Occupational Exposure
Evaluation of a Nuclear Medicine Department between 1999 and 2003

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Abstract: The occupational exposure is the exposure of workers due to their work. With the individual
monitorization of the external radiation it is possible to get an approximated value of the effective dose
and of the equivalent dose to the skin. The effective doses evaluation allows us to verify if these values
are bellow the threshold established by law (The Portuguese law from 1990 established levels under 50
mSv/year for professionals and another law from 1997 established levels under 0,4 mSv/week, which is
equivalent to 20 mSv/year, also for professionals). We analysed the values of the TLD dosimeters used by
the workers during their professional activity between 1999 and 2003, in a Nuclear Medicine Department.
We use six professional groups and we analysed the equivalent dose in depth achieved (mSv/year). The
workers are physicians, medical physicists, technicians, nurses, secretaries and helpers. From the analysis
of the results it is possible to demonstrate that the equivalent dose in depth achieved by the workers are
under the threshold established and that we work under good conditions of radiation protection.

1. Introduction

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equivalent to 20 mSv/year, also for professionals).

2. Materials and Methods

We analyse the values of the TLD dosimeters used by the workers during their professional
activity between 1999 and 2003, in a Nuclear Medicine Department.
We use whole body dosimeters, which provides a measurement of the deep (DDE) and shallow
(SDE) radiation dose equivalent, received by the whole body. The dosimeter is at chest level or
at waist, on the torso.
We use the professional groups (physicians, medical physicists, technicians, nurses, secretaries
and helpers) and we analyse the equivalent dose in depth achieved (mSv/year).
3. Results

Physicians

Medical Physicists

Technicians
4. Conclusions

The results demonstrate that the equivalent doses in depth achieved by the workers are under the threshold established and that we work under good conditions of radiation protection. It is also important to note that we started with PET exams with 18F-FDG, in March of 2003 and the results of the equivalent doses don’t achieved higher values.