CONTROLLING MEDICAL X-RAYS

NCRP REPORT 160 (2009)

FGR 9 (1976):
- Addresses:
  - Diagnostic x-ray procedures
  - Film image quality (technique)
  - Keeping operator doses ALARA

Update (early 2010?):
- Reflects new digital imaging technology
- Includes diagnostic and interventional procedures
- Addresses CT usage (opportunistic screening; pediatric doses)

RADIATION DOSE ASSESSMENTS

FGR 11 (1988):
- Inhalation and ingestion dose conversion factors (DCFs)
- Based on ICRP 26 dosimetry (1975)
- Used for compliance with ICRP 26 based regulations (e.g. 10 CFR 20)
- Based on “Reference Man” (for adult workers)

FGR 12 (1993):
- Provides dose conversion factors for external radiation sources
  - Surface soil contamination
  - Various depths of volume soil contamination
  - Dose coefficients for water immersion
  - Dose coefficients for air submersion

Decisions required for updating FGR 11 & FGR 12:
- Whether to use ICRP 60 or ICRP 103
- Whether to provide gender-specific occupational DCFs
- Whether to publish age- and gender-specific DCFs

FGR 13 (1999):
- Provides age-averaged cancer risk coefficients for over 800 radionuclides
- Separate coefficients for food and water ingestion, inhalation and external exposure
- Estimates excess cancer risk following chronic exposure to radionuclides

HUMAN HEALTH RISK ASSESSMENTS

Process for Updating FGR 13:
- NAS BEIR VII provided EPA with updated information on radiogenic cancer risk
- EPA’s White Paper outlined approach for updating the “Blue Book” (Estimating Radiogenic Cancer Risks)
- SAB advisory on White Paper
  - January 2008
  - Draft revised “Blue Book” now under SAB review
- Update to FGR 13 - 2-3 years away