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EVALUATION OF RADIATION SAFETY PROGRAMMES IN NUCLEAR MEDICINE FACILITIES IN SRI LANKA

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Ionising radiation is vastly used in imaging and therapeutic fields in Nuclear Medicine (NM), where unsealed sources are used. The establishment of radiation protection is of paramount importance in these facilities for the safety of radiation workers, patients, and caretakers. Unintended exposure to ionising radiation and radioactive contamination can be possible if the radiation protection mechanism is not followed correctly. Although NM facilities in Sri Lanka are regulated, incidents occur due to a lack of radiation protection rules and guidelines locally and negligence and carelessness of employees. This study aimed to evaluate the existing radiation safety programmes and practices in NM facilities and then identify the gaps by comparing them with national and international standards to provide recommendations. Occupational exposure, medical exposure, public exposure, radioactive waste management, mitigation and prevention of accidents and safety of transport of radioactive materials are discussed. First, requirements and guidelines in the national and international standards were identified, and a sample radiation protection programme (RPP) was prepared. Secondly, facilities were visited to identify existing RPP. Two questionnaires were launched to collect data from medical practitioners, medical physicists, radiation protection officers (RPO), nurses and technologists in seven NM facilities in government and private hospitals and universities. The data were compared with prepared RPP. All facilities adhered to fundamental requirements. However, in facilities, essential needs such as local written rules, health surveillance, allocation of RPO's responsibilities, training for radiation staff, and maintenance of logbooks were not according to the guidelines. Accordingly, establishing a proper management system with a written RPP is recommended with special emphasis on the following: assigning responsibilities, preparing local rules written in all three languages, establishing a documented emergency plan, introducing proper radioactive waste management protocols, and developing a safety culture.

Keywords: Nuclear medicine, Protection officer, Radiation, Radiation Protection Programme