

RADIATION DOSE ESTIMATES TO ADULTS AND CHILDREN FROM VARIOUS RADIOPHARMACEUTICALS

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The radiopharmaceuticals and nuclear medicine studies considered in this report are listed in the Table of Contents on page 2. The radiation dose estimates given in the dose tables are based on the assumptions and models given in Chapter 17, Radiation Dosimetry and Safety in: The Pediatric Nuclear Medicine Handbook (Hahn and Gilday, eds., in press).

The radiation dose equivalent estimates are given in mSv per MBq administered. The radiation dose equivalent calculations used the most recent values of quality factor (Q) given in ICRP 30 to convert absorbed doses in mGy to dose equivalents in mSv. Also, the effective dose equivalent for each pharmaceutical is given, based on the definition and tissue weighting factors (w_T) given in ICRP 30.

To convert dose equivalents in mSv/MBq to the traditional units of rem/mCi, multiply the values in the dose tables by the factor 3.7.

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RADIATION DOSE ESTIMATES FOR N-13 L-GLUTAMATE

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Heart Wall | 0.18 | 0.091 | 0.050 | 0.032 | 0.020 | 0.016 |
| Kidneys | 0.058 | 0.023 | 0.013 | 0.0088 | 0.0062 | 0.0051 |
| Liver | 0.17 | 0.073 | 0.038 | 0.026 | 0.017 | 0.013 |
| Ovaries | 0.025 | 0.011 | 0.0060 | 0.0038 | 0.0025 | 0.0020 |
| Pancreas | 2.5 | 0.70 | 0.31 | 0.25 | 0.12 | 0.081 |
| Bone Surfaces | 0.017 | 0.0071 | 0.0036 | 0.0023 | 0.0015 | 0.0012 |
| Red Marrow | 0.019 | 0.0079 | 0.0044 | 0.0029 | 0.0019 | 0.0015 |
| Testes | 0.024 | 0.010 | 0.0055 | 0.0035 | 0.0020 | 0.0015 |
| Urinary Bladder Wall | 0.78 | 0.30 | 0.16 | 0.10 | 0.069 | 0.053 |
| Effective Dose Equivalent | 0.24 | 0.078 | 0.038 | 0.027 | 0.015 | 0.011 |

RADIATION DOSE ESTIMATES FOR Ga-67 CITRATE

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Adrenals | 0.62 | 0.56 | 0.36 | 0.26 | 0.18 | 0.13 |
| Lower Large Intestine Wall | 1.1 | 0.54 | 0.61 | 0.43 | 0.26 | 0.20 |
| Small Intestine | 0.66 | 0.30 | 0.21 | 0.15 | 0.095 | 0.076 |
| Upper Large Intestine Wall | 0.78 | 0.36 | 0.35 | 0.24 | 0.15 | 0.12 |
| Kidneys | 1.2 | 0.48 | 0.28 | 0.19 | 0.14 | 0.11 |
| Liver | 1.3 | 0.58 | 0.32 | 0.22 | 0.15 | 0.11 |
| Ovaries | 0.84 | 0.37 | 0.22 | 0.15 | 0.099 | 0.079 |
| Bone Surfaces | 17 | 5.3 | 2.3 | 1.4 | 0.84 | 0.65 |
| Red Marrow | 4.2 | 1.4 | 0.68 | 0.38 | 0.23 | 0.21 |
| Spleen | 2.1 | 0.83 | 0.46 | 0.30 | 0.20 | 0.14 |
| Testes | 0.70 | 0.29 | 0.16 | 0.10 | 0.064 | 0.052 |
| Effective Dose Equivalent | 1.8 | 0.69 | 0.38 | 0.24 | 0.15 | 0.12 |

RADIATION DOSE ESTIMATES FOR INJECTIONS OF Kr-81m GAS FOR RIGHT HEART STUDIES

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Heart Wall | 0.0021 | 0.0011 | 0.00060 | 0.00038 | 0.00025 | 0.00019 |
| Lungs | 0.00087 | 0.00032 | 0.00017 | 0.00011 | 0.000076 | 0.000051 |
| Ovaries | 0.0000047 | 0.0000019 | 0.00000097 | 0.00000038 | 0.0000016 | 0.00000012 |
| Bone Surfaces | 0.000020 | 0.000010 | 0.0000052 | 0.0000038 | 0.0000027 | 0.0000022 |
| Red Marrow | 0.000011 | 0.0000053 | 0.0000035 | 0.0000029 | 0.0000022 | 0.0000021 |
| Testes | 0.0000016 | 0.00000045 | 0.00000025 | 0.000000092 | 0.000000029 | 0.000000014 |
| Effective Dose Equivalent | 0.00025 | 0.00011 | 0.000063 | 0.000040 | 0.000027 | 0.000020 |

RADIATION DOSE ESTIMATES FOR INHALATION OF Kr-81m GAS

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Lungs | 0.0037 | 0.0013 | 0.00067 | 0.00043 | 0.00030 | 0.00020 |
| Ovaries | 0.0000049 | 0.0000019 | 0.00000081 | 0.00000042 | 0.00000017 | 0.00000014 |
| Bone Surfaces | 0.000024 | 0.000012 | 0.0000063 | 0.0000041 | 0.0000030 | 0.0000023 |
| Red Marrow | 0.000014 | 0.0000066 | 0.0000042 | 0.0000032 | 0.0000024 | 0.0000021 |
| Testes | 0.0000014 | 0.00000056 | 0.00000013 | 0.000000087 | 0.000000022 | 0.000000010 |
| Effective Dose Equivalent | 0.00047 | 0.00017 | 0.000088 | 0.000057 | 0.000040 | 0.000027 |

RADIATION DOSE ESTIMATES FOR ORAL ADMINISTRATION OF Kr-81m IN SOLUTION

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Gallbladder Wall | 0.00012 | 0.000039 | 0.000028 | 0.000018 | 0.0000085 | 0.0000054 |
| Lower Large Intestine Wall | 0.000022 | 0.0000098 | 0.0000058 | 0.0000032 | 0.0000020 | 0.0000016 |
| Small Intestine | 0.000039 | 0.000020 | 0.000012 | 0.0000077 | 0.0000047 | 0.0000037 |
| Stomach Wall | 0.0090 | 0.0027 | 0.0013 | 0.00078 | 0.00054 | 0.00041 |
| Upper Large Intestine Wall | 0.000050 | 0.000025 | 0.000015 | 0.0000096 | 0.0000058 | 0.0000047 |
| Ovaries | 0.000016 | 0.0000077 | 0.0000043 | 0.0000025 | 0.0000015 | 0.0000011 |
| Bone Surfaces | 0.000015 | 0.0000075 | 0.0000039 | 0.0000026 | 0.0000018 | 0.0000015 |
| Red Marrow | 0.0000081 | 0.0000042 | 0.0000029 | 0.0000022 | 0.0000016 | 0.0000014 |
| Testes | 0.0000050 | 0.0000017 | 0.00000049 | 0.00000038 | 0.000000088 | 0.000000076 |
| Effective Dose Equivalent | 0.00057 | 0.00018 | 0.000090 | 0.000054 | 0.000037 | 0.000028 |

RADIATION DOSE ESTIMATES FOR Tc-99m ALBUMIN MICROSPHERES

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Lower Large Intestine Wall | 0.12 | 0.050 | 0.027 | 0.017 | 0.010 | 0.0078 |
| Small Intestine | 0.042 | 0.020 | 0.012 | 0.0078 | 0.0050 | 0.0040 |
| Upper Large Intestine Wall | 0.13 | 0.056 | 0.031 | 0.019 | 0.012 | 0.0090 |
| Kidneys | 0.37 | 0.15 | 0.086 | 0.060 | 0.043 | 0.036 |
| Lungs | 0.92 | 0.35 | 0.18 | 0.12 | 0.086 | 0.058 |
| Ovaries | 0.037 | 0.018 | 0.010 | 0.0066 | 0.0044 | 0.0034 |
| Bone Surfaces | 0.057 | 0.028 | 0.015 | 0.010 | 0.0070 | 0.0056 |
| Red Marrow | 0.030 | 0.014 | 0.0088 | 0.0064 | 0.0045 | 0.0038 |
| Testes | 0.021 | 0.0094 | 0.0049 | 0.0031 | 0.0020 | 0.0015 |
| Thyroid | 0.18 | 0.13 | 0.070 | 0.033 | 0.021 | 0.014 |
| Urinary Bladder Wall | 0.12 | 0.052 | 0.028 | 0.019 | 0.013 | 0.010 |
| Effective Dose Equivalent | 0.20 | 0.080 | 0.043 | 0.020 | 0.014 | 0.010 |

RADIATION DOSE ESTIMATES FOR Tc-99m DISIDA

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|----------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Gallbladder Wall | 1.9 | 0.89 | 0.26 | 0.15 | 0.12 | 0.10 |
| Lower Large Intestine Wall | 0.80 | 0.36 | 0.19 | 0.10 | 0.062 | 0.049 |
| Small Intestine | 0.14 | 0.080 | 0.10 | 0.073 | 0.045 | 0.036 |
| Upper Large Intestine Wall | 0.43 | 0.22 | 0.22 | 0.15 | 0.090 | 0.070 |
| Liver | 0.073 | 0.037 | 0.024 | 0.017 | 0.011 | 0.0087 |
| Ovaries | 0.076 | 0.045 | 0.040 | 0.029 | 0.020 | 0.016 |
| Bone Surfaces | 0.021 | 0.011 | 0.0083 | 0.0057 | 0.0041 | 0.0033 |
| Red Marrow | 0.0099 | 0.0063 | 0.0065 | 0.0053 | 0.0040 | 0.0034 |
| Spleen | 0.018 | 0.0096 | 0.0078 | 0.0051 | 0.0029 | 0.0022 |
| Testes | 0.015 | 0.0079 | 0.0057 | 0.0034 | 0.0024 | 0.0016 |
| Urinary Bladder Wall | 0.078 | 0.037 | 0.039 | 0.026 | 0.032 | 0.025 |
| Effective Dose Equivalent | 0.23 | 0.11 | 0.061 | 0.038 | 0.027 | 0.022 |

RADIATION DOSE ESTIMATES FOR Tc-99m DMSA

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Kidneys | 2.0 | 0.78 | 0.45 | 0.31 | 0.23 | 0.19 |
| Ovaries | 0.037 | 0.018 | 0.010 | 0.0064 | 0.0046 | 0.0035 |
| Bone Surfaces | 0.052 | 0.026 | 0.014 | 0.0091 | 0.0062 | 0.0050 |
| Red Marrow | 0.029 | 0.015 | 0.0095 | 0.0070 | 0.0048 | 0.0041 |
| Testes | 0.020 | 0.0091 | 0.0050 | 0.0032 | 0.0024 | 0.0018 |
| Urinary Bladder Wall | 0.052 | 0.024 | 0.020 | 0.013 | 0.019 | 0.015 |
| Effective Dose Equivalent | 0.16 | 0.067 | 0.039 | 0.027 | 0.020 | 0.016 |

RADIATION DOSE ESTIMATES FOR INHALATION OF Tc-99m DTPA Aerosol (0.25 µm)

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Lower Large Intestine Wall | 0.071 | 0.034 | 0.018 | 0.010 | 0.0079 | 0.0063 |
| Small Intestine | 0.028 | 0.014 | 0.011 | 0.0075 | 0.0052 | 0.0041 |
| Upper Large Intestine Wall | 0.044 | 0.022 | 0.018 | 0.011 | 0.0074 | 0.0057 |
| Kidneys | 0.050 | 0.021 | 0.012 | 0.0080 | 0.0054 | 0.0044 |
| Lungs | 0.23 | 0.089 | 0.047 | 0.030 | 0.021 | 0.015 |
| Ovaries | 0.031 | 0.016 | 0.0099 | 0.0064 | 0.0057 | 0.0045 |
| Bone Surfaces | 0.031 | 0.015 | 0.0083 | 0.0054 | 0.0038 | 0.0031 |
| Red Marrow | 0.019 | 0.0088 | 0.0053 | 0.0036 | 0.0025 | 0.0021 |
| Testes | 0.025 | 0.012 | 0.0069 | 0.0041 | 0.0036 | 0.0026 |
| Thyroid | 0.020 | 0.0095 | 0.0053 | 0.0032 | 0.0018 | 0.0014 |
| Urinary Bladder Wall | 0.34 | 0.14 | 0.078 | 0.049 | 0.064 | 0.050 |
| Effective Dose Equivalent | 0.075 | 0.032 | 0.018 | 0.012 | 0.010 | 0.0080 |

RADIATION DOSE ESTIMATES FOR Tc-99m DTPA Injection

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Kidneys | 0.057 | 0.024 | 0.014 | 0.0095 | 0.0069 | 0.0057 |
| Ovaries | 0.026 | 0.012 | 0.0091 | 0.0061 | 0.0069 | 0.0055 |
| Bone Surfaces | 0.027 | 0.013 | 0.0075 | 0.0052 | 0.0040 | 0.0033 |
| Red Marrow | 0.019 | 0.0084 | 0.0050 | 0.0034 | 0.0027 | 0.0022 |
| Testes | 0.022 | 0.010 | 0.0077 | 0.0049 | 0.0052 | 0.0038 |
| Urinary Bladder Wall | 0.19 | 0.079 | 0.086 | 0.058 | 0.097 | 0.077 |
| Effective Dose Equivalent | 0.034 | 0.015 | 0.0120.0081 | 0.010 | 0.0082 | |

RADIATION DOSE ESTIMATES FOR Tc-99m ECD

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Brain | 0.018 | 0.0085 | 0.0063 | 0.0058 | 0.0055 | 0.0054 |
| Gallbladder Wall | 0.50 | 0.23 | 0.0070 | 0.040 | 0.031 | 0.027 |
| Lower Large Intestine Wall | 0.18 | 0.084 | 0.045 | 0.026 | 0.018 | 0.015 |
| Small Intestine | 0.046 | 0.025 | 0.027 | 0.019 | 0.013 | 0.010 |
| Upper Large Intestine Wall | 0.11 | 0.055 | 0.052 | 0.034 | 0.022 | 0.017 |
| Heart Wall | 0.017 | 0.0086 | 0.0051 | 0.0034 | 0.0023 | 0.0018 |
| Kidneys | 0.073 | 0.030 | 0.019 | 0.013 | 0.0093 | 0.0077 |
| Liver | 0.051 | 0.024 | 0.015 | 0.010 | 0.0069 | 0.0054 |
| Lungs | 0.026 | 0.011 | 0.0060 | 0.0040 | 0.0028 | 0.0020 |
| Ovaries | 0.036 | 0.019 | 0.016 | 0.011 | 0.0099 | 0.0078 |
| Bone Surfaces | 0.028 | 0.014 | 0.0082 | 0.0057 | 0.0044 | 0.0036 |
| Red Marrow | 0.018 | 0.0084 | 0.0056 | 0.0040 | 0.0031 | 0.0025 |
| Testes | 0.021 | 0.010 | 0.0074 | 0.0047 | 0.0048 | 0.0035 |
| Urinary Bladder Wall | 0.18 | 0.075 | 0.083 | 0.055 | 0.093 | 0.073 |
| Effective Dose Equivalent | 0.080 | 0.037 | 0.023 | 0.015 | 0.014 | 0.011 |

RADIATION DOSE ESTIMATES FOR Tc-99m HMPAO

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Brain | 0.024 | 0.011 | 0.0081 | 0.0074 | 0.0070 | 0.0069 |
| Gallbladder Wall | 0.94 | 0.44 | 0.13 | 0.074 | 0.058 | 0.051 |
| Lower Large Intestine Wall | 0.23 | 0.11 | 0.055 | 0.031 | 0.020 | 0.015 |
| Small Intestine | 0.064 | 0.035 | 0.035 | 0.025 | 0.016 | 0.012 |
| Upper Large Intestine Wall | 0.14 | 0.074 | 0.069 | 0.045 | 0.028 | 0.022 |
| Kidneys | 0.35 | 0.14 | 0.084 | 0.058 | 0.042 | 0.035 |
| Liver | 0.14 | 0.065 | 0.038 | 0.027 | 0.018 | 0.014 |
| Lungs | 0.17 | 0.066 | 0.035 | 0.023 | 0.016 | 0.011 |
| Ovaries | 0.047 | 0.024 | 0.018 | 0.012 | 0.0089 | 0.0070 |
| Bone Surfaces | 0.044 | 0.022 | 0.012 | 0.0085 | 0.0060 | 0.0049 |
| Red Marrow | 0.026 | 0.013 | 0.0081 | 0.0059 | 0.0042 | 0.0035 |
| Testes | 0.022 | 0.010 | 0.0063 | 0.0038 | 0.0030 | 0.0023 |
| Thyroid | 0.38 | 0.28 | 0.15 | 0.067 | 0.044 | 0.027 |
| Urinary Bladder Wall | 0.082 | 0.037 | 0.036 | 0.024 | 0.035 | 0.028 |
| Effective Dose Equivalent | 0.16 | 0.076 | 0.038 | 0.024 | 0.018 | 0.014 |

RADIATION DOSE ESTIMATES FOR Tc-99m HEDP

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Kidneys | 0.098 | 0.040 | 0.023 | 0.016 | 0.011 | 0.0093 |
| Ovaries | 0.034 | 0.017 | 0.010 | 0.0068 | 0.0047 | 0.0037 |
| Bone Surfaces | 0.85 | 0.27 | 0.11 | 0.069 | 0.043 | 0.033 |
| Red Marrow | 0.097 | 0.034 | 0.018 | 0.010 | 0.0065 | 0.0057 |
| Testes | 0.031 | 0.016 | 0.0086 | 0.0055 | 0.0034 | 0.0025 |
| Urinary Bladder Wall | 0.48 | 0.20 | 0.11 | 0.074 | 0.051 | 0.040 |
| Effective Dose Equivalent | 0.092 | 0.036 | 0.019 | 0.012 | 0.0084 | 0.0067 |

RADIATION DOSE ESTIMATES FOR Tc-99m HMDP

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Kidneys | 0.065 | 0.027 | 0.015 | 0.010 | 0.0073 | 0.0060 |
| Ovaries | 0.033 | 0.016 | 0.0090 | 0.0060 | 0.0042 | 0.0033 |
| Bone Surfaces | 2.3 | 0.72 | 0.30 | 0.18 | 0.11 | 0.087 |
| Red Marrow | 0.24 | 0.082 | 0.040 | 0.023 | 0.014 | 0.013 |
| Testes | 0.027 | 0.013 | 0.0069 | 0.0044 | 0.0029 | 0.0022 |
| Urinary Bladder Wall | 0.25 | 0.11 | 0.059 | 0.040 | 0.027 | 0.021 |
| Effective Dose Equivalent | 0.14 | 0.049 | 0.024 | 0.015 | 0.0096 | 0.0078 |

RADIATION DOSE ESTIMATES FOR Tc-99m MAA

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Kidneys | 0.038 | 0.018 | 0.011 | 0.0072 | 0.0048 | 0.0037 |
| Liver | 0.16 | 0.075 | 0.042 | 0.030 | 0.021 | 0.016 |
| Lungs | 1.0 | 0.40 | 0.21 | 0.14 | 0.098 | 0.067 |
| Ovaries | 0.023 | 0.011 | 0.0058 | 0.0036 | 0.0023 | 0.0018 |
| Pancreas | 0.057 | 0.029 | 0.017 | 0.011 | 0.0075 | 0.0056 |
| Bone Surfaces | 0.052 | 0.025 | 0.014 | 0.0090 | 0.0063 | 0.0050 |
| Red Marrow | 0.026 | 0.012 | 0.0074 | 0.0054 | 0.0038 | 0.0033 |
| Testes | 0.015 | 0.0070 | 0.0037 | 0.0023 | 0.0014 | 0.0011 |
| Urinary Bladder Wall | 0.12 | 0.050 | 0.028 | 0.018 | 0.012 | 0.0098 |
| Effective Dose Equivalent | 0.17 | 0.069 | 0.0380.025 | 0.018 | 0.013 | |

RADIATION DOSE ESTIMATES FOR Tc-99m MAG3

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Kidneys | 0.041 | 0.016 | 0.0097 | 0.0067 | 0.0049 | 0.0041 |
| Ovaries | 0.013 | 0.0069 | 0.0083 | 0.0058 | 0.0085 | 0.0067 |
| Bone Surfaces | 0.0053 | 0.0027 | 0.0022 | 0.0015 | 0.0019 | 0.0015 |
| Red Marrow | 0.0027 | 0.0014 | 0.0015 | 0.0011 | 0.0015 | 0.0011 |
| Testes | 0.014 | 0.0078 | 0.0082 | 0.0054 | 0.0066 | 0.0046 |
| Urinary Bladder Wall | 0.37 | 0.15 | 0.17 | 0.11 | 0.17 | 0.14 |
| Effective Dose Equivalent | 0.032 | 0.014 | 0.015 | 0.010 | 0.015 | 0.012 |

RADIATION DOSE ESTIMATES FOR Tc-99m MDP

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Kidneys | 0.092 | 0.037 | 0.021 | 0.014 | 0.010 | 0.0086 |
| Ovaries | 0.031 | 0.015 | 0.0088 | 0.0060 | 0.0042 | 0.0033 |
| Bone Surfaces | 1.6 | 0.49 | 0.21 | 0.12 | 0.076 | 0.059 |
| Red Marrow | 0.16 | 0.056 | 0.028 | 0.016 | 0.0099 | 0.0088 |
| Testes | 0.027 | 0.013 | 0.0073 | 0.0047 | 0.0030 | 0.0022 |
| Urinary Bladder Wall | 0.40 | 0.17 | 0.091 | 0.061 | 0.042 | 0.033 |
| Effective Dose Equivalent | 0.11 | 0.042 | 0.021 | 0.014 | 0.0089 | 0.0072 |

RADIATION DOSE ESTIMATES FOR Tc-99m MIBI

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Gallbladder Wall | 0.24 | 0.11 | 0.047 | 0.030 | 0.021 | 0.018 |
| Lower Large Intestine Wall | 0.58 | 0.27 | 0.14 | 0.078 | 0.047 | 0.037 |
| Small Intestine | 0.12 | 0.064 | 0.076 | 0.055 | 0.034 | 0.027 |
| Upper Large Intestine Wall | 0.32 | 0.16 | 0.16 | 0.10 | 0.064 | 0.050 |
| Heart Wall | 0.043 | 0.022 | 0.013 | 0.0084 | 0.0056 | 0.0044 |
| Kidneys | 0.17 | 0.071 | 0.044 | 0.030 | 0.022 | 0.018 |
| Liver | 0.045 | 0.023 | 0.015 | 0.010 | 0.0066 | 0.0051 |
| Lungs | 0.028 | 0.013 | 0.0071 | 0.0047 | 0.0033 | 0.0024 |
| Ovaries | 0.083 | 0.046 | 0.038 | 0.026 | 0.018 | 0.014 |
| Bone Surfaces | 0.052 | 0.026 | 0.015 | 0.010 | 0.0070 | 0.0058 |
| Red Marrow | 0.034 | 0.016 | 0.011 | 0.0079 | 0.0054 | 0.0045 |
| Spleen | 0.057 | 0.026 | 0.016 | 0.011 | 0.0070 | 0.0052 |
| Testes | 0.038 | 0.018 | 0.012 | 0.0076 | 0.0046 | 0.0035 |
| Thyroid | 0.082 | 0.056 | 0.030 | 0.014 | 0.0093 | 0.0061 |
| Urinary Bladder Wall | 0.19 | 0.084 | 0.10 | 0.068 | 0.047 | 0.037 |
| Effective Dose Equivalent | 0.13 | 0.061 | 0.045 | 0.029 | 0.019 | 0.015 |

RADIATION DOSE ESTIMATES FOR INJECTION OF Tc-99m PERTECHNETATE

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Lower Large Intestine Wall | 0.41 | 0.17 | 0.089 | 0.056 | 0.034 | 0.027 |
| Small Intestine | 0.068 | 0.035 | 0.021 | 0.014 | 0.010 | 0.0082 |
| Stomach Wall | 0.20 | 0.069 | 0.037 | 0.023 | 0.016 | 0.013 |
| Upper Large Intestine Wall | 0.43 | 0.18 | 0.095 | 0.060 | 0.036 | 0.028 |
| Ovaries | 0.068 | 0.034 | 0.021 | 0.014 | 0.011 | 0.0086 |
| Bone Surfaces | 0.044 | 0.021 | 0.012 | 0.0081 | 0.0057 | 0.0048 |
| Red Marrow | 0.029 | 0.014 | 0.0082 | 0.0057 | 0.0040 | 0.0033 |
| Testes | 0.031 | 0.014 | 0.0086 | 0.0054 | 0.0043 | 0.0032 |
| Thyroid | 0.32 | 0.23 | 0.12 | 0.056 | 0.037 | 0.023 |
| Urinary Bladder Wall | 0.12 | 0.051 | 0.048 | 0.032 | 0.046 | 0.036 |
| Effective Dose Equivalent | 0.11 | 0.051 | 0.029 | 0.018 | 0.014 | 0.011 |

RADIATION DOSE ESTIMATES FOR INFUSION OF Tc-99m PERTECHNETATE*

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Kidneys | 0.00042 | 0.00019 | 0.00011 | 0.000056 | 0.000026 | 0.000018 |
| Ovaries | 0.0036 | 0.0020 | 0.0013 | 0.00090 | 0.00062 | 0.00049 |
| Bone Surfaces | 0.00092 | 0.00048 | 0.00026 | 0.00018 | 0.00012 | 0.000094 |
| Red Marrow | 0.00034 | 0.00021 | 0.00017 | 0.00014 | 0.000094 | 0.000072 |
| Testes | 0.0043 | 0.0024 | 0.0013 | 0.00085 | 0.00048 | 0.00034 |
| Urinary Bladder Wall | 0.12 | 0.051 | 0.028 | 0.019 | 0.013 | 0.010 |
| Effective Dose Equivalent | 0.0095 | 0.0042 | 0.0024 | 0.0016 | 0.0011 | 0.00087 |

* Activity assumed to be constant in urinary bladder for 15 minutes.

RADIATION DOSE ESTIMATES FOR Tc-99m PPI

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Kidneys | 0.068 | 0.028 | 0.016 | 0.011 | 0.0077 | 0.0064 |
| Ovaries | 0.037 | 0.018 | 0.010 | 0.0068 | 0.0047 | 0.0038 |
| Bone Surfaces | 1.7 | 0.54 | 0.23 | 0.14 | 0.085 | 0.0066 |
| Red Marrow | 0.19 | 0.065 | 0.032 | 0.019 | 0.012 | 0.010 |
| Testes | 0.031 | 0.015 | 0.0080 | 0.0052 | 0.0033 | 0.0026 |
| Urinary Bladder Wall | 0.29 | 0.12 | 0.066 | 0.045 | 0.031 | 0.024 |
| Effective Dose Equivalent | 0.12 | 0.044 | 0.022 | 0.014 | 0.0090 | 0.0073 |

RADIATION DOSE ESTIMATES FOR Tc-99m LABELED RED BLOOD CELLS (*in-vivo labeling*)

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Liver | 0.063 | 0.030 | 0.017 | 0.012 | 0.0083 | 0.0064 |
| Ovaries | 0.051 | 0.024 | 0.013 | 0.0088 | 0.0060 | 0.0047 |
| Bone Surfaces | 0.065 | 0.031 | 0.017 | 0.012 | 0.0079 | 0.0066 |
| Red Marrow | 0.044 | 0.020 | 0.011 | 0.0075 | 0.0049 | 0.0041 |
| Spleen | 0.16 | 0.066 | 0.037 | 0.024 | 0.016 | 0.012 |
| Testes | 0.041 | 0.018 | 0.010 | 0.0063 | 0.0042 | 0.0033 |
| Urinary Bladder Wall | 0.17 | 0.073 | 0.040 | 0.027 | 0.019 | 0.015 |
| Effective Dose Equivalent | 0.082 | 0.037 | 0.020 | 0.014 | 0.0094 | 0.0072 |

RADIATION DOSE ESTIMATES FOR Tc-99m LABELED RED BLOOD CELLS (*in-vitro labeling*)

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Liver | 0.060 | 0.029 | 0.016 | 0.012 | 0.0079 | 0.0061 |
| Ovaries | 0.049 | 0.023 | 0.013 | 0.0086 | 0.0060 | 0.0046 |
| Bone Surfaces | 0.060 | 0.029 | 0.016 | 0.011 | 0.0073 | 0.0061 |
| Red Marrow | 0.040 | 0.018 | 0.010 | 0.0069 | 0.0046 | 0.0038 |
| Spleen | 0.15 | 0.062 | 0.035 | 0.023 | 0.016 | 0.011 |
| Testes | 0.040 | 0.018 | 0.010 | 0.0064 | 0.0041 | 0.0033 |
| Urinary Bladder Wall | 0.25 | 0.11 | 0.058 | 0.039 | 0.027 | 0.021 |
| Effective Dose Equivalent | 0.084 | 0.037 | 0.021 | 0.014 | 0.0095 | 0.0073 |

RADIATION DOSE ESTIMATES FOR Tc-99m LABELED HEAT DENATURED RED BLOOD CELLS

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Liver | 0.034 | 0.017 | 0.010 | 0.0064 | 0.0037 | 0.0025 |
| Ovaries | 0.029 | 0.012 | 0.0070 | 0.0038 | 0.0022 | 0.0016 |
| Bone Surfaces | 0.052 | 0.025 | 0.013 | 0.0083 | 0.0056 | 0.0043 |
| Red Marrow | 0.023 | 0.011 | 0.0070 | 0.0052 | 0.0035 | 0.0028 |
| Spleen | 9.9 | 3.8 | 2.1 | 1.4 | 0.92 | 0.65 |
| Testes | 0.010 | 0.0042 | 0.0019 | 0.0011 | 0.00062 | 0.00047 |
| Urinary Bladder Wall | 0.018 | 0.0070 | 0.0035 | 0.0021 | 0.0012 | 0.00075 |
| Effective Dose Equivalent | 0.65 | 0.26 | 0.15 | 0.097 | 0.064 | 0.046 |

RADIATION DOSE ESTIMATES FOR Tc-99m SULFUR COLLOID - NORMAL PATIENTS

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Liver | 0.88 | 0.41 | 0.23 | 0.16 | 0.11 | 0.086 |
| Ovaries | 0.028 | 0.013 | 0.0068 | 0.0040 | 0.0022 | 0.0016 |
| Bone Surfaces | 0.065 | 0.029 | 0.014 | 0.0095 | 0.0066 | 0.0051 |
| Red Marrow | 0.10 | 0.036 | 0.019 | 0.011 | 0.0075 | 0.0068 |
| Spleen | 0.80 | 0.31 | 0.18 | 0.12 | 0.076 | 0.053 |
| Testes | 0.0072 | 0.0030 | 0.0013 | 0.00064 | 0.00032 | 0.00022 |
| Effective Dose Equivalent | 0.15 | 0.069 | 0.039 | 0.026 | 0.018 | 0.014 |

RADIATION DOSE ESTIMATES FOR Tc-99m SULFUR COLLOID
INTERMEDIATE-TO-ADVANCED DIFFUSE PARENCHYMAL LIVER DISEASE

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Liver | 0.35 | 0.16 | 0.090 | 0.064 | 0.044 | 0.034 |
| Ovaries | 0.030 | 0.014 | 0.0089 | 0.0060 | 0.0040 | 0.0032 |
| Bone Surfaces | 0.16 | 0.061 | 0.030 | 0.019 | 0.013 | 0.010 |
| Red Marrow | 0.46 | 0.15 | 0.073 | 0.041 | 0.026 | 0.024 |
| Spleen | 3.3 | 1.3 | 0.72 | 0.47 | 0.31 | 0.22 |
| Testes | 0.013 | 0.0054 | 0.0030 | 0.0018 | 0.0011 | 0.00083 |
| Effective Dose Equivalent | 0.32 | 0.12 | 0.069 | 0.045 | 0.030 | 0.022 |

RADIATION DOSE ESTIMATES FOR ORAL ADMINISTRATION OF Tc-99m SULFUR COLLOID

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Lower Large Intestine Wall | 1.4 | 0.64 | 0.31 | 0.17 | 0.10 | 0.080 |
| Small Intestine | 0.22 | 0.13 | 0.16 | 0.12 | 0.073 | 0.058 |
| Stomach Wall | 0.29 | 0.10 | 0.10 | 0.062 | 0.045 | 0.034 |
| Upper Large Intestine Wall | 0.74 | 0.38 | 0.37 | 0.24 | 0.15 | 0.12 |
| Ovaries | 0.12 | 0.073 | 0.064 | 0.045 | 0.031 | 0.024 |
| Bone Surfaces | 0.022 | 0.013 | 0.010 | 0.0073 | 0.0052 | 0.0041 |
| Red Marrow | 0.0094 | 0.0072 | 0.0087 | 0.0074 | 0.0055 | 0.0046 |
| Testes | 0.018 | 0.0096 | 0.0063 | 0.0037 | 0.0019 | 0.0012 |
| Effective Dose Equivalent | 0.20 | 0.098 | 0.0077 | 0.050 | 0.032 | 0.025 |

RADIATION DOSE ESTIMATES FOR Tc-99m LABELED WHITE BLOOD CELLS*

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Liver | 0.27 | 0.13 | 0.071 | 0.051 | 0.035 | 0.027 |
| Ovaries | 0.028 | 0.014 | 0.0095 | 0.0068 | 0.0049 | 0.0038 |
| Bone Surfaces | 0.23 | 0.083 | 0.040 | 0.025 | 0.017 | 0.013 |
| Red Marrow | 0.72 | 0.23 | 0.11 | 0.062 | 0.039 | 0.036 |
| Spleen | 2.8 | 1.1 | 0.60 | 0.39 | 0.26 | 0.18 |
| Testes | 0.012 | 0.0052 | 0.0030 | 0.0019 | 0.0012 | 0.00084 |
| Urinary Bladder Wall | 0.018 | 0.0091 | 0.0058 | 0.0039 | 0.0024 | 0.0018 |
| Effective Dose Equivalent | 0.31 | 0.12 | 0.065 | 0.042 | 0.028 | 0.021 |

* Assuming no 100% labeling efficiency and no label loss. Combine with Tc-99m pertechnetate dosimetry for specific products.

RADIATION DOSE ESTIMATES FOR In-111 LABELED PLATELETS

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Liver | 5.5 | 2.6 | 1.5 | 1.1 | 0.72 | 0.56 |
| Ovaries | 1.6 | 0.76 | 0.42 | 0.27 | 0.18 | 0.14 |
| Bone Surfaces | 2.6 | 1.1 | 0.55 | 0.36 | 0.24 | 0.20 |
| Red Marrow | 2.7 | 1.0 | 0.55 | 0.34 | 0.23 | 0.20 |
| Spleen | 72 | 29 | 17 | 11 | 7.3 | 5.2 |
| Testes | 1.1 | 0.49 | 0.27 | 0.17 | 0.11 | 0.090 |
| Urinary Bladder Wall | 2.0 | 0.89 | 0.51 | 0.33 | 0.23 | 0.18 |
| Effective Dose Equivalent | 6.5 | 2.7 | 1.6 | 1.0 | 0.69 | 0.52 |

RADIATION DOSE ESTIMATES FOR In-111 LABELED RED BLOOD CELLS

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Liver | 1.8 | 0.84 | 0.47 | 0.34 | 0.22 | 0.17 |
| Ovaries | 2.1 | 0.96 | 0.53 | 0.34 | 0.23 | 0.19 |
| Bone Surfaces | 2.5 | 1.1 | 0.59 | 0.39 | 0.26 | 0.22 |
| Red Marrow | 1.8 | 0.74 | 0.41 | 0.27 | 0.18 | 0.15 |
| Spleen | 10 | 4.1 | 2.4 | 1.6 | 1.1 | 0.76 |
| Testes | 1.6 | 0.70 | 0.39 | 0.25 | 0.17 | 0.14 |
| Urinary Bladder Wall | 1.9 | 0.84 | 0.48 | 0.32 | 0.23 | 0.17 |
| Effective Dose Equivalent | 2.4 | 1.1 | 0.59 | 0.39 | 0.26 | 0.20 |

RADIATION DOSE ESTIMATES FOR In-111 LABELED WBC's

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Liver | 8.7 | 4.1 | 2.3 | 1.7 | 1.2 | 0.90 |
| Ovaries | 0.98 | 0.49 | 0.32 | 0.23 | 0.16 | 0.13 |
| Bone Surfaces | 6.7 | 2.4 | 1.2 | 0.74 | 0.49 | 0.38 |
| Red Marrow | 18 | 5.9 | 2.9 | 1.7 | 1.1 | 0.98 |
| Spleen | 81 | 32 | 19 | 12 | 8.2 | 5.9 |
| Testes | 0.42 | 0.18 | 0.10 | 0.067 | 0.042 | 0.030 |
| Effective Dose Equivalent | 8.9 | 3.5 | 2.0 | 1.3 | 0.87 | 0.67 |

RADIATION DOSE ESTIMATES FOR In-114m/In-114 PLATELETS

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Liver | 240 | 98 | 49 | 33 | 21 | 15 |
| Ovaries | 8.3 | 3.1 | 1.6 | 0.93 | 0.54 | 0.42 |
| Bone Surfaces | 43 | 14 | 5.9 | 3.5 | 2.1 | 1.6 |
| Red Marrow | 170 | 52 | 25 | 13 | 7.6 | 7.1 |
| Spleen | 4800 | 1700 | 900 | 560 | 360 | 240 |
| Testes | 8.0 | 3.0 | 1.5 | 0.88 | 0.51 | 0.40 |
| Urinary Bladder Wall | 23 | 8.7 | 4.4 | 2.8 | 1.8 | 1.3 |
| Effective Dose Equivalent | 330 | 120 | 62 | 38 | 24 | 17 |

RADIATION DOSE ESTIMATES FOR In-114m/In-114 LABELED RED BLOOD CELLS

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Liver | 880 | 370 | 180 | 120 | 77 | 56 |
| Ovaries | 110 | 42 | 21 | 12 | 7.4 | 5.7 |
| Bone Surfaces | 330 | 110 | 47 | 28 | 17 | 13 |
| Red Marrow | 1200 | 360 | 170 | 90 | 52 | 49 |
| Spleen | 12000 | 4200 | 2200 | 1400 | 860 | 580 |
| Testes | 110 | 42 | 20 | 12 | 7.2 | 5.5 |
| Urinary Bladder Wall | 110 | 42 | 21 | 12 | 7.2 | 5.6 |
| Effective Dose Equivalent | 980 | 350 | 180 | 110 | 69 | 49 |

RADIATION DOSE ESTIMATES FOR In-114m/In-114 LABELED WBC's

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Liver | 1900 | 780 | 390 | 260 | 160 | 120 |
| Ovaries | 30 | 12 | 6.1 | 3.8 | 2.3 | 1.8 |
| Bone Surfaces | 1800 | 540 | 220 | 130 | 81 | 62 |
| Red Marrow | 7700 | 2400 | 1100 | 590 | 340 | 320 |
| Spleen | 25000 | 8900 | 4700 | 2900 | 1800 | 1200 |
| Testes | 28 | 10 | 5.2 | 3.1 | 1.8 | 1.4 |
| Effective Dose Equivalent | 2600 | 900 | 460 | 270 | 170 | 120 |

RADIATION DOSE ESTIMATES FOR I-123 SODIUM IODIDE

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|----------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Lower Large Intestine Wall | 0.095 | 0.043 | 0.026 | 0.017 | 0.014 | 0.011 |
| Small Intestine | 0.54 | 0.22 | 0.12 | 0.072 | 0.043 | 0.033 |
| Stomach Wall | 0.97 | 0.32 | 0.17 | 0.10 | 0.071 | 0.055 |
| Upper Large Intestine Wall | 0.14 | 0.066 | 0.040 | 0.026 | 0.017 | 0.014 |
| Liver | 0.068 | 0.031 | 0.017 | 0.011 | 0.0066 | 0.0049 |
| Ovaries | 0.11 | 0.052 | 0.031 | 0.020 | 0.015 | 0.012 |
| Bone Surfaces | 0.11 | 0.047 | 0.026 | 0.017 | 0.012 | 0.0098 |
| Red Marrow | 0.055 | 0.024 | 0.014 | 0.0097 | 0.0070 | 0.0058 |
| Testes | 0.051 | 0.022 | 0.014 | 0.0082 | 0.0069 | 0.0051 |
| Thyroid | 47 | 34 | 18 | 8.4 | 5.5 | 3.4 |
| Thymus | 0.16 | 0.070 | 0.029 | 0.015 | 0.0081 | 0.0056 |
| Urinary Bladder Wall | 0.28 | 0.12 | 0.12 | 0.078 | 0.12 | 0.096 |
| Effective Dose Equivalent | 1.6 | 1.1 | 0.59 | 0.28 | 0.19 | 0.12 |

RADIATION DOSE ESTIMATES FOR I-123 HIPURAN

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Kidneys | 0.10 | 0.040 | 0.024 | 0.016 | 0.012 | 0.010 |
| Ovaries | 0.023 | 0.012 | 0.013 | 0.0087 | 0.013 | 0.010 |
| Bone Surfaces | 0.011 | 0.0044 | 0.0033 | 0.0021 | 0.0026 | 0.0020 |
| Red Marrow | 0.0044 | 0.0021 | 0.0021 | 0.0016 | 0.0022 | 0.017 |
| Testes | 0.028 | 0.014 | 0.014 | 0.0085 | 0.010 | 0.0070 |
| Urinary Bladder Wall | 0.72 | 0.30 | 0.35 | 0.23 | 0.38 | 0.30 |
| Effective Dose Equivalent | 0.064 | 0.027 | 0.030 | 0.020 | 0.030 | 0.024 |

RADIATION DOSE ESTIMATES FOR I-123 mIBG

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Adrenals | 0.11 | 0.066 | 0.042 | 0.030 | 0.021 | 0.016 |
| Liver | 0.79 | 0.36 | 0.20 | 0.14 | 0.095 | 0.073 |
| Ovaries | 0.10 | 0.046 | 0.026 | 0.017 | 0.013 | 0.010 |
| Bone Surfaces | 0.16 | 0.066 | 0.034 | 0.022 | 0.015 | 0.012 |
| Red Marrow | 0.081 | 0.035 | 0.020 | 0.013 | 0.0087 | 0.0072 |
| Spleen | 0.30 | 0.12 | 0.068 | 0.045 | 0.029 | 0.021 |
| Testes | 0.077 | 0.032 | 0.019 | 0.012 | 0.0092 | 0.0070 |
| Thyroid | 0.063 | 0.033 | 0.018 | 0.010 | 0.0064 | 0.0048 |
| Urinary Bladder Wall | 0.28 | 0.12 | 0.12 | 0.077 | 0.12 | 0.094 |
| Effective Dose Equivalent | 0.17 | 0.076 | 0.045 | 0.030 | 0.025 | 0.019 |

RADIATION DOSE ESTIMATES FOR I-125 SODIUM IODIDE

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Lower Large Intestine Wall | 0.18 | 0.070 | 0.036 | 0.021 | 0.014 | 0.011 |
| Small Intestine | 0.73 | 0.29 | 0.14 | 0.086 | 0.049 | 0.037 |
| Stomach Wall | 1.4 | 0.43 | 0.21 | 0.12 | 0.084 | 0.064 |
| Upper Large Intestine Wall | 0.30 | 0.12 | 0.060 | 0.035 | 0.020 | 0.015 |
| Liver | 1.2 | 0.49 | 0.26 | 0.18 | 0.11 | 0.086 |
| Ovaries | 0.21 | 0.083 | 0.042 | 0.024 | 0.015 | 0.011 |
| Bone Surfaces | 1.6 | 0.51 | 0.26 | 0.16 | 0.11 | 0.099 |
| Red Marrow | 0.33 | 0.11 | 0.051 | 0.031 | 0.021 | 0.017 |
| Testes | 0.12 | 0.044 | 0.023 | 0.014 | 0.0088 | 0.0065 |
| Thyroid | 2800 | 2100 | 1100 | 510 | 340 | 210 |
| Thymus | 6.5 | 2.4 | 0.63 | 0.16 | 0.042 | 0.024 |
| Urinary Bladder Wall | 0.40 | 0.16 | 0.15 | 0.097 | 0.15 | 0.12 |
| Effective Dose Equivalent | 87 | 63 | 34 | 16 | 10 | 6.4 |

RADIATION DOSE ESTIMATES FOR I-125 mIBG

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Adrenals | 0.37 | 0.22 | 0.13 | 0.092 | 0.060 | 0.042 |
| Liver | 2.8 | 1.2 | 0.66 | 0.45 | 0.29 | 0.22 |
| Ovaries | 0.31 | 0.12 | 0.060 | 0.035 | 0.021 | 0.0016 |
| Bone Surfaces | 0.76 | 0.27 | 0.12 | 0.073 | 0.043 | 0.032 |
| Red Marrow | 0.24 | 0.091 | 0.044 | 0.026 | 0.016 | 0.012 |
| Spleen | 2.5 | 0.97 | 0.54 | 0.35 | 0.23 | 0.16 |
| Testes | 0.24 | 0.092 | 0.047 | 0.028 | 0.018 | 0.014 |
| Thyroid | 0.67 | 0.44 | 0.23 | 0.11 | 0.071 | 0.046 |
| Urinary Bladder Wall | 0.53 | 0.22 | 0.19 | 0.12 | 0.18 | 0.14 |
| Effective Dose Equivalent | 0.66 | 0.27 | 0.14 | 0.093 | 0.066 | 0.049 |

RADIATION DOSE ESTIMATES FOR I-131 SODIUM IODIDE

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Lower Large Intestine Wall | 0.51 | 0.21 | 0.12 | 0.074 | 0.054 | 0.044 |
| Small Intestine | 4.5 | 1.8 | 0.90 | 0.54 | 0.31 | 0.24 |
| Stomach Wall | 7.8 | 2.4 | 1.2 | 0.68 | 0.47 | 0.36 |
| Upper Large Intestine Wall | 0.66 | 0.29 | 0.16 | 0.10 | 0.065 | 0.052 |
| Liver | 1.5 | 0.66 | 0.34 | 0.22 | 0.14 | 0.11 |
| Ovaries | 0.56 | 0.24 | 0.13 | 0.084 | 0.060 | 0.048 |
| Bone Surfaces | 0.79 | 0.37 | 0.23 | 0.16 | 0.12 | 0.10 |
| Red Marrow | 0.71 | 0.32 | 0.19 | 0.13 | 0.097 | 0.083 |
| Testes | 0.38 | 0.15 | 0.082 | 0.050 | 0.036 | 0.028 |
| Thyroid | 5300 | 3900 | 2000 | 880 | 570 | 340 |
| Thymus | 4.0 | 1.8 | 0.78 | 0.38 | 0.18 | 0.12 |
| Urinary Bladder Wall | 2.1 | 0.81 | 0.80 | 0.51 | 0.80 | 0.62 |
| Effective Dose Equivalent | 160 | 120 | 61 | 27 | 17 | 10 |

RADIATION DOSE ESTIMATES FOR I-131 HIPURAN

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Kidneys | 0.54 | 0.20 | 0.11 | 0.076 | 0.054 | 0.045 |
| Ovaries | 0.047 | 0.023 | 0.026 | 0.018 | 0.030 | 0.023 |
| Bone Surfaces | 0.016 | 0.0072 | 0.0052 | 0.0035 | 0.0045 | 0.0036 |
| Red Marrow | 0.015 | 0.0069 | 0.0061 | 0.0045 | 0.0062 | 0.0048 |
| Testes | 0.056 | 0.026 | 0.029 | 0.019 | 0.025 | 0.017 |
| Urinary Bladder Wall | 3.9 | 1.5 | 1.7 | 1.1 | 1.8 | 1.4 |
| Effective Dose Equivalent | 0.30 | 0.12 | 0.12 | 0.080 | 0.13 | 0.10 |

RADIATION DOSE ESTIMATES FOR I-131 mIBG

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Adrenals | 0.90 | 0.88 | 0.58 | 0.42 | 0.29 | 0.20 |
| Liver | 10 | 4.5 | 2.4 | 1.6 | 1.0 | 0.78 |
| Ovaries | 0.97 | 0.41 | 0.22 | 0.14 | 0.094 | 0.074 |
| Bone Surfaces | 0.90 | 0.37 | 0.19 | 0.12 | 0.081 | 0.064 |
| Red Marrow | 1.0 | 0.41 | 0.22 | 0.14 | 0.089 | 0.073 |
| Spleen | 10 | 3.9 | 2.1 | 1.3 | 0.85 | 0.58 |
| Testes | 0.84 | 0.33 | 0.18 | 0.11 | 0.075 | 0.058 |
| Thyroid | 1.3 | 0.89 | 0.47 | 0.22 | 0.14 | 0.090 |
| Urinary Bladder Wall | 2.7 | 1.1 | 1.0 | 0.65 | 0.99 | 0.77 |
| Effective Dose Equivalent | 2.3 | 0.95 | 0.54 | 0.35 | 0.26 | 0.20 |

RADIATION DOSE ESTIMATES FOR INHALATION OF Xe-127 GAS

a) Single inhalation, 30 s breathhold

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Lungs | 0.0052 | 0.0020 | 0.0011 | 0.00072 | 0.00052 | 0.00036 |
| Ovaries | 0.0014 | 0.00063 | 0.00034 | 0.00022 | 0.00015 | 0.00012 |
| Bone Surfaces | 0.0020 | 0.00085 | 0.00044 | 0.00029 | 0.00019 | 0.00015 |
| Red Marrow | 0.0012 | 0.00052 | 0.00029 | 0.00019 | 0.00013 | 0.00010 |
| Testes | 0.0011 | 0.00046 | 0.00025 | 0.00016 | 0.00011 | 0.000087 |
| Effective Dose Equivalent | 0.0018 | 0.00078 | 0.00042 | 0.00028 | 0.00019 | 0.00014 |

b) Five minute rebreathing

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Lungs | 0.010 | 0.0045 | 0.0024 | 0.0016 | 0.0011 | 0.00082 |
| Ovaries | 0.0097 | 0.0044 | 0.0024 | 0.0016 | 0.0010 | 0.00083 |
| Bone Surfaces | 0.013 | 0.0056 | 0.0029 | 0.0019 | 0.0013 | 0.0010 |
| Red Marrow | 0.0081 | 0.0035 | 0.0020 | 0.0013 | 0.00083 | 0.00069 |
| Testes | 0.0076 | 0.0033 | 0.0018 | 0.0011 | 0.00076 | 0.00062 |
| Effective Dose Equivalent | 0.0092 | 0.0040 | 0.0022 | 0.0014 | 0.00096 | 0.00076 |

c) Ten minute rebreathing

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Lungs | 0.013 | 0.0059 | 0.0031 | 0.0021 | 0.0015 | 0.0011 |
| Ovaries | 0.016 | 0.0071 | 0.0039 | 0.0025 | 0.0017 | 0.0014 |
| Bone Surfaces | 0.021 | 0.0090 | 0.0047 | 0.0031 | 0.0020 | 0.0016 |
| Red Marrow | 0.013 | 0.0057 | 0.0032 | 0.0021 | 0.0013 | 0.0011 |
| Testes | 0.012 | 0.0053 | 0.0029 | 0.0018 | 0.0012 | 0.0010 |
| Effective Dose Equivalent | 0.014 | 0.0064 | 0.0035 | 0.0023 | 0.0015 | 0.0012 |

RADIATION DOSE ESTIMATES FOR INHALATION OF Xe-133 GAS

a) Single inhalation, 30 s breathhold

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Lungs | 0.016 | 0.0056 | 0.0028 | 0.0018 | 0.0012 | 0.00082 |
| Ovaries | 0.0019 | 0.00073 | 0.00036 | 0.00022 | 0.00013 | 0.00010 |
| Bone Surfaces | 0.0023 | 0.00088 | 0.00043 | 0.00026 | 0.00016 | 0.00012 |
| Red Marrow | 0.0023 | 0.00086 | 0.00043 | 0.00025 | 0.00015 | 0.00012 |
| Testes | 0.0018 | 0.00069 | 0.00034 | 0.00020 | 0.00012 | 0.000095 |
| Effective Dose Equivalent | 0.0036 | 0.0013 | 0.00067 | 0.00042 | 0.00027 | 0.00019 |

b) Five minute rebreathing

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Lungs | 0.021 | 0.0076 | 0.0038 | 0.0024 | 0.0017 | 0.0011 |
| Ovaries | 0.013 | 0.0051 | 0.0025 | 0.0015 | 0.00090 | 0.00070 |
| Bone Surfaces | 0.016 | 0.0059 | 0.0029 | 0.0018 | 0.0011 | 0.00082 |
| Red Marrow | 0.016 | 0.0059 | 0.0030 | 0.0018 | 0.0010 | 0.00083 |
| Testes | 0.013 | 0.0048 | 0.0024 | 0.0014 | 0.00085 | 0.00066 |
| Effective Dose Equivalent | 0.014 | 0.0054 | 0.0027 | 0.0016 | 0.0010 | 0.00076 |

c) Ten minute rebreathing

| <u>Organ</u> | <u>Estimated Radiation Dose Equivalent (mSv/MBq)</u> | | | | | |
|---------------------------|--|-------------------|-------------------|--------------------|--------------------|--------------|
| | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
| Lungs | 0.022 | 0.0080 | 0.0040 | 0.0026 | 0.0018 | 0.0012 |
| Ovaries | 0.022 | 0.0084 | 0.0042 | 0.0025 | 0.0015 | 0.0012 |
| Bone Surfaces | 0.026 | 0.0098 | 0.0048 | 0.0030 | 0.0018 | 0.0014 |
| Red Marrow | 0.026 | 0.0098 | 0.0049 | 0.0029 | 0.0017 | 0.0014 |
| Testes | 0.021 | 0.0080 | 0.0039 | 0.0024 | 0.0014 | 0.0011 |
| Effective Dose Equivalent | 0.022 | 0.0084 | 0.0042 | 0.0026 | 0.0016 | 0.0012 |

RADIATION DOSE ESTIMATES FOR INJECTIONS OF Xe-133 FOR RIGHT HEART STUDIES

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|---------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Heart Wall | 0.021 | 0.011 | 0.0059 | 0.0036 | 0.0023 | 0.0018 |
| Lungs | 0.14 | 0.049 | 0.024 | 0.016 | 0.011 | 0.0071 |
| Ovaries | 0.000098 | 0.000036 | 0.000017 | 0.0000089 | 0.0000058 | 0.0000037 |
| Bone Surfaces | 0.00095 | 0.00037 | 0.00017 | 0.000096 | 0.000057 | 0.000043 |
| Red Marrow | 0.00022 | 0.000091 | 0.000049 | 0.000033 | 0.000022 | 0.000019 |
| Testes | 0.000069 | 0.000025 | 0.000012 | 0.0000072 | 0.0000042 | 0.0000032 |
| Effective Dose Equivalent | 0.018 | 0.0067 | 0.0034 | 0.0021 | 0.0015 | 0.00099 |

RADIATION DOSE ESTIMATES FOR Tl-201 Chloride*

Estimated Radiation Dose Equivalent (mSv/MBq)

| <u>Organ</u> | <u>Newborn</u> | <u>1-year Old</u> | <u>5-year Old</u> | <u>10-year Old</u> | <u>15-year Old</u> | <u>Adult</u> |
|----------------------------|----------------|-------------------|-------------------|--------------------|--------------------|--------------|
| Brain | 0.24 | 0.10 | 0.075 | 0.064 | 0.058 | 0.057 |
| Lower Large Intestine Wall | 5.9 | 2.4 | 1.2 | 0.73 | 0.43 | 0.33 |
| Small Intestine | 8.0 | 3.2 | 1.6 | 0.99 | 0.57 | 0.44 |
| Stomach | 3.5 | 1.2 | 0.58 | 0.35 | 0.24 | 0.18 |
| Upper Large Intestine Wall | 5.4 | 2.2 | 1.2 | 0.71 | 0.42 | 0.32 |
| Heart Wall | 3.0 | 1.5 | 0.86 | 0.54 | 0.34 | 0.27 |
| Kidneys | 5.3 | 2.0 | 1.1 | 0.77 | 0.54 | 0.45 |
| Liver | 1.2 | 0.54 | 0.29 | 0.19 | 0.12 | 0.093 |
| Ovaries | 1.2 | 0.53 | 0.29 | 0.19 | 0.12 | 0.095 |
| Bone Surfaces | 1.2 | 0.53 | 0.26 | 0.17 | 0.11 | 0.085 |
| Red Marrow | 0.76 | 0.31 | 0.16 | 0.10 | 0.064 | 0.052 |
| Spleen | 2.8 | 1.1 | 0.59 | 0.38 | 0.24 | 0.17 |
| Testes | 34 | 24 | 18 | 15 | 1.9 | 0.80 |
| Thyroid | 9.2 | 6.6 | 3.5 | 1.5 | 0.99 | 0.61 |
| Urinary Bladder Wall | 0.61 | 0.30 | 0.15 | 0.097 | 0.068 | 0.049 |
| Effective Dose Equivalent | 11 | 6.9 | 4.9 | 4.1 | 0.68 | 0.34 |

* At typical administered activities (50-100 MBq), the values in this table for testes in the younger patients should be interpreted as absorbed dose, not dose equivalent, and the effective dose equivalent should be disregarded.