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European Diagnostic Reference Levels for Paediatric Imaging



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An update on the EC tender project PiDRL. Despite a large number of studies available from European countries, the European DRLs for paediatric patients are only available for some common radiological examinations. There is a need to consolidate what is available and to provide guidance on what actions are needed in using DRLs to further enhance radiation protection of children. The European Commission (EC) recognized this need and approved a project on the establishment of European DRLs for paediatric patients in December 2013. The acronym of this project is PiDRL.

The PiDRL Project

This 27-month tender project was awarded to a consortium, which is headed by the European Society of Radiology (ESR). Other participating organisations include the key European stakeholders and professional groups relating to radiation protection of paediatric patients:

- European Society of Paediatric Radiology (ESPR);
- European Federation of Radiographer Societies (EFRS);
- European Federation of Organisations for Medical Physics (EFOMP);
- Finnish Radiation and Nuclear Safety Authority (STUK) with Public Research Centre Henri Tudor (CRP-HT) as subcontractor.

PiDRL is intended to provide European DRLs for the most frequent paediatric examinations and to promote their use so as to advance the optimisation of radiation protection of paediatric patients, with a focus on CT and interventional procedures using fluoroscopy.

The specific objectives of the project are to agree on a methodology for establishing and using DRLs for paediatric imaging and to update and extend the European paediatric DRLs.

To fulfill these objectives, this project especially relies on:

- The cooperation of the most relevant European umbrella organisations and their key experts in this field, supported by a radiation protection authority with wide experience on setting DRLs and radiation protection of paediatric patients, further supported by its subcontractors of a paediatric hospital and an IT expert institute.
- A European Workshop to discuss and disseminate the results of the work packages, in particular the new insights gained, the needs for further action on DRLs and their use in the optimisation of radiation protection of paediatric patients.

- An Expert Advisory Panel made up by representatives of national and international organisations.
- Interaction with the Working Party on Medical Exposures of the Article 31 Group of Experts of the EURATOM Treaty during the project lifetime for feedback on the work performed.

The PiDRL project has very recently drafted European Guidelines on how to establish and how to use paediatric DRLs.

A comprehensive European and worldwide review of DRLs for paediatric examinations has indicated that only a few countries have set DRLs for paediatric examinations and there is a complete lack of national DRLs for many examinations, in particular for paediatric interventional fluoroscopically-guided procedures. Furthermore, the existing DRLs are often adopted from the old EC recommendations or from other countries and only a few countries have based their DRLs on their own national patient dose surveys. In many countries, the initial DRLs have never been updated.

Conclusion

There is a need to establish DRLs for radiologic examinations and procedures where DRLs are not available and provide guidance on what actions are needed in using DRLs to further enhance radiation protection of children. PiDRL Guidelines provide an important tool for the establishment and use of paediatric DRLs for x-ray procedures. These guidelines cover a wide spectrum of modalities including radiography, computed tomography and fluoroscopy. Based on the critical review of all paediatric national DRLs set by authoritative bodies in the European countries, European DRLs have been suggested for radiography, fluoroscopy and CT. The PiDRL project has also performed two limited surveys on cardiac fluoroscopically-guided procedures and non-cardiac fluoroscopically-guided procedures.

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Key Points

- There is a need to provide guidance on what actions are needed in using DRLs to further enhance radiation protection of children.
- PiDRL aims to promote DRLs to optimise radiation protection of paediatric patients, with a focus on CT and interventional procedures using fluoroscopy.
- Existing DRLs are often adopted from the old EC recommendations and very few countries have based their DRLs on their own national patient dose surveys.

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