

### 3.31 Leukaemia

Table 3.31.1  
Overview of key epidemiological parameters for Germany, ICD-10 C91–C95

Incidence	2017		2018		Prediction for 2022	
	Women	Men	Women	Men	Women	Men
Incident cases	6,070	8,000	5,310	6,870	5,600	6,200
Crude incidence rate <sup>1</sup>	14.5	19.6	12.6	16.8	13.3	14.9
Age-standardised incidence rate <sup>1, 2</sup>	8.7	13.5	7.6	11.5	7.8	10.1
Median age at diagnosis	73	71	74	71		
Mortality	2017		2018		2019	
	Women	Men	Women	Men	Women	Men
Deaths	3,653	4,521	3,682	4,588	3,670	4,590
Crude mortality rate <sup>1</sup>	8.7	11.1	8.8	11.2	8.7	11.2
Age-standardised mortality rate <sup>1, 2</sup>	3.8	6.4	3.9	6.5	3.7	6.3
Median age at death	79	77	79	77	80	78
Prevalence and survival rates	5 years		10 years		25 years	
	Women	Men	Women	Men	Women	Men
Prevalence	16,800	22,800	28,700	38,200	47,200	60,300
Absolute survival rate (2017–2018) <sup>3</sup>	49 (37–59)	49 (47–53)	37 (31–43)	36 (34–40)		
Relative survival rate (2017–2018) <sup>3</sup>	56 (42–69)	58 (54–62)	48 (39–59)	51 (46–56)		

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

#### Epidemiology

In 2018, approximately 12,200 people in Germany were diagnosed with leukaemia, of which just over 4% were under the age of 15. The risk of developing leukaemia decreases with age until the age of 30, after which it increases significantly, with a higher incidence rate in men compared to women. One in 99 women and one in 75 men will develop leukaemia in their lifetime. At around 37%, chronic lymphocytic leukaemia (CLL) is the most common form.

Between 1999 and 2018, age-standardised incidence rates remained relatively stable, although the apparent decline in incidence for 2018 is likely still an underestimate. Age-standardised mortality rates, on the other hand, have been steadily declining.

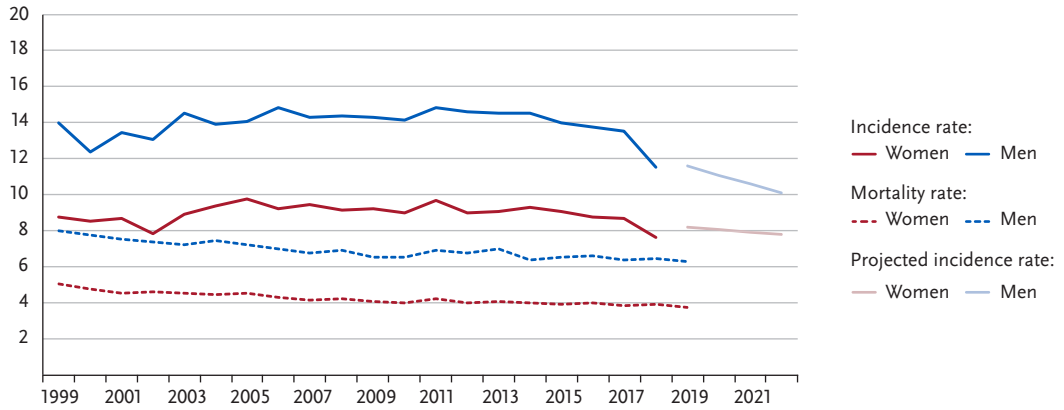
The prognosis for people with leukaemia depends on the form of the disease and the age at diagnosis: Children have by far the best survival prospects, while among adults the acute forms continue to have a rather poor prognosis. Overall slightly more than one third of adults with the disease are still alive at 10 years after diagnosis. In the case of chronic leukaemia, a cure can only rarely be achieved, e.g. by means of a high-risk stem cell transplant.

#### Risk factors

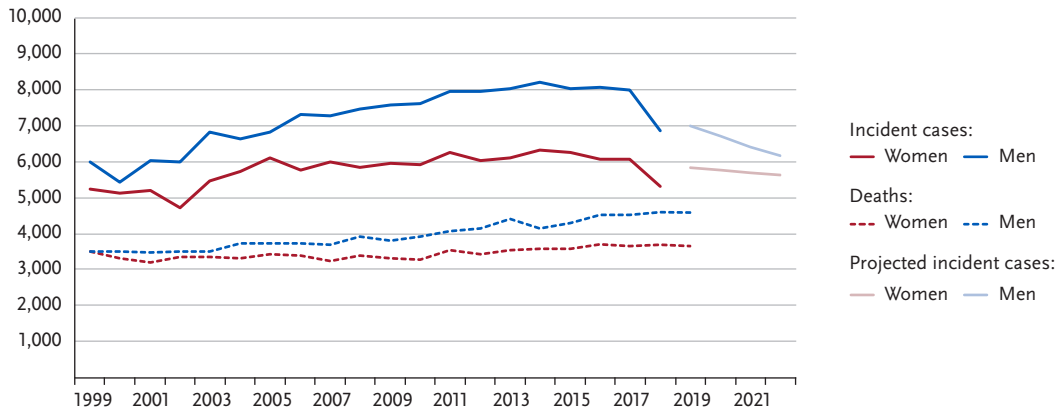
No generally valid risk factors can be named for the group of all leukaemias. However, some factors increase the risk of developing certain leukaemias. The known risk factors for acute leukaemias include ionising radiation and cytostatic drugs. Occupational exposure to benzene, 1,3-butadiene and related substances may also contribute to the development of leukaemia. Some rare genetic alterations can increase the risk of developing acute leukaemia, including chromosome 21 trisomy. Viruses have not been confirmed as a risk factor for leukaemia, except for the human T-lymphotropic virus (HTLV), which is extremely rare in Europe. Several other risk factors are currently being discussed as causes of leukaemia. These include environmental influences as well as lifestyle factors such as smoking or obesity. However, a causal relation has not yet been fully established.

Overall, no clear cause for the development of leukaemia can be found for most patients. Presumably, several factors have to work together for this to happen.

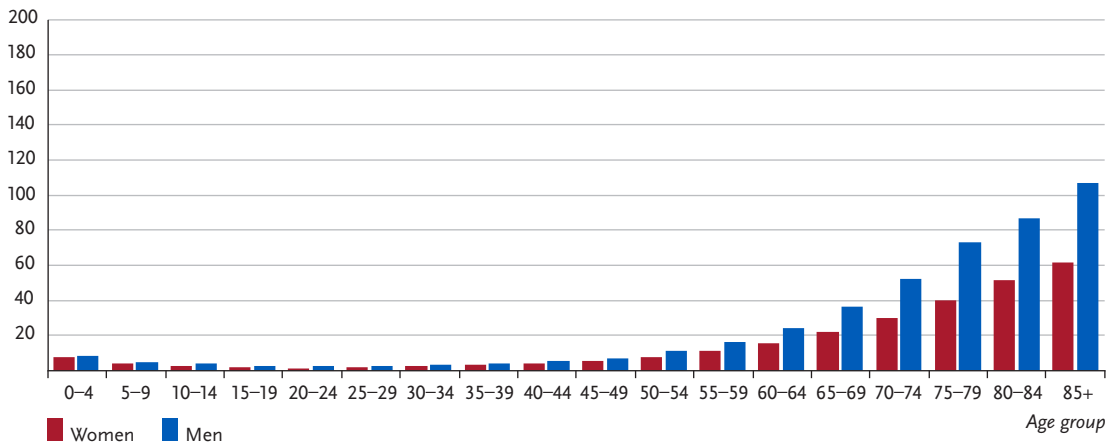
**Figure 3.31.1a**  
 Age-standardised incidence and mortality rates by sex, ICD-10 C91 – C95, Germany 1999–2018/2019, projection (incidence) through 2022  
 per 100,000 (old European Standard)



**Figure 3.31.1b**  
 Absolute numbers of incident cases and deaths by sex, ICD-10 C91 – C95, Germany 1999–2018/2019, projection (incidence) through 2022



**Figure 3.31.2**  
 Age-specific incidence rates by sex, ICD-10 C91 – C95, Germany 2017–2018  
 per 100,000



**Table 3.31.2**  
Cancer incidence and mortality risks in Germany by age and sex, ICD-10 C91–C95, database 2018

Women aged	Risk of developing cancer		Mortality risk	
	in the next 10 years	ever	in the next 10 years	ever
35 years	< 0.1 % (1 in 2,700)	0.9 % (1 in 110)	< 0.1 % (1 in 8,100)	0.7 % (1 in 140)
45 years	0.1 % (1 in 1,600)	0.9 % (1 in 110)	< 0.1 % (1 in 5,400)	0.7 % (1 in 140)
55 years	0.1 % (1 in 820)	0.8 % (1 in 120)	< 0.1 % (1 in 2,000)	0.7 % (1 in 140)
65 years	0.2 % (1 in 460)	0.8 % (1 in 130)	0.1 % (1 in 720)	0.7 % (1 in 150)
75 years	0.4 % (1 in 280)	0.6 % (1 in 160)	0.3 % (1 in 310)	0.6 % (1 in 160)
Lifetime risk		1.0 % (1 in 99)		0.7 % (1 in 140)
Men aged	in the next 10 years	ever	in the next 10 years	ever
35 years	< 0.1 % (1 in 2,200)	1.2 % (1 in 82)	< 0.1 % (1 in 9,500)	0.9 % (1 in 110)
45 years	0.1 % (1 in 1,200)	1.2 % (1 in 84)	< 0.1 % (1 in 4,300)	0.9 % (1 in 110)
55 years	0.2 % (1 in 570)	1.1 % (1 in 88)	0.1 % (1 in 1,300)	0.9 % (1 in 110)
65 years	0.3 % (1 in 290)	1.1 % (1 in 94)	0.2 % (1 in 420)	0.9 % (1 in 110)
75 years	0.6 % (1 in 170)	0.9 % (1 in 110)	0.5 % (1 in 200)	0.9 % (1 in 110)
Lifetime risk		1.3 % (1 in 75)		0.9 % (1 in 110)

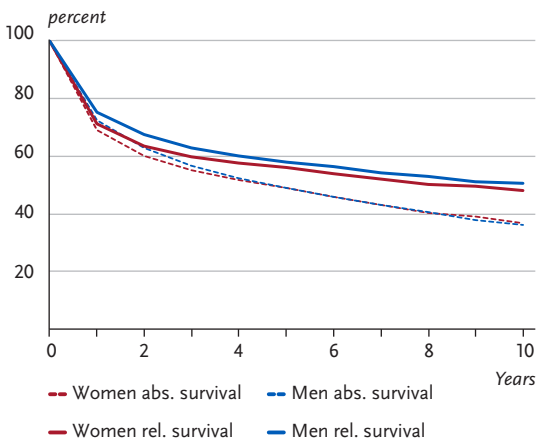
**Figure 3.31.3**  
Distribution of UICC stages at diagnosis by sex  
*Not included because UICC stages are not defined for leukaemias.*

**Table 3.31.3**  
Proportion of incident leukaemias C91–C95 by type and sex, Germany 2017–2018

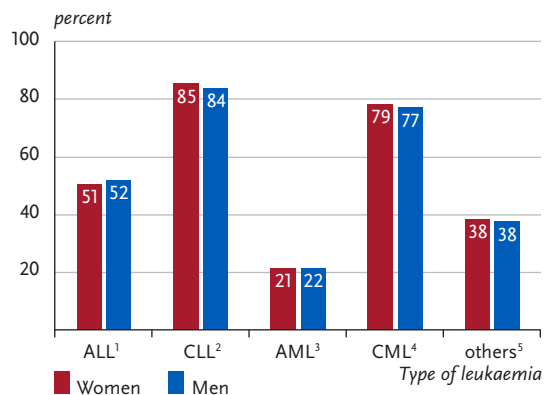
	ALL <sup>1</sup>	CLL <sup>2</sup>	AML <sup>3</sup>	CML <sup>4</sup>	others <sup>5</sup>
Women	7 %	34 %	27 %	9 %	24 %
Men	7 %	38 %	22 %	8 %	25 %

<sup>1</sup> Acute lymphatic leukaemia (C91.0)  
<sup>2</sup> Chronic lymphatic leukaemia (C91.1)  
<sup>3</sup> Acute myeloid leukaemia (C92.0)  
<sup>4</sup> Chronic myeloid leukaemia (C92.1)  
<sup>5</sup> incl. unspecified leukaemia forms

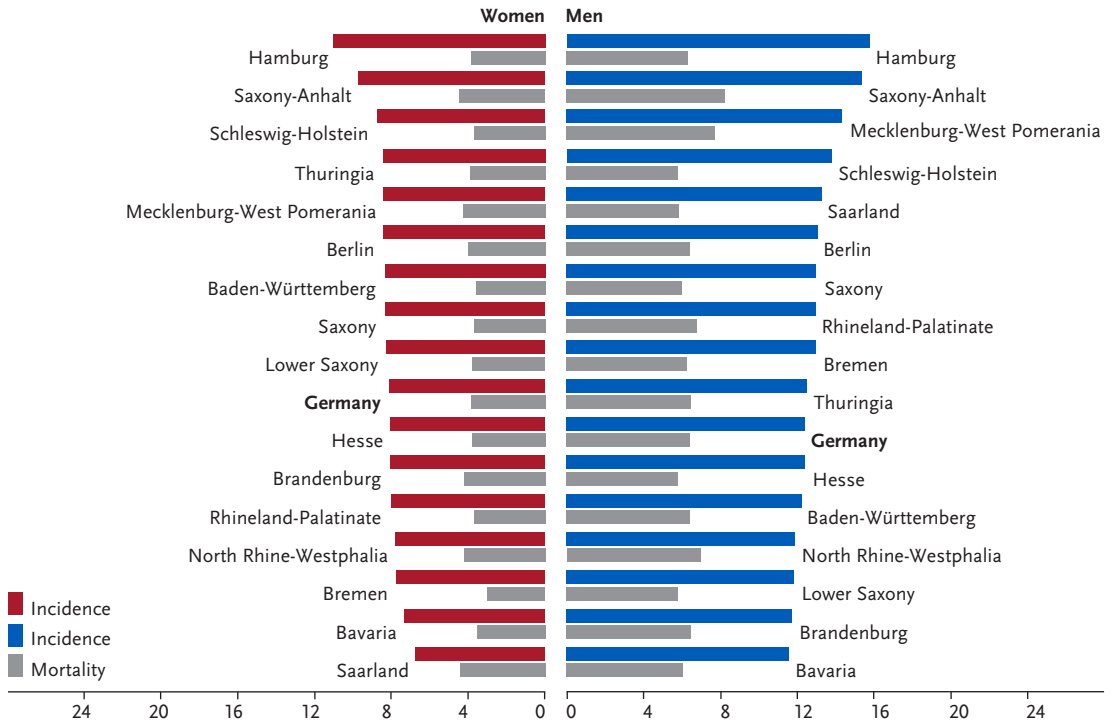
**Figure 3.31.4**  
Absolute and relative survival rates up to 10 years after diagnosis by sex, ICD-10 C91–C95, Germany 2017–2018



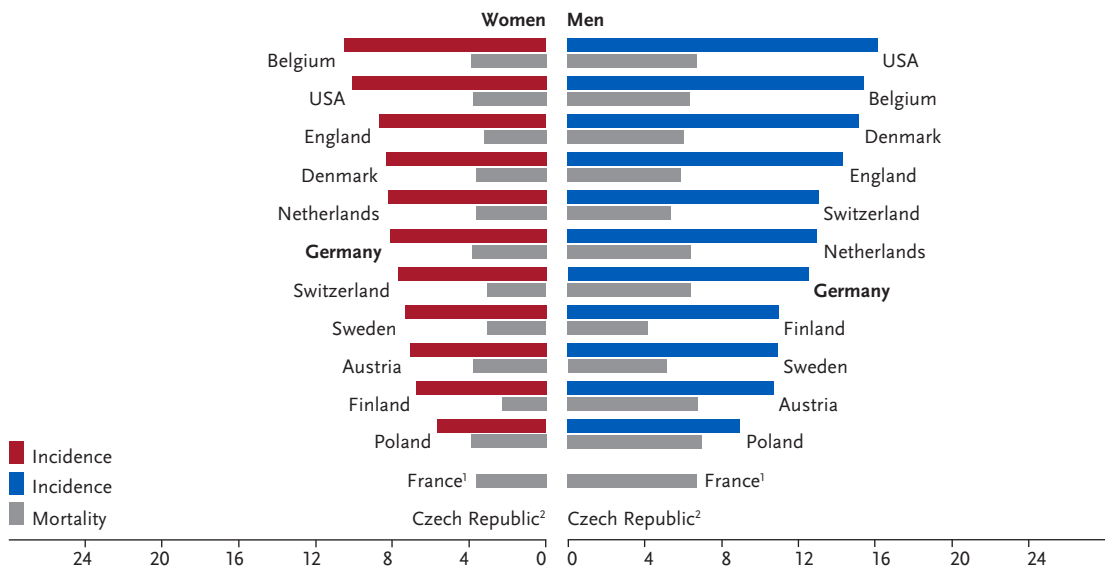
**Figure 3.31.5**  
Relative 5-year-survival by type of leukaemia and sex, ICD-10 C91–C95, Germany 2017–2018



**Figure 3.31.6**  
**Age-standardised incidence and mortality rates in German federal states by sex, ICD-10 C91–C95, 2017–2018**  
*per 100,000 (old European Standard)*



**Figure 3.31.7**  
**International comparison of age-standardised incidence and mortality rates by sex, ICD-10 C91–C95, 2017–2018 or latest available year (details and sources, see appendix)**  
*per 100,000 (old European Standard)*



<sup>1</sup> No incidence data available  
<sup>2</sup> No data available