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Q no# 1:-

Describe the role of radiation Protection officer in radiology department.

Answer:-

▼ Role of RPO ▼

The RPO (Radiation Protection officer) have common core information on Protection and Safety as related to their field of practice and need to have specific personal attributes, such as communication skills, leadership and multi task management skills.

The RPO are responsible for ensuring the safe use of ionizing radiation Producing equipment.

A radiation Protection officer should have responsibilities associated with radiation Safety, including the Protection of workers and patients and ensuring the appropriate condition of the equipment used.

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A medical facility may have number of RPO's each with a specific responsibility include the explanation of local rules, such as for diagnostic radiology, radiotherapy and nuclear medicine.

They may also be responsible for operations involving radioactive waste management in the facility.



Q no :- 2 :-

Elaborate the radiation protection measures in a safe radiology dept.

Answer

Radiation Protection:-

it is based on three basic principles which are justification of exposure, optimization and the application of dose limits.

The ICRP is responsible for the development of these principles.

Justification:-

It is actually known as the benefits vs risk principle, that is an individual exposure

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to medical radiation should always have a greater benefit to the patient as to outweigh the negative consequences of the proposed examination.

Optimization :-

Optimization is also known as low as reasonably achievable (ALARA) Principle. Medical radiation exposures should always be kept as low as achievable to ensure it is employed optimally. There is a particular focus on the term achievable, as medical radiation exposure lower than achievable can result in non-diagnostic examinations.

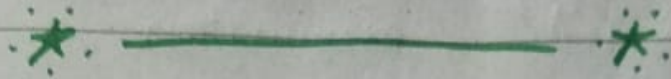
Dose Limits :-

It is recommended by the international commission on radiological protection, they are in place to ensure that the individuals are not exposed to an unnecessary high amount of ionizing radiation. The limits are split into public & occupational-exposed workers.

* occupational-exposed workers
⇒ effective dose of 20mSv a year

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* Public exposure limit
→ 1 msv in a year.



Q no 3:-

What are radiation hazards that should be beware of?

Answer

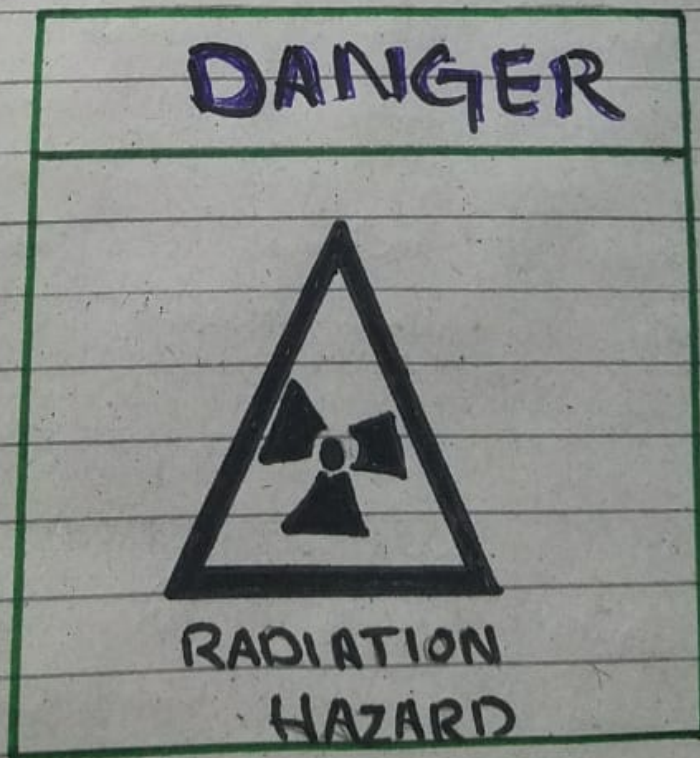
Ionizing radiations has sufficient energy to effect the atoms in living cells and thereby damage their genetic material (DNA). Fortunately, the cells in our bodies are extremely efficient at repairing this damage. However if damaged is not repaired correctly, a cell may die or cancerous.

Exposure to high level of radiation, such as being close to an atomic blast, can cause acute health effects such as skin burns and acute radiation syndrome (radiation sickness). It can result in long term health effects such as cancers and cardiovascular disease.

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Exposures to low levels of radiation encountered in the environment doesn't cause immediate health effects but is a minor contributor to overall cancer risk.

In case we might visit to some ~~radioactive~~ radioactive areas we may be aware of radiations by ~~seen~~ such symbol on that spotted areas.



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Q no 4:-

How a radiation technologist can protect himself / herself from radiation occupational dose. What is annual dose.

The radiologist concerned about exposure to radiation in the profession. Radiation is not an issue with technologist e.g. MRI and ultrasound instead of radiations. To generate images, x-rays and CT scans do pose radiation risk to both health care workers and patients.

Many safety standards have been established for both parties, here are some

x-ray rooms have barrier walls and windows that prevent radiation to leak. During these procedures the technician may leave the room or stand behind the protective shield.

In some cases the technician may not leave like interventional radiology and treat the patient during examination.

Technicians also wear aprons,

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gloves, goggles and masks for radiation protection.

The govt established standard exposure limits by wearing the badge the technician may calculate and measure the radiations.

The technician observe the ALARA principles to keep safe the radiation exposure up to some extent.

Female technicians with pregnancy will take must care of itself from exposure by covering the pelvic areas. These inturn cause abortion in some cases.

Annual occupational dose :

Whole body	⇒	5000 mrem/yr
Any organ	⇒	50,000 mrem/yr
Skin	⇒	50,000 mrem/yr
Extremity	⇒	50,000 mrem/yr
Lens of eye	⇒	15000 mrem/yr
Embryo	⇒	500 mrem/yr

End