Patient-focused radiology: the value of patient-centered care model

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Abstract **-** Patient-centered care focuses on the patient and the individual's particular health care needs. The goal of patient-centered health care is to empower patients to become active participants in their care. Because of the technical aspects of the radiographer's role, the focus is often on the best image, placing the patient outside the circle of care. The purpose of this study is to determine the implementation of the Patient-centered care model (PCCM) among the radiologic and x-ray technologists working in the hospitals of Batangas City, Batangas and Calapan City, Oriental Mindoro in terms of communication, education and safety skills. It also aims to correlate the demographic profile of the respondents with the patient-centered care practices of the respondents and to know if there is a difference of responses on their practices when grouped according to place. A descriptive-purposive research design was used in the study. Results revealed that many of the respondents are female, married and are middle-aged adults. In Batangas City, most of the respondents have finished BS Radiologic Technology and all are licensed. On the other hand, more than half of the respondents have finished Associate in Radiologic Technology and thus are not licensed as radiologic technologists. Most of them graduated from Lyceum of the Philippines University-Batangas, presently employed as radiologic technologists performing Radiography. Using the patient-centered care model, it can be concluded that the communication skills required from radiologic technologists and x-ray technologists are always exhibited by the respondents. However, skills in education and safety skills are only often performed. The respondents' skills on educational skills are affected by the primary area of practice in terms of Radiography. Moreso, the radiologic technologists and X-ray technologists both in Batangas City and Calapan City perform similarly in PCCM in terms of communication, education and safety skills.

Keywords -Radiology, radiologic technologist, patient-focused, patient-centered care

INTRODUCTION

High quality, efficient care is a central goal of all health care reform initiatives (Clancy, 2009). Hospitals and other health care organizations should expect to expend resources in an effort to improve the quality of care (Brennan et al., 2005).

Health care often centers on the needs of the physician, hospital or technology limitations. In patient-centered care, the needs of the patient and

patient satisfaction are the priority, not the treatment itself. Patient-centered care does not focus solely on the disease or condition, but rather, on the patient and the patient's psychological, spiritual and emotional needs. Patient-centered health care strives to empower patients and their families by providing them with information and education about the patient's health condition and encouraging them to be active participants in the decision-making process. The medical literature has described patient-centered care as involving the patients in care and individualizing care. Effective practices include cultivating good communication skills, providing the patient with clear and useful information and including the patient in the decision-making process as it concerns individual's health needs (Reynolds, 2009).

Patient-centered care focuses on the patient and the individual's particular health care needs. The goal of patient-centered health care is to empower patients to become active participants in their care. This requires the physicians, radiologic technologists and other health care providers develop good communication skills and address patient needs effectively. Patient-centered care also requires that the physician, radiologist assistant, radiologic technologist or other health care provider become a patient advocate and strive to provide care that not only is effective but also safe (Reynolds, 2009).

Medical imaging professionals also play an important role in the diagnosis of injury and illness. Although the main focus is to establish a correct diagnosis, the responsibility of radiology professionals goes beyond detection and documentation. As the dynamics of health care evolve, patients increasingly are becoming more involved in their care and expect communication with and among health care providers. The radiologic technologists must be familiar with both local and national practice guidelines to patient care to provide safe and effective care (Berlin, 2008 as cited in Reynolds, 2009).

For radiologic technologists, patient-centered care encompasses principles such as the as low as reasonable achievable (ALARA) concept and contrast media safety. Patient-centered care is associated with a higher rate of patient satisfaction, adherence to suggested lifestyle changes and prescribed treatment, better outcomes and more cost-effective care (Reynolds, 2009).

The radiographers' role in patient care is to image and be the eyes of the radiologist. They select techniques, positions and images that ultimately will lead to a diagnosis. This role is vital in a patient's care plan, but often takes over and becomes center. Because of the technical aspects of the role, the focus is often on the best image, placing the patient outside the circle of care (Enes, 2011).

Patient-centered care model (PCCM)

A patient-centered care model (PCCM) places the patient in the center and focuses on three core issues namely communication, education and safety.

In diagnostic imaging, these issues are constant regardless of the modality, and all technologists can participate in this model (Enes, 2011).

Safety

Safety is a vital component of health care quality (Brennan et al., 2005). Regulations and guidelines provide the framework for ensuring patient safety in medicine. The safety side of patient-centered care is designed to provide the safest care possible, a critical concern in radiology. The radiologic technologist and all professionals involve in health care should act as advocates for the patient (Reynolds, 2009).

Radiation's benefits to diagnostic and therapeutic medicine are undisputed, yet always must be weighed against the potential dangers that overexposure to ionizing radiation presents. For all diagnostic radiology procedures, there are common concerns and certain practices regarding radiation safety that must be followed. The guidelines stress the responsibility of all radiologists, radiologic technologists and supervising physicians to minimize radiation dose to individual patients, staff and the public while maintaining necessary diagnostic image quality (Brusin, 2007). In radiology, factors that can adversely affect patient safety primarily include use of radiation and contrast media. It is the responsibility of the radiologic technologist to be mindful of patient safety at all times while keeping in mind other tenets of patient-centered care (Reynolds, 2009).

Unlike the exposure of workers in health care and the nuclear industry, which can be regulated, the exposure of patients cannot be restricted, largely because of the inherent difficulty in balancing the immediate clinical need for these procedures, which is frequently substantial, against the stochastic risks of cancer that would not be evident for years, if at all. Previous recommendations related to medical exposures to radiation have therefore focused on justifying the clinical need for a procedure and optimizing its use to ensure that exposure is "as low as reasonably achievable" without sacrificing quality of care (Fazel et al., 2011).

Patient-centric initiatives like as low as reasonably achievable (ALARA) and contrast media administration and handling guidelines help protect the patient from potentially harmful effects of radiation and contrast material. ALARA is a principle in diagnostic radiology that reminds radiologic technologists to use minimal amount of radiation necessary to produce accurate and quality images. The purpose of ALARA is to protect the patient from unnecessary radiation exposure. Minimizing radiation exposure is based on the conservative assumption that every dose of radiation potentially could produce some level of detrimental health effects (Reynolds, 2009).

The radiologic technologist plays an important role in the radiation protection equation that includes adherence to strict protective guidelines, avoiding unnecessary exposures and remaining current with radiation biology

and radiation protection continuing education (Colangelo et al., 2009). Technologists can also play a role in patient safety by being able to recognize if an imaging study is appropriate for the reason suggested for the exam. Additionally, evaluating every patient's history before proceeding with an imaging exam request can save lives, time, resources and money (Scott, 2007).

Radiography is crucial to the care and treatment of patients. Working with and around radiation can be safe provided personnel are educated about its risks and they are up to date on protection practices (Reynolds, 2009; Shymko and Shymko, 1998). The radiologic technologist should continually remain vigilant about minimizing and implementing ways to reduce risk (Reynolds, 2009).

The Society of Interventional Radiology recommended that uniformity throughout the entire radiology department must be encouraged. This will help prevent errors from occurring when physicians or nurses unfamiliar with the procedure are participating (Statler et al., 2009).

Limiting the radiation dose to the patient is a shared responsibility between the ordering health care provider, the institution, the radiologist, the equipment manufacturer, the radiologic technologist, the patient, and the radiation safety officer (Colangelo et al., 2009).

Communication

Effective communication will facilitate the ability for patient and clinician to find common ground (Greene, Tuzzio and Cherkin, 2012).

In healthcare setting, radiographers are integral to the movement toward better communication (Scott, 2007). They have the opportunity to communicate not only with the patient, but also with family members, physicians, radiologists, and other healthcare professionals who are critical to the patient's care (Phillips, 2012;Scott, 2007).

Effective communication must begin with active listening, empathically attuning to both the patient's medical and nonmedical needs that can have a major impact on both the process and outcomes of the interaction. It also includes the display of professional conduct, an attitude of respect toward other professionals and the patient and the responsibility to act as a patient advocate through all aspects of the patient's care. It is not enough to process patients accurately through the radiology department; caregivers must welcome patient participation and encourage patients and coworkers. To be able to gather data, technologists not only need document and transmit information, but must also verify procedures to be performed by communicating with other personnel. Professional performance standards embody the necessity for teamwork, collaboration and collegiality between radiologic technologists and other health care providers for the most effective patient care. Radiology personnel and patients all benefit from more effective care practices (Scott, 2007).

One of the most important benefits of improved communication is safer patient care. Reducing redundant or repeated exams due to discontinuity in care decreases radiation exposure, and the possibility of anaphylactic shock and other adverse reactions during contrast studies. Provider-patient communication that incorporates cultural and linguistic competence also ensures that patients receive the most appropriate and thorough care available. Radiology professionals benefit from a work culture that promotes sharing information and learning from one another's experiences. Professionals benefit from open disclosure of mistakes (Scott, 2007).

Communication failures that contribute to discontinuity of care stem from a variety of manageable problems, ranging from a lack of interpersonal communication skills to barriers in the work environment to suboptimal use of computer networking tools. In addition, medical errors in radiology are more likely than other medical errors to result in the need for additional care and the consumption of further resources (Scott, 2007).

Communication failure is the root of much dysfunction in health care and improvement would be well received. Patients can suffer when caregivers do not communicate effectively with each other Common results of inadequate communication include anaphylactic shock when allergies are overlooked, delay of critical treatments if images are not sent to physicians and unnecessary radiation exposure when wrong examinations are performed. It may be beneficial to approach the problem of discontinuity by focusing on the effectiveness of the care provided (Scott, 2007).

Scott (2007) stated that communication problems with patients do not always involve miscommunication; sometimes the problem stems from a lack of communication. In busy radiology settings, the delivery of imaging study results to the ordering physician and the patient can be overlooked. Because many hospitals require examinations to be completed in a specified time, technologists often are rushed, and radiologists can be overwhelmed by the volume of examinations to be evaluated. In such cases, health care providers, including technologists, must not forget the patient's anxiety and concern about examination results. By listening intently and acknowledging a patient's concerns, health care providers express sincerity in wanting to help and to make the patient's experience less frightening and uncomfortable.

A major reason for accidents in medicine is that the continuum of care includes a chain of events where faults can grow and evolve. A recent report by the United States Pharmacopeia stated that poor continuity of patient care within radiology departments resulted in seven times more medical errors than in any other department, including intensive care units, between 2000 and 2004 (Scott, 2007).

Radiology departments should strive to improve communication. Patient safety and quality of care depend on the accurate and timely transmission of

information (Scott, 2007). Communication failures in radiology departments stem from a variety of sources and significantly influence the success of patient care (Scott, 2007).

Education

Health providers should always continue to incorporate the person as a whole, understanding the importance of patient preference and personal, cultural, and spiritual values. By professionally supporting educational and planning initiatives, they can ultimately change health policy and patient outcomes (Landrigan, 2012).

As public awareness of medical radiation exposure has increased, there has been heightened awareness among patients, physicians, and regulatory agencies of the importance and need for holistic benefit-and-risk discussions as the basis of informed consent in medicine. Communicating benefits and risks in a comprehensible manner while presenting and discussing complex technical material with associated uncertainties is a challenge that could result in potential harm if the patient avoids appropriate and medically necessary imaging because of misunderstanding or unfounded. Patient perception and acceptance of risks are determined not only by the outcome probabilities but also by other characteristics such as benefits, uncertainties, and emotions. These other qualities may be just as important, perhaps more important, to the patient and should not be ignored (Dauer et al., 2011; Fazel, 2009).

Dauer et al. (2011) stated that patient needs to understand the medical indication for the procedure. The potential benefits of modern medical imaging procedures, which almost always far outweigh the associated risks, also need to be clearly discussed.

Since all health care workers play a role in the patient's care, all personnel should be held accountable for disclosing errors or mistakes that they made or witnessed (Scott, 2007). Moreover, Clancy (2009) stated that informed and active health care consumers are more satisfied with their care and tend to have better health outcomes.

In the Philippines, particularly in Batangas City, Batangas and Calapan City, Oriental Mindoro, issues on patient care in Radiology Department are evident. Complaints as to how the radiologic and x-ray technologists carry out their responsibilities are commonly heard among the patients.

The purpose of this study is to determine the implementation of the Patient-centered care model (PCCM) among the radiologic and x-ray technologists working in the hospitals at Batangas City, Batangas and Calapan City, Oriental Mindoro in terms of communication, education and safety skills. It also aims to correlate the demographic profile of the respondents with the patient-centered care practices of the respondents and to know if there is a difference of responses on the practices when grouped according to place.

METHODS

A descriptive-purposive research design was used in the study. The researchers formulated a questionnaire patterned from various literatures, which was subjected to face validation with their adviser and panel of experts to achieve clarity and ease of administrability of the instrument.

Participants

The study involved radiologic and X-ray technologists employed in all the hospitals at Batangas City, Batangas and Calapan City, Oriental Mindoro.

Procedure

After the instrument has been validated, the primary data were gathered from the respondents through questionnaire. The completed questionnaires were tabulated, analyzed and interpreted.

Statistical Tool

Frequency distribution, weighted mean and verbal Interpretation using the Four-Likert Scale Method, were used as the statistical tools in determining the radiologic practices on using the PCCM. Chi-square was used to correlate the patient centered-care skills required for examination with the demographic profile of the respondents as supported by PASW version 18.

RESULTS AND DISCUSSION

I. Respondents' Demographic Profile

Table 1 presents the demographic profile of the forty (40) respondents, representing 80% of the total Radiologic Technologists and X-ray technologists working in all the hospitals at Batangas City (21/26)) and Calapan City, Oriental Mindoro (19/24).

In terms of gender, more than half (60%) of the respondents were female. As to age, 25% were on the 41-45 years old range, followed by those below 25 years old (20%) and then 36-40 and 46-50 age range (15%). It can be seen from the results that the respondents are middle-aged adults. Many (65%) of them are married while 32.5%% are single.

In terms of the highest educational attainment, most (71.4%) of the respondents from Batangas City have finished BS Radiologic Technology while only 31.6% in Calapan City. Moreso, many (63.2%) in Calapan City, have finished Associate in Radiologic Technology. This shows that many of the respondents in Calapan City did not pursue the Bachelor degree after obtaining the Associate degree. This may be due to the fact that in Oriental Mindoro, there is only one school that offers the program which started in 2006. Also, a graduate

of the Associate program can already practice the profession and work as x-ray technologist.

Almost all (95.2%) of the respondents from Batangas City obtained their degree at the Lyceum of the Philippines University-Batangas. This is due to the proximity of the university to their residences. Likewise, more than half (52.6%) of the respondents from Calapan City graduated from the same university.

All of the respondents from Batangas City are licensed as radiologic technologists (66.7%) and x-ray technologist (33.3%). In Calapan City, the licensed radiologic technologists and x-ray technologists were 47.4% and 36.8%, respectively. There are also those who were not licensed (26.3%). The shortage in radiologic technologists in the area permits the unlicensed graduates to practice the profession.

In terms of position, most (71.4%) of the respondents from Batangas City were employed as radiologic technologists since many of them were licensed. In Calapan City, a variety of positions were held such as radiologic technologist (36.8), X-ray technologist (21%), medical equipment technician (5.3%), CT Scan and Mammography Technologist (5.3%).

In terms of number of years in professional practice, 35% of them have served in less than five years, followed by 6-10 years (27.5%) and 11-15 years (15%).

In terms of the primary area of practice, all of the respondents were into Radiography and only in 9.52% in Computed Tomography (CT). In Calapan, most of them were also intoRadiography and 26.3% were in CT. Due to the inadequacy of personnel in Calapan City, non-radiologic technologists are also trained and allowed to use other modalities such as CT Scan.

II.Practices of the Radiologic and X-ray technologists on Patient-Centered Care

Table 2.1, shows the practices of the Radiologic and X-ray technologists on patient-centered care in terms of communication skills.

Table 2.1
Practices of the Radiologic and X-ray technologists on Patient-Centered Care
in terms of Communication Skills

	Batangas N=21			Calapan N=19			Overall N=40		
Communication Skills	**WM**	**VI**	**Rank**	**WM**	**VI**	**Rank**	**WM**	**VI**	**Rank**
1. Greet and welcome the patient.	3.52	A	11.5	3.74	A	3.5	3.63	A	8.5
2. Introduce oneself.	2.95	O	17	2.74	O	17	2.85	O	17
3. Inform the patient my role in the examination.	3.62	A	9.5	3.63	A	8.5	3.63	A	8.5
4. Address the patient in an appropriate manner.	3.67	A	8	3.58	A	11	3.63	A	8.5
5. Inform the patient approximately how long the procedure will take.	3.43	O	13.5	3.63	A	8.5	3.53	A	13
6. Inform the patient when he/she can get the result of the examination	4	A	1	3.95	A	1	3.98	A	1
7. Use more comprehensible information when talking to a patient.	3.62	A	9.5	3.47	O	14	3.55	A	11
8. Ensures that patient understands all instructions.	3.81	A	3.5	3.74	A	3.5	3.78	A	3
9. Evaluate patient's ability to comply with positioning requirements for the requested examination.	3.81	A	3.5	3.63	A	8.5	3.73	A	4
10. Acknowledge the patient's health concern.	3.43	O	13.5	3.63	A	8.5	3.53	A	13
11. Question female patients of childbearing age about possible pregnancy.	3.52	A	11.5	3.89	A	2	3.70	A	5
12. Demonstrate good listening skills.	3.9	A	2	3.74	A	3.5	3.83	A	2
13. Communicate information that can be easily understood.	3.76	A	5.5	3.53	A	12.5	3.65	A	6
14. Answer questions or concerns of the patient.	3.71	A	7	3.53	A	12.5	3.63	A	8.5
15. Welcome participation of family, friends, and caregivers.	3.76	A	5.5	3.26	O	15	3.53	A	13
16. Provide plans of care in language that patients and families can understand.	3.38	O	15	3	O	16	3.20	O	16
17. Thank the patient for his/her cooperation and participation in the process.	3.1	O	16	3.74	A	3.5	3.40	O	15
Composite Mean	**3.59**	**A**		**3.55**	**A**		**3.57**	**A**	

All communication skills were rated always by the respondents from Batangas City and Calapan City with overall means of 3.59 and 3.55, respectively. Of the 17 skills, the item that ranks first was “inform the patient when he/she can get the result of the examination”, followed by “demonstrate good listening skills” and “ensure that patient understands all instructions” with weighted means of 3.98, 3.83 and 3.78, respectively.

This implies that the respondents would want the patients to be notified as to when they can get the result so they can be properly diagnosed by their physicians.Likewise, effective communication must begin with active listening according to Scott (2007). By listening intently and acknowledging a patient’s concerns, health care providers express sincerity in wanting to help and to make the patient’s experience less frightening and uncomfortable. Moreover, ensuring that patients understand all instructions will reduce redundant and repeated exams which will decrease patient to exposure to radiation.

On the other hand, they all agreed that the following communication skills rank last: “introduce oneself”, “provide plans of care in language that patients and families can understand”, and “thank the patient for his/her cooperation and participation in the process” with means of 2.85, 3.20 and 3.40, respectively. The overall obtained mean is 4.37 with a verbal interpretation of often. Nowadays, the scrub suits of most of the X-ray lab personnel have embroidered names and they are also mandated to wear their identification cards. Thus, they do not usually introduce themselves. However, such is important in building rapport with the patient. Thanking the patient is also an important aspect of communication.

On the other hand, the items “inform the patient approximately how long the procedure will take”, and “acknowledge the patient’s health concern” were often exhibited by the respondents from Batangas City while done always by those from Calapan City. This is more likely due to the increase number of patients being accommodated in the hospitals at Batangas City, which cater the imaging services not only from the city but also from various municipalities of Batangas.

Moreover, the following items on communication skills like “use more comprehensible information when talking to a patient”, and “welcome participation of family, friends, and caregivers” were often exhibited by the respondents in Calapan City but were always done by those in Batangas City. This is due to the fact that many of the patients in Calapan City who undergo radiologic examinations are old. There are also illiterate patients; thus, very clear and simple words are important for the patients to easily understand the instructions.

Patient encounters involve more than clinical interactions. Lack of compassionate care, lengthy wait times or the appearance of a disorganized department can negate positive encounters. Radiology processes and policies

are only effective when all factors are considered equally important to achieve patient quality care (Bittner, 2006).

Table2.2 presents the practices of the Radiologic and X-ray technologists on Patient-centered care in terms of education skills. As depicted on the table, they always exhibited the items “give clear instructions to the patient”, “explain patient preparation before an imaging procedure”, and “answers questions of the patient” with means of 3.90, 3.85 and 3.83, respectively. These items are very important to ensure that quality image will be produced. Moreover, Clancy (2009) stated that informed and active health care consumers are more satisfied with their care and tend to have better health outcomes.

Both respondents in Batangas City and Calapan City often exhibited the following skills: “inform the patient about risks related to all procedures”, “inform the patient about the benefits of the procedures”, “make patient aware of how to raise a concern related to patient safety and/or his/her care”, “encourage patient to ask questions”, “make patient aware of the opportunity to review his/her medical record with the support of a health care professional”. Still, some of them sometimes carry out the following skills: discuss alternative procedures”, “educate patient on different cultural beliefs/traditions related to health and healing”, and “provide post examination instructions” with means of 2.33, 2.43 and 2.48, respectively.

This shows that most of the skills requiring the ability of a radiologic or x-ray technologist to educate the patient are not always carried out. This may be due to the limited time and the increase workload of the respondents. According to Dauer et al. (2011), patient needs to understand the medical indication for the procedure. The potential benefits of modern medical imaging procedures, which almost always far outweigh the associated risks, also need to be clearly discussed.

Based on the findings of Nurit et al. (2009), they recommended the development of short formatted tools, combining patient education with a knowledge feedback mechanism, in order to promote patient education in hospital settings.

Table 2.2
Practices of the Radiologic and X-ray technologists on Patient-Centered Care
in terms of Education Skills

	Batangas N=21			Calapan N=19			Overall N=40		
Education Skills	**WM**	**VI**	**Rank**	**WM**	**VI**	**Rank**	**WM**	**VI**	**Rank**
1. Explain the patient why the directions are important.	3.57	A	6	3.53	A	6	3.55	O	6
2. Give clear instructions to the patient.	3.90	A	3	3.89	A	1	3.90	A	1
3. Explain patient preparation (e.g., diet restrictions, preparatory medications) before an imaging procedure.	3.90	A	3	3.79	A	2.5	3.85	A	2
4. Explain the procedure in detail to the patient so the patient will know what to expect.	3.90	A	3	3.63	A	5	3.78	A	5
5. Explain breathing instructions before making the exposure.	3.81	A	5	3.79	A	2.5	3.80	A	4
6. Inform the patient about risks related to all procedures.	3.29	O	8	3.37	O	7.5	3.33	O	8
7. Inform the patient about the benefits of the procedures.	3.24	O	9	3.11	O	10	3.18	O	9
8. Make patient aware of how to raise a concern related to patient safety and/or his/her care.	3.48	O	7	3.37	O	7.5	3.43	O	7
9. Encourage patient to ask questions.	2.86	O	10	3.05	O	11.5	2.95	O	10
10. Answer questions of the patient.	3.95	A	1	3.68	A	4	3.83	A	3
11 Educate patient on different cultural beliefs/traditions related to health and healing.	2.43	S	13	2.68	O	14	2.55	O	13.5
12. Make patient aware of the opportunity to review his/her medical record with the support of a health care professional.	2.57	O	11	3.05	O	11.5	2.80	O	12
13. Discuss alternative procedures.	2.33	S	14	2.79	O	13	2.55	O	13.5
14. Provide post-examination instructions.	2.48	S	12	3.32	O	9	2.88	O	11
Composite Mean	**3.27**	**O**		**3.36**	**O**		**3.31**	**O**	

Table 2.3 presents the practices of the Radiologic and X-ray technologists on Patient-centered care in terms of safety skills. Of the 23 items, they always practiced the items “confirm the patient’s identity”, “give proper instructions to avoid repeats”, and “maintain confidentiality of patient information” with means of 3.88, 3.83 and 3.80, respectively. Patient identification and

confidentiality are two of the most important aspects in any diagnostic procedures. This guarantees that the right patient will be examined and only the individuals will know the results.

However, the items that they often performed were “observe and monitor vital signs” (2.70), “determine appropriate exposure factors using calipers, technique charts, and tube rating charts”, “use sponges to help patients hold positions” and “apply safety belts on moving tables” with means of 3.00. In the hospital setting, observing and monitoring vital signs are the primary responsibilities of nurses and no longer that of the radiographers even during special procedures since there are nurses who accompany those patients during the procedures. The use of sponges and safety belts are rarely used since many of the machines employed are stationary.

The results also show that the respondents in Batangas City always (3.62) perform the practices on safety skills while only often (3.34) among those in Calapan City.

Calapan City, most of the machines employed are conventional. Also, radiographers may not be that familiar with the safety issues since they have been using those machines for a long period of time. They are not also exposed to sophisticated machines. It is critical for radiology professionals to carefully review a patient’s history verify the reason for an examination before proceeding (Scott, 2007).

It is the responsibility of the radiologic technologists to be mindful of patient safety at all times while keeping in mind other tenets of patient-centered care (Reynolds, 2009).

Table 2.3
Practices of the Radiologic and X-ray technologists on Patient-Centered Care
in terms of Safety Skills

	Batangas			Calapan			Overall		
N=21	N=19			N= 40					
Safety Skills	**WM**	**VI**	**Rank**	**VM**	**VI**	**Rank**	**VM**	**VI**	**Rank**
1. Confirm the patient's identity.	4.00	A	1	3.74	A	1	3.88	A	1
2. Determine if the patient has been appropriately prepared for the procedure.	3.81	A	8.5	3.47	O	10	3.65	A	8
3. Observe proper decorum when instructing the patient to change his/her clothes for the examination.	3.81	A	8.5	3.58	O	6.5	3.70	A	7
4. Observe and monitor vital signs.	2.90	O	22.5	2.47	S	23	2.70	O	23
5. Give proper instructions to avoid repeats.	3.95	A	3	3.68	A	2.5	3.83	A	2
6. Verify the patient's pregnancy status when appropriate.	3.95	A	3	3.58	A	6.5	3.78	A	4.5
7. Assess factors that may contraindicate the procedure, such as medications, insufficient patient preparation or artifacts.	3.76	A	11.5	3.47	O	10	3.63	A	9
8. Determine appropriate exposure factors using calipers, technique charts, and tube rating charts.	2.95	O	21	3.05	O	19.5	3.00	O	22
9. Evaluate the need for and use of protective shielding.	3.71	A	13	3.32	O	14.5	3.53	O	13
10. Practice the as low as reasonably achievable (ALARA) principle.	3.52	A	17	3.42	O	12.5	3.48	O	15
11. Restrict beam to limit exposure area, improve image quality, and reduce radiation dose	3.48	O	18	3.63	A	4	3.55	A	10.5
12. Clean, disinfect, or sterilize facilities and equipment, and dispose of contaminated items in preparation for next examination.	3.76	A	11.5	3.32	O	14.5	3.55	A	10.5
13. Follow appropriate procedures when in contact with a patient in reverse/protective isolation.	3.33	O	19	3.42	O	12.5	3.38	O	18
14. Monitor medical equipment attached to the patient (e.g. intravenous lines, oxygen) during the radiographic procedure.	3.62	A	15	3.26	O	16	3.45	O	16.5
15. Use proper body mechanics or mechanical transfer devices when assisting patients.	3.81	A	8.5	3.05	O	19.5	3.45	O	16.5
16. Before administration of contrast agent, gather information to determine if the patient is at increased risk of adverse reaction.	3.90	A	5.5	3.58	A	6.5	3.75	A	6
17. Observe patient after administration of contrast media to detect adverse reactions.	3.95	A	3	3.58	A	6.5	3.78	A	4.5
18. Recognize need for prompt medical attention and administer emergency care.	3.81	A	8.5	3.21	O	17	3.53	A	13
19. Do portable radiographs for patients who have fall risks.	3.67	A	14	2.79	O	22	3.25	O	19
20. Use sponges to help patients hold positions.	2.90	O	22.5	3.11	O	18	3.00	O	21
21. Do alternative projections to reduce injury.	3.57	A	16	3.47	O	10	3.53	A	13
22. Apply safety belts on moving tables.	3.10	O	20	2.89	O	21	3.00	O	21
23. Maintain confidentiality of patient information.	3.90	A	5.5	3.68	A	2.5	3.80	A	3
Composite Mean	**3.62**		**A**		**3.34**	**O**	**3.48**		**O**

Table 3
Relationship Between the Profile Variables and the Practices of the Radiologic and X-ray technologists on Patient-Centered Care

	Communication Skills			Education Skills			Safety		
Demographic Profile	**λ^2_c**	**p-value**	**I**	**λ^2_c**	**p-value**	**I**	**λ^2_c**	**p-value**	**I**
Gender	.069	.792	NS	1.607	.448	NS	3.304	.192	NS
Age	9.306	.157	NS	9.394	.669	NS	12.239	.427	NS
Civil Status	.897	.638	NS	1.459	.834	NS	2.696	.610	NS
Education	5.737	. 220	NS	8.506	.386	NS	8.979	.344	NS
Licensed as:									
Radiologic Technologist	.614	.433	NS	1.640	.440	NS	2.282	.320	NS
X-ray Technologist	2.637	.104	NS	1.959	.375	NS	5.217	.074	NS
Not Licensed	3.810	.051	NS	.189	.910	NS	4.224	.121	NS
Years	3.438	.633	NS	7.380	.689	NS	5.203	.877	NS
Primary Area of Practice:									
Radiography	2.963	.085	NS	8.254	.016	*S	3.285	.193	NS
Computed Tomography	.026	.872	NS	1.143	.565	NS	.309	.857	NS
Equal time in both	.684	.408	NS	1.905	.386	NS	.758	.685	NS
School	3.745	.809	NS	13.163	.514	NS	7.131	.930	NS
Present Position	11.240	.081	NS	15.792	.201	NS	7.862	.796	NS

Legend: Significant at p-value < 0.05; HS = Highly Significant; S = Significant; NS = Not Significant; Workplace is constant

III. Relationship Between the Profile Variables and the Practices of the Radiologic and X-ray technologists on Patient-Centered Care

As shown on Table 3, the computed p-value of educational skills (0.035) when correlated to primary area of practice (radiography) was less than 0.05 level of significance; thus the null hypothesis of no significant relationship between the demographic profile (primary area in terms of radiography) and practices of the Radiologic and X-ray technologists on patient-centered care (in terms of educational skills) is rejected.

This indicates that the respondents' skills on educational skills are affected by the primary area of practice in terms of Radiography. This is due to fact that in Radiography, there are several procedures that are carried out, each of which has its own protocols to follow. Proper education among patients is extremely important to assure that the patients will clearly understand the procedure for his or her awareness, and for the radiographers to produce quality image. The radiographers' role in patient care is to image and be the eyes of the

radiologist. They select techniques, positions and images that ultimately will lead to a diagnosis. This role is vital in a patient's care plan (Enes, 2011).

However, other demographic variables do not show significant relationship on the respondents' practices on patient-centered care.

IV. Difference of Responses on the Practices on Patient-Centered Care When Grouped According to Place

As seen in Table 4, the computed t-values were all less than the critical value of 2.024 at 0.05 level of significance and the resulted p-values were all greater than alpha level; thus, the null hypothesis of no significant difference on the responses of the two groups of respondents on the practices on patient centered care is accepted.

This means that there is no significant difference exists and implies that the two groups of respondents have the same assessment on patient centered care practices. This implies that the radiologic technologists and X-ray technologists both in Batangas City and Calapan City perform similarly in PCCM in terms of communication, education and safety skills.

Table 4
Difference of Responses on the Practices on Patient-Centered Care When Grouped According to Place
df = 38; α = 0.05; t_t = 2.024

Practices in terms of:	t_c	p-value	Interpretation
Communication Skills	0.301	0.765	Not Significant
Education Skills	0.681	0.500	Not Significant
Safety Skills	1.338	0.189	Not Significant

Legend: Significant at p-value < 0.05; HS = Highly Significant; S = Significant; NS = Not Significan

CONCLUSION

Using the patient-centered care model, it can be concluded that the communication skills required from radiologic technologists and x-ray technologists are always exhibited by the respondents from Batangas City and Calapan City. However, skills in education and safety skills are only often performed. The respondents' skills on educational skills are affected by the primary area of practice in terms of Radiography. More so, the radiologic technologists and x-ray technologists both in Batangas City and Calapan City perform similarly in PCCM in terms of communication, education and safety skills.

RECOMMENDATION

It is recommended that the identified PCCM practices in terms of education andsafety skills of radiologic technologists and x-ray technologists which were rated often be improved. Retooling the personnel in the Radiology Department through continuing professional education must be implemented so as to improve their skills and update them on diagnostic imaging services that emphasize the importance of patient care. Regular assessment on the personnel skills can also be conducted for continuous monitoring and improvement and patient care and safety.

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