3.27 Thyroid gland

Table 3.27.1 Overview of key epidemiological parameters for Germany, ICD-10 C73

<table>
<thead>
<tr>
<th>Incidence</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td>Incident cases</td>
<td>4,240</td>
<td>1,880</td>
</tr>
<tr>
<td>Crude incidence rate</td>
<td>10.1</td>
<td>4.6</td>
</tr>
<tr>
<td>Age-standardised incidence rate</td>
<td>9.1</td>
<td>3.9</td>
</tr>
<tr>
<td>Median age at diagnosis</td>
<td>51</td>
<td>55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mortality</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>Deaths</td>
<td>426</td>
<td>311</td>
<td>396</td>
</tr>
<tr>
<td>Crude mortality rate</td>
<td>1.0</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Age-standardised mortality rate</td>
<td>0.4</td>
<td>0.5</td>
<td>0.4</td>
</tr>
<tr>
<td>Median age at death</td>
<td>80</td>
<td>73</td>
<td>80</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prevalence and survival rates</th>
<th>5 years</th>
<th>10 years</th>
<th>25 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>Prevalence</td>
<td>20,000</td>
<td>8,200</td>
<td>39,400</td>
</tr>
<tr>
<td>Absolute survival rate (2019 – 2020)</td>
<td>91 (78 – 96)</td>
<td>83 (79 – 87)</td>
<td>86 (73 – 91)</td>
</tr>
<tr>
<td>Relative survival rate (2019 – 2020)</td>
<td>94 (81 – 99)</td>
<td>88 (84 – 92)</td>
<td>94 (80 – 99)</td>
</tr>
</tbody>
</table>

Epidemiology
About 3,980 women and 1,780 men were diagnosed with thyroid cancer in 2020. The median age at diagnosis was 51 for women and 55 for men, which was relatively low compared to other types of cancer.

In the period from 1999 to 2020, the age-standardised incidence rates in Germany initially increased, especially among women, but a plateau has since been reached.

This increase is almost exclusively due to the prognostically very favourable papillary carcinomas. The reasons for the increase are not yet clearly understood. However, it is likely that more tumours are being detected due to the increased use of imaging diagnostics with improved examination methods. Similar trends can be observed worldwide in thyroid carcinoma.

Mortality rates in Germany have fallen for both sexes. Overall, thyroid cancer has a favourable prognosis: the relative 5-year survival rates are 94 % for women and 88 % for men. Only the rarer anaplastic carcinomas have an unfavourable prognosis. The majority of thyroid carcinomas are detected at an early stage (UICC I) (84 % in women, 68 % in men).

Risk factors
Ionising radiation is an important risk factor for thyroid cancer. In childhood, the thyroid gland is particularly sensitive to radiation. Possible sources of external radiation exposure include applications of radiation as cancer therapy where the thyroid gland is in the radiation field. Internal exposure through the intake of radioactive iodine, such as after nuclear disasters like the Chernobyl reactor accident, also increases the risk. Other environmental risks or dietary or lifestyle-related factors have not yet been proven with certainty. There are indications that obesity is a risk factor for the most common (papillary) thyroid carcinoma.

Many patients have a history of iodine deficiency and benign thyroid diseases, such as goitre and larger adenomas, which increase the risk of thyroid cancer, especially if they occur at a young age. In general, women are affected by thyroid cancer much more frequently than men, but the cause is still unclear.

A clearly proven risk factor is family history: thyroid cancer in a first-degree relative or various hereditary syndromes such as multiple endocrine neoplasia type 2 (MEN 2) increase the risk.
Figure 3.27.1a
Age-standardised incidence and mortality rates by sex, ICD-10 C73, Germany 1999 – 2020/2021
per 100,000 (old European Standard)

Figure 3.27.1b
Absolute numbers of incident cases and deaths by sex, ICD-10 C73, Germany 1999 – 2020/2021

Figure 3.27.2
Age-specific incidence rates by sex, ICD-10 C73, Germany 2019 – 2020
per 100,000
<table>
<thead>
<tr>
<th>Age Group</th>
<th>Women Incidence</th>
<th>Mortality</th>
<th>Men Incidence</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Risk of developing cancer</td>
<td>Mortality risk</td>
<td>Risk of developing cancer</td>
<td>Mortality risk</td>
</tr>
<tr>
<td></td>
<td>in the next 10 years</td>
<td>ever</td>
<td>in the next 10 years</td>
<td>ever</td>
</tr>
<tr>
<td>25 years</td>
<td>0.1% (1 in 940)</td>
<td>0.7% (1 in 140)</td>
<td>&lt; 0.1% (1 in 497,100)</td>
<td>0.1% (1 in 1,200)</td>
</tr>
<tr>
<td>35 years</td>
<td>0.2% (1 in 620)</td>
<td>0.6% (1 in 160)</td>
<td>&lt; 0.1% (1 in 239,600)</td>
<td>0.1% (1 in 1,200)</td>
</tr>
<tr>
<td>45 years</td>
<td>0.2% (1 in 630)</td>
<td>0.5% (1 in 210)</td>
<td>&lt; 0.1% (1 in 49,600)</td>
<td>0.1% (1 in 1,200)</td>
</tr>
<tr>
<td>55 years</td>
<td>0.1% (1 in 800)</td>
<td>0.3% (1 in 310)</td>
<td>&lt; 0.1% (1 in 12,700)</td>
<td>0.1% (1 in 1,200)</td>
</tr>
<tr>
<td>65 years</td>
<td>0.1% (1 in 910)</td>
<td>0.2% (1 in 490)</td>
<td>&lt; 0.1% (1 in 5,700)</td>
<td>0.1% (1 in 1,200)</td>
</tr>
<tr>
<td>75 years</td>
<td>0.1% (1 in 1,300)</td>
<td>0.1% (1 in 920)</td>
<td>&lt; 0.1% (1 in 2,900)</td>
<td>0.1% (1 in 1,400)</td>
</tr>
<tr>
<td>Lifetime risk</td>
<td>0.8% (1 in 130)</td>
<td>0.1% (1 in 1,200)</td>
<td>0.1% (1 in 1,200)</td>
<td>0.1% (1 in 1,700)</td>
</tr>
</tbody>
</table>

**Table 3.27.2**
Cancer incidence and mortality risks in Germany by age and sex, ICD-10 C73, database 2019

**Figure 3.27.3**
Distribution of UICC stages at diagnosis by sex, ICD-10 C73, Germany 2019 – 2020

(top: incl. missing data and DCO cases; bottom: valid values only)

**Figure 3.27.4**
Absolute and relative survival rates up to 10 years after diagnosis, by sex, ICD-10 C73, Germany 2019 – 2020

**Figure 3.27.5**
Relative 5-year survival by UICC stage (7th and 8th edition TNM) and sex, ICD-10 C73, Germany 2019 – 2020
Figure 3.27.6
Age-standardised incidence and mortality rates in German federal states by sex, ICD-10 C73, 2019 – 2020
per 100,000 (old European Standard)

Incidence

Mortality

Hamburg
Bavaria
Hesse
Saarland
Schleswig-Holstein
Saxon
North Rhine-Westphalia
Brandenburg
Saxony-Anhalt
Germany
Berlin
Rhineland-Palatinate
Baden-Württemberg
Mecklenburg-West Pomerania
Lower Saxony
Thuringia
Bremen

0 4 8 12 16 20 24

0 4 8 12 16 20 24

Figure 3.27.7
International comparison of age-standardised incidence and mortality rates by sex, ICD-10 C73, 2019 – 2020 or latest available year (details and sources, see appendix)
per 100,000 (old European Standard)

Incidence

Men

Women

USA
Czech Republic
Poland
Austria
Switzerland
Finland
Denmark
Belgium
Germany
Sweden
England
Netherlands

0 4 8 12 16 20 24

0 4 8 12 16 20 24

1 Switzerland: incidence data for 2015 – 2019