### 3.12 Lung

#### Epidemiology

In 2016, approximately 21,500 women and 36,000 men developed malignant tumours of the lung; in the same year, 16,481 women and 29,324 men died from the condition.

Age-standardised incidence and mortality rates among men and women show contrasting trends. Whereas rates among women have risen continuously since the end of the 1990s, they decreased over the same period among men. These diverging trends can be attributed to changes in smoking habits that occurred in the past. As such, these trends will probably continue in the future. Lung cancer has one of the least favourable prognoses, with low 5-year survival rates of about 21% for women and 15% for men.

There are three main types of lung cancer: adenocarcinomas, which account for 42% of cases; squamous cell carcinomas, which account for about a quarter of cases; and small-cell lung carcinomas, which account for around one fifth of all cases. The latter tend to metastasise early and thus have the worst prognosis.

A comparison of selected countries revealed the highest incidence rates for women in Denmark and for men in Belgium.

#### Risk factors and early detection

Tobacco use is the main risk factor associated with lung cancer. Up to nine out of ten cases of lung cancer cases among men and at least six out of ten cases among women are due to active smoking. However, passive smoking also increases the risk of lung cancer.

Other risk factors tend to play a minor role. Between 9 and 15 out of every 100 lung cancer cases can be attributed to carcinogenic substances such as asbestos, polycyclic aromatic hydrocarbons, and quartz or nickel dust. People living in areas with a high natural exposure to radon in buildings have a higher risk of developing lung cancer, with those living on the lower floors at particular risk. This also applies to occupational exposure to radon and to other sources of ionising radiation. Diesel exhaust fumes and particulate matter are the most important risk factors among air pollutants. Genetic factors are also assumed to play a role. Currently, no appropriate form of lung cancer screening exists for the entire population. Studies are being carried out to determine whether and for whom screening with low-dose computed tomography could be useful. However, an annual screening programme for lung cancer has yet to be established.

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**Table 3.12.1**

Overview of key epidemiological parameters for Germany, ICD-10 C33–C34

<table>
<thead>
<tr>
<th>Incident</th>
<th>2015</th>
<th>2016</th>
<th>Prediction for 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>Incident cases</td>
<td>21,470</td>
<td>36,860</td>
<td>21,500</td>
</tr>
<tr>
<td>Crude incidence rate</td>
<td>51.7</td>
<td>91.8</td>
<td>51.5</td>
</tr>
<tr>
<td>Age-standardised incidence rate</td>
<td>31.9</td>
<td>59.9</td>
<td>31.4</td>
</tr>
<tr>
<td>Median age at diagnosis</td>
<td>69</td>
<td>70</td>
<td>69</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mortality</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>Deaths</td>
<td>15,881</td>
<td>29,378</td>
<td>16,481</td>
</tr>
<tr>
<td>Crude mortality rate</td>
<td>38.3</td>
<td>73.1</td>
<td>39.5</td>
</tr>
<tr>
<td>Age-standardised mortality rate</td>
<td>22.1</td>
<td>46.5</td>
<td>22.6</td>
</tr>
<tr>
<td>Median age at death</td>
<td>71</td>
<td>72</td>
<td>71</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prevalence and survival rates</th>
<th>5 years</th>
<th>10 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td>Prevalence</td>
<td>38,200</td>
<td>58,300</td>
</tr>
</tbody>
</table>

1 per 100,000 persons  2 age-standardised (old European Standard)  3 in percentages (lowest and highest value of the included German federal states)

> Additional information under [www.krebsdaten.de/cancer-sites](http://www.krebsdaten.de/cancer-sites)
Figure 3.12.1a
Age-standardised incidence and mortality rates by sex, ICD-10 C33–C34, Germany 1999–2016/2017, projection (incidence) through 2020
per 100,000 (old European Standard)

Figure 3.12.1b
Absolute numbers of incident cases and deaths by sex, ICD-10 C33–C34, Germany 1999–2016/2017, projection (incidence) through 2020

Figure 3.12.2
Age-specific incidence rates by sex, ICD-10 C33–C34, Germany 2015–2016
per 100,000
Table 3.12.2
Cancer incidence and mortality risks in Germany by age and sex, ICD-10 C33 – C34, database 2016

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Risk of developing cancer</th>
<th>Mortality risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women in the next ten years</td>
<td>ever</td>
</tr>
<tr>
<td>35 years</td>
<td>0.1% (1 in 1,500)</td>
<td>3.9% (1 in 25)</td>
</tr>
<tr>
<td>45 years</td>
<td>0.3% (1 in 340)</td>
<td>3.9% (1 in 26)</td>
</tr>
<tr>
<td>55 years</td>
<td>0.9% (1 in 110)</td>
<td>3.7% (1 in 27)</td>
</tr>
<tr>
<td>65 years</td>
<td>1.4% (1 in 70)</td>
<td>2.9% (1 in 35)</td>
</tr>
<tr>
<td>75 years</td>
<td>1.2% (1 in 87)</td>
<td>1.7% (1 in 60)</td>
</tr>
<tr>
<td>Lifetime risk</td>
<td>3.9% (1 in 26)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Risk of developing cancer</th>
<th>Mortality risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men in the next ten years</td>
<td>ever</td>
</tr>
<tr>
<td>35 years</td>
<td>0.1% (1 in 1,300)</td>
<td>6.7% (1 in 15)</td>
</tr>
<tr>
<td>45 years</td>
<td>0.4% (1 in 270)</td>
<td>6.7% (1 in 15)</td>
</tr>
<tr>
<td>55 years</td>
<td>1.5% (1 in 69)</td>
<td>6.6% (1 in 15)</td>
</tr>
<tr>
<td>65 years</td>
<td>2.7% (1 in 37)</td>
<td>5.7% (1 in 17)</td>
</tr>
<tr>
<td>75 years</td>
<td>2.9% (1 in 35)</td>
<td>3.9% (1 in 26)</td>
</tr>
<tr>
<td>Lifetime risk</td>
<td>6.6% (1 in 15)</td>
<td></td>
</tr>
</tbody>
</table>
Figure 3.12.6
Age-standardised incidence and mortality rates in German federal states by sex, ICD-10 C33–C34, 2015–2016
(Incidence in Bremen for 2014 and 2016, incidence in eastern Germany for 2014 to 2015)
per 100,000 (old European Standard)

Figure 3.12.7
International comparison of age-standardised incidence and mortality rates by sex, ICD-10 C33–C34, 2015–2016 or latest available year (details and sources, see appendix)
per 100,000 (old European Standard)