

## PATIENT DOSIMETRY IN PAEDIATRIC DIAGNOSTIC RADIOLOGY

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Patient dosimetry in paediatric diagnostic radiology is of supreme importance owing to the substantially greater radiation hazard to children, conditioned by their higher radiosensitivity and greater life expectancy. The aim of the present work is to explore the applicability of three methods for Entrance Surface Air Kerma (ESAK) estimation for the purposes of patient dosimetry of children, to implement them for practical assessment of typical doses to children for several radiographic examinations, and finally to compare the results obtained through the three methods.

So far data have been collected in two paediatric radiology departments for the following diagnostic examinations: lung radiography (AP and PA projection), micturating cystourethrography (MCU) and intravenous urography (IU). The data sample was subsequently divided into three subgroups according to the age of the children: 0-5, 5-10 and 10-15.

ESAK was measured directly by means of thermoluminescent dosimeters (TLD), and calculated from the Dose-Area Product (DAP) and the Tube output ( $K_{out}$ ). The average values for ESAK are as follows: Group 1 (0-5): 0.07, 0.12, 0.52 and 1.02 mGy for lung radiography AP and PA, IU and MCU respectively; Group 2 (5-10): 0.09, 0.14, 1.36 mGy for lung radiography AP and PA and IU respectively; Group 3 (10-15): 0.21, 1.57, 1.27 for lung radiography PA, IU and MCU. An attempt was made to assess the total uncertainty of each of the methods; the additional sources of uncertainty and error in the two indirect methods were also analyzed. The results obtained from the three methods were compared (wherever possible), commenting on their advantages and drawbacks, as well as on the practical aspects of their routine application.

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