

RESULTS OF A EUROPEAN SURVEY ON PATIENT DOSES IN PAEDIATRIC RADIOLOGY

K. Smans¹, E. Vano², R. Sanchez², F.W. Schultz³, J. Zoetelief³, T. Kiljunen⁴, C. Maccia⁵, H. Järvinen⁴,
R. Bly⁴, A. Kosunen⁴, K. Faulkner⁶, H. Bosmans¹

¹University Hospitals Leuven, Belgium,

²San Carlos Hospital, Madrid, Spain

³Technische Universiteit, Delft

⁴STUK, Helsinki, Finland

⁵CAATS, Bourg-La-Reine, France

⁶Quality Assurance Reference Center, Wallsend, UK

Paediatric patients represent a very specific group within the radiology department. Compared to adult patients, they are more sensitive to radiation. As they are sometimes submitted to several radiology procedures, dose and image quality should be well balanced. Nowadays, only a few centres acquire paediatric images and the knowledge on paediatric doses is therefore very scattered. The effect of the introduction of digital technology on the paediatric doses remains largely undocumented.

To collate the available data on paediatric doses in the different member states represented in the Sentinel group, a questionnaire was circulated. For each examination, it was asked for the type of detector that was used in the local study, the type of dosimetry and the local DRLs, the eventual conversion factors for the calculation of effective dose and the age or weight groups used for data processing. The survey addressed also neonatology departments. The study focused on chest and abdominal examinations in new borns and infants, upper and lower GI tract examinations, micturating cystourethrography and cardiological examinations.

Several hospitals of 11 Member States were involved in the survey. The collected data illustrate that there is a clear need for standardization in this domain. The proposal of a European DRL is quite difficult. Preliminary DRLs, based on typically 5 – 7 radiology centres per examination are proposed. The “effective dose” may or may not be a very rigorous parameter, but it still remains useful nowadays to calculate a parameter that summarizes the possible radiation induced detriment to these young patients. Conversion factors for calculation of the effective dose should be harmonized, however. Future studies should include an image quality evaluation study using criteria that account for digital equipment. Data collection would be straightforward and could be performed in a systematic and automatic way if DICOM headers of digital images would include appropriate as well as relevant information for the particular case of paediatric examinations

E-mail presenting author: hilde.bosmans@uz.kuleuven.ac.be