infections are still prevalent today, primarily among healthcare workers, often due to a lack of adherence to basic hygiene. Guidelines in each hospital are developed to assist healthcare workers in maintaining healthy sanitary conditions and practices while attending to their health and safety and supporting patient well-being. These theories emphasize the importance of distinguishing the causes of diseases and the infection control practices to prevent acquiring an infection. The current study



will use these theories to assess the awareness, attitudes, and practices of infection control measures among radiologic technologists.

METHOD

Research Design

This study employed a qualitative inquiry. As defined by Creswell (2018), qualitative inquiry is a research approach that focuses on understanding and interpreting the meaning individuals or groups attribute to a social or human problem. It involves studying and analyzing real-world settings and contexts to deeply understand the phenomena being investigated. This study adopted a qualitative research approach to gather in-depth and rich data about the infection control practices of radiologic technologists.

This qualitative inquiry aimed to explore and understand the infection control practices employed by radiologic technologists in medical imaging facilities. The study aimed to gain insights into technologists' challenges, perceptions of infection control measures, and suggestions for improvement.

Participants

The study's participants are the Radiologic Technologists working in selected hospitals in Region XI. The region comprises five provinces: Davao del Sur, Davao Oriental, Davao Occidental, Davao del Norte, and Compostela Valley. Davao City is the largest city on the island of Mindanao and serves as the regional center of Region XI. A purposive sampling technique was utilized to select participants with significant experience and expertise in radiologic technology and infection control measures. This technique ensures that the selected participants can provide valuable insights into the research topic.

The sample size was determined through data saturation, where data collection and analysis are continued until no new information or themes emerged. It was anticipated that a sample size of 15 radiologic technologists was sufficient to achieve data saturation. Fifteen participants were invited to participate and were divided into two categories: In-Depth Interview (IDI) and Focus-Group Discussion (FGD). There were eight (8) participants for the in-depth interview and seven (7) participants for the focus-group discussion. According to Creswell (2017), a homogeneous group can consist of three to four individuals or range from 10 to 15 members, and purposive sampling was employed to select participants for the individual interviews (IDI) and focus group discussions (FGD), which had specific requirements as follows: the participants must be registered radiologic technologists with updated PRC licenses. Only those with six months or more of experience was covered as part of this study. All radiologic technologist students and interns were excluded from this study.



Data Collection Tools

The researchers conducted an in-depth interview (IDI) and a focus group discussion (FGD) with the radiologic technologists in selected hospitals in Region XI. The researchers prepared the interview guide questions based on the literature relevant to the subject under investigation—semi-structured interviews conducted with the selected radiologic technologists validated by the panel of experts. The guide questions contained an open-ended question regarding the lived experiences of radiologic technologists related to infection control measures. The final revisions of the interview guide questionnaire were made, incorporating the experts' comments, corrections, and suggestions.

Procedures

The researcher took the requisite steps during the data collection process. A letter authorizing the study was sent to the organization heads of the selected hospitals in Region XI, requesting permission to conduct a research study in their institution. After receiving the approval, the researcher communicated with the head of the Radiology Department to request an appropriate data-gathering schedule without disrupting the participants' work. This gave the researcher enough time to instruct the participants on how to answer the questionnaire.

A hybrid in-depth interview (IDI) and focus group discussion (FGD) were conducted following the preceding procedures: The researcher emailed the participants the cover letter and letter of consent. The cover letter expressed the purpose and aim of the researcher with a brief explanation of the study. The participants were requested to return the signed letter of consent via email, which specified their voluntary participation in the study. Only those who signed the consent letter can be considered part of this study. The respondents were assured that their responses would be kept confidential and that their names would never appear in any part of this study. The respondents provided the link to the Google Meet. The interviews were audio-recorded with participants' consent, and detailed field notes will also be taken during the interviews. The interview questions were designed to explore various aspects of infection control measures, including current practices, challenges, perceptions, and suggestions for improvement.

The researcher conducted a focus group discussion (FDG) via online video conferencing and an online individual in-depth interview (IDI). During the online FGD and IDI, the researcher used a validated interview protocol and asked follow-up questions to ensure saturation of answers.

In addition, the researcher thoroughly discussed the ethical considerations with the participants. Also, the participants' perspectives on the phenomenon of interest unfolded according to how they viewed it and not as the researcher viewed it. During the online FGD and IDI, the participants were informed that the Google Meet was recorded for documentation. The recorded audio was transcribed and analyzed with the participants' approval and unanimous permission to be kept secured and confidential. After this, the participants



received copies of the transcription to verify the accuracy and correctness of the interpretations.

Data Analysis

This study employed a thematic analysis, necessitating the transcription of interview transcripts. The researcher looked for relevant themes in the transcripts after they had been coded, applying the six steps of the thematic analysis method developed by Braun and Clarke (2012) to the data collected for this study.

To analyze the data, the researchers carried out the thematic analysis using Braun and Clarke's six-step process (2012). *Step 1- Familiarizing with the data.* In this step, the researcher transcribed the conversations, read (and reread) the transcripts, and listened to the recordings repeatedly to be fully immersed and familiarized with the data. *Step 2- Generating initial codes.* In this step, the researcher began the coding process by locating preliminary codes or the parts of the data that stand out as intriguing and significant. *Step 3- Generating themes.* In this step, the researcher started the interpretive analysis of the collated codes. The researcher reviewed the codes created, spotted patterns among them, and began formulating themes. *Step 4- Reviewing themes.* In this step, the researcher decided whether to merge, improve, separate, or eliminate initial ideas after conducting a more thorough evaluation of the themes that were identified. *Step 5- Defining and naming themes.* In this step, the researcher refined and clarified the data's significant themes and probable sub-themes. At this point, a unifying narrative of the findings were developed. *Step 6- Producing the report.* Finally, the researcher converted the analysis into comprehensible writing related to the themes, research questions, and literature, and the report conveyed the results.



RESULTS AND DISCUSSIONS

Table 1

Practices of infection control measures among radiologic technologists in medical imaging facilities

Probed Issues	Core Ideas	Themes
What are your practices regarding infection control measures in imaging facilities?	They emphasized the regular disinfection of equipment and surfaces. They mentioned the immediate cleaning of the rooms and equipment after procedures.	Disinfection Practices
	They mentioned the consistent usage of gloves, masks, and other protective practices. They detailed the use of multiple layers of PPE and thorough disinfection practices.	Personal Protective Equipment (PPE) Usage
	They highlighted the proper disposal of hazardous materials like syringes and sharp objects.	Waste Management
	They discussed about following the structure protocols for handling infectious patients.	Standard Operating Procedures (SOP)

Disinfection Practices. Disinfection practices among radiologic technologists in medical imaging facilities are pivotal in ensuring a safe and sterile environment for patients and healthcare providers. Participants emphasized rigorous protocols aimed at preventing the spread of infections through thorough disinfection of equipment and surfaces. Statements from interviews highlighted the meticulous approach, such as the necessity of disinfecting cassettes and X-ray tables immediately after each use to minimize microbial contamination. Additionally, specialized disinfectants like Lysol post-procedure were noted for their effectiveness in mitigating the facility's airborne and water droplet hazards. These practices reflect the technologists' unwavering dedication to infection control, aiming not only to protect patients from potential



pathogens but also to maintain the functionality and reliability of critical medical equipment.

Participants highlighted the importance of thorough disinfection practices, as evidenced by statements such as, *"Disinfecting cassettes and X-ray tables after each use is crucial to prevent any potential spread of infections"* (IDI1). Another participant mentioned, *"Using Lysol disinfectant after procedures helps mitigate airborne and water droplet hazards in our environment"* (IDI6). These practices underscored the commitment of radiologic technologists to maintaining a sterile environment that is essential for patient safety and equipment functionality.

Performing hand hygiene by healthcare workers during care provision aims to reduce the spread of infection between patients, other healthcare workers, and the healthcare environment (Greene & Wilson, 2022). By prioritizing stringent disinfection measures, radiologic technologists uphold high hygiene standards for optimal healthcare delivery. This underscores their role in promoting patient safety and contributing to overall healthcare quality in medical imaging settings.

Personal Protective Equipment (PPE) Usage. Radiologic technologists and patients are at risk from infections within medical imaging facilities. Participants underscored the significance of PPE by adhering to rigorous usage protocols to minimize direct exposure to pathogens. Statements from interviews and focus group discussions highlighted the everyday use of latex gloves during patient interactions as a standard practice to prevent contact with bodily fluids and contaminants. Moreover, technologists adopt comprehensive PPE setups for procedures that carry higher infection risks, including double gloves, masks, and foot mesh to maximize protection against infectious agents. These practices reflect a proactive and systematic approach to infection prevention, ensuring that healthcare providers are equipped to mitigate transmission risks effectively.

Participant statements like, *"We always wear latex gloves during patient contact to minimize direct exposure to fluids"* (IDI2) emphasized the significance of PPE. Additionally, a participant noted, *"For high-risk procedures, we use double gloves, masks, and foot mesh to ensure maximum protection against infectious agents"* (FGD4). These practices illustrate a proactive approach to safeguarding healthcare providers and patients from potential transmission of infections during medical procedures.

Various infection prevention and control (IPC) practices aim to reduce the occurrence and spread of infection within healthcare settings. These practices include hand hygiene, personal protective equipment (PPE), and other preventive practices (Greene & Wilson, 2022). By prioritizing PPE usage, technologists enhanced their safety and uphold a critical standard of care that promotes patient safety and overall hygiene in medical imaging settings. This commitment underscores their role as frontline defenders against infection, contributing to the maintenance of a safe and secure healthcare environment for all stakeholders involved.



Waste Management. Waste management practices are critical components of infection control efforts among radiologic technologists in medical imaging facilities, ensuring the safe disposal of hazardous materials and minimizing environmental and safety risks. Participants emphasized strict adherence to guidelines for the disposal of syringes, sharps, and other medical waste to prevent potential contamination and injury. This included implementing protocols that prioritizing the safe handling and disposal of disposables, thereby reducing the risk of exposure to infectious agents and promoting overall workplace safety. These practices aligned with regulatory standards and contribute significantly to maintaining a clean and hygienic healthcare environment for effective infection control.

Regarding waste management, participants highlighted practices such as *"Proper disposal of syringes and sharps is strictly followed to prevent environmental and safety hazards"* (IDI3). Another participant mentioned, *"We ensure that all disposables are disposed of safely according to guidelines, minimizing risks associated with healthcare waste"* (FGD2). These practices adhered to regulatory requirements and contributed to maintaining a clean and safe healthcare environment that is essential for infection control.

Healthcare workers are motivated to follow the infection and prevention control guidance because of fear of infecting their families, patients, or themselves. The workplace culture could also be a factor that influences whether or not healthcare workers follow the guidelines (Houghton, 2020). By consistently following proper waste management procedures, technologists mitigate potential health hazards, uphold environmental stewardship, and demonstrate their commitment to ensuring optimal patient care and staff safety within medical imaging settings. Such measures underscore the integral role of waste management in comprehensive infection prevention strategies, fostering a secure and supportive healthcare environment for all stakeholders involved.

Standard Operating Procedures (SOPs). Standard Operating Procedures (SOPs) form the backbone of infection control practices among radiologic technologists in medical imaging facilities, providing structured protocols that ensure consistent and reliable healthcare delivery. Participants highlighted the importance of adhering to SOPs as fundamental to minimizing exposure risks and maintaining the standards of patient and staff safety. Statements from interviews and focus group discussions underscored the reliance on step-by-step workflows and the use of protective apparel as integral components of these protocols. Such structured approaches streamline operations and enhance infection prevention by standardizing practices across diverse procedures and scenarios.

Participants referenced adherence to SOPs as crucial, stating, *"Following structured protocols for handling infectious patients is essential in minimizing exposure risks"* (IDI4). Another participant noted, *"We rely on step-by-step workflows and use of protective apparel to ensure consistent and reliable infection control practices"* (FGD1). These SOPs ensure a standardized



approach that enhances safety protocols and promotes effective infection prevention within medical imaging facilities.

Safe handling of needles and sharp objects is implemented to prevent healthcare workers from being exposed to bloodborne pathogens, according to the Wisconsin Department of Health Services (2018). By following SOPs meticulously, technologists ensured a systematic response to infectious risks, thereby reducing variability in care and promoting a culture of adherence to best practices. This disciplined approach supported healthcare quality and reinforced confidence among staff and patients in the facility's ability to manage infection control measures effectively. Ultimately, SOPs are critical in safeguarding against transmission risks and maintaining the integrity of medical imaging environments, contributing to overall healthcare excellence and patient outcomes.

Table 2

Mechanisms of assessing the infection control measures in medical imaging facilities

Probed Issues	Core Ideas	Themes
What are the mechanisms for assessing infection control measures in medical imaging facilities?	They emphasized a safe environment through inspections and maintenance.	Workplace Safety
	They mentioned the monitoring and ensuring an adequate supply of PPE for emergency use.	Personal Protective Equipment (PPE) Management
	They highlighted the quick response to dispose of hazardous materials and disinfect affected areas.	Immediate action on Infection Hazards

Workplace Safety. Workplace safety is critical to infection control practices among radiologic technologists in medical imaging facilities. Participants underscored the importance of regular inspections and maintenance, highlighting statements such as, "Checking the work environment for safety hazards and ensuring cleanliness is crucial for preventing workplace accidents." These routine inspections are essential for identifying and mitigating potential risks, thereby maintaining a safe and accident-free environment. Additionally, ensuring an adequate supply of personal protective equipment (PPE) was emphasized, with one participant noting, "Inspecting the workplace for hazards and ensuring an adequate PPE supply are essential for maintaining a safe working environment." This proactive approach safeguards staff from potential



injuries and infections and supports the effective implementation of infection control measures.

Participants emphasized ensuring a safe environment through regular inspections and maintenance, as evidenced by statements like, "*Checking the work environment for safety hazards and ensuring cleanliness is crucial for preventing workplace accidents*" (ID14). Another participant noted, "*Inspecting the workplace for hazards and ensuring an adequate PPE supply is essential for maintaining a safe working environment*" (ID11). These practices not only enhance workplace safety but also contribute to creating a conducive environment for effective infection control measures.

According to the World Health Organization (2020), when planning which personal protective equipment (PPE) healthcare workers must wear when care is provided to patients, it must encompass specific tasks, durations, and the level of body fluid exposure they may be experiencing. By maintaining high standards of workplace safety, radiologic technologists create an environment that enhances operational efficiency and minimizes the risk of contamination, thereby fostering a setting where infection prevention practices can be seamlessly integrated into daily routines. This commitment to safety protects healthcare providers, reinforces the overall quality of patient care, and contributes to the sustainability of infection control practices within medical imaging facilities.

Personal Protective Equipment (PPE) Management. Effective management of Personal Protective Equipment (PPE) is essential for ensuring the safety of radiologic technologists and maintaining infection control standards in medical imaging facilities. Participants emphasized the importance of monitoring and maintaining an adequate supply of PPE, particularly for emergencies. This proactive approach ensures that healthcare providers are prepared to handle unexpected infectious scenarios swiftly and effectively, minimizing the risk of exposure and transmission.

Effective PPE management involves monitoring and ensuring an adequate supply, particularly for emergencies, as highlighted by participants stating, "*Ensuring there is enough PPE available for emergencies is critical for immediate response to infection risks*" (ID16). This proactive approach ensures that healthcare providers can handle unexpected infectious scenarios, enhancing overall safety and preparedness within medical imaging facilities.

A surgical face mask, commonly used in hospital settings, provides a barrier to fluids and large particle droplets, helping prevent infections transmitted by respiratory droplets. Face masks are a protective barrier to reducing the risk of microorganism transmission between patients, healthcare workers, and the environment (Hoarbaksh et al., 2018). By prioritizing PPE management, facilities not only protect the health and safety of their staff but also bolster confidence in their ability to deliver care under varying circumstances. Adequate PPE availability supports a comprehensive approach to infection prevention, reinforcing adherence to protocols and promoting a culture of safety within the workplace. Continuous monitoring and adjustment of PPE supplies based on evolving needs and guidelines further enhance preparedness and resilience



against infectious threats, ensuring a resilient healthcare environment that maintains high standards of patient care and staff protection.

Immediate Action on Infection Hazards. Immediate action on infection hazards is critical for radiologic technologists in medical imaging facilities to contain potential outbreaks and swiftly maintain a safe healthcare environment. Participants underscored the importance of prompt responses, emphasizing practices such as immediate disposal of infectious materials, thorough disinfection of affected areas, and proactive measures to mitigate the spread of pathogens. These rapid response protocols minimize the risk of cross-contamination and demonstrate a commitment to patient and staff safety.

Quick response to infection hazards involved immediate disposal of infectious materials and thorough disinfection of affected areas; as participants emphasized, *"Immediate disposal of infectious materials and disinfection of areas are crucial steps in containing infection risks"* (FGD3). This swift action mitigated the potential spread of infections within healthcare settings, highlighting the importance of rapid response protocols in maintaining patient and staff safety.

A study by Sotto et al. (2020) assessed compliance with infection prevention and control practices in a tertiary hospital in the Philippines, including radiologic technologists, found that overall compliance was high. However, particular areas, such as proper disinfection of equipment and adherence to standard precautions, required improvement. By swiftly removing infectious materials and disinfecting contaminated areas, technologists prevent the escalation of health hazards, ensuring that healthcare environments remain hygienic and conducive to effective infection control measures. Such decisive actions protect the immediate health of individuals within the facility and contribute to the overall resilience and preparedness of medical imaging settings in managing infectious threats. Implementing and reinforcing these protocols is essential in fostering a responsive and proactive approach to infection prevention, ultimately safeguarding the well-being of all stakeholders involved in healthcare delivery.

Table 3

How can you ensure that the radiologic technologists have achieved the given practices in infection control measures?

Probed Issue	Core Ideas	Themes
How can you ensure that the radiologic technologists have achieved the given practices in infection control measures?	They discussed the importance of providing and assessing knowledge of infection control measures and protocols.	Training and Education
	They shared personal anecdotes about developing and implementing strategies to prevent infections in the	Infection Prevention Strategies



	facility. They ensured they have enough knowledge on implementing various infection control precautions.	
	They highlighted the importance of ensuring adherence to hand hygiene and understanding the consequences of non-compliance They shared the responsibility to follow the institutional guidelines and undergo regular supervision, including checks for hazards and cleanliness in the workplace.	Institutional Compliance
	They highlighted the daily monitoring, evaluation, and improvement of infection control practices. They emphasized the regular evaluation of skills and knowledge through demonstrations and unit evaluations.	Continuous Improvement Quality

Training and Education. Training and education are foundational in preparing radiologic technologists to effectively implement infection control measures within medical imaging facilities. Participants highlighted the critical role of comprehensive orientation programs for new hires, emphasizing their impact on ensuring staff competency in infection prevention and hygiene protocols. They underscored the importance of equipping technologists with the necessary skills and understanding to mitigate infectious risks. These initiatives not only familiarized staff with institutional guidelines and regulatory requirements but also instilled a culture of adherence to best practices in infection control.

Training and education play a pivotal role in equipping radiologic technologists with the knowledge of infection control measures and protocols. Participants emphasized the importance of orientation for new hires on infection control and hygiene protocols, stating, *"Providing thorough orientation and assessing knowledge of infection control measures ensures staff competency in*



preventing nosocomial infections" (FGD4). Such initiatives ensured compliance with best practices and empowered staff to contribute effectively to infection prevention efforts.

According to Sotto et al. (2020), continuous education and reinforcement of infection control practices are essential for healthcare workers, including radiologic technologists. By investing in ongoing education and training, healthcare facilities empower technologists to actively contribute to maintaining a safe and hygienic environment for both patients and staff. Continuous learning opportunities enhance staff preparedness and confidence in handling infectious situations and foster a collaborative approach to healthcare delivery that prioritizes safety and quality. Ultimately, robust training and education initiatives are integral to promoting a culture of excellence in infection prevention and supporting overall healthcare outcomes within medical imaging settings.

Infection Prevention Strategies. Infection prevention strategies are pivotal in ensuring patients' and healthcare providers' safety and well-being within medical imaging facilities. Participants highlighted the importance of developing and implementing these strategies. They underscored the proactive approach taken by Radiologic Technologists. These strategies encompass guidance on best practices, meticulous measurement of compliance with infection control protocols, and timely intervention to mitigate potential risks. By integrating these strategies into daily operations, technologists enhance the effectiveness of infection prevention efforts and promote a culture of vigilance and responsibility toward patient safety.

Developing and implementing effective infection prevention strategies is essential in medical imaging facilities. Participants referenced strategies such as providing guidance, measuring compliance, and intervening to prevent infections, stating, *"Developing robust infection prevention strategies and ensuring compliance are key to minimizing infection risks" (FGD2).* Knowledge and implementation of various infection control precautions further underscored the commitment of radiologic technologists to proactive infection prevention.

These findings highlighted the complex nature of infection control practices and the importance of addressing systemic factors to ensure optimal adherence and patient safety as stated in the study of Dela Cruz et al. (2021). Knowledge and implementation of various infection control precautions further illustrate their commitment to upholding stringent standards and safeguarding against infectious threats. Emphasizing continuous improvement and adaptation to evolving guidelines ensures that medical imaging facilities remain at the forefront of infection prevention, contributing to improved healthcare outcomes and maintaining trust in their ability to deliver safe and reliable diagnostic services.

Institutional Compliance. Institutional compliance forms a cornerstone of effective infection control practices within medical imaging facilities, ensuring that radiologic technologists adhere to established protocols and guidelines to maintain high standards of hygiene and safety. Participants highlighted the importance of rigorous adherence to hand hygiene protocols and institutional



guidelines. These practices mitigated the risk of cross-contamination and foster a culture of accountability and responsibility among staff. Regular supervision and checks for hazards and cleanliness further reinforced institutional compliance, providing opportunities for continuous improvement and corrective actions where necessary.

Ensuring institutional compliance involves adherence to hand hygiene protocols, institutional guidelines, and regular supervision to maintain standards, as noted by participants stating, *"Ensuring co-worker compliance with hand hygiene and following institutional guidelines are essential for maintaining infection control standards"* (IDI7, FGD7). Regular checks for hazards and cleanliness reinforce institutional compliance, promoting a culture of accountability and safety within medical imaging facilities.

Practicing hand hygiene is the most effective way for healthcare workers to prevent infections, yet healthcare providers clean their hands less than half the time they should (CDC, 2022). By prioritizing adherence to these standards, facilities demonstrate their commitment to patient safety and staff well-being, instilling confidence in their ability to manage infection prevention measures effectively. Upholding institutional compliance supports regulatory requirements and promotes a collaborative and proactive approach to healthcare delivery, ultimately enhancing the overall quality of care within medical imaging settings.

Continuous Quality Improvement. Continuous quality improvement is integral to maintaining and enhancing infection control practices within medical imaging facilities, ensuring ongoing refinement and adaptation to evolving healthcare standards. Participants underscored the importance of daily monitoring and evaluation as essential components of this process. These practices involved systematic assessments of adherence to protocols, identifying areas for improvement, and implementing corrective actions. Regular evaluations of skills and knowledge through demonstrations and unit evaluations further supported these initiatives, fostering a culture of continuous learning and professional development among radiologic technologists.

Continuous quality improvement encompasses daily monitoring, evaluation, and improvement of infection control practices, as well as regular evaluation of skills and knowledge through demonstrations and unit evaluations. As participants highlighted, *"Daily monitoring and evaluation of infection control practices are crucial for continuous improvement and ensuring high standards of patient care"* (FGD5, IDI5). These practices facilitated the enhancement of infection control protocols, promoting a culture of learning and adaptation in response to emerging healthcare challenges.

Sotto et al. (2020) assessed compliance with infection prevention and control practices in a tertiary hospital in the Philippines, including radiologic technologists. It was found that overall compliance was high. However, particular areas, such as proper disinfection of equipment and adherence to standard precautions, required improvement. By prioritizing continuous quality improvement, facilities enhance the effectiveness of infection prevention measures and promote a proactive approach to healthcare delivery. This



commitment to ongoing enhancement ensures that medical imaging facilities remain responsive to emerging healthcare challenges, safeguarding patient safety and optimizing overall healthcare outcomes. Embracing a culture of learning and adaptation through continuous quality improvement reinforces organizational resilience and readiness to uphold the highest infection control standards in dynamic healthcare environments.

These core ideas illustrated how radiologic technologists integrate various strategies and practices to evaluate and enhance infection control measures within medical imaging facilities. By prioritizing workplace safety, effective PPE management, comprehensive training, swift action on infection hazards, institutional compliance, and continuous quality improvement, they maintain a safe and hygienic environment essential for optimal healthcare delivery.

Implications of the Study

The results of this study underscore several critical implications for infection control practices among Radiologic Technologists in medical imaging facilities. They highlight several essential aspects, including rigorous disinfection protocols, meticulous use of personal protective equipment (PPE), and effective waste management. These practices are crucial for maintaining a sterile environment and protecting patients and staff from infectious risks.

The study reveals the importance of adhering to standardized operating procedures (SOPs). It emphasizes the need for ongoing evaluations such as workplace safety inspections, comprehensive training, and prompt responses to infection hazards. These evaluations ensure compliance with infection control guidelines and foster a culture of safety and continuous improvement. By implementing structured protocols and proactive measures, Radiologic Technologists can significantly enhance infection prevention, ensuring optimal patient care and overall healthcare quality within medical imaging facilities.

Direction for Future Research

The study's findings highlight several key directions for future research, particularly in the context of quantitative studies and the development of tools for infection control in medical imaging facilities. Future research should focus on conducting quantitative studies to assess current infection control protocols' long-term effectiveness and sustainability. Such studies could monitor adherence levels over extended periods, considering variables like staff turnover and evolving healthcare guidelines. Additionally, comparative analyses across different types of medical imaging facilities and geographic regions could reveal how practice variations affect patient outcomes. Exploring the integration of advanced technologies, such as UV disinfection systems and automated cleaning tools, could also offer new methods to enhance infection control measures. Developing and validating specific tools for infection control tailored to medical imaging environments could further refine practices and improve adherence. Behavioral research examining the attitudes and perceptions of technologists towards compliance with infection control protocols would provide



insights into enhancing adherence and effectiveness. Finally, assessing the direct impact of robust infection control measures on patient outcomes and developing targeted educational and policy interventions could strengthen the evidence base for these practices. Future studies can advance infection prevention efforts by addressing these research directions, ultimately improving healthcare quality and patient safety in medical imaging settings.

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