An assessment of eye doses in the UK, Ireland, USA and France

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Background

- ICRP change to the dose limit for the eye.

  "for occupational exposure in planned exposure situations the Commission now recommends an equivalent dose limit for the lens of the eye of 20 mSv in a year, averaged over defined periods of 5 years, with no single year exceeding 50mSv."

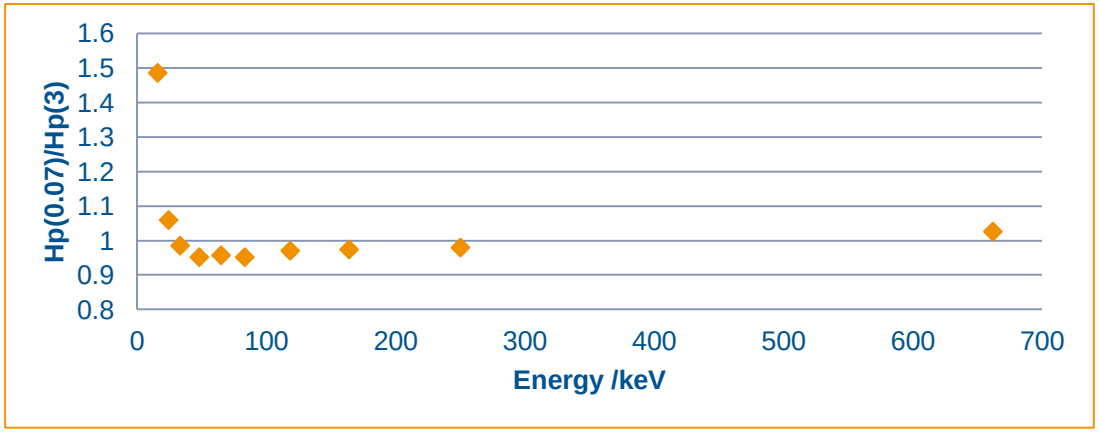
- Introduction into Basic Safety Standards.
- Introduction to national legislation.
- Current requirement to assess likely impact.

Objectives

- Assessment of significance of the change in real working environments:
  - Medical
    - Nuclear Medicine
    - Interventional radiology
    - PET
  - Nuclear
- Inform us on the need for new dosimetry systems.
- Inspire consideration of appropriate ways to monitor personnel.

Metrology

- Conversion coefficients.
- Effect of calibration on Slab vs Pillar phantom (less than 20%).
- Hp(0.07) a good indicator of Hp(3)



From Behrens, Rad Prot Dosim 47, 3, 373 – 379 and ISO 4037 - 3

Dosemeter

- Use of currently available Landauer dosemeters:
  - TLD
  - OSL nanoDot
  - Luxel+ dosemeter
- Calibration on Slab phantom.
- Doses currently reported as Hp(0.07).

Participating organisations

- United Kingdom
  - Mount Vernon Cancer centre
  - Royal Berkshire Hospital
  - Gartnavel Royal Hospital
- Ireland
  - Galway University Hospital
- France
  - EDF
- USA
  - F.X.Masse Assoc Inc ,Gloucester, Ma.

Preliminary results

- Need for classification for Nuclear Medicine and PET staff dependent on workload and procedural technique
- Most highly exposed in Nuclear Medicine were those injecting patients.
- With the use of a collar dosemeters (Luxel+):
  - a factor of three adjustment from the collar reading to the unshielded eye.
  - and a dose factor of 10 for the shielded eye dose.
  - also for whole body dose
- Compliance will be a big issue.

Future work

- In field calibration of TLD and nanoDot dosemeters.
- Review of results to take account of revised conversion factors and pillar phantom.
- Publication later this year.