Optimisation: General issues

- Definition – what is optimisation?
  - Optimisation of protection
  - Actual process of weighing image quality and patient dose
  - Dose limiting tools / techniques
- Optimisation is generally part of inspection
  - Should include patient as well as staff
  - If patient and staff are not covered by the same authority
    - Good cooperation is encouraged

Optimisation: General issues, cont.

- Elements in inspection
  - Following a few procedures – especially beneficial in interventional radiology (therapy and diagnosis)
  - Interviews
  - Documentation
  - Measurements included by some countries
- Focus of inspection
  - Compliance with requirements
  - Good if the inspected department also sees benefit from inspection

Optimization: Inspector training

- Quite diverse training programs
  - Formalized
  - Non-formalized
- Clinical experience is an advantage
- Apprenticeship with experienced inspector should be included

Optimisation: Examination protocols

- Availability of examination protocols should be included
  - Manufacturer protocols need local optimisation!
- Documented procedures for updating of protocols
  - Who can do it?
  - Who can approve it?
- Is exposure index used by staff?
- Optimisation of staff protection should be included
- Paediatric protocols
  - Children are NOT small adults!

Optimisation: DRLs

- National DRLs are established
  - In general based on national surveys
  - Update could be improved in some countries
- Review of documentation for local standard doses should be included in inspection
  - If doses are higher than DRLs: The hospital should explain + plan for improvement
- Large potential for improving understanding of DRLs in different professions
  - Limiting factor for the correct / appropriate use of DRL’s
  - Further education needed!!
Optimisation: Dose limiting tools/techniques

- Check availability and use
  - Patient positioning techniques
  - Exposure factors
  - Optimization
  - Virtual collimation
  - Pulsed fluoroscopy (pulse rate)
  - Multiple projection angles
  - Last image hold

- Intention in requirements should be recognised
  - If presence of a tool is required ⇒ it should be used!

Optimisation: Training of staff

- Practical training (optimisation tools) should be provided for:
  - Surgeons
  - Neurologists
  - Cardiologists

- Should be targeted for these groups – clinical perspective

- CPD encouraged

- Provider of training:
  - Specific equipment: vendor
  - RP aspects: multi-disciplinary team

Optimisation

- Good practices
  - Following actual procedures – see the practical implementation

- Limiting factors
  - Understanding of the concept of optimisation, especially DRLs, is limited