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DON'T BE HASTY WHEN IT COMES TO SAFETY!
Knowing about radiations

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Abstract:

Radiology is a diagnostic and therapeutic support specialty involving highly complex procedures, requiring high-cost professionals, equipment, facilities and materials, whose activities can only be developed by means of integrated action of multi-professional teams under the leadership of the radiologist. The National Curriculum Guidelines (NCG) for medical education advocate the development of general competencies such as health care, decision making, communication, leadership, administration, management and continued education as follows: "health professionals must be prepared to take on leadership roles with a view on the community's well-being. Leadership involves effective and efficient commitment, responsibility, and empathy, besides decision-making, communication and management skills."

Keywords: *Radiation, workplace safety, organization, employees,*

Introduction:

Workplace safety includes employee awareness related to the knowledge of basic safety, workplace hazards, risk relating to hazards, implementation of hazard preventions, and putting into practice necessary safer methods, techniques, process, and safety culture in the workplace. It also includes safety rules and regulations designed mostly on the basis of existing government policies. Every organization puts in place a number of safety rules and regulations for its people. Safety training and education for employees is imparted periodically with a view to making them aware about and updating them with latest safety measures. Radiation safety is a concern for patients, physicians, and staff in many departments, including radiology, interventional cardiology, and surgery. Radiation emitted during fluoroscopic procedures is responsible for the greatest radiation dose for medical staff. Radiation from diagnostic imaging modalities, such as computed tomography,

mammography, and nuclear imaging, are minor contributors to the cumulative dose exposures of healthcare personnel. However, any radiation exposure poses a potential risk to both patients and healthcare workers alike. Radiation protection aims to reduce unnecessary radiation exposure with a goal to minimize the harmful effects of ionizing radiation. In the medical field, ionizing radiation has become an inescapable tool used for the diagnosis and treatment of a variety of medical conditions Fluoroscopy is used in many specialties, including orthopedics, urology, interventional radiology, interventional cardiology, vascular surgery, and gastroenterology. As radiation exposure becomes more prevalent, a thorough understanding of radiation exposure risks and dose reduction techniques will be of utmost importance.

Review of literature:

Nuclear medicine uses radioactive material to help diagnose and treat conditions such as cancer or cardiac disease. PET scans are an example of diagnostic imaging that involves injecting a small dosage of radiopharmaceutical material to image and measure the function of an organ. Although, in the survey in one of the diagnostics center, a figure of 85-90% of the employees are very well aware of all the necessary pros and cons while working inside the radiated area. 40% out of total patients who are highly radiated are provided with the isolation ward. Considering the COVID 19 protocols, 95% of the staff employees were provided with the kits and sanitizers.

Objective:

- To study Health & safety measures provided by the organization
- To know the opinion of employees on health and safety measures available with the organization.

Research methodology adopted:

The following research methodology is adopted for collection of data.

A] Sources of data collection:

i. Primary data: data which is original & collected by surveying by the researcher. In this survey, primary data is collected through discussion with the manager & interviewing the other staff members.

ii. Secondary data: data which is orderly available in the form of office records, reports, references, etc. For this study, data is collected from websites, reference books and organization records.

B] Sample size: The sample size of 25 respondents is selected for the study.

C] Sampling techniques: The simple random sample technique is used for finalizing the sample, size for field work; report on health and safety measures.

D] Data analysis: After field survey, the collected data is analyzed with the help of graphs, percentage and tabulation.

E] Research Instrument: for collecting the data through field the data through field survey the research used is structured questionnaire tool.

Major Findings:

- Table showing the department of respondents:

DEPARTMENT	NO. OF RESPONDENTS	% OF RESPONDENTS
MRI	4	16%
PET CT	9	36%
SONOGRAPHY	4	16%
X-RAY	2	8%
CT SCAN	4	16%
OTHER	2	8%
TOTAL	25	100%

INTERPRETATION: Out of total respondents, 16% of respondents are in MRI dept., Sonography dept., & CT scan dept where as 36% of the respondents are in PET CT dept., & 8% of the respondents are in the X-RAY dept & other respectively.

- Table showing provision of safety induction training:

PROVISION OF SAFTY INDUCTION TRAINING	NO. OF RESPONDENTS	% OF RESPONDENTS
YES	25	100%
NO	0	0
TOTAL	25	100%

INTERPRETATION: Out of total respondents, 100% of all the respondents are provided with the safety induction training.

- Table showing the provision of PPE kits, masks, etc., during COVID 19 pandemic:

PROVISION OF PPE KITS,MASKS,ETC	NO. OF RESPONDENTS	% OF RESPONDENTS
YES	20	80%
NO	5	20%
TOTAL	25	100%

INTERPRETATION: Out of total respondents, 80% of the respondents are provided with the PPE kits, masks, etc. & 20% of the respondents are not provided with the provisions during COVID 19 pandemic.

- Table showing the provision done for injected patient:

PROVISION FOR INJECTED PATIENTS	NO. OF RESPONDENTS	% OF RESPONDENTS
YES	10	40%
NO	15	60%
TOTAL	25	100%

INTERPRETION: Out of total respondents, only 40% respondents agree with the provisions for the injected patients where as 60% respondents say no.

- Table showing the provision of aprons to the employees:

PROVISION OF APRONS	NO. OF RESPONDENTS	% OF RESPONDENTS
YES	22	88%
NO	3	12%
TOTAL	25	100%

INTERPRETATION: Out of total respondents, 88% of respondents are provided with aprons while 12% of respondents are not provided with aprons.

Conclusion:

Radiation exposure from various nuclear power plants has allowed us to develop basic principles of radiation protection to ensure the safety of employees and how to handle unplanned exposures. If an employee encounters a scenario where radioactive material has been spilled, it must be dealt with according to specific regulations. For example, radioactive materials should not be flushed down normal sanitation drains. They should be allowed to decay in an adequately shielded facility when they have half-lives less than 90 days. Each institution's radiation safety department is responsible for educating and enforcing protective strategies. Protocol development and education strategies have been effective in multiple specialties. Simple interventions can play a major role in radiation dose optimization. From the findings mentioned above, it is clear that majority of the employees are provided with the necessary kits and training necessary to work under the radiated area. While the minority of the employees include the house-keeping staff members and admin section. Considering all the departments in the organization, to each department must improve in the provisions done for the patients (excluding the PET scan department).The organization must update and upgrade in all the aspects (for example: the ambulance services, services provided to the patients, etc.)

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