Factors Contributing to Errors in Radiographic Imaging

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ABSTRACT

Risk management in radiology is primarily developed and fostered to help safeguard patients, working personnel, and the entire organization. This research was conducted to determine the factors contributing to errors in radiographic imaging. Descriptive-correlational design was used to obtain information and determine relationship of professional and personal factors to the demographic profile. The study was conducted at the Philippine Orthopedic Center and the St. Frances Cabrini Medical Center. The data gathering tool used was an adapted researcher-made type consisting of several parts. The first part is the adapted tool, which is about professional and personal factors contributing to errors in radiographic imaging and the second part is self-made which is answerable by yes or no. Results show that majority of the respondents are aged 20 to 40 years old and are junior radiographers in their hospitals. Most of them finished bachelor's degree with five to 10 years of service. Professional and personal factors have no significant relationship with the demographic profile in committing errors in radiographic imaging, except for the position in the hospital (for public hospitals). The higher the length of service the less they perform quality healthcare service due to familiarization in their workload.

Keywords: Risk management, radiographic imaging, professional and personal factors, demographic profile, quality healthcare service

INTRODUCTION

Over the last year, radiologic technologists have become substantial part of the clinical therapeutic managements of patients. According to Cannavale, Santoni, Mancarella, Passariellob, and Arbarello (2013), this implies new liabilities and duties related to interventional procedures which are now added to already existing professional liability from diagnostic exams. In clinical practice there are many errors that may harm patients that will lead to medical malpractice lawsuits. Medical malpractice generally related to two issues: improper medical care leading bodily harm or the physician-patient relationship.

In addition to economic and social effects, malpractice lawsuits often have direct effects on a radiologic technologist's health. Litigation for alleged malpractice is often associated with feelings of guilt and isolation. Medical professionals who have committed a severe error are open to a reduction of quality life and an increase in frequency of burnout. Perceived stress is associated with an increase in the number of errors committed in the subsequent period, thus creating a vicious cycle whereby errors lead to stress, which in turn leads to new errors. As stated by Pinto and Brunese (2010), the likelihood of a radiologist being the defendant in at least one suit is 50% by age 60, yet the difference in frequency and average number of suits accrued varies widely by state of residence and sex. Technicians may feel a sense of guilt resulting from the error and may fear suffering professional and economic consequences and being isolated by their own colleagues and clients. Thus, there is a need to analyze the extent and cause of the phenomenon, which would also help to identify the most effective measures in terms of clinical risk management.

Identification and reduction of diagnostic error provides a measure of efficiency of the healthcare system, as it reduces mortality, morbidity, length of hospital stay and additional healthcare costs. In accordance with Cannavale et al. (2013), awareness of main medical issues may help Radiographers to improve their quality of healthcare service and improve their growth in their chosen fields. Medical malpractices may affect the behavior of the technologists to enhance the global care of the patient reducing the risk errors and troubles in the Radiology Department.

As one of the future generations, correcting error and identification of factors causing it may help a lot of aspirants in the same field. Medical errors are inevitable but having this study will help lessen the occurrence of it. Providing high quality healthcare service is the number one goal of a health practitioner. In order to aim that, it is needed to lessen any errors that may give additional harm to the patients. This study will help radiologic technologists upgrade their healthcare service and provide a positive net benefit to the patient.

The study aims to determine the phenomenon that relates to errors in imaging. Specifically, the researcher wants to: (1) identify the demographic profile of the respondents in terms of: a. age, b. gender, c. educational attainment, d. length of service, e. position in the department, f. private or public hospital; (2) determine professional and personal factors of a licensed Radiologic Technologist; (3) determine the practice of Radiologic Technologist's in performing their Radiologic Technology-related job; (4) determine the relationship between demographic profile and Professional and Personal factors; and (5) determine the difference between the perception of patients to RT-related job practices and the demographic profile of the radiologic technologist.

MATERIALS AND METHODS

This study utilized the descriptive method of research. A widely accepted method, the descriptive method of research is fact-finding study that involves adequate and accurate interpretations of findings.

The respondents answered a self-administered questionnaire the researchers developed. The questionnaire helped synthesize the available quantitative evidence in the literature on medical malpractice by the technologist. This review revealed the factors that can affect the work performance of a technologist.

The study was conducted in the affiliated hospitals of the school, specifically Philippine Orthopedic Center and St. Frances Cabrini Medical Center. The researcher required registered radiologic technologist currently practicing their RT-related jobs.

The researcher prepared a questionnaire containing 20 questions the respondents from different Registered Radiologic Technologist in Quezon City and in Batangas accomplished. The respondents ranged from 20 to 60 years old. Their length of service was also included in their demographic profile. The respondents were chosen based on their job relationship in the study, RRTs from private and public hospitals. They should be currently practicing in a hospital to have an experience that will help in collecting data.

There was a prepared informed consent that was filled up and read by the Radiologic Technologists that came from public and private hospitals from Batangas and Quezon City. The researcher ensures the quality and integrity of this research. Using informed consent that helped protect the rights of the respondents. They made sure that the participants participated voluntarily to avoid any complications and to maintain the confidentiality and anonymity of them. This provided full information regarding the procedures of the study and any potential risks that may arise in their participation.

In analyzing the data, the researcher used percentage ratio to show the information of the respondents, as well as the perceptions on each data in the scope of the study. It helped determine whether there is a significant difference between the expected factors and the observed factors of errors in one or more categories. It was used to determine the decisions whether the observed outcome differs significantly from the expected outcome or the relationship that affects the errors behavior of radiologic technologist.

RESULTS AND DISCUSSION

The study shows most of the respondents (53.3%) were 20-30 years old. There were (26.7%) respondents who fell on the age range of 41-60. Only (20%) of the respondents fell on the age range of 31-40. Results also revealed that most of respondents (83.3%) are junior radiologic technologists. the senior

radiologic technologist and chief technologist comprised 13.3% and 3.3% of the respondents, respectively. Junior radiologic technologist were greater than the other respondents, because they were still under training by the supervision of their seniors to provide professional skills in order to render quality diagnostic imaging and become capable of providing appropriate care.

As to demographic profile of radiologic technologists from St. Frances Cabrini Medical Center and Philippine Orthopedic Center with regard to their position, results revealed that most of respondents (53.3%) under study were Junior RT II. The RT I and RT III comprising of 23.3% and 16.7% of the respondents, respectively. The RT IV and RT V were similar comprising 3.3%. In accordance with the sex profile, majority of the respondents were male (56.7%). There were only 13 or 43.3% female participants. This shows that females were dominated by males.

The study further revealed that radiologic technologist working less than five years (56.7%) were more cautions when handling a patient than radiologic technologists working for 10 years because the latter were familiar with the procedure. Most (93.3%) of the radiologic technologist under study were college graduates, who took up Bachelor of Science in Radiologic Technology. Only two of the respondents were master's degree holders. The highest criterion for professional factors (3.93, occasionally) was properly asked about patient history before performing the procedure. The remaining criteria were also occasionally namely: Gives shielding or collimation to the patient while performing the imaging procedure (3.9, occasionally); Practices the principle of ALARA (As Low As Reasonably Achievable) in your department (3.86, occasionally); Physically supports patient in lifting and restraining to help to help produce optimal quality radiographs (3.76, occasionally); Attends training and seminar related to RT profession to help improves the quality of healthcare service in the department (3.70, occasionally); Keeps an open communication towards the requesting physician with regards to the imaging procedure assigned (3.63, occasionally); Uses X-ray exposure charts to serve set as guide during imaging procedure (3.53, occasionally); Provides information about potential risk and benefits of an imaging examination (3.43, occasionally); Ask for an informed consent to the patient prior to the procedure (3.37, occasionally). All the criteria were rated occasionally; however, a mean of 2.73 (rarely) was observed for professional factors.

The relationship between the demographic profile of the respondents and the professional factors contributing to errors in radiographic imaging shows no significant relationship. It is interpreted that the demographic profile, age, position (private hospital), sex, length of service and educational attainment had no significant relationship to professional factors. However, it can be noted from the results that position in public hospital has a significant relationship. It proves that position in the hospital affects their professional performance as a radiologic technologist. The results were supported by the study which claims that errors tend to occur when there is variation in a familiar routine. the radiologic technologist rarely obeys the department policy regarding patient identifiers. It was found out that public hospital has a more distracting work environment because of the large population of patients. On the other hand, it is interpreted that the demographic profile such as age, position (public/private hospital), sex, length of service and educational attainment has no significant relationship to personal factors. On the contrary, there is a significant relationship between the patient's interview and the observation of the researchers to the actual work and service of radiologic technologists.

CONCLUSION

Majority of the respondents were 20-40 years old, bachelor's degree graduate and junior radiographers who had 5-10 years of experience being a license radiologic technologist. The errors in radiographic imaging is inevitable. Radiographers are the people who can control it to prevent from increasing. The familiarization of their everyday routine in their respected hospital contributes in committing their errors. Radiation protection and patient care are the two most common error. These tend to do the imaging procedure without any precautions. The volume of the patients also affects their performance in giving high quality healthcare service.

Senior radiographers who participated in the study were mostly in administrative job. They rarely practice radiographic imaging because of their bigger responsibility to improve the quality of healthcare service in their radiology department. Training and mentoring their junior radiographers are also part of their job.

Result also show that there was no significant relationship between demographic profile and professional/personal factors, however there was a significant relationship between professional/personal factors and position in public hospital.

RECOMMENDATION

The rapid expansion of services, the globalization of healthcare and the imbalance between workload and workforce are a few of the factors that may threaten the standards of health services as well as patient safety. There is a rising demand for radiologic technologists and for 24/7 services.

Managers and clinicians in the radiology department should focus on improving the general quality of care medical staff deliver to patients. Radiology professionals subject themselves to risk every time they perform a procedure because some of the techniques and instruments they use in scanning and imaging are complex. Thus, players in the healthcare setting must work carefully and diligently to ensure that they minimize health risk to patients and to themselves. In practice, inherent hazards to safety and quality manifest in relation to personnel availability, workload and financial predicaments. They consist of insubstantial funding for new equipment in the workplace, difficulty retaining professionals, the escalating complexity of the work, the increasing workload, difficulty recruiting due to a national shortage of medical staff and the lessening budget that is not keeping up with current of demands.

Radiologic technologists must persuade administrators and managers that standards of care relate closely to performance metrics like workload, diagnostic precision and patient safety concerns. Thus, managers must make sensible decisions about resource allocation and performance expectations to mirror this reality and curtail risks. All health professionals must identify some of the issues that tend to cause harm to patients in advance and work on them before subjecting the patient to potentially faulty processes. The concept of ALARA, or "as low as reasonably achievable", essentially refers to the assessment of risk, and the comparison of this risk with the amount of time, money and resources needed to address it. It is used throughout the healthcare system and is particularly important when it comes to radiology. For the improvement of the study, it is suggested that there should be more respondents for better evaluation of the practice of every radiologic technologist. These recommendations are meant to be applicable to all diagnostic team members and settings of health care.

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