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Inspecting optimisation in medical imaging Views from WG 3

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Inspecting optimisation

- How do you verify optimisation in inspection?
  - Varies between countries:
    - Checking protocols and procedures
    - Observing people at work
    - Measurements

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Examination protocols

- Are parameters in touch with reality?
- Many parameters that the users need to know and know how to use
- Focus on paediatric and high dose examinations:
  - Priority from RP perspective
  - Used as a lever for awareness creation/stimulation: no one opposes to the idea of going the extra mile for baby or child

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DRLs

- Possible to use DRLs for optimisation
- Are DRLs or dose data used in practice for optimisation?
  - Perceived as legal obligation instead of tool for optimisation
  - Concept often wrongly understood: DRL as "optimal dose", *the* reference instead of the upper limit of what can be tolerated in standard procedure on standard patient

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MD's and dose

- Medicine seen as art, rather than science: a certain "allergy" when it comes to figures
- Dose concepts used in RP hardly ever understood by non-radiologists: cardiologists, neurologists, orthopaedic surgeon,….
- Even if understood, rarely considered relevant
  - Prime interest = image, allowing comfortable and confident clinical work (diagnostic +)
  - Not interest in abstract dose, but in risk inflicted to that particular patient
  - In interventional radiology : possible radiation induced risk seen as trivial if compared to all other risks (underlying pathology, anaesthesia, surgery, ..)

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Dose limiting tools/techniques

- Questions in inspections for example:
  - Are dose limiting tools/technique available?
  - Are they used?
  - Is staff trained to use them?

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Training of staff and occupational issues

- Training is not optimisation but it leads (can lead) to good practises
- Retraining maintains good practise
- Personal dosimetry should be inspected and reviewed if high (or unbelievably low!)

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E&T of medical staff

- Probably too much emphasis on knowledge, too little on skills/attitudes
- Typical E&T should be reconsidered
  - no "rocket science", but ABC:
    - Does the surgeon need to know about decay series, alphas and neutrons?
    - Why impose DRL's if they don't even know where the tube is, what a collimator is,….?
  - KISS-approach in teaching them RP is the right way to start

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Equipment and QC

- Maintenance and local personal should be in contact
  - Update of software leading to higher doses without knowledge of staff
- Should be part of local quality system to have procedures regarding exposure index and rejected images

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Conclusion

- Lack of knowledge of how to operate equipment = lack of optimisation
- Inspections should include looking at protocols, equipment, doses, staff skills and the use of dose limiting tools/techniques
- Inspections should promote practices improvements

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