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SUBJECT: Typical Exposures

DATE: December 2011

Following are typical effective whole body radiation doses from common medical imaging procedures, including their related increase in lifetime cancer risk (BEIR VII) and the period of Natural Background radiation that delivers the equivalent radiation dose.

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Dose mSv</th>
<th>Increase in Cancer Risk</th>
<th>Natural Background Radiation Equivalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Year Natural Background Radiation</td>
<td>3</td>
<td>0.03 %</td>
<td>1 year</td>
</tr>
</tbody>
</table>

Radiology

- **4-View Mammography**
  - Dose: 0.4 mSv
  - Increase: 0.004%
  - Equivalent: 1 month

- **Head CT**
  - Dose: 2 mSv
  - Increase: 0.02%
  - Equivalent: 8 months

- **Abdomen CT**
  - Dose: 10 mSv
  - Increase: 0.1%
  - Equivalent: 3.3 years

- **Chest or Skull X-ray**
  - Dose: 0.1 mSv
  - Increase: 0.001%
  - Equivalent: 12 days

- **KUB Exam**
  - Dose: 0.7 mSv
  - Increase: 0.007%
  - Equivalent: 2 months

- **Upper GI with Fluoro**
  - Dose: 5 mSv
  - Increase: 0.05%
  - Equivalent: 1.7 years

- **Dental Panoramic**
  - Dose: 0.01 mSv
  - Increase: 0.0001%
  - Equivalent: 1 day

- **DEXA Hip**
  - Dose: 0.0001 mSv
  - Increase: 0.000001%
  - Equivalent: 18 min

Nuclear Medicine

- **Tc Tetrofosmin (Myoview) Cardiac Stress 33 mCi**
  - Dose: 9 mSv
  - Increase: 0.09%
  - Equivalent: 3 years

- **Tc Sestamibi (Cardiolite) Cardiac Stress 33 mCi**
  - Dose: 10 mSv
  - Increase: 0.1%
  - Equivalent: 3.3 years

- **TI Thallous Chloride Cardiac Stress 2 mCi**
  - Dose: 11.8 mSv
  - Increase: 0.118%
  - Equivalent: 3.9 years

- **Ga Gallium Citrate tumor scan 5 mCi**
  - Dose: 18.5 mSv
  - Increase: 0.185%
  - Equivalent: 6.2 years

- **In Indium WBC scan 0.5 mCi**
  - Dose: 6.7 mSv
  - Increase: 0.067%
  - Equivalent: 2.2 years

- **I Nal Thyroid Uptake (35%) 0.4 mCi**
  - Dose: 3.3 mSv
  - Increase: 0.033%
  - Equivalent: 1.1 years

- **Tc MDP Bone Scan 20 mCi**
  - Dose: 4.2 mSv
  - Increase: 0.042%
  - Equivalent: 1.3 years

- **Tc Hepatolite Liver Scan 5 mCi**
  - Dose: 3.2 mSv
  - Increase: 0.032%
  - Equivalent: 1 year

- **Tc HMPAO cerebral scan 20 mCi**
  - Dose: 6.9 mSv
  - Increase: 0.069%
  - Equivalent: 2.3 years

- **F FDG PET Scan 10 mCi**
  - Dose: 7 mSv
  - Increase: 0.007%
  - Equivalent: 2.3 years

- **Xe Pulmonary Ventilation Scan 30 mCi**
  - Dose: 0.81 mSv
  - Increase: 0.0081%
  - Equivalent: 3 months

- **Tc MAA Lung Scan 4 mCi**
  - Dose: 1.6 mSv
  - Increase: 0.016%
  - Equivalent: 6 months

Typical Radiologic or Nuclear Medicine Technologist Annual Dose

- **Airport Whole Body Scanner**
  - Dose: 0.0002 mSv
  - Increase: 0.00002%
  - Equivalent: 35 minutes

- **Cross Country Roundtrip Flight (NY to Seattle)**
  - Dose: 0.056 mSv
  - Increase: 0.00056%
  - Equivalent: 1 week

Normal Lifetime Natural Background Radiation

- Dose: 240 mSv
- Increase: 2.4%
- Equivalent: 80 years

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1. Increase in cancer risk represents the BEIR VII theoretical risk to be added to the current average lifetime cancer risk of 42%. Therefore, a 1% increase implies a change in lifetime cancer risk from 42% to 43%. In a December, 2011, statement, AAPM states that "Risks of medical imaging at patient doses below 50 mSv for single procedures or 100 mSv for multiple procedures over short time periods are too low to be detected and may be negligible.


http://www.doseinfo-radar.com