

## **Abstract**

### **AN AUDIT OF HOSPITAL RADIO-PHARMACY PRACTICE AT KENYATTA NATIONAL HOSPITAL NUCLEAR MEDICINE UNIT**

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Radio-pharmacy or nuclear pharmacy is the specialty practice of pharmacy which focuses on the safe and efficacious use of radiopharmaceuticals either for diagnostic and therapeutic purposes. The practice combines the expertise of pharmaceutical preparation and the skills needed to handle radioactive substances. Although the use of radiopharmaceuticals has been growing worldwide, the growth in developing countries has been slow with only Kenyatta National Hospital and Aga Khan University Hospital offering radio-pharmacy services in Kenya. Diagnostic radiopharmaceuticals do not have major pharmacological effect and their administration is not associated with major clinical side effects. 2nd Bi-annual International Scientific Conference 2013, Nairobi Kenya 39

Their clinical use, however, is associated with a risk deriving from radiation exposure and possible contamination during radiopharmaceutical formulation by chemical, biological and microbiological impurities and thus quality control of the radiopharmaceuticals is crucial.

Objective: The main objective of this research was to carry out an audit study on radio pharmacy practice at Kenyatta National Hospital Nuclear Medicine Unit in the Cancer Treatment Centre as per set international and regulatory standards.

The study was carried out using International Atomic Energy Agency (IAEA) preformatted checklists and questionnaires for hospital radio-pharmacy practice audits and the findings analyzed and evaluated using IAEA guidelines. Patient's treatment records were reviewed for radiopharmaceuticals use trends.

The facilities observed available included radioactivity monitoring meters both for the working areas and the staff, functional hot lab, lead shielded waste disposal containers and tank for radioactive materials. From 209 patients files reviewed, it was observed that only three types of radiopharmaceuticals are used in the hospital with Technetium 99mTc - MDP the most frequently used (51.2 %) followed by 131 I (47.8 %) and Technetium 99mTc-DTPA (1%). The diagnostic uses were for bone scan (49 %), thyroid scan (25.5 %) and whole bone scan (6.7%). Other minor diagnostic uses (< 2 %) included thyroid ablation, renal scan, and lung scan. 131I was the only one used for therapy (15.4 %) of thyrotoxicosis.

The practice of radio pharmacy at the Nuclear medicine unit has to a large extent complied with the IAEA guidelines in the areas of administration, procurement, staff training, standard operating procedures (SOPs), personnel and environmental safety and waste disposal.

Inclusion of a pharmacist in the team should be considered to make it multidisciplinary and therefore more comprehensive in function. for input in monitoring patient outcomes, set effective quality control / quality assurance measures and initiate expansion of the range and use of radiopharmaceuticals with better therapeutic outcomes to the patients.