

## Effective Dose Measurement from Diagnostic Radiology Procedures in Some Nigerian Hospitals

Bamidele L.<sup>1</sup> and Osahon .O. D.<sup>2</sup>

1. Department of Science Laboratory Technology, Osun State College of Technology Esa-Oke, Nigeria.
2. Department of Physics, University of Benin, Benin-City, Nigeria.

(Received March 16, 2020; Revised March 21, 2020; Accepted March 31, 2020)

### Abstract

Conventional diagnostic X-ray examination remains the most used diagnostic tool in developing countries like Nigeria despite the technological advancement in other medical imaging technique in recent times. The need to estimate the radiological risk associated with X-ray radiography cannot be over-emphasized. Effective dose has been identified as a risk-weighted measure of radiation to organs and tissue in the body associated with radiological examination. It is considered as good indicator of radiological risk. In the present study, effective dose were estimated from entrance surface dose (ESD) measured using thermoluminescent dosimeter (TLD) in eight hospitals in southern part of Nigeria. Eight radiological procedures such as: chest PA, abdomen AP, Pelvis AP, pelvis LAT, skull AP, skull LAT, lumbar spine AP and lumbar spine LAT were included in the study. The estimated effective dose ranged from 0.02 to 0.22mSv, 0.04 to 2.82mSv, 0.17 to 2.96mSv, 0.19 to 1.84mSv, 0.018 to 0.13mSv, 0.01 to 0.09mSv, 0.10 to 2.15mSv and 0.04 to 0.22mSv for chest PA, abdomen AP, pelvis AP, pelvis LAT, skull AP, skull LAT, lumbar spine AP and lumbar spine LAT respectively. Generally the mean effective doses obtained from the present study were comparable with what was obtained in the earlier studies within Nigeria and other countries.

**Key words:** *Effective dose, Dose optimization, Radiological risks.*