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Assessment of Exposure Dose Rate from Scattered X-Radiation during Diagnostic Examination in Nigerian University Teaching Hospital

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Abstract : Radiation exposures from diagnostic medical examinations are almost always justified by the benefits of accurate diagnosis of possible disease conditions. The aim is to assess the influence of selected exposure parameters on scattered dose rates. The research was carried out using Gamma Scout software installation on the Computer system (Laptop) to record the radiation counts, pulse rate, and dose rate for 136 patients. Seventy-three patients participated in the male category with 53.7%, while 63 females participated with 46.3%. The mean and standard deviation value for each parameter is recorded, and tube potential is within 69.50±11.75 ranges between 52.00 and 100.00, tube current is within 23.20±17.55 ranges between 4.00 and 100.00, focus skin distance is within 73.195±33.99 and ranges between 52.00 and 100.00. Dose Rate (DRate in µSv/hr) is significant at an interval of 0.582 and 0.587 for tube potential and body thickness (cm). Tube potential is significant at an interval of 0.582 and 0.842 of DRate (µSv/hr) and body thickness (cm). The study was compared with other studies. The exposure parameters selected during each examination contributed to scattered radiation. A quality assurance program (QAP) is advised for the center.

Keywords : x-radiation, exposure rate, dose rate, tube potentials, scattered radiation, diagnostic examination
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