

**Table 35.** Lifetime attributable risk (LAR) and lifetime baseline risk (LBR) for all solid cancers, leukaemia and breast cancer for a 10-year old age-at-exposure

Region	Model	All solid cancers			Leukaemia			Breast cancer	
		Total lifetime exposure (mSv)	LAR (x 10 <sup>-2</sup> ) (males)	LAR (x 10 <sup>-2</sup> ) (females)	Total lifetime exposure (mSv)	LAR (x 10 <sup>-2</sup> ) (males)	LAR (x 10 <sup>-2</sup> ) (females)	Total lifetime exposure (mSv)	LAR (x 10 <sup>-2</sup> ) (females)
①	<b>WHO weighted</b>	26.21	<b>0.5683</b>	<b>0.8594</b>	26.31	<b>0.0199</b>	<b>0.0136</b>	25.88	0.2218
	LSS ERR		0.5797	0.7692		0.0200	0.0150		
	LSS EAR		0.5569	0.9497		0.0198	0.0121		
②	<b>WHO weighted</b>	14.75	<b>0.3169</b>	<b>0.4791</b>	14.74	<b>0.0109</b>	<b>0.0075</b>	14.45	0.1225
	LSS ERR		0.3236	0.4292		0.0110	0.0082		
	LSS EAR		0.3102	0.5291		0.0109	0.0067		
③	<b>WHO weighted</b>	5.97	<b>0.1242</b>	<b>0.1875</b>	5.75	<b>0.0041</b>	<b>0.0028</b>	5.53	0.0450
	LSS ERR		0.1273	0.1684		0.0041	0.0031		
	LSS EAR		0.1210	0.2065		0.0041	0.0026		
④	<b>WHO weighted</b>	10.24	<b>0.1891</b>	<b>0.2840</b>	10.23	<b>0.0068</b>	<b>0.0046</b>	10.02	0.0669
	LSS ERR		0.1969	0.2580		0.0067	0.0049		
	LSS EAR		0.1812	0.3100		0.0069	0.0043		
⑤ to ⑨	<b>WHO weighted</b>	8.59	<b>0.1587</b>	<b>0.2384</b>	8.54	<b>0.0056</b>	<b>0.0038</b>	8.34	0.0556
	LSS ERR		0.1653	0.2166		0.0056	0.0041		
	LSS EAR		0.1521	0.2602		0.0057	0.0036		
<b>LBR (x10<sup>-2</sup>)</b>			<b>40.71</b>	<b>29.09</b>		<b>0.58</b>	<b>0.41</b>		<b>5.54</b>

**Table 36.** Lifetime attributable risk (LAR) and lifetime baseline risk (LBR) for all solid cancers, leukaemia and breast cancer for a 20-year old age-at-exposure

Region	Model	All solid cancers			Leukaemia			Breast cancer	
		Total lifetime exposure (mSv)	LAR (x 10 <sup>-2</sup> ) (males)	LAR (x 10 <sup>-2</sup> ) (females)	Total lifetime exposure (mSv)	LAR (x 10 <sup>-2</sup> ) (males)	LAR (x 10 <sup>-2</sup> ) (females)	Total lifetime exposure (mSv)	LAR (x 10 <sup>-2</sup> ) (females)
①	<b>WHO weighted</b>	23.34	<b>0.3943</b>	<b>0.5909</b>	22.40	<b>0.0146</b>	<b>0.0094</b>	24.17	0.1288
	LSS ERR		0.4214	0.5540		0.0139	0.0093		
	LSS EAR		0.3672	0.6279		0.0153	0.0095		
②	<b>WHO weighted</b>	13.47	<b>0.2246</b>	<b>0.3364</b>	12.87	<b>0.0082</b>	<b>0.0053</b>	13.76	0.0723
	LSS ERR		0.2403	0.3155		0.0078	0.0052		
	LSS EAR		0.2088	0.3572		0.0086	0.0053		
③	<b>WHO weighted</b>	5.81	<b>0.0931</b>	<b>0.1391</b>	5.45	<b>0.0034</b>	<b>0.0022</b>	5.59	0.0290
	LSS ERR		0.1001	0.1308		0.0032	0.0021		
	LSS EAR		0.0861	0.1474		0.0035	0.0022		
④	<b>WHO weighted</b>	9.56	<b>0.1363</b>	<b>0.2024</b>	9.13	<b>0.0052</b>	<b>0.0034</b>	9.71	0.0402
	LSS ERR		0.1487	0.1916		0.0049	0.0033		
	LSS EAR		0.1240	0.2132		0.0055	0.0034		
⑤ to ⑨	<b>WHO weighted</b>	8.11	<b>0.1155</b>	<b>0.1715</b>	7.71	<b>0.0044</b>	<b>0.0028</b>	8.15	0.0337
	LSS ERR		0.1260	0.1624		0.0041	0.0028		
	LSS EAR		0.1051	0.1807		0.0046	0.0029		
<b>LBR (x10<sup>-2</sup>)</b>			<b>40.74</b>	<b>29.07</b>		<b>0.57</b>	<b>0.40</b>		<b>5.55</b>

**Table 37.** Lifetime attributable risk (LAR) and lifetime baseline risk (LBR) for thyroid cancer for a one-year old age-at-exposure

Region	Model	Thyroid		
		Total lifetime exposure (mSv)	LAR (x 10 <sup>-2</sup> ) (males)	LAR (x 10 <sup>-2</sup> ) (females)
①	<b>WHO weighted</b>	122.34	<b>0.1178</b>	<b>0.5241</b>
	LSS ERR		0.0588	0.3033
	LSS EAR		0.1783	0.7510
②	<b>WHO weighted</b>	74.12	<b>0.0712</b>	<b>0.3170</b>
	LSS ERR		0.0356	0.1835
	LSS EAR		0.1078	0.4542
③	<b>WHO weighted</b>	48.52	<b>0.0465</b>	<b>0.2070</b>
	LSS ERR		0.0233	0.1199
	LSS EAR		0.0704	0.2966
④	<b>WHO weighted</b>	47.93	<b>0.0436</b>	<b>0.1942</b>
	LSS ERR		0.0220	0.1134
	LSS EAR		0.0658	0.2774
⑤ to ⑩	<b>WHO weighted</b>	43.13	<b>0.0397</b>	<b>0.1769</b>
	LSS ERR		0.0200	0.1030
	LSS EAR		0.0600	0.2527
⑪ to ⑭	<b>WHO weighted</b>	37.18	<b>0.0347</b>	<b>0.1543</b>
	LSS ERR		0.0174	0.0897
	LSS EAR		0.0524	0.2206
Rest of Fukushima prefecture (less affected)	<b>WHO weighted</b>	31.92	<b>0.0304</b>	<b>0.1351</b>
	LSS ERR		0.0152	0.0783
	LSS EAR		0.0459	0.1935
<b>LBR (x10<sup>-2</sup>)</b>			<b>0.21</b>	<b>0.77</b>

**Table 38.** Lifetime attributable risk (LAR) and lifetime baseline risk (LBR) for thyroid cancer for a 10-year old age-at-exposure

Region	Model	Thyroid		
		Total lifetime exposure (mSv)	LAR (x 10 <sup>-2</sup> ) (males)	LAR (x 10 <sup>-2</sup> ) (females)
①	<b>WHO weighted</b>	96.06	<b>0.0540</b>	<b>0.2454</b>
	LSS ERR		0.0320	0.1693
	LSS EAR		0.0765	0.3237
②	<b>WHO weighted</b>	52.45	<b>0.0294</b>	<b>0.1335</b>
	LSS ERR		0.0174	0.0922
	LSS EAR		0.0416	0.1761
③	<b>WHO weighted</b>	28.32	<b>0.0158</b>	<b>0.0716</b>
	LSS ERR		0.0094	0.0495
	LSS EAR		0.0223	0.0944
④	<b>WHO weighted</b>	29.88	<b>0.0154</b>	<b>0.0701</b>
	LSS ERR		0.0093	0.0488
	LSS EAR		0.0217	0.0920
⑤ to ⑩	<b>WHO weighted</b>	25.65	<b>0.0134</b>	<b>0.0610</b>
	LSS ERR		0.0080	0.0424
	LSS EAR		0.0189	0.0802
⑪ to ⑭	<b>WHO weighted</b>	20.41	<b>0.0108</b>	<b>0.0492</b>
	LSS ERR		0.0065	0.0341
	LSS EAR		0.0153	0.0647
Rest of Fukushima prefecture (less affected)	<b>WHO weighted</b>	15.85	<b>0.0086</b>	<b>0.0393</b>
	LSS ERR		0.0051	0.0272
	LSS EAR		0.0122	0.0518
<b>LBR (x10<sup>-2</sup>)</b>			<b>0.21</b>	<b>0.77</b>

**Table 39.** Lifetime attributable risk (LAR) and lifetime baseline risk (LBR) for thyroid cancer for a 20-year old age-at-exposure

Region	Model	Thyroid		
		Total lifetime exposure (mSv)	LAR (x 10 <sup>-2</sup> ) (males)	LAR (x 10 <sup>-2</sup> ) (females)
①	<b>WHO weighted</b>	64.04	<b>0.0192</b>	<b>0.0881</b>
	LSS ERR		0.0136	0.0703
	LSS EAR		0.0249	0.1065
②	<b>WHO weighted</b>	35.19	<b>0.0105</b>	<b>0.0481</b>
	LSS ERR		0.0074	0.0384
	LSS EAR		0.0136	0.0581
③	<b>WHO weighted</b>	18.22	<b>0.0053</b>	<b>0.0246</b>
	LSS ERR		0.0038	0.0196
	LSS EAR		0.0069	0.0297
④	<b>WHO weighted</b>	20.39	<b>0.0054</b>	<b>0.0247</b>
	LSS ERR		0.0039	0.0199
	LSS EAR		0.0069	0.0297
⑤ to ⑩	<b>WHO weighted</b>	17.09	<b>0.0046</b>	<b>0.0211</b>
	LSS ERR		0.0033	0.0170
	LSS EAR		0.0059	0.0253
⑪ to ⑭	<b>WHO weighted</b>	13.02	<b>0.0035</b>	<b>0.0163</b>
	LSS ERR		0.0025	0.0131
	LSS EAR		0.0046	0.0196
Rest of Fukushima prefecture (less affected)	<b>WHO weighted</b>	9.43	<b>0.0027</b>	<b>0.0122</b>
	LSS ERR		0.0019	0.0098
	LSS EAR		0.0034	0.0147
<b>LBR (x10<sup>-2</sup>)</b>			<b>0.21</b>	<b>0.76</b>

**Table 40.** Cumulative attributable risk ( $AR_{15}$ ) and cumulative baseline risk ( $BR_{15}$ ) for all solid cancers, leukaemia and breast for a one-year old age-at-exposure

Region	Model	All solid cancers			Leukaemia			Breast cancer	
		Total lifetime exposure (mSv)	$AR_{15}$ ( $\times 10^{-2}$ ) (males)	$AR_{15}$ ( $\times 10^{-2}$ ) (females)	Total lifetime exposure (mSv)	$AR_{15}$ ( $\times 10^{-2}$ ) (males)	$AR_{15}$ ( $\times 10^{-2}$ ) (females)	Total lifetime exposure (mSv)	$AR_{15}$ ( $\times 10^{-2}$ ) (females)
①	WHO weighted	26.65	<b>0.0110</b>	<b>0.0191</b>	26.04	<b>0.0252</b>	<b>0.0172</b>	27.47	*
	LSS ERR		0.0182	0.0330		0.0417	0.0291		
	LSS EAR		0.0037	0.0052		0.0088	0.0052		
②	WHO weighted	15.45	<b>0.0063</b>	<b>0.0110</b>	15.01	<b>0.0143</b>	<b>0.0097</b>	15.83	*
	LSS ERR		0.0105	0.0189		0.0235	0.0164		
	LSS EAR		0.0022	0.0030		0.0050	0.0030		
③	WHO weighted	5.77	<b>0.0023</b>	<b>0.0040</b>	5.27	<b>0.0048</b>	<b>0.0033</b>	5.51	*
	LSS ERR		0.0038	0.0068		0.0079	0.0055		
	LSS EAR		0.0008	0.0011		0.0017	0.0010		
④	WHO weighted	8.54	<b>0.0029</b>	<b>0.0049</b>	8.10	<b>0.0059</b>	<b>0.0040</b>	8.62	*
	LSS ERR		0.0047	0.0084		0.0093	0.0065		
	LSS EAR		0.0010	0.0014		0.0024	0.0014		
⑤ to ⑨	WHO weighted	7.15	<b>0.0024</b>	<b>0.0041</b>	6.71	<b>0.0049</b>	<b>0.0033</b>	7.13	*
	LSS ERR		0.0039	0.0071		0.0077	0.0054		
	LSS EAR		0.0009	0.0012		0.0020	0.0012		
<b><math>BR_{15}</math> (<math>\times 10^{-2}</math>)</b>			<b>0.08</b>	<b>0.08</b>		<b>0.03</b>	<b>0.03</b>		<b>0.00</b>

\* The HRA Expert Group considered that the minimum attained age for breast cancer risk expression is 20 years. Note that the baseline female breast cancer rates in Japan used in the present assessment indicate no baseline incidence before age 20 (i.e. rate = zero)

**Table 41.** Cumulative attributable risk ( $AR_{15}$ ) and cumulative baseline risk ( $BR_{15}$ ) for all solid cancers, leukaemia and breast cancer for a 10-year old age-at-exposure

Region	Model	All solid cancers			Leukaemia			Breast cancer	
		Total lifetime exposure (mSv)	$AR_{15}$ ( $\times 10^{-2}$ ) (males)	$AR_{15}$ ( $\times 10^{-2}$ ) (females)	Total lifetime exposure (mSv)	$AR_{15}$ ( $\times 10^{-2}$ ) (males)	$AR_{15}$ ( $\times 10^{-2}$ ) (females)	Total lifetime exposure (mSv)	$AR_{15}$ ( $\times 10^{-2}$ ) (females)
①	<b>WHO weighted</b>	25.8	<b>0.0107</b>	<b>0.0183</b>	25.94	<b>0.0067</b>	<b>0.0049</b>	25.56	0.0049
	LSS ERR		0.0105	0.0215		0.0046	0.0046		
	LSS EAR		0.0108	0.0151		0.0088	0.0052		
②	<b>WHO weighted</b>	14.35	<b>0.0059</b>	<b>0.0101</b>	14.37	<b>0.0036</b>	<b>0.0027</b>	14.13	0.0027
	LSS ERR		0.0058	0.0118		0.0025	0.0025		
	LSS EAR		0.0060	0.0083		0.0048	0.0028		
③	<b>WHO weighted</b>	5.56	<b>0.0022</b>	<b>0.0038</b>	5.38	<b>0.0013</b>	<b>0.0010</b>	5.22	0.0010
	LSS ERR		0.0022	0.0044		0.0009	0.0009		
	LSS EAR		0.0022	0.0031		0.0017	0.0010		
④	<b>WHO weighted</b>	8.13	<b>0.0028</b>	<b>0.0048</b>	8.02	<b>0.0018</b>	<b>0.0013</b>	7.94	0.0012
	LSS ERR		0.0027	0.0056		0.0012	0.0012		
	LSS EAR		0.0029	0.0040		0.0024	0.0014		
⑤ to ⑨	<b>WHO weighted</b>	6.82	<b>0.0024</b>	<b>0.0040</b>	6.69	<b>0.0015</b>	<b>0.0011</b>	6.61	0.0010
	LSS ERR		0.0023	0.0047		0.0010	0.0010		
	LSS EAR		0.0024	0.0034		0.0020	0.0012		
<b><math>BR_{15}</math> (<math>\times 10^{-2}</math>)</b>			<b>0.13</b>	<b>0.16</b>		<b>0.02</b>	<b>0.02</b>		<b>0.01</b>

**Table 42.** Cumulative attributable risk ( $AR_{15}$ ) and cumulative baseline risk ( $BR_{15}$ ) for all solid cancers, leukaemia and breast cancer for a 20-year old age-at-exposure

Region	Model	All solid cancers			Leukaemia			Breast cancer	
		Total lifetime exposure (mSv)	$AR_{15}$ ( $\times 10^{-2}$ ) (males)	$AR_{15}$ ( $\times 10^{-2}$ ) (females)	Total lifetime exposure (mSv)	$AR_{15}$ ( $\times 10^{-2}$ ) (males)	$AR_{15}$ ( $\times 10^{-2}$ ) (females)	Total lifetime exposure (mSv)	$AR_{15}$ ( $\times 10^{-2}$ ) (females)
①	WHO weighted	22.86	<b>0.0150</b>	<b>0.0315</b>	21.95	<b>0.0051</b>	<b>0.0030</b>	23.78	0.0087
	LSS ERR		0.0114	0.0370		0.0028	0.0017		
	LSS EAR		0.0187	0.0260		0.0073	0.0044		
②	WHO weighted	12.99	<b>0.0085</b>	<b>0.0177</b>	12.42	<b>0.0028</b>	<b>0.0017</b>	13.37	0.0049
	LSS ERR		0.0064	0.0208		0.0015	0.0009		
	LSS EAR		0.0105	0.0146		0.0041	0.0024		
③	WHO weighted	5.33	<b>0.0033</b>	<b>0.0070</b>	5.00	<b>0.0011</b>	<b>0.0007</b>	5.2	0.0018
	LSS ERR		0.0025	0.0083		0.0006	0.0004		
	LSS EAR		0.0042	0.0058		0.0016	0.0009		
④	WHO weighted	7.59	<b>0.0042</b>	<b>0.0088</b>	7.16	<b>0.0014</b>	<b>0.0009</b>	7.7	0.0023
	LSS ERR		0.0032	0.0104		0.0008	0.0005		
	LSS EAR		0.0052	0.0073		0.0021	0.0013		
⑤ to ⑨	WHO weighted	6.44	<b>0.0035</b>	<b>0.0075</b>	6.05	<b>0.0012</b>	<b>0.0007</b>	6.46	0.0020
	LSS ERR		0.0027	0.0088		0.0006	0.0004		
	LSS EAR		0.0044	0.0061		0.0018	0.0011		
<b><math>BR_{15}</math> (<math>\times 10^{-2}</math>)</b>			<b>0.36</b>	<b>0.67</b>		<b>0.04</b>	<b>0.02</b>		<b>0.19</b>



**Table 43.** Cumulative attributable risk (AR<sub>15</sub>) and cumulative baseline risk (BR<sub>15</sub>) for thyroid cancer for a one-year old age-at-exposure

Region	Model	Thyroid		
		Total lifetime exposure (mSv)	AR <sub>15</sub> (x 10 <sup>-2</sup> ) (males)	AR <sub>15</sub> (x 10 <sup>-2</sup> ) (females)
①	<b>WHO weighted</b>	122.07	<b>0.0090</b>	<b>0.0325</b>
	LSS ERR		0.0036	0.0104
	LSS EAR		0.0148	0.0564
②	<b>WHO weighted</b>	73.85	<b>0.0054</b>	<b>0.0197</b>
	LSS ERR		0.0022	0.0063
	LSS EAR		0.0090	0.0341
③	<b>WHO weighted</b>	48.25	<b>0.0035</b>	<b>0.0128</b>
	LSS ERR		0.0014	0.0041
	LSS EAR		0.0059	0.0222
④	<b>WHO weighted</b>	45.66	<b>0.0033</b>	<b>0.0118</b>
	LSS ERR		0.0013	0.0038
	LSS EAR		0.0054	0.0204
⑤ to ⑩	<b>WHO weighted</b>	41.49	<b>0.0030</b>	<b>0.0108</b>
	LSS ERR		0.0012	0.0035
	LSS EAR		0.0049	0.0187
⑪ to ⑭	<b>WHO weighted</b>	36.12	<b>0.0026</b>	<b>0.0095</b>
	LSS ERR		0.0010	0.0030
	LSS EAR		0.0043	0.0164
Rest of Fukushima prefecture (less affected)	<b>WHO weighted</b>	31.53	<b>0.0023</b>	<b>0.0084</b>
	LSS ERR		0.0009	0.0027
	LSS EAR		0.0038	0.0145
<b>BR<sub>15</sub> (x10<sup>-2</sup>)</b>			<b>0.0014</b>	<b>0.0040</b>

**Table 44.** Cumulative attributable risk ( $AR_{15}$ ) and cumulative baseline risk ( $BR_{15}$ ) for thyroid cancer for a 10-year old age-at-exposure

Region	Model	Thyroid		
		Total lifetime exposure (mSv)	$AR_{15}$ ( $\times 10^{-2}$ ) (males)	$AR_{15}$ ( $\times 10^{-2}$ ) (females)
①	<b>WHO weighted</b>	95.74	<b>0.0066</b>	<b>0.0302</b>
	LSS ERR		0.0035	0.0236
	LSS EAR		0.0098	0.0373
②	<b>WHO weighted</b>	52.13	<b>0.0036</b>	<b>0.0164</b>
	LSS ERR		0.0019	0.0129
	LSS EAR		0.0053	0.0203
③	<b>WHO weighted</b>	28.00	<b>0.0019</b>	<b>0.0088</b>
	LSS ERR		0.0010	0.0069
	LSS EAR		0.0029	0.0109
④	<b>WHO weighted</b>	27.8	<b>0.0018</b>	<b>0.0084</b>
	LSS ERR		0.0010	0.0066
	LSS EAR		0.0027	0.0103
⑤ to ⑩	<b>WHO weighted</b>	24.13	<b>0.0016</b>	<b>0.0073</b>
	LSS ERR		0.0008	0.0058
	LSS EAR		0.0024	0.0090
⑪ to ⑭	<b>WHO weighted</b>	19.40	<b>0.0013</b>	<b>0.0059</b>
	LSS ERR		0.0007	0.0047
	LSS EAR		0.0019	0.0073
Rest of Fukushima prefecture (less affected)	<b>WHO weighted</b>	15.42	<b>0.0010</b>	<b>0.0048</b>
	LSS ERR		0.0006	0.0038
	LSS EAR		0.0016	0.0059
<b><math>BR_{15}</math> (<math>\times 10^{-2}</math>)</b>			<b>0.01</b>	<b>0.03</b>