Diagnostic Reference Levels – a tool for implementing ALARA into medical practices

Diagnostic reference levels (DRL):
Dose levels in radiology for typical examinations for broadly defined types of equipment determined for a “typical patient”. These levels are expected not to be exceeded for standard procedures when good and normal practice regarding diagnostic and technical performance is applied.

Radiological Protection in Medicine before DRL
- Justification
- Optimisation
- No dose limit to patients
- No dose constraints for different investigations
- No dose measurements routinely performed

Diagnostic Reference Levels
- Required by the EC Medical Exposure Directive
- Recommended e.g. by IAEA and ICRP
- Incorporated in National regulations

Swedish Approach
- Measurements have to performed in the hospitals
- All hospitals and departments involved
- Typical dose for a typical patients is determined
- Action when exceeding reference levels by the hospitals

Typical dose distribution – huge range and some outliers
- Requirement for further analysis met e.g. comparing technique
- Further optimisation possible
- Possible dose reduction

• Investigate demanded
• Result:
  - Change of technique
  - Change of equipment
• Radiation dose reduced

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Immediate outcome of DRL
- RP work is high lighted at all levels in the organisation
- Reduced radiation dose to patients
- Improved documentation of examination technique
- Improved competence in dosimetry in the hospitals
- Improved knowledge and awareness of RP in the hospital

Long term outcome of DRL
- Improved status of the safety work
- Improved safety culture
- Improved quality assurance systems
- Improved awareness by suppliers and manufactures
- ALARA is an integrated part of the daily work