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Information management methodology in the control of radiation exposure in computed tomography exams

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In many Brazilian hospitals, computed tomography (CT) is the imaging equipment with greater ionization capability. Systems for monitoring and managing information are not mandatory and the high monetary value for the 'software' acquisition and training results in the non-investigation of the radiation dose received by the patient. Thus, there is a greater likelihood of unnecessary exposures increasing the probability of damage from exposure to ionizing radiation. These can occur because of exams performed out of protocol, poorly referred, repetition in short intervals of time, and operational failures due to malpractice and lack of training of the professionals involved. International organizations such as *Image Gently* and *Latin Safe* promote awareness campaigns every year to reduce and control the exposure dose of patients, with monitoring being a pillar for prevention and reducing patient exposure. The present work developed a low-cost methodology, using free tools for storing and evaluating the DICOM-Structured Report (DICOM-SR) and interpreting these data, which can become an economically viable resource for all diagnostic imaging services of the free Brazilian Unified Health System (SUS). A total of 13,734 exams from 9,911 patients were analyzed from September 2019 to August 2021, divided into groups according to their age group. The program was used specially to optimize the head CT protocol. After the first year of training results showed a radiation dose reduction of 11.7%. The new system provides free and simple monitoring of the number of CT scans and the dose received in comparison with the protocols, which, in turn, will result in clinical recommendations for improving procedures and training.

Keywords: Dosimetric Control, Information Management, Computed Tomography.



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