



The Collaborative Role of Radiologic Technologists and Nurses in Enhancing Patient Safety and Care During Diagnostic Imaging Procedures

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Abstract

Patient safety and quality of care during diagnostic imaging procedures may be improved through a collaborative approach involving radiologic technologists and nurses. The mission of health care professionals is to provide exceptional care, and a commitment to safeguarding the health of every individual is paramount. Within diagnostic imaging, where equipment is complex and procedures rapid, attention to patient safety is critical. Collaboration between technologists and nurses further promotes patient-centred care. To ensure imaging studies are performed with the highest quality of care, safety and quality frameworks must be established. Collaborative efforts and contributions to patient safety are similarly essential within the imaging pathway. Each search for opportunities and consideration of circumstances across the continuum further advance quality of care.



Keywords: Radiologic Technologists, Nursing Collaboration, Patient Safety, Diagnostic Imaging, Interprofessional Teamwork, Radiology Nursing, Patient-Centered Care.

1. Introduction

Collaboration is broadly defined as working with one or more individuals, yet the meaning of interprofessional collaboration extends beyond merely the act of working together towards a common goal (B. de Guzman & Z. Angcahan, 2020). Interprofessional collaboration is characterized by reciprocal relationships among professionals and requires that the additional dimension of mutual engagement be included in the definition (Lau, 2007). The intent is to broker the most efficient and effective path to a successful completion of a task. In the case of enhancing patient safety and quality of care during imaging procedures, the task requiring collaboration is rather complex as it consists of several specific activities from patient preparation to post procedure. Each of these activities presents potential risks to patient safety, various possible modes to undertake the patient preparation, and potential strategies to evidence the imaging request. The introductory intention is therefore to identify the roles and responsibilities of nursing and imaging technologists and the relevant patient safety principles impacting regulated authority obligations. Fundamental to safe practice are the key elements of Interprofessional collaboration and role along with responsibility definitions. Safety frameworks such as the principles from the Canadian Patient Safety Institute, Institute of Medicine and others offer valuable insight into how the scope of practice can be further fit within policy guidance.

Radiologic technologists are allied health professionals who perform radiologic imaging examinations for diagnosis and therapeutic purposes. They are experts in providing high-quality diagnostic images through the selection and optimization of scanning parameters and the operation of imaging equipment while maintaining the safety of patients, colleagues and themselves. Areas of accountability among rules and regulations regarding radiologic safety include equipment and accessories, safe operation of facilities, supervision of imaging examinations, monitoring exposure levels, compliance regarding patient exposure limits, adherence to the principles of justification, optimization, and limitation, maintenance of a recognized dosimetry program, and compliance with quality control requirements.

Nurses play a critical role in all aspects of patient assessment and monitoring throughout the health care delivery system including before, during and after a diagnostic imaging procedure; at times assertively advocating for the patient's needs. Administration of any contrast agent (e.g., iodine, barium, or gas) as part of the imaging protocol also requires comprehensive patient screening to reduce the risk of adverse events.



2. Roles and Responsibilities

Radiologic technologists (RTs) operate imaging equipment to produce diagnostic images (B. de Guzman & Z. Angcahan, 2020). They select exposure factors and techniques for optimal quality while adhering to protocols to protect patients and staff from unnecessary exposure (L. Graber et al., 2017). RTs ensure the correctness of procedures and specifications, inspect equipment for potential malfunctions, comply with quality control measures, and keep track of personnel and patient doses throughout the facility. Careful monitoring of these factors helps to maintain patient and staff safety while supporting appropriate equipment acquisition and replacements.

Nurses play a central role in the management of patients during diagnostic imaging procedures. They carry out comprehensive patient assessments, obtain medical histories, and evaluate conditions that may complicate or delay procedures. Vital signs monitoring and patient comfort maintenance are crucial, as nurses often recognize alarm signals and recognize physiological changes. Additionally, nurses address pre- and post-procedure care needs and defend patients' rights throughout the imaging pathway. Through these activities, they contribute to patient staging, preparation, and recovery after major interventions while facilitating proper handling of medications, contrast agents, and other therapies.

2.1. Radiologic Technologists: Roles in Imaging Acquisition and Safety

Considering their position and responsibilities, radiologic technologists obtain images in compliance with institutional protocols and examine clinical work lists while ensuring a precise understanding of the procedure requested and the technique required. They validate all components— patient identity, procedure, site, and parameters—against the requisition. Adherence to the principles of radiation protection for themselves and patients relies on judicious utilization of shielding accessories, absence of superfluous examinations, and the adoption of imaging techniques compatible with the lowest reasonably achievable radiation dose (Housenick-Lee, 2017). Keeping themselves updated on the recommended dosimetry and optimization protocols, as well as routinely monitoring and verifying the operation of radiological equipment and X-ray equipment functioning, forms another fundamental facet of their duties. Quality assurance inspections are scrupulously documented, and they actively participate in institutional quality assurance and optimization programmes.

Diagnostic imaging entails potential hazards such as exposure to radiation and hazardous substances. Radiologic technologists fulfil a critical responsibility in circumventing significant crises involving demographic groups susceptible to injury. Consequently, they collaborate closely with nursing professionals during patients' arrival when a respiratory, renal, or intravascular contrast agent is prescribed. In the emergency room, evaluation of conditions that could impede the execution of the imaging procedure, such as dehydration,



confinement, cervical immobilisation, and unconsciousness, is integrated into the assessment. When obstetrics is part of the imaging service, they remain vigilant to status changes, such as bleeding and contractions, that might necessitate a pause or cancellation of the service.

2.2. Nurses: Roles in Patient Assessment and Monitoring

Health care professionals provide critical landmark physiological information that facilitates patients' well-being. These professionals use a variety of specialized equipment for assessment, monitoring, conducting laboratory blood and urine analyses, and administering intravenous lines. Nurses fulfill significant responsibilities during the entire imaging pathway, including pre- and post-imaging care, and the safety and welfare of patients undergoing radiologic procedures are significantly improved through collaboration with radiologic technologists (Mohd Rahimi et al., 2021). Before a procedure can be completed, prior collaboration with the medical practitioner is fundamental to acknowledging specific reasons for the imaging and functional factors implicated. Actions that nurses conduct aim to promote wellness while ensuring patients are knowledgeable about the diagnostic procedure before it is undertaken. Regular evaluation of vital signs is essential to safeguard warning signs that can preclude an imaging procedure. Clear articulation of provocative indicators through established collaborative communication frameworks and systems clarifies process mapping, equipping a thorough understanding of critical attributes flowing within the procedural cycle.

Nurses play a significant role during the imaging process since exposure to the potential dose remains evident throughout positioning and inactive taking of the image and imaging selection is relied upon by the practitioner. Through close-patient contact, nurses observe and identify alarming circumstances during the imaging process and can immediately engage the radiologic technologist in collaborative dialogue. Immediate and sustainable collaborative safety for patients is obtained through fulfilment of appropriate take images and no-release-time consideration from robust collaborative articulation and steps.

3. Interprofessional Communication and Teamwork

Effective collaboration depends on optimal communication and teamwork, underpinning measures to bolster patient safety during imaging procedures. Joint protocols and standardized tools facilitate structured handoffs, conveying details essential for continuity of care. During procedure planning, collaborative decision-making enables joint risk assessment, consensus-building, and identification of shared decision points.

Structured interprofessional handoffs represent the ideal method for transitioning care from nurses to radiologic technologists during imaging procedures. Employing standardized communication tools, such as checklists, further ensures consistent transmission of relevant information. The Nursing Interventions Classification framework highlights key aspects that



nurses should communicate to image-acquisition team members: patient transfer status, preparation thoroughness, clinical history, medications, vital signs, and specific nursing requests. Emphasis on transmitting the patient's clinical context combined with time-sensitive details maximizes the relevance of information exchanged, supports the continuity of care, and acknowledges information overload (B. de Guzman & Z. Angcahan, 2020).

Team-based collaboration throughout procedure planning further reinforces safety and care considerations. For example, when a cervical spine entry point must be designated on a patient unable to articulate symptoms, joint discussion offers critical context for the imaging team and ensures risk factors, such as tolerance for extended flexion, are jointly assessed. Similarly, when sedation is indicated, collaborative dialogue regarding the medication's actions, duration, and potential side effects clarifies the timeframe for continuous monitoring and elevates safety across the team (M. DeBenedectis & P. Rosen, 2018).

3.1. Communication Protocols and Handoffs

Standardized communication protocols during handoffs are crucial for ensuring the continuity of care and enhancing patient safety and quality (Durley, 2017). Similar to anesthesia, nursing and radiologic technology procedures often involve complex care processes with multiple opportunities for information transfer. A collaborative approach to handoff communication during diagnostic imaging not only improves the effectiveness of the handoff but also initiates the interprofessional teamwork characteristic of the patient journey through the imaging department.

Although imaging procedures vary, several key elements are typically addressed. These elements include baseline information such as patient identity, key conditions, and pertinent allergies; information about the procedure; and conflict resolution and follow-up agreements regarding the patient's plan of care.

3.2. Collaborative Decision Making in Imaging Procedures

Collaborative decision-making during imaging procedures is crucial because it allows for an effective, shared understanding of the benefits of a procedure versus the risks associated with it and assists in establishing the necessary information that must accompany the request for the examination and incorporated in the assessment. Once the procedure is underway, a number of additional decision points arise and input from both professionals typically is required to ensure the examination is effective and remains safe for the patient (R. Makanjee et al., 2017).

4. Patient Safety Principles in Diagnostic Imaging

Diagnostic imaging can present risks to patient safety despite the importance of accurate and timely imaging in the delivery of quality healthcare. Patient safety principles relevant to



diagnostic imaging encompass (at minimum) radiation protection and dose optimization, contrast administration safety, infection prevention and control, and patient identification and verification. These principles are designed to mitigate the risk of harm to patients while imaging procedures are undertaken. A summary of these principles has been outlined below.

Radiation Protection and Dose Optimization: The international framework for radiation protection underscores the need to justify any proposed radiological procedure in order to avoid the introduction of unnecessary exposure to ionizing radiation. This principle applies across the healthcare sector, and in imaging, implies the need to ensure that exposure is minimised according to the 2020 guidance of the International Atomic Energy Agency. Additional measures include the provision of shielding when appropriate and the tracking of dose data so that cumulative exposure can be monitored (Farzanegan et al., 2020).

Contrast Administration Safety: The administration of contrast agents creates a further risk for the patient, and screening for contra-indications is therefore critical prior to the initiation of an imaging procedure. An assessment of allergies is particularly important, as prior reactions to contrast agents are a recognized risk factor for subsequent adverse reactions, some of which can be serious or life-threatening. During the acquisition of an image, monitoring equipment must be verified to be functional, and support for the patient must be ready to hand for occasions where the patient displays anxiety or settings need to be adjusted. Following the acquisition, procedures must be strictly adhered to, and the operator must be ready for the possibility of a contrast agent-related emergency (Lau, 2007).

Infection Prevention and Control: Given the requirement for close contact to assist the patient or to set up equipment for the acquisition of an image, the opportunity for transmission of infection must be considered. Although the location of a diagnostic imaging arrangement may preclude the full application of standard droplet or contact precautions, the principles still guide the provision of safeguards: such as using dedicated equipment or immediate cleaning of shared equipment between patients, adherence to hand hygiene protocols before and after any touching of the patient, and the use of facilities and supplies that allow patients to be isolated from the general patient population when contact precautions are primarily practicable.

Patient Identification and Verification Processes: Independent verification by a second person is a relevant practice partly in the context of the need to verify against previous information where a patient has attended an off-site appointment for the same examination; documentation of the procedure to be performed on the patients must also appear on a written request for diagnostic examinations. In addition to independent verification, documentation and confirmation of the details of the patient, such as the name and location to guide patient tracking through the facilities and to guide the return of the patient after preparation of equipment, further guide the setting-up process. The recording of the procedure on film



and/or display and the verbal reading of a medical patient record number, if available, before starting further confirmations that the correct patient is in attendance ensure that steps remain consistent, repeatable, and coordinated.

4.1. Radiation Protection and Dose Optimization

Radiologic technologists and nurses play complementary roles in diagnostic imaging. Their collaboration enhances patient safety, quality of care, and clinical workflow. These benefits arise from addressing radiation protection, contrast administration, and infection prevention—all part of a principled approach to patient safety in imaging.

One framework addresses four key safety principles (Housenick-Lee, 2017) : 1. Justification ensures that imaging procedures serve a valid medical purpose and benefit outweighs risk. 2. Exposure-minimization actions lower unnecessary radiation dose. 3. Shielding protects against exposure to external radiation. 4. Dose-tracking practices monitor and limit accumulated exposure. Radiologic technologists execute these actions.

4.2. Contrast Administration Safety

Intrinsic to the safe and effective administration of iodinated intravenous contrast media is a thorough initial assessment of the patient and continued vigilance during the procedure itself. Before a contrast-enhanced study is conducted, the radiologic technologist must obtain a thorough contrast-related history from the patient in accordance with organizational policies (Bwanga et al., 2022). Although patients often provide information regarding previous allergic reactions to iodinated contrast media, these reactions may not necessarily indicate a contraindication for subsequent administration. Patients with a previously documented adverse reaction to non-iodinated contrast, however, may be at an elevated risk for an adverse reaction to iodinated contrast. The radiologic technologist must ensure that patients are screened for the presence of atypical multiple myeloma (AMM) before conducting a contrast-enhanced procedure. A baseline assessment of the patient, including vital sign determination and other objective measurements, is essential to establish a frame of reference against which any deviations following the administration of contrast can be gauged. During the procedure itself, continuous monitoring for discrepancies remains a collaborative responsibility of the radiologic technologist and nurse.

4.3. Infection Prevention and Control

In the context of diagnostic imaging procedures, certain safety concerns revolve around the potential transmission of infectious agents among health care workers (HCWs), patients, and the surrounding environment. The mobilization of mobile imaging units to areas designated for patients with suspected or confirmed infection, such as transmitters of severe acute respiratory syndrome coronavirus 2, further increases the risk of air-borne and other pathogen transmission (Ilyas et al., 2019). Pathogens can also be transmitted from patients to



equipment, devices, environmental surfaces, and reusable materials. Equipment and surface cleaning between patient uses, as well as routine cleaning of high-touch areas, are essential to minimizing pathogen transfer. Given that patients may present with undisclosed, unrecognizable, or asymptomatic communicable infections, every engagement should be approached as if the patient is a potential transmitter of pathogens.

4.4. Patient Identification and Verification Processes

Patient misidentification is one of the root causes of erroneous medical procedures, which can severely jeopardize patients' health and safety. Consequently, protocols for patient identification and verification during diagnostic imaging should be accurately followed by radiologic technologists and nurses. One proven approach involves collaboration through a two-person verification process, in conjunction with an off-site check and correct labeling of capabilities on procedures (B. Wiant et al., 2016).

5. Patient-Centered Care Across the Imaging Pathway

Pre-procedure and post-procedure patient education, engagement, and care are essential for delivering patient-centered care within diagnostic imaging (B. de Guzman & Z. Angchan, 2020). Radiologic technologists and nurses can collaboratively ensure that the patient has received sufficient information prior to the procedure and understands the procedure itself—what it involves, how long it will take, whether they will experience any sensations during the procedure, and when they can expect to receive results. Simply asking the patient to recount their understanding of the procedure can also provide valuable information (Rekha Makanjee et al., 2021).

Anxiety is a common challenge during imaging procedures. To assist patients, common anxiety triggers should be identified and addressed. For example, patients often express concern about the length of the examination. Communicating the typical duration for similar procedures is an effective way to mitigate such worries. Providing proper support for patient positioning during the examination is another useful strategy; the appropriate use of pillows, foam pads, or tape can help. Adjusting the lighting can also improve patient comfort. Lower lighting levels are recommended when the imaging area uses a standard viewing light, while brighter ambient lighting is preferable for one- or three-dimensional images displayed in a dark room.

5.1. Informed Consent and Patient Education

During diagnostic imaging examinations, radiologic technologists and nurses ensure that patients receive the necessary information about the procedure to provide informed consent. Technologists communicate the procedure details as well as the preparation steps and safety protocols specific to the examination. When appropriate, technologists verify that patients understand the information, although not all individuals are sufficiently trained to assess



patient comprehension reliably. Therefore, nurses further confirm that patients have absorbed the necessary information and can express their understanding (Nair, 2019). Although the Joint Commission does not recognize technologists as authorized to obtain informed consent, they frequently participate in patient education to introduce imaging examinations to patients. To appropriately document patient consent and fulfil medicolegal requirements, nurses are responsible for completing the necessary consent forms when directed by a physician to perform a technologist-initiated imaging examination on a patient with an established order.

5.2. Managing Anxiety and Comfort During Procedures

Anxiety is an emotional response experienced throughout the imaging process. Patients may be anxious before arriving for the procedure, which can grow throughout the visit or calm based on their interactions with hospital staff. Common fears related to a diagnostic procedure include the level of pain associated with the exam, the amount of radiation exposure, being confined within the scanner, and the possible diagnosis received (Leanne Elsner, 2018). Radiologic technologists and nurses could work together to reduce patient anxiety as comfort levels significantly improve when communication and the world outside the imaging room remain uninterrupted. Maintaining a dialogue with the patient while explaining the steps of the exam, acknowledging their emotional state, discussing the imaging room environment, and describing the equipment would address these concerns. Simple comments such as “I will be in the room with you the entire time,” or “I will tell you when the exposure is happening” would also help reduce anxiety. Ensuring the patient has comfortable positioning while laying on the table and adjusting the room temperature could also help secure a more pleasant experience.

5.3. Special Populations and Accessibility Considerations

Diagnostic imaging procedures pose unique challenges for special populations such as children, individuals with dementia or other cognitive impairments, non-English speakers, and those with physical disabilities. These populations may require additional adjustments in the imaging environment, pre-procedure processes, and the procedures themselves (T. Stowell et al., 2021). Addressing these needs is vital to uphold the C.A.R.E. principles of professionalism and patient-centred care as caring must extend to patients facing these obstacles. Waiting areas, rooms, and equipment should accommodate individuals with mobility impairments and often require additional attention to the handling of equipment such as wheelchairs and stretchers.

6. Quality Improvement and Risk Management

Quality improvement and risk management across diagnostic imaging procedures are crucial for enhancing patient safety and care quality in alignment with professional expectations and institutional objectives (Lau, 2007). Structured incident reporting mechanisms facilitate the



identification of near misses, root-cause analysis, and information sharing for continuous learning throughout the organization. Standardized imaging protocols are developed and regularly updated according to peer-reviewed evidence and ultimately incorporated into electronic healthcare records (EHRs). Continued emphasis on the use of evidence-based protocols highlights adherence to established guidelines and supports audit cycles and departmental participation in accreditation programs. The importance of maintaining accurate and timely documentation remains paramount, particularly from a medicolegal perspective. The entry of patient-specific data into the EHR or any other form of record—whether for statutory checks, consent collection, or general procedural notes—involves the potential for electronic breach, and therefore confidentiality safeguards must be operational. The completion of consent-related paperwork by the nurse prior to the imaging procedure constitutes a defense against subsequent allegations of non-involvement in this essential aspect of care.

6.1. Incident Reporting and Learning from Near Misses

Patient safety is a collective responsibility requiring a systems view with goal-setting based on respected frameworks. In safety-critical environments, reporting near misses contributes to organisational learning, revealing hidden weaknesses within processes that may lead to future incidents affecting staff and patients (Liszewski, 2020). Reporting near misses further informs and focuses training efforts, making Operator Observation Records of immediate value in radiotherapy where near misses can resemble patient safety incidents. A collaborative approach to analysing near misses permits joint identification of risk factors in processes, procedures, equipment, or facilities.

A typical mechanism for reporting near misses logs the incident, briefly outlining the specifics of both the event and the near miss. The document is then routed to relevant team members, who review it, conduct a root-cause analysis, and provide feedback through established channels to those involved. Feedback loops facilitate continuous learning by helping different teams understand the contributions of others in preventing similar occurrences.

6.2. Protocol Standardization and Continuous Improvement

Regular review of protocols and implementation of standardized practices grounded in the best available evidence mitigate deviation from the established standards of care. In imaging, the evidence base continues to evolve, necessitating ongoing updates to protocols and procedures in accordance with pertinent national and international guidelines (Lau, 2007). In addition, monthly audits of medication enhancements and protocols foster ongoing quality improvement initiatives that strengthen the safety net for patients undergoing imaging procedures. Factors requiring assessment encompass personnel preparation, medication



requisition and verification, and execution of procedures, where interprofessional collaboration among nurses and technologists remains essential for the effective exchange of information and reinforcement of patient-centered care (Azevedo et al., 2017).

Compliance with protocols and consensus guidelines informs the establishment of multiple safety measures linked to the administration of intravenous contrast agents specifically within computed tomography and magnetic resonance imaging procedures. Close preliminary screening of the patient's clinical history and the execution of prescribed safety measures are integral constituents of protocol verification and procedure design (Borgstede & Wilcox, 2007). Furthermore, confirmation of the medication administration route, specification of the appropriate, ordered exam, and assurance of secure patient identification constitute protocol recommendations that vary among physical locations and clientele yet promote patient safety prior to and throughout examinations.

6.3. Documentation and Legal Considerations

Diagnostic imaging procedures, which frequently require the administration of ionizing radiation, intravenous contrast agents, or both, raise important safety and care considerations. Radiologic technologists and nurses hold complementary roles that can enhance patient safety and care quality and provide a framework for collaboration.

Effective documentation establishes a record of care during diagnostic imaging procedures and communicates critical information for patient safety and quality assurance. Formal charting of patient status, screening responses, changes in condition, patient preparation assistance, and monitoring enables the identification of problems associated with specific procedures and the improvement of institutional protocols (Cannavale et al., 2013). Records must also address any compliance issues regarding the administration of contrast agents as well as the prior acquisition of informed consent, which have significant medico-legal implications.

The confidentiality and security of patient records and images must always be maintained in compliance with federal regulations and institutional policies. Consent forms for the administration of contrast agents and other procedures are legal documents and must be retained as part of the permanent medical record. Documentation guidelines pertaining to any imaging study, including transmission of images or reports to off-site locations or the incorporation of images into clinical journals for education or research, must also be followed.

7. Education and Competency Development

Patient safety in the diagnosis and treatment of illness through imaging procedures is enhanced through appropriate education and competency development. The imaging process



constitutes vital stages, each status of which is duly documented. Correctly trained health professionals possess greater skills in safeguarding patients during procedures.

Training and education of radiologic technologists and nurses on their respective roles and responsibilities must be implemented throughout their careers in health services. Continuous education, in-service training, individual professional development plans, and institutional policies represent major options for this purpose (Raissi et al., 2018). Interprofessional continuing education (IPCE) can also be conducted to allow individuals licensed, registered, or certified in various healthcare occupations to engage in joint activities as a collaborative network on a wide range of patient care-related topics. Indeed, many institutions provide IPCE on imaging topics.

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Widely applicable interprofessional collaborative skills-based training, systematic instructional strategies, and scenario-based learning subsequently enable all collaborating staff to develop the habit of safely sharing these objectives with fellow counterparts by intercollegiate checking, confirming, and agreeing upon before initiating or undertaking imaging-related practices (Lau, 2007). Jointly organized installation preventive corporate drills and scenario-based training sessions represent other possible options for teaching these collaborative capabilities in parallel with emergency preparedness response and safety assurance under imagination practice specifications. Collaboration on evaluating and updating these skills subsequently contributes to further enhancement of the collaborative formation between the two professions.

7.1. Interprofessional Simulation and Training

Interprofessional education in health care offers the opportunity for collaborative practice essential for improving patient safety. Simulation exercises involving both nursing and radiology students in preparation for their offsite summer clinical rotations have helped to ensure competency in areas wellness, lodging, and transportation were addressed before students began their first clinical experiences at affiliated facilities. Notably, simulation exercises are extremely beneficial as a bridge between classroom instruction and the offsite clinical experience. Longitudinal interprofessional collaboration and partnerships have resulted in an increase in exposure during the clinical training period to supportive radiologic



advanced imaging profession courses offered in a fully online format. First-hand examples of collaborative opportunities between nurses and radiologic technologists help to co-create a better future, both for students as they prepare for certification or licensure and ultimately for patient safety and care, by removing traditional silos among individual departments.

Interprofessional simulation intersets nursing students pre-enrollment in the joint degree. The formal collaborative arrangement permits radiologic technologists to share knowledge relative to health informatics, terminologies, and downstream data signaling within the clinical continuum; end-of-program competency outcomes that reflect the utilization of collaborative care among interprofessional colleagues have thus been established. Radiologic technologists recognize the important collaborative partnership established with health informatics colleagues to advance the continuum of care both through live demonstrations on informatics and through a detailed finger-printed evaluation indicating step-by-step progression from service demand to flow, data signaling, and fulfilment back to the requesting or referring service—a practice standard that routinely takes place nationally on large imaging equipment (M. DeBenedectis & P. Rosen, 2018).

7.2. Continuing Education and Competency Assessment

Continuing Education and Competency Assessment

Continuing education should remain a priority for radiologic technologists and nurses engaged in collaborative imaging. Even in diverse educational environments, exposure to varied topics, equipment, techniques, and imaging modalities may limit gestation of required competencies. Professional organizations therefore mandate ongoing professional-development credits to retain certification. Technologists and nurses within an organization may seek to specify competencies to guide fulfilment of continuing-education commitments.

Competency development benefits from delineation of quantifiable performance metrics and establishment of compliance- and assessment-tracking systems. Mechanisms for formal competency assessment provide valuable feedback and shape the direction of personal-development plans, encouraging lifelong learning. Ideal nursing-competency modalities include direct observation, simulation, record review, interview, written assessments, patient cases, and peer assessment. Technologists present a wider array of options, with imaging audits, procedure logs, portfolio review, and teaching also available.

— 'references': * 'cite_from': "(Raissi et al., 2018)" 'cite_id': "a4969c0b-4cf0-4085-a02c-f939ee06421a"

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7.3. Leadership Roles and Advocacy

Radiologic technologists collaborate with a range of healthcare professionals, and the integration of nurses into this triad has a significant impact on patient safety and care. The collaboration extends beyond simply requesting an examination or providing information; dedicated personnel from each profession engage in shared patient management. Individuals in both roles serve on crucial interprofessional committees that influence policies and advocate on behalf of patients. Radiologic technologists have opportunities to assume additional leadership responsibilities, whether by directing a team of professionals or by participating on a committee that informs policy decisions. It is essential to contribute to the safety and well-being of patients undergoing imaging procedures by leading and advocating within educational and practice environments (Lau, 2007).

8. Case Studies and Practical Scenarios

Collaboration exemplifies the unity of interdisciplinary efforts needed to achieve optimal quality outcomes and can occur between various professionals. Radiologic technologists and nurses engage in seamless interprofessional collaboration throughout the entire imaging pathway to share information, make consensus decisions, mitigate risks, and enhance patient-centered care. Through their joint efforts, these two professional groups help ensure an emphasis on patient safety and that vital aspects of imaging care are addressed. The following case studies present representative examples of collaborative engagement between radiologic technologists and nurses when managing highly relevant safety concerns during imaging examinations. Each scenario effectively showcases the pivotal role of teamwork in optimizing care. Particular attention is directed toward the manner in which collaborative actions result in measurable improvements related to both patient safety and the quality of care delivered as well as the degree of patient- and family-centeredness afforded to the imaging process.

In Case Study 1, a suspected gastrointestinal bleed in a patient with end-stage renal disease presents a scenario wherein the collaboration between radiologic technologists and nurses



makes the difference between the administration of an intravenous contrast agent or a non-contrast computed tomography (CT) study of the abdomen and pelvis. When the contrast protocol is discussed, the radiologic technologist at the bedside inquires whether the patient's renal function had been assessed and indicates that mid-stage renal impairment would weight the risk versus benefit of contrast administration in favour of no contrast. The nurse verifies that a creatinine level is pending, which has been the case since the time of the first vital signs, and confirms that no renal function checks would take place prior to the acquisition of the initial image. The technologist and the nurse together then agree not to administer contrast for the current examination.

In Case Study 2, a young, cognitively impaired patient experiencing psychomotor agitation during a CT procedure offers a further example of collaborative decision-making guided by the principles of patient- and family-centered care. Knowing the patient's status from previous interactions, the nurse provides the radiologic technologist with the name of the caregiver and indicates that the individual is in attendance. The nurse also performs a near-future check on the caregiver to see whether the child's discomfort continues. In the interim, the technologist, familiar with the examination, proceeds to clarify the procedure to the caregiver. Following this discussion, the technologist starts the scan, having received the necessary information to continue. At this juncture, the technologist possesses the relevant information to establish a transition to the next phase of the procedure, after which he or she can follow up, if appropriate (Lau, 2007).

9. Conclusion

Patients undergoing channeled health care services envision a secured, pleasant, and dignified environment. The arrival of the COVID-19 pandemic magnified its adverse effects on crucial international health care delivery. Radiologic services were not exempted from this disruption. The benefits of proper regulations on pertinent technologies like radiologic technology were even more magnified during this crisis. Whatever the industry, a sensible dual between the broader professionalism and autonomy of the basic service worker ought to complement and augment safeguarding the much-cherished health care on behalf of ultimately all warranted and hued health care receivers. The simultaneous elevation of radiologic technology and the other military-special profession among the broad profession manifests this need. This insight pursues an identifying milestone—the defining interprofessional collaborative vision as an attainment of this remaining longed burden obligatory on behalf of radiologic technology even before, that serves the art of management—hence the projection of “noble radiologic” on behalf of the whole free profession and on behalf of health community itself as much as everybody representing a specific and irrecoverable profession enables effective pursuit built simply around the



appropriate filling material conforming to both free profession and health community indivisibility (B. de Guzman & Z. Angcahan, 2020).

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