

Editorial Note on Radiopharmacy **Yakubu OE***

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Editorial

Nuclear pharmacy is also known as radiopharmacy which involves preparation of radioactive materials for patient administration which will be used to diagnose and treat specific diseases in nuclear medicine. It generally involves the practice of combining a radionuclide tracer with a pharmaceutical component which determines the biological localization in the patient. Radiopharmaceuticals are generally not designed to have a therapeutic effect themselves, but there is a risk to staff from radiation exposure and to patients from possible contamination in production. Radiopharmacy is a heavily regulated field, as it combines several practices and fields which may come under the purview of multiple regulators and legislation. These include occupational exposure of staff to ionising radiation, patient exposure to ionising radiation, preparation of medicines, transport of radioactive materials, and environmental exposure to ionising radiation.

Nuclear pharmacy is a specialty area of pharmacy practice which is involved with the preparation of radioactive materials to improve and promote health through the safe and effective use of radioactive drugs to diagnose and treat specific disease states. As nuclear medicine procedures became more widely used, the need for someone to prepare the labeled products for administration to the patients became more evident. Many large hospitals were able to use pharmacists with training in the handling of radioactive material. There are certain areas of practice unique to nuclear pharmacy, as well as a separate class of drugs that are used.

Radioactive material is being used to create the final products. Radioactive drugs are essential components of nuclear medicine tests and are administered to humans for the diagnosis or treatment of a disease. They localize in the specific tissues targeted and emit radiation which is detected by imaging cameras to give a picture of their distribution showing the presence or absence

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of disease. Some radiopharmaceuticals are prepared in their final form at the manufacturing site, whereas others are compounded at a nuclear pharmacy or nuclear medicine department.

There are several levels of sophistication in compounding these agents, ranging from simple addition of radiopertchnetate to the reagent kit vial, to radiolabeling of autologous blood cells, custom radiolabeling of peptides and antibodies, and rapid hot lab chemistry compounding of short-lived positron-emitting radiopharmaceuticals. The development and improvement of clinical pharmacy services at hospitals have expanded the traditional dispensing role of the pharmacist to a profession that provides pharmaceutical care to patients. Over the years, clinical pharmacy services have been expanded to include medication counseling, medication therapy adherence clinics. Nuclear pharmacists serve as vital links in the provision of nuclear medicine services. By working closely with the nuclear medicine staff, nuclear pharmacists can contribute a tremendous amount to the provision of care for the patients who are undergoing nuclear medicine procedures.