

Radiation Protection of patients in Computed Tomography

Session Chairs: P.L. Khong (Hong Kong, China)

P. Shrimpton (UK)

Presentations:

- 1) New Developments in CT technology and their impact on patient protection; W. Kalender (Germany)**
- 2) Radiation Protection in Paediatric CT; W. Lee (Korea)**
- 3) Reporting of Dose in CT; W. Hendee (USA)**

Figure XVI. Trend in the annual collective effective dose from diagnostic medical radiological examinations

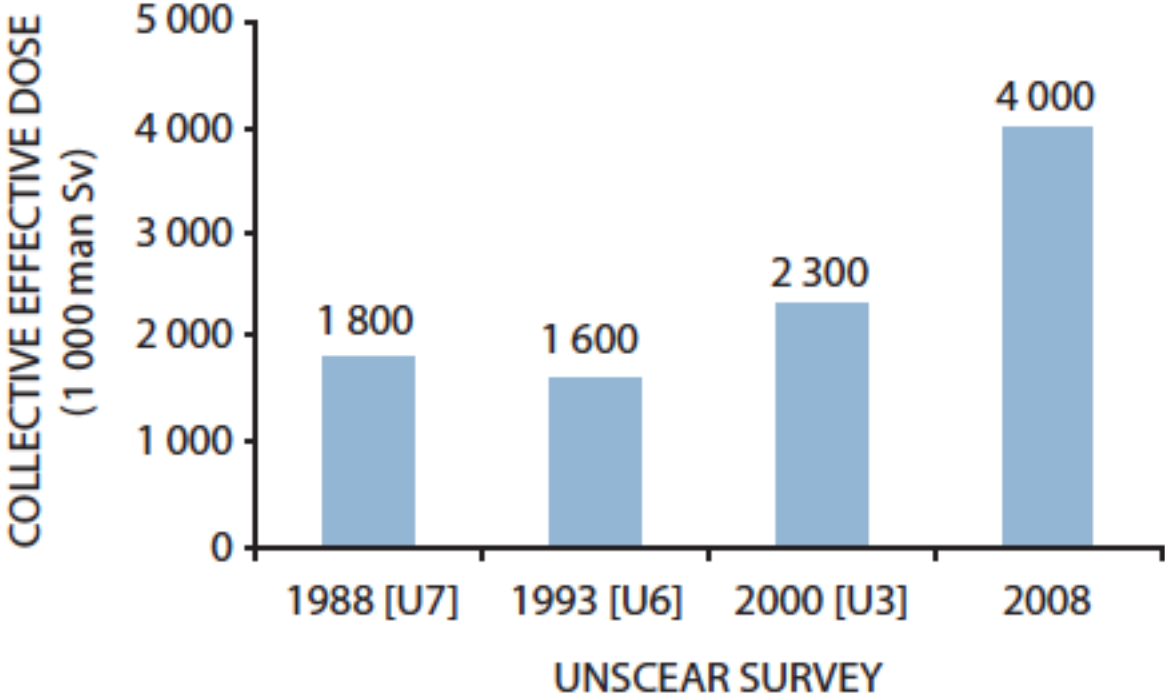


Figure XIII. Annual per caput effective dose (mSv) for the United States population in 1980 [M37]

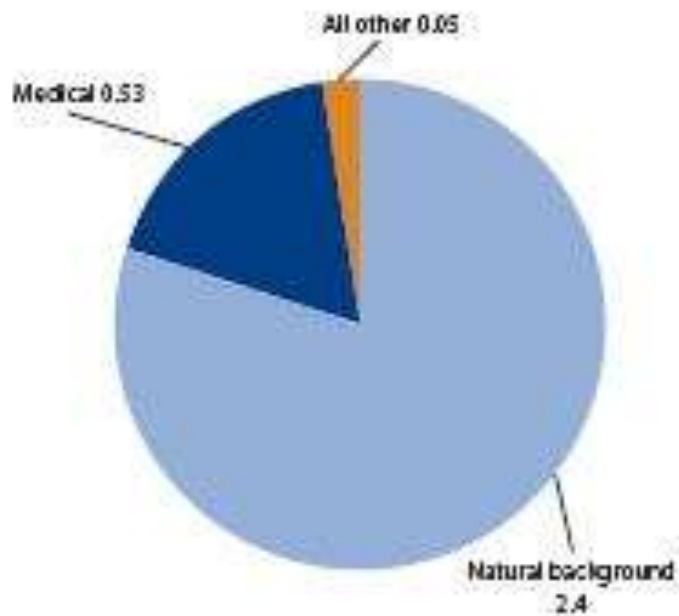
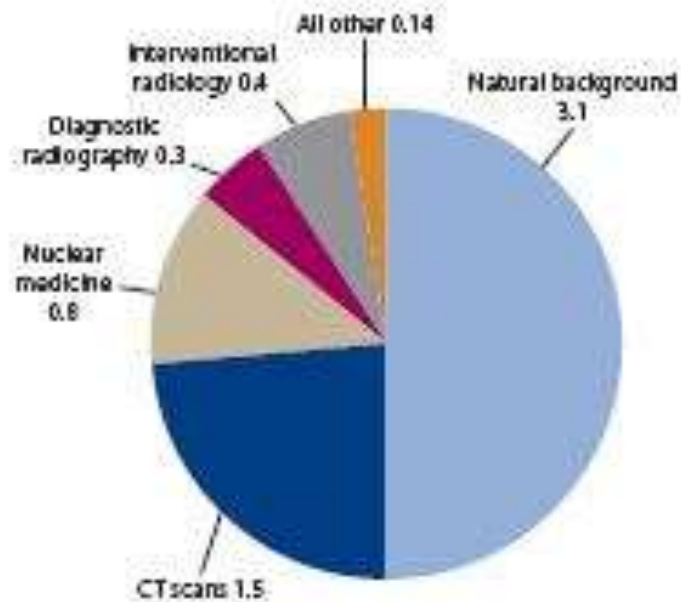


Figure XIII. Annual per caput effective dose (mSv) for the United States population in 2006 [M26]

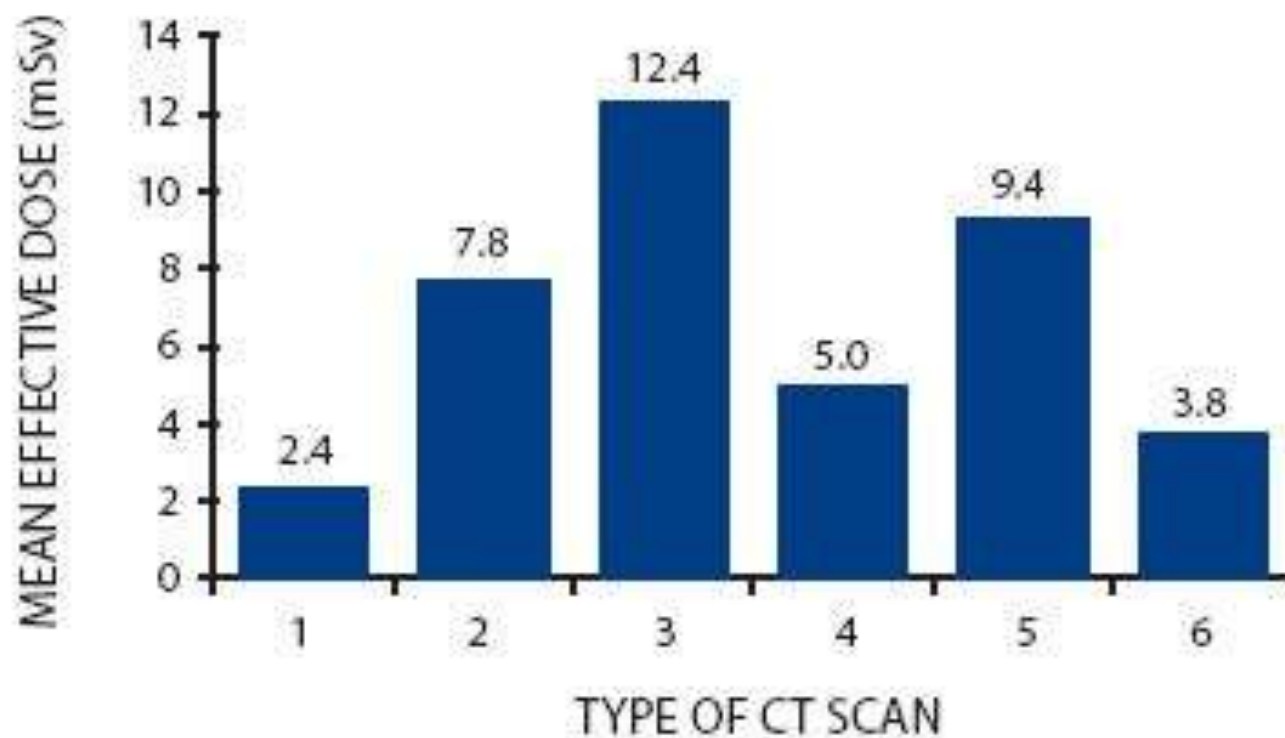


Annual per caput effective dose (mSv) for the USA population in 1980 and 2006

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Figure B-X. Mean effective doses for various CT examinations in health-care level I countries

1: head; 2: thorax; 3: abdomen; 4: spine; 5: pelvis; 6: other



Justification

- Developing and adopting clinical referral guidelines
- Issues with inappropriate or unnecessary examinations
 - Estimated to be at least 25%
 - Patient self-presentation
 - Financially motivated self-referral
 - Defensive medicine
 - Reimbursement patterns

Optimisation

- Dose
 - Developing appropriate protocols
 - Specially tailored for various clinical indications
 - Hybrid modalities and new applications
 - PET-CT, SPECT-CT
 - Cone beam CT
 - CT fluoroscopy
 - Use of CT in Emergency Departments
 - New technologies in equipment to reduce dose
 - Submillisievert imaging

Optimisation

- Reporting of dose and CT dose measurement
 - $CTDI_{vol}$, DLP, effective diameter, SSDE (size-specific dose estimate)
- CT dose; in developing countries
- DRLs, updating of, especially for Paediatric CT

Audit, Education and Communication

- Reporting of errors and events
- Communication of benefits/risks
 - Estimation of cancer risk
- Consent
 - Which examinations, what to say and how to say it
 - Informed decision making VS informed consent

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