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Radiation Protection Dosimetry

Volume 154, Issue 4, May 2013, Pages 446–458

## Estimation of the collective dose in the portuguese population due to medical procedures in 2010 (Article)

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### Abstract

In a wide range of medical fields, technological advancements have led to an increase in the average collective dose in national populations worldwide. Periodic estimations of the average collective population dose due to medical exposure is, therefore of utmost importance, and is now mandatory in countries within the European Union (article 12 of EURATOM directive 97/43). Presented in this work is a report on the estimation of the collective dose in the Portuguese population due to nuclear medicine diagnostic procedures and the Top 20 diagnostic radiology examinations, which represent the 20 exams that contribute the most to the total collective dose in diagnostic radiology and interventional procedures in Europe. This work involved the collaboration of a multidisciplinary taskforce comprising representatives of all major Portuguese stakeholders (universities, research institutions, public and private healthcare providers, administrative services of the National Healthcare System, scientific and professional associations and private service providers). This allowed us to gather a comprehensive amount of data necessary for a robust estimation of the collective effective dose to the Portuguese population. The methodology used for data collection and dose estimation was based on European Commission recommendations, as this work was performed in the framework of the European wide Dose Datamed II project. This is the first study estimating the collective dose for the population in Portugal, considering such a wide national coverage and range of procedures and consisting of important baseline reference data. The taskforce intends to continue developing periodic collective dose estimations in the future. The estimated annual average effective dose for the Portuguese population was of  $0.080 \pm 0.017$  mSv caput<sup>-1</sup> for nuclear medicine exams and of  $0.96 \pm 0.68$  mSv caput<sup>-1</sup> for the Top 20 diagnostic radiology exams. © The Author 2012. Published by Oxford University Press. All rights reserved.

### Indexed keywords

**EMTREE medical terms:** article; diagnostic imaging; human; information processing; methodology; nuclear medicine; Portugal; radiation dose; radiation injury; radiation protection; radiography; radiology; standard; statistics; time

**MeSH:** Data Collection; Diagnostic Imaging; Humans; Nuclear Medicine; Portugal; Radiation Dosage; Radiation Injuries; Radiation Protection; Radiography; Radiology; Time Factors

*Medline is the source for the MeSH terms of this document.*

ISSN: 01448420 CODEN: RPDOD Source Type: Journal Original language: English

DOI: 10.1093/rpd/ncs258 PubMed ID: 23045717 Document Type: Article