

RADIO PHARMACEUTICALS- HANDLING AND PACKAGING:**Definition:**

Radiopharmaceuticals are the radioactive substances or radioactive drugs which are mainly used for diagnostic or therapeutic interventions.

Responsibilities in handling Radiopharmaceuticals-

Role of pharmacist in dispensing of radiopharmaceuticals	<p>The dispensing of radio pharmaceuticals should be safe, reliable, straight forward.</p> <p>Recommended dose is based on the patient history, weight of the patient, body surface area and other factors.</p> <p>Develops policies and procedures to ensure that correct drug with correct dosage and dosage form are received by the correct patient at the correct time via route of administration.</p> <p>Develops policies and procedures, supervises review the activities of non-pharmacist person under the pharmacist supervision.</p>
Role of pharmacist in the hospital with an isotope in the pharmacy	<p>The hospital pharmacist should purchase store dispense the various isotopes required by the medical staff licensed to use these materials.</p> <p>In this institutions the physician upon deciding to prescribe radio active material will call the pharmacist and provide him with all the necessary information</p> <p>The pharmacists will make necessary calculations in order to arrive for the required dosage and transfer the same amount of calculated dose using a remote control pipette placed in a paper cap with in a lead container and transported patient for administration.</p> <p>Precautions:</p> <p>Radio isotopes are administered to the patient for various condition.</p> <p>Avoid contamination of clothing and skin from the body secretions of the patient.</p> <p>Keeping the time dose of the patient as short as possible</p> <p>Keeping a great distance from the patient as possible in the unit</p> <p>An isotope sign at the entrance of the room or unit by this isotope administrator.</p> <p>Care of the patient:</p> <p>No nurse should care for more than one radioactive patient at a time.</p> <p>The patient should be encouraged to do as much as possible for himself or herself at the bed side so that the nursing can be reduced to the minimum.</p> <p>Gloves are to be worn when the nurse handles the patients linen, skin or excreta utensils.</p>

No visitors should be permitted for the first two weeks except by special permission given by isotope administrator.

	Children and pregnant women should not be permitted at any time.
Role of pharmacist in the hospital with out an isotope in the pharmacy	<p>The necessary aspects of radiopharmaceuticals differ from the receiving of other pharmaceuticals.</p> <p>All packages coming into the pharmacists must be stored in a lead vault container.</p> <p>A record should be maintained with indicates the</p> <ol style="list-style-type: none"> 1. Data receipt 2. Purchasing order 3. Ordering physician 4. Name of the isotope and quality received. <p>Upon receipt super indent physician or the technician is noticed to remove the material from the pharmacy vault.</p> <p>Radiation safety officer monitors the pharmacy vault and surrounding areas as part of his safety programme, therefore there is a limit possibility of harmful radiation within the area of the environment of the pharmacy.</p>
Responsibilities of individual user isotope	<p>To receive instructions in radiation safety as determined approximately by the radiation safety officer.</p> <p>To prohibit smoking and eating in radio isotope laboratories</p> <p>To check working areas daily or after radioisotope procedure</p> <p>To place all active waste in a proper container equipped with proper labels</p> <p>To report immediately the details of a spill or other accidents involving radioactive substances to be informed to the radiation safety officer.</p> <p>To maintain good laboratory practices such as keeping work areas and equipment clean.</p>

PACKING OF RADIOPHARMACEUTICALS:

Type of packing	Explanation	DOT's test requirement
Industrial packing	<p>Material that present little hazardous from radiation exposure, duet to their low level of radioactivity are shipped in industrial package.</p> <p>Ex: Slightly contaminated clothing laboratory samples smoke detectors</p>	
Type A packing	<p>Radioactive materials with higher specificity levels are shipped in type A packages.</p> <p>Regulation required that the package protects its contents and maintain sufficient shielding under conditions</p>	<p>Water spray for 1 hour to stimulate rain fall for 2 inches per hour, Then free fall drop test and to a hand flat surface, then compression of a least five times the weighing of the</p>

	normally encountered during transportation. These are used to transport radioactive materials for medical use	package.
Type B packing	<p>Radio active material that exceed the limit of type A packages requirements must be shipped in type B packages.</p> <p>Type B packages are used to transport materials with high levels</p>	<p>Immersion of the package under 15 feet of water for at least 8 hours, then exposure the entire package to 1475 degree f for 30 min.</p>

of radioactivity such as nuclear power plant, spent fuel. Those large, heavy packages provide shielding against radiation. The size of type B package ranges from small container to weighing over 100 Daltons.

LABELLING OF RADIOPHARMACEUTICALS:

1. A statement that the product is radioactive or the inner symbol of radio activity.
2. The name of the radiopharmaceutical preparation on it.
3. The preparation is for diagnostic or for therapeutic purpose.
4. Route of administration
5. Total radioactive present
6. Expiry date
7. Batch number
8. For solution, total volume _____
9. Any special storage requirement substance added and microbial preservatives.

Type 1
radioactive
white 1

- Almost no radiation, the maximum allowable radioactivity is 0.5 mrem/hr on the package surface.

Type 2
radioactive
yellow 2

- Low radiation level, the maximum allowable radioactivity is 50 mrem/hr on the package surface and 1 mrem/hr at 3 feet from the package.

Type 3
radioactive
yellow 3

- High levels of radiation, maximum allowable radio activity is 200 mrem/hr on the package surface and 10 mrem/hr at 3 feet from the package.

