MORTALITY FROM SMOKING IN DEVELOPED COUNTRIES 1950–2020
(see also www.deathsfromsmoking.net)
Richard Peto, Alan D Lopez, Hongchao Pan
Jillian Boreham and Michael Thun

UNITED KINGDOM

Raw data (pages 466–67)
Analyses (pages 468–69, 470–71, 472–73)
Appendix (pages 474–75)

(revised September 2015)
## UNITED KINGDOM: 2010

### No. of deaths (Source: WHO)

<table>
<thead>
<tr>
<th>Disease</th>
<th>No. of deaths</th>
<th>Mean age</th>
<th>M</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL CAUSES</td>
<td>270945</td>
<td>8015</td>
<td>74796</td>
<td>562.7</td>
</tr>
<tr>
<td>Tuberculosis</td>
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<td>4639</td>
<td>49737</td>
<td>477.4</td>
</tr>
<tr>
<td>Other infective</td>
<td>2492</td>
<td>1299</td>
<td>7636</td>
<td>3.0</td>
</tr>
<tr>
<td>Cancer sites</td>
<td>3107</td>
<td>1048</td>
<td>5205</td>
<td>6.2</td>
</tr>
<tr>
<td>ALL CANCER</td>
<td>82641</td>
<td>650</td>
<td>26774</td>
<td>203.1</td>
</tr>
<tr>
<td>Mouth and pharynx cancer</td>
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<td>336</td>
<td>533</td>
<td>1.7</td>
</tr>
<tr>
<td>Oesophagus cancer</td>
<td>5109</td>
<td>11205</td>
<td>2193</td>
<td>13.1</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>1545</td>
<td>933</td>
<td>2448</td>
<td>4.2</td>
</tr>
<tr>
<td>Larynx cancer</td>
<td>1417</td>
<td>1899</td>
<td>599</td>
<td>3.7</td>
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<tr>
<td>Stomach cancer</td>
<td>3105</td>
<td>1487</td>
<td>871</td>
<td>7.5</td>
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<tr>
<td>Pancreas cancer</td>
<td>4037</td>
<td>61205</td>
<td>205</td>
<td>7.8</td>
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<tr>
<td>Larynx cancer</td>
<td>601</td>
<td>2825</td>
<td>660</td>
<td>1.6</td>
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<td>Lung cancer</td>
<td>160</td>
<td>66</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Malignant melanoma</td>
<td>1256</td>
<td>3257</td>
<td>577</td>
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</tr>
<tr>
<td>Leukaemia</td>
<td>938</td>
<td>1421</td>
<td>42</td>
<td>2.0</td>
</tr>
<tr>
<td>Female breast cancer</td>
<td>11576</td>
<td>53895</td>
<td>4986</td>
<td>24.3</td>
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<tr>
<td>Cervix cancer</td>
<td>940</td>
<td>698</td>
<td>508</td>
<td>2.4</td>
</tr>
<tr>
<td>Other uterine cancer</td>
<td>1938</td>
<td>681</td>
<td>5660</td>
<td>4.0</td>
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<tr>
<td>Prostate cancer</td>
<td>421</td>
<td>273</td>
<td>1788</td>
<td>9.1</td>
</tr>
<tr>
<td>Suicide</td>
<td>140</td>
<td>195</td>
<td>682</td>
<td>4.6</td>
</tr>
<tr>
<td>Hodgkin lymphomas</td>
<td>174</td>
<td>288</td>
<td>68</td>
<td>0.9</td>
</tr>
<tr>
<td>Fire</td>
<td>152</td>
<td>224</td>
<td>682</td>
<td>4.6</td>
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</table>

### Standardised rates (defined overall)

<table>
<thead>
<tr>
<th>Disease</th>
<th>Mean age</th>
<th>M</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thyroid cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
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<tr>
<td>Hypertensive disease</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Other malignant disease</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Larynx cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Stomach cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Pancreas cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Malignant melanoma</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
</tbody>
</table>

### Annual death rates / 100,000

<table>
<thead>
<tr>
<th>Disease</th>
<th>Mean age</th>
<th>M</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thyroid cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Hypertensive disease</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Other malignant disease</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Larynx cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Stomach cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Pancreas cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Malignant melanoma</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>3.0</td>
<td>0.1</td>
<td>3.5</td>
</tr>
</tbody>
</table>

### Note

Peto, Lopez et al September 2015
Relative importance of deaths in MIDDLE age (35−69) in the year 2010

<table>
<thead>
<tr>
<th>Age range (years)</th>
<th>Deaths attributed to SMOKING /total deaths (thousands)</th>
<th>Mean years lost PER DEATH FROM SMOKING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>0−34</td>
<td>– / 8.2</td>
<td>– / 4.6</td>
</tr>
<tr>
<td>35−69</td>
<td>19 / 74</td>
<td>12 / 50</td>
</tr>
<tr>
<td>70+</td>
<td>41 / 189</td>
<td>50 / 238</td>
</tr>
<tr>
<td>All ages</td>
<td>60 / 272</td>
<td>62 / 293</td>
</tr>
</tbody>
</table>

Deaths, by cause, attributed to SMOKING / total deaths (thousands) in the year 2010

<table>
<thead>
<tr>
<th>Cause</th>
<th>Male (by age)</th>
<th>Female (by age)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0−34</td>
<td>35−69</td>
<td>70+</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>–/0.0</td>
<td>6.1/7.1</td>
<td>11/12</td>
</tr>
<tr>
<td>All Cancer</td>
<td>–/0.7</td>
<td>9.0/28 (33%)</td>
<td>17/55</td>
</tr>
<tr>
<td>Vascular</td>
<td>–/0.5</td>
<td>5.5/21</td>
<td>10/64</td>
</tr>
<tr>
<td>Respiratory</td>
<td>–/0.2</td>
<td>2.6/5.8</td>
<td>11/30</td>
</tr>
<tr>
<td>All Other</td>
<td>–/6.8</td>
<td>1.5/20</td>
<td>3.1/40</td>
</tr>
<tr>
<td>All Causes</td>
<td>–/8.2</td>
<td>19/74 (25%)</td>
<td>41/189</td>
</tr>
</tbody>
</table>

Cancer deaths, and all deaths, attributed to SMOKING / total deaths (thousands) in the year 2010

<table>
<thead>
<tr>
<th>Cause</th>
<th>Male</th>
<th>Female</th>
<th>Male + Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Cancer</td>
<td>26 / 83 (31%)</td>
<td>17 / 75 (23%)</td>
<td>43 / 159 (27%)</td>
</tr>
<tr>
<td>All Causes</td>
<td>60 / 272 (22%)</td>
<td>62 / 293 (21%)</td>
<td>122 / 564 (22%)</td>
</tr>
</tbody>
</table>
Population risk of dying at ages 0–34

**MALE**

1950: 7.0% 18 44%
1955: 6.1% 21 43%
1960: 5.6% 23 42%
1965: 5.1% 23 42%
1970: 4.6% 23 41%
1975: 4.1% 21 39%
1980: 3.7% 19 37%
1985: 3.2% 16 34%
1990: 3.0% 13 31%
1995: 2.7% 10 28%
2000: 2.6% 8 25%
2005: 2.4% 6 22%
2010*: 2.0% 5* 19%*
2015 proj.: 1.7% 4 17%

*eg, at year 2010 male death rates, out of 100 men aged 35, 19 would die before age 70 (with 5 of these deaths attributed to smoking)

**FEMALE**

1950: 5.4% 2.1 29%
1955: 4.5% 2.3 27%
1960: 3.9% 2.9 25%
1965: 3.5% 3.9 24%
1970: 3.0% 4.8 24%
1975: 2.6% 5.5 23%
1980: 2.4% 6.1 22%
1985: 2.0% 6.1 21%
1990: 1.7% 5.8 20%
1995: 1.5% 4.9 18%
2000: 1.4% 4.1 16%
2005: 1.3% 3.6 14%
2010: 1.2% 3.3 13%
2015 proj.: 1.0% 3.1 12%

Note: Most of those killed by smoking would otherwise have survived beyond age 70, but a minority (shaded area to right of dotted line) would have died by 70 anyway.
Relative importance of deaths in MIDDLE age (35–69), 2015 projections

<table>
<thead>
<tr>
<th>Age range (years)</th>
<th>Deaths attributed to SMOKING /total deaths (thousands)</th>
<th>Mean years lost PER DEATH FROM SMOKING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>0–34</td>
<td>– / 7.1</td>
<td>– / 4.1</td>
</tr>
<tr>
<td>35–69</td>
<td>16 / 70</td>
<td>12 / 48</td>
</tr>
<tr>
<td>70+</td>
<td>38 / 187</td>
<td>48 / 224</td>
</tr>
<tr>
<td>All ages</td>
<td>55 / 264</td>
<td>60 / 277</td>
</tr>
</tbody>
</table>

Numbers of deaths attributed to smoking / total deaths (thousands)

<table>
<thead>
<tr>
<th>Year</th>
<th>Male (by age)</th>
<th>Female (by age)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0–34</td>
<td>35–69</td>
</tr>
<tr>
<td>1955</td>
<td>–/24</td>
<td>65/130</td>
</tr>
<tr>
<td></td>
<td>(50%)</td>
<td>(17%)</td>
</tr>
<tr>
<td>1965</td>
<td>–/23</td>
<td>81/145</td>
</tr>
<tr>
<td></td>
<td>(56%)</td>
<td>(29%)</td>
</tr>
<tr>
<td>1975</td>
<td>–/17</td>
<td>76/143</td>
</tr>
<tr>
<td></td>
<td>(53%)</td>
<td>(37%)</td>
</tr>
<tr>
<td>1985</td>
<td>–/13</td>
<td>55/116</td>
</tr>
<tr>
<td></td>
<td>(47%)</td>
<td>(36%)</td>
</tr>
<tr>
<td>1995</td>
<td>–/11</td>
<td>34/93</td>
</tr>
<tr>
<td></td>
<td>(37%)</td>
<td>(30%)</td>
</tr>
<tr>
<td></td>
<td>(27%)</td>
<td>(24%)</td>
</tr>
<tr>
<td>2015 proj.</td>
<td>–/7.1</td>
<td>16/70</td>
</tr>
<tr>
<td></td>
<td>(23%)</td>
<td>(21%)</td>
</tr>
</tbody>
</table>

60–year total (M=millions), decade of 1960s to decade of 2010s (1960–2020*): 9.3 / 37M
*Estimated as 10 times the sum of the annual numbers for 1965, 1975, 1985, 1995, 2005 and 2015

1960–2020, by age & sex:

<table>
<thead>
<tr>
<th></th>
<th>0–34</th>
<th>35–69</th>
<th>70+</th>
<th>All</th>
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</thead>
<tbody>
<tr>
<td>1960–2020</td>
<td>–/0.8M</td>
<td>2.8/6.5M</td>
<td>3.3/11M</td>
<td>6.1/18M</td>
</tr>
<tr>
<td></td>
<td>(44%)</td>
<td>(29%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015 proj.</td>
<td>–/0.5M</td>
<td>1.0/4.1M</td>
<td>2.2/14M</td>
<td>3.2/19M</td>
</tr>
<tr>
<td></td>
<td>(24%)</td>
<td>(16%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### ALL-CAUSE mortality rates attributed and not attributed to smoking

**MALE all-cause mortality (annual rate/1000, by age)**

<table>
<thead>
<tr>
<th>Year</th>
<th>0–34</th>
<th>35–69</th>
<th>70–79</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>– 2.06</td>
<td>6.92</td>
<td>9.47</td>
</tr>
<tr>
<td>1955</td>
<td>– 1.81</td>
<td>7.68</td>
<td>8.15</td>
</tr>
<tr>
<td>1960</td>
<td>– 1.66</td>
<td>8.37</td>
<td>7.35</td>
</tr>
<tr>
<td>1965</td>
<td>– 1.50</td>
<td>8.57</td>
<td>6.90</td>
</tr>
<tr>
<td>1970</td>
<td>– 1.35</td>
<td>8.41</td>
<td>6.79</td>
</tr>
<tr>
<td>1975</td>
<td>– 1.21</td>
<td>7.62</td>
<td>6.65</td>
</tr>
<tr>
<td>1980</td>
<td>– 1.09</td>
<td>6.74</td>
<td>6.56</td>
</tr>
<tr>
<td>1985</td>
<td>– 0.93</td>
<td>5.72</td>
<td>6.33</td>
</tr>
<tr>
<td>1990</td>
<td>– 0.88</td>
<td>4.62</td>
<td>6.08</td>
</tr>
<tr>
<td>1995</td>
<td>– 0.79</td>
<td>3.50</td>
<td>5.87</td>
</tr>
<tr>
<td>2000</td>
<td>– 0.75</td>
<td>2.59</td>
<td>5.51</td>
</tr>
<tr>
<td>2005</td>
<td>– 0.68</td>
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<td>2010</td>
<td>– 0.57</td>
<td>1.58</td>
<td>4.53</td>
</tr>
<tr>
<td>2015</td>
<td>– 0.48</td>
<td>1.26</td>
<td>4.06</td>
</tr>
</tbody>
</table>

**FEMALE all-cause mortality (annual rate/1000, by age)**

<table>
<thead>
<tr>
<th>Year</th>
<th>0–34</th>
<th>35–69</th>
<th>70–79</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>– 1.60</td>
<td>0.71</td>
<td>9.00</td>
</tr>
<tr>
<td>1955</td>
<td>– 1.32</td>
<td>0.76</td>
<td>8.05</td>
</tr>
<tr>
<td>1960</td>
<td>– 1.15</td>
<td>0.96</td>
<td>7.42</td>
</tr>
<tr>
<td>1965</td>
<td>– 1.01</td>
<td>1.28</td>
<td>6.71</td>
</tr>
<tr>
<td>1970</td>
<td>– 0.88</td>
<td>1.58</td>
<td>6.25</td>
</tr>
<tr>
<td>1975</td>
<td>– 0.77</td>
<td>1.80</td>
<td>5.73</td>
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<tr>
<td>1980</td>
<td>– 0.69</td>
<td>1.97</td>
<td>5.23</td>
</tr>
<tr>
<td>1985</td>
<td>– 0.57</td>
<td>1.95</td>
<td>4.77</td>
</tr>
<tr>
<td>1990</td>
<td>– 0.50</td>
<td>1.85</td>
<td>4.38</td>
</tr>
<tr>
<td>1995</td>
<td>– 0.43</td>
<td>1.55</td>
<td>4.03</td>
</tr>
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<td>2000</td>
<td>– 0.40</td>
<td>1.26</td>
<td>3.68</td>
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<td>2005</td>
<td>– 0.38</td>
<td>1.11</td>
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<tr>
<td>2010</td>
<td>– 0.33</td>
<td>1.01</td>
<td>2.93</td>
</tr>
<tr>
<td>2015</td>
<td>– 0.29</td>
<td>0.93</td>
<td>2.60</td>
</tr>
</tbody>
</table>

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* An annual rate of 10 per 1000 implies that 30% of 35-year-olds will die before age 70

† Mean of 7 age-specific rates, ages 35–69 (or ages 0–34)

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0–34 and 35–69 = means of 7 age-specific rates; 70–79 = mean of 2 rates (70–74 & 75–79)
ALL CANCER mortality rates attributed and not attributed to smoking

<table>
<thead>
<tr>
<th>Year</th>
<th>MALE cancer mortality (annual rate/1000, by age)</th>
<th>FEMALE cancer mortality (annual rate/1000, by age)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0−34</td>
<td>35−69</td>
</tr>
<tr>
<td>1950</td>
<td>– 0.12</td>
<td>1.62 2.01</td>
</tr>
<tr>
<td>1955</td>
<td>– 0.12</td>
<td>1.99 1.85</td>
</tr>
<tr>
<td>1960</td>
<td>– 0.12</td>
<td>2.28 1.73</td>
</tr>
<tr>
<td>1965</td>
<td>– 0.12</td>
<td>2.42 1.67</td>
</tr>
<tr>
<td>1970</td>
<td>– 0.11</td>
<td>2.40 1.69</td>
</tr>
<tr>
<td>1975</td>
<td>– 0.10</td>
<td>2.28 1.69</td>
</tr>
<tr>
<td>1980</td>
<td>– 0.09</td>
<td>2.11 1.72</td>
</tr>
<tr>
<td>1985</td>
<td>– 0.08</td>
<td>1.92 1.80</td>
</tr>
<tr>
<td>1990</td>
<td>– 0.07</td>
<td>1.69 1.88</td>
</tr>
<tr>
<td>1995</td>
<td>– 0.06</td>
<td>1.34 1.87</td>
</tr>
<tr>
<td>2000</td>
<td>– 0.06</td>
<td>1.07 1.79</td>
</tr>
<tr>
<td>2005</td>
<td>– 0.05</td>
<td>0.90 1.69</td>
</tr>
<tr>
<td>2010</td>
<td>– 0.05</td>
<td>0.78 1.57</td>
</tr>
<tr>
<td>2015</td>
<td>– 0.04</td>
<td>0.67 1.46</td>
</tr>
</tbody>
</table>

0−34 and 35−69 = means of 7 age–specific rates; 70−79 = mean of 2 rates (70−74 & 75−79)

Mean of 7 age–specific rates, ages 35−69 (or ages 0−34)
UNITED KINGDOM: 1950-2013
Mortality* trends at selected ages: 35–39, 55–59 & 75–79

* Annual mortality per 1000: averages of years available in 1950–54,...,2005–09; then 4–year average 2010–13
**UNITED KINGDOM**

**1950-2013: UNITED KINGDOM**

Mortality trends at selected ages: 35–39, 55–59 & 75–79

<table>
<thead>
<tr>
<th>Year</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>0.19</td>
<td>0.08</td>
</tr>
<tr>
<td>1960</td>
<td>0.7</td>
<td>0.13</td>
</tr>
<tr>
<td>1970</td>
<td>0.44</td>
<td>0.37</td>
</tr>
<tr>
<td>1980</td>
<td>0.3</td>
<td>0.21</td>
</tr>
<tr>
<td>1990</td>
<td>0.22</td>
<td>0.15</td>
</tr>
<tr>
<td>2000</td>
<td>0.14</td>
<td>0.08</td>
</tr>
<tr>
<td>2010</td>
<td>0.08</td>
<td>0.05</td>
</tr>
</tbody>
</table>

* Annual mortality per 1000: averages of years available in 1950–54, ..., 2005–09; then 4–year average 2010–13