

### 3.31 Leukaemia

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

Incidence	2015		2016		Prediction for 2020	
	Women	Men	Women	Men	Women	Men
Incident cases	6,050	7,820	6,010	7,900	6,400	8,600
Crude incidence rate <sup>1</sup>	14.6	19.5	14.4	19.5	15.4	21.3
Age-standardised incidence rate <sup>1,2</sup>	8.9	13.7	8.6	13.5	8.8	14.0
Median age at diagnosis	73	71	74	71		
Mortality	2015		2016		2017	
	Women	Men	Women	Men	Women	Men
Deaths	3,579	4,290	3,710	4,542	3,653	4,521
Crude mortality rate <sup>1</sup>	8.6	10.7	8.9	11.2	8.7	11.1
Age-standardised mortality rate <sup>1,2</sup>	3.9	6.5	4.0	6.6	3.8	6.4
Median age at death	79	76	79	77	79	77
Prevalence and survival rates	5 years		10 years			
	Women	Men	Women	Men		
Prevalence	18,900	25,700	32,100	42,600		
Absolute survival rate (2015–2016) <sup>3</sup>	50 (46–56)	49 (45–50)	38 (30–45)	35 (31–38)		
Relative survival rate (2015–2016) <sup>3</sup>	57 (53–63)	58 (52–60)	49 (40–59)	48 (43–51)		

<sup>1</sup> per 100,000 persons <sup>2</sup> age-standardised (old European Standard) <sup>3</sup> 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)

#### Epidemiology

In 2016, around 13,900 people in Germany were diagnosed with leukaemia, 4 % of whom were under the age of 15 years. Risk decreases during the transition to young adulthood, but risk begins to increase again starting at 30 years of age. Incidence is higher among men than women. One in 67 men and one in 87 women will develop leukaemia over the course of their lives.

Between 1999 and 2016, age-standardised incidence remained relatively stable, whereas age-standardised mortality fell during this period. About 38 % of newly diagnosed cases were chronic lymphoblastic leukaemia (CLL), and about 23 % were acute myeloid leukaemia (AML).

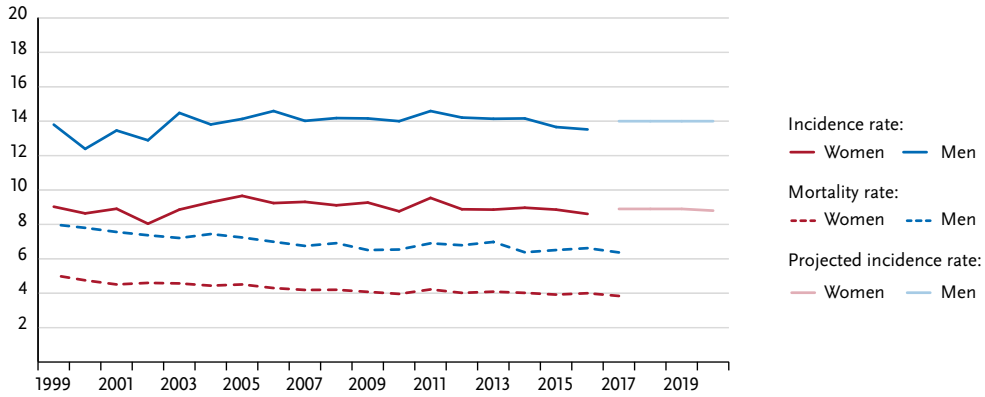
The prognosis depends on the form of the disease and age at diagnosis: those diagnosed in childhood have the best survival prospects, whereas adults with acute forms generally have a poor prognosis. Overall, just over a third of adults who develop the disease are still alive 10 years after diagnosis. Some people with chronic leukaemia recover full health, for example after undertaking a risky stem cell transplant.

#### Risk factors

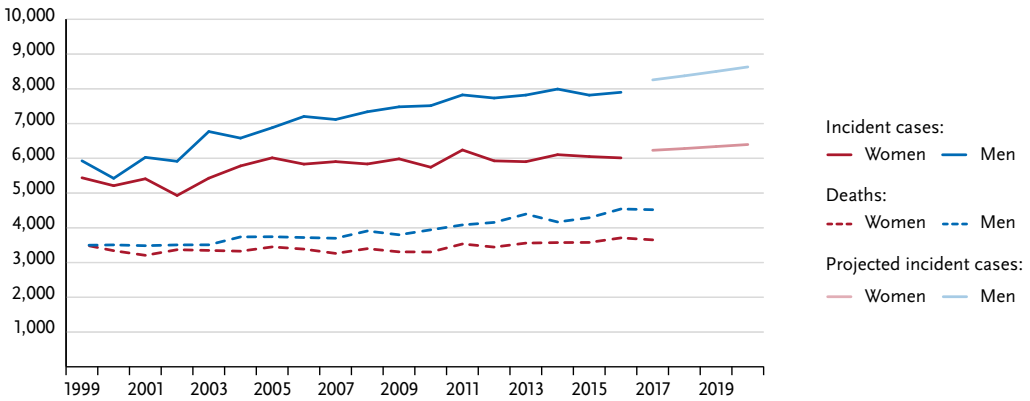
No known risk factor is associated with every type of leukaemia. However, some factors increase the risk of developing certain forms of the condition. Ionising radiation and cytostatic drugs are associated with acute leukaemia. Occupational exposure to benzene, 1,3-butadiene and related substances can also contribute to the development of leukaemia. Some rare genetic mutations, including trisomy 21, can increase the risk of acute leukaemia. The only virus confirmed as a risk factor for leukaemia is the human T-lymphotropic virus (HTLV), but this virus is extremely rare in Europe. Numerous other risk factors are currently being discussed. In addition to environmental factors, this includes lifestyle factors such as smoking and excess body weight. However, a clear association has yet to be established.

In most cases it is not possible to provide a causal explanation for the development of leukaemia. The condition is presumably brought on by a combination of several factors.

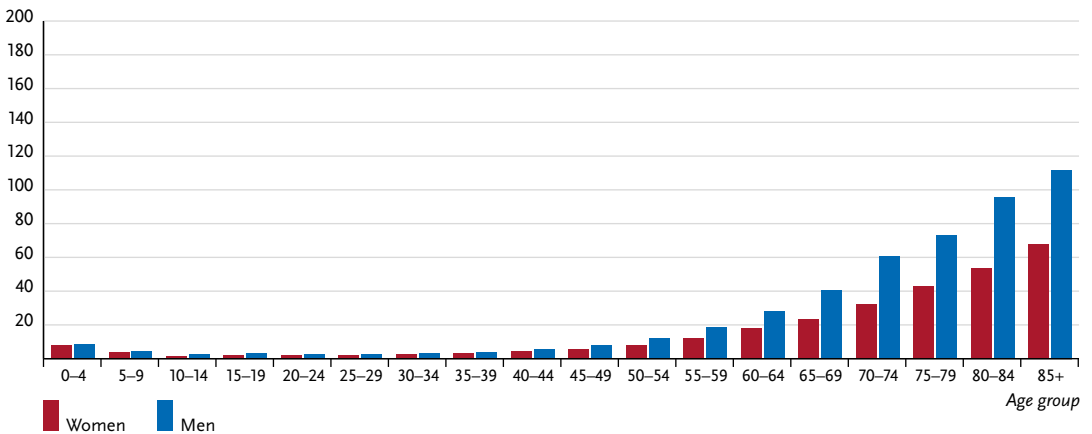
**Figure 3.31.1a**  
 Age-standardised incidence and mortality rates by sex, ICD-10 C91–C95, Germany 1999–2016/2017, projection (incidence) through 2020 per 100,000 (old European Standard)



**Figure 3.31.1b**  
 Absolute numbers of incident cases and deaths by sex, ICD-10 C91–C95, Germany 1999–2016/2017, projection (incidence) through 2020



**Figure 3.31.2**  
 Age-specific incidence rates by sex, ICD-10 C91–C95, Germany 2015–2016 per 100,000



**Table 3.31.2**  
Cancer incidence and mortality risks in Germany by age and sex, ICD-10 C91–C95, database 2016

Women aged	Risk of developing cancer				Mortality risk			
	in the next ten years		ever		in the next ten years		ever	
35 years	< 0.1%	(1 in 2,700)	1.1%	(1 in 94)	< 0.1%	(1 in 11,100)	0.7%	(1 in 130)
45 years	0.1%	(1 in 1,400)	1.0%	(1 in 96)	< 0.1%	(1 in 5,000)	0.7%	(1 in 130)
55 years	0.1%	(1 in 680)	1.0%	(1 in 100)	0.1%	(1 in 1,800)	0.7%	(1 in 140)
65 years	0.3%	(1 in 390)	0.9%	(1 in 110)	0.1%	(1 in 700)	0.7%	(1 in 140)
75 years	0.4%	(1 in 250)	0.7%	(1 in 140)	0.3%	(1 in 290)	0.7%	(1 in 150)
Lifetime risk			1.1%	(1 in 87)			0.8%	(1 in 130)
Men aged	in the next ten years		ever		in the next ten years		ever	
35 years	< 0.1%	(1 in 2,100)	1.4%	(1 in 71)	< 0.1%	(1 in 9,900)	1.0%	(1 in 100)
45 years	0.1%	(1 in 990)	1.4%	(1 in 73)	< 0.1%	(1 in 3,500)	1.0%	(1 in 100)
55 years	0.2%	(1 in 440)	1.3%	(1 in 76)	0.1%	(1 in 1,200)	1.0%	(1 in 100)
65 years	0.4%	(1 in 220)	1.2%	(1 in 82)	0.2%	(1 in 440)	1.0%	(1 in 100)
75 years	0.6%	(1 in 150)	1.0%	(1 in 100)	0.6%	(1 in 170)	1.0%	(1 in 110)
Lifetime risk			1.5%	(1 in 67)			1.0%	(1 in 100)

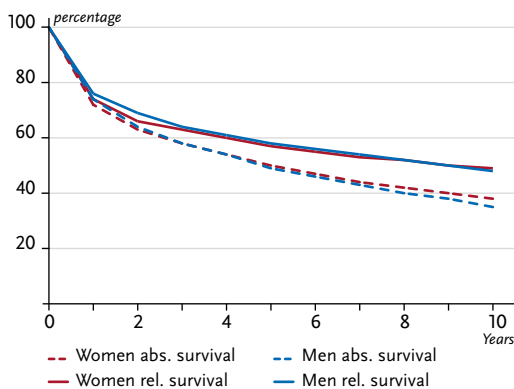
**Figure 3.31.3**  
Distribution of UICC-stages at first diagnosis by sex  
Not included because UICC-stages are not defined for leukaemias.

**Table 3.31.3**  
Proportion of leukaemias C91–C95 by type and sex, Germany 2015–2016

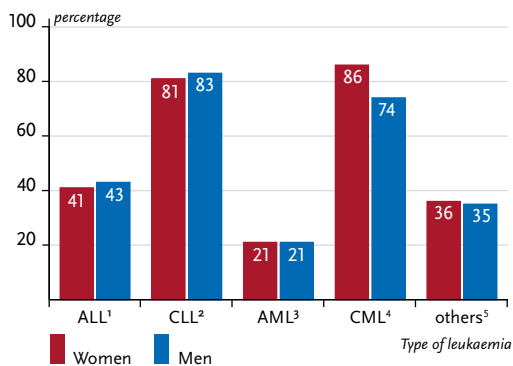
	ALL <sup>1</sup>	CLL <sup>2</sup>	AML <sup>3</sup>	CML <sup>4</sup>	others <sup>5</sup>
Women	6%	36%	25%	9%	24%
Men	6%	39%	22%	8%	25%

- <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

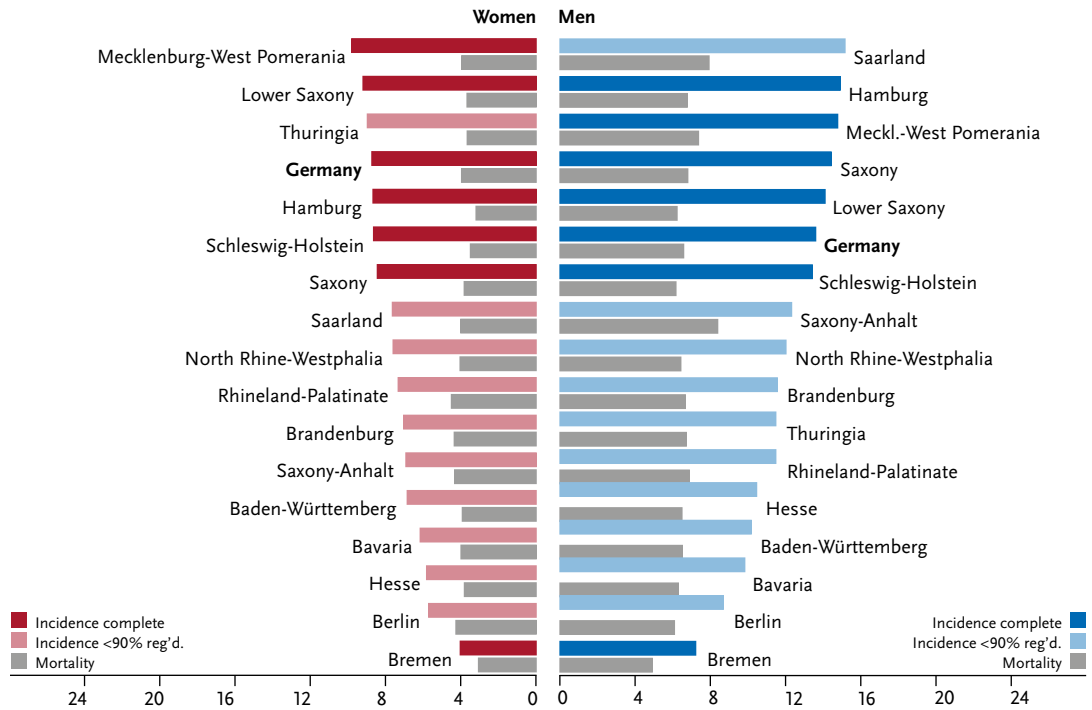
**Figure 3.31.4**  
Absolute and relative survival rates up to 10 years after first diagnosis, by sex, ICD-10 C91–C95, Germany 2015–2016



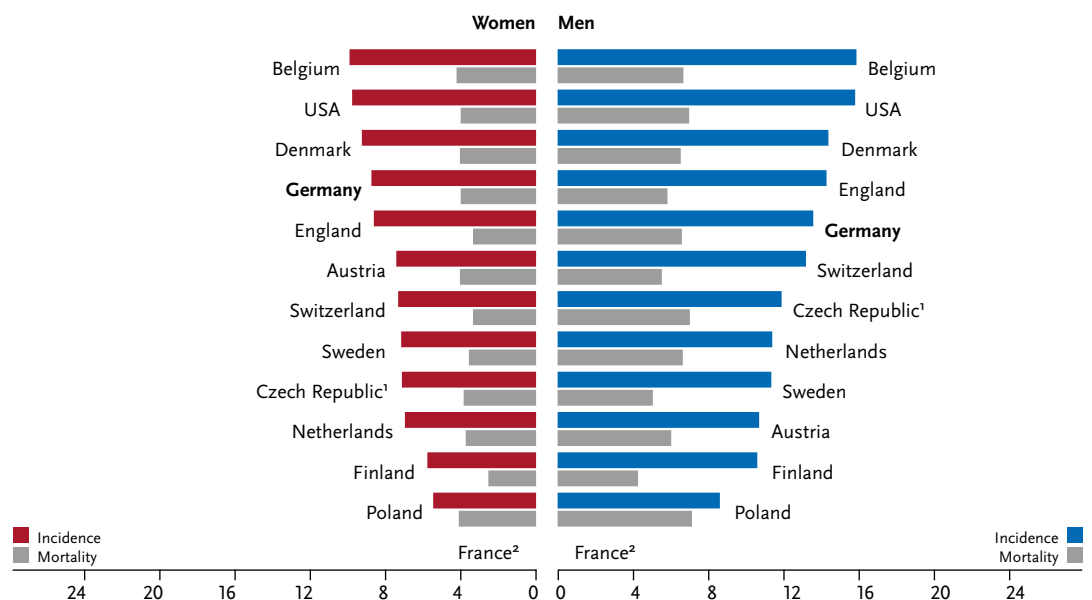
**Figure 3.31.5**  
Relative 5-year-survival by type of leukaemia and sex, ICD-10 C91–C95, Germany 2015–2016



**Figure 3.31.6**  
 Age-standardised incidence and mortality rates in German federal states by sex, ICD-10 C91–C95, 2015–2016  
 (Incidence in Bremen for 2014 and 2016, incidence in eastern Germany for 2014 to 2015)  
 per 100,000 (old European Standard)



**Figure 3.31.7**  
 International comparison of age-standardised incidence and mortality rates by sex, ICD-10 C91–C95,  
 2015–2016 or latest available year (details and sources, see appendix)  
 per 100,000 (old European Standard)



<sup>1</sup> Data only for 2015  
<sup>2</sup> No data available