

## 3.26 Central nervous system

Table 3.26.1  
Overview of key epidemiological parameters for Germany, ICD-10 C70–C72

Incidence	2015		2016		Prediction for 2020	
	Women	Men	Women	Men	Women	Men
Incident cases	3,320	4,200	3,460	3,970	3,500	4,400
Crude incidence rate <sup>1</sup>	8.0	10.4	8.3	9.8	8.5	10.8
Age-standardised incidence rate <sup>1,2</sup>	5.7	8.1	5.9	7.6	5.9	8.2
Median age at diagnosis	66	63	66	62		
Mortality	2015		2016		2017	
	Women	Men	Women	Men	Women	Men
Deaths	2,535	3,317	2,816	3,320	2,721	3,385
Crude mortality rate <sup>1</sup>	6.1	8.3	6.7	8.2	6.5	8.3
Age-standardised mortality rate <sup>1,2</sup>	3.8	5.9	4.1	5.9	4.0	5.9
Median age at death	70	66	71	66	70	66
Prevalence and survival rates	5 years		10 years			
	Women	Men	Women	Men		
Prevalence	6,900	8,400	10,500	12,400		
Absolute survival rate (2015–2016) <sup>3</sup>	22 (14–31)	19 (14–36)	18 (11–23)	14 (8–26)		
Relative survival rate (2015–2016) <sup>3</sup>	24 (15–32)	21 (14–38)	20 (13–26)	16 (9–29)		

<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 95% of cases, cancers of the central nervous system (CNS) affect the brain; the remaining 5% are diagnosed in the meninges and spinal membranes, cranial nerves and spinal cord.

CNS tumours can occur at any age. Adults predominantly develop gliomas originating from the supportive tissue of the nerve cells, of which almost three quarters are glioblastomas (grade IV astrocytomas) with an unfavourable prognosis. In contrast, embryonic tumours predominate in infants and toddlers.

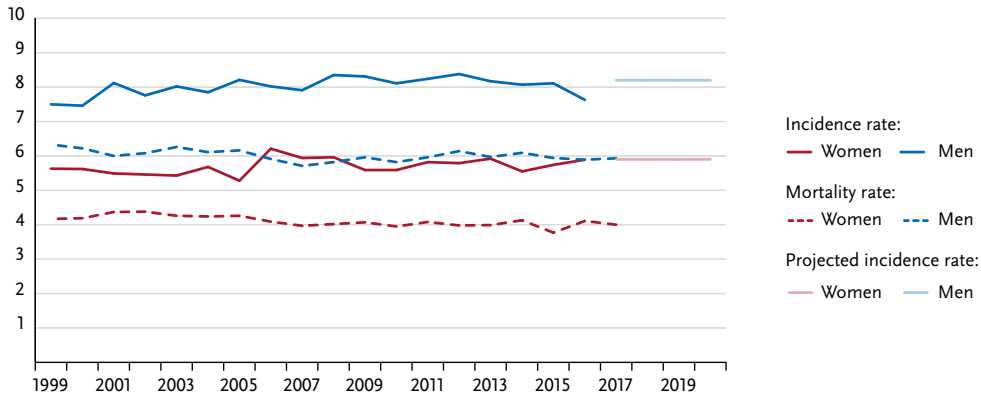
In 2016, around 3,460 women and 3,970 men in Germany contracted malignant CNS tumours. No substantial changes in age-standardised incidence and death rates have been observed since 1999. The relative 5-year survival rates for malignant CNS tumours are 21% for men and 24% for women. These figures do not include histologically benign CNS tumours or tumours with uncertain or unknown behaviour that, depending on their location, can also lead to complications or even death. Around 6,000 such cases occur each year, of which almost two thirds originate from the meninges. Women are affected much more often than men.

### Risk factors

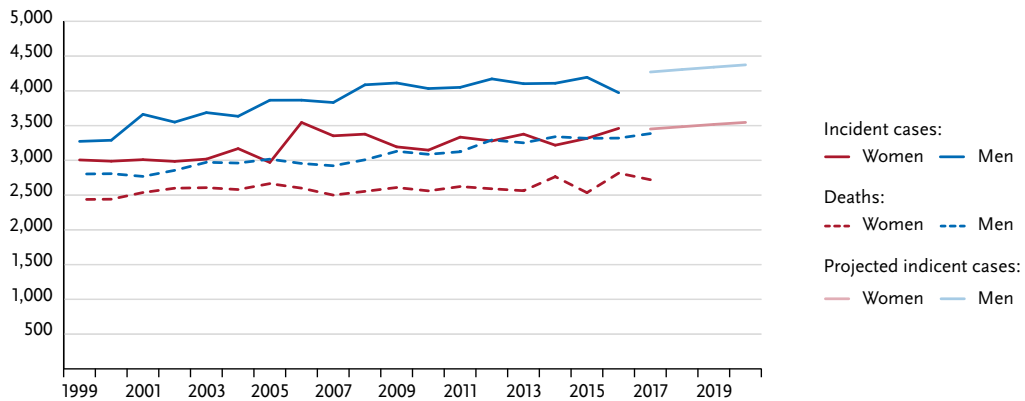
The majority of risk factors associated with the various types of brain tumours have yet to be determined. However, patients with very rare hereditary tumour syndromes have a significantly increased risk. Radiation therapy to the head slightly increases the risk of developing a brain tumour but comes with a long latency period. This particularly applies to radiation therapy in childhood and adolescence. Computed tomography imaging in childhood may also slightly increase the risk of a brain tumour.

There is no clear connection between cell phone use and brain tumours. However, an increased risk cannot be ruled out. This particularly applies to people who make long and frequent calls using mobile phones. Current research suggests that viruses, toxic substances and lifestyle factors such as smoking and alcohol do not increase the risk of cancer of the central nervous system. However, first-degree relatives of patients who have had brain tumours have a slightly increased risk of developing the condition themselves. Hereditary gene mutations are probably involved in these cases.

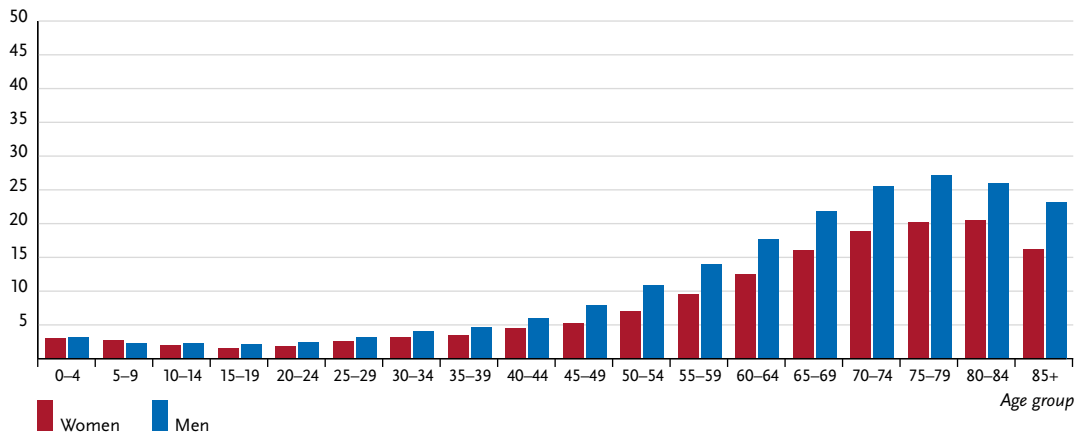
**Figure 3.26.1a**  
Age-standardised incidence and mortality rates by sex, ICD-10 C70–C72, Germany 1999–2016/2017, projection (incidence) through 2020 per 100,000 (old European Standard)



**Figure 3.26.1b**  
Absolute numbers of incident cases and deaths by sex, ICD-10 C70–C72, Germany 1999–2016/2017, projection (incidence) through 2020



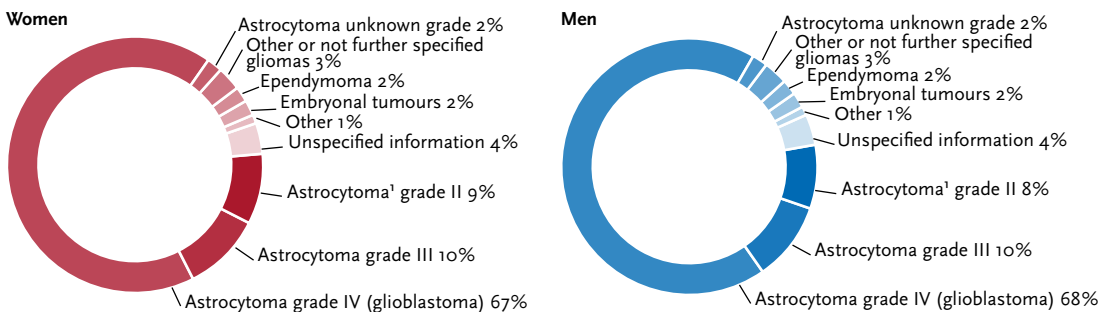
**Figure 3.26.2**  
Age-specific incidence rates by sex, ICD-10 C70–C72, Germany 2015–2016 per 100,000



**Table 3.26.2**  
Cancer incidence and mortality risks in Germany by age and sex, ICD-10 C70–C72, database 2016

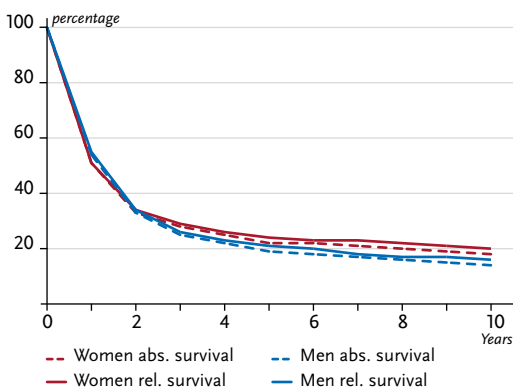
Women aged	Risk of developing cancer				Mortality risk			
	in the next ten years		ever		in the next ten years		ever	
35 years	< 0.1%	(1 in 2,500)	0.6%	(1 in 180)	< 0.1%	(1 in 5,800)	0.5%	(1 in 190)
45 years	0.1%	(1 in 1,600)	0.5%	(1 in 190)	< 0.1%	(1 in 2,500)	0.5%	(1 in 200)
55 years	0.1%	(1 in 920)	0.5%	(1 in 210)	0.1%	(1 in 1,100)	0.5%	(1 in 210)
65 years	0.2%	(1 in 590)	0.4%	(1 in 250)	0.2%	(1 in 660)	0.4%	(1 in 250)
75 years	0.2%	(1 in 570)	0.3%	(1 in 400)	0.2%	(1 in 530)	0.3%	(1 in 360)
Lifetime risk			0.6%	(1 in 160)			0.6%	(1 in 180)
Men aged	in the next ten years		ever		in the next ten years		ever	
35 years	0.1%	(1 in 1,900)	0.6%	(1 in 160)	< 0.1%	(1 in 3,000)	0.6%	(1 in 170)
45 years	0.1%	(1 in 1,100)	0.6%	(1 in 170)	0.1%	(1 in 1,400)	0.6%	(1 in 180)
55 years	0.1%	(1 in 680)	0.5%	(1 in 190)	0.1%	(1 in 730)	0.5%	(1 in 200)
65 years	0.2%	(1 in 490)	0.4%	(1 in 240)	0.2%	(1 in 530)	0.4%	(1 in 240)
75 years	0.2%	(1 in 500)	0.3%	(1 in 380)	0.2%	(1 in 460)	0.3%	(1 in 350)
Lifetime risk			0.7%	(1 in 140)			0.6%	(1 in 160)

**Figure 3.26.3**  
Distribution of histologic types in malignant brain tumours (C71) according to WHO-classification (2016), by sex, (DCO cases excluded), Germany 2015–2016

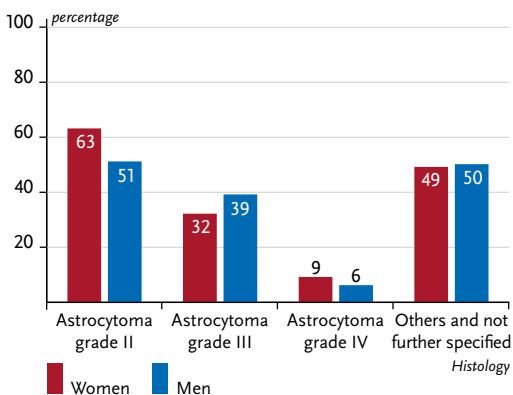


<sup>1</sup> including oligodendrogliomas  
Astrocytomas grade I are histologically benign tumours and are therefore not included.

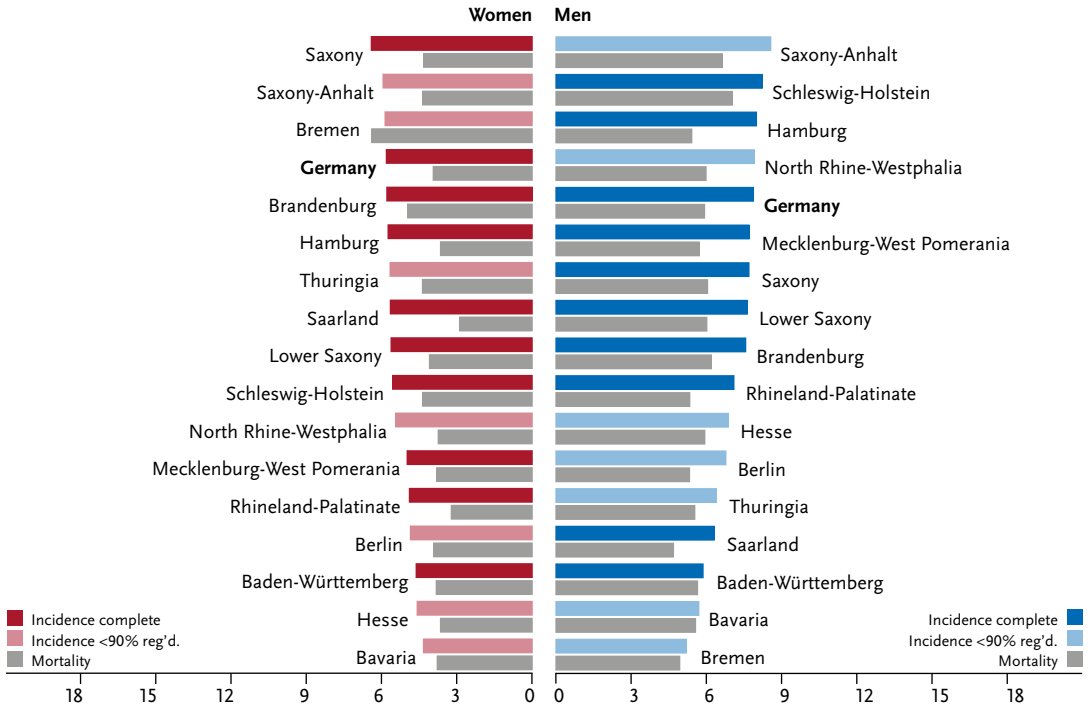
**Figure 3.26.4**  
Absolute and relative survival rates up to 10 years after first diagnosis, by sex, ICD-10 C70–C72, Germany 2015–2016



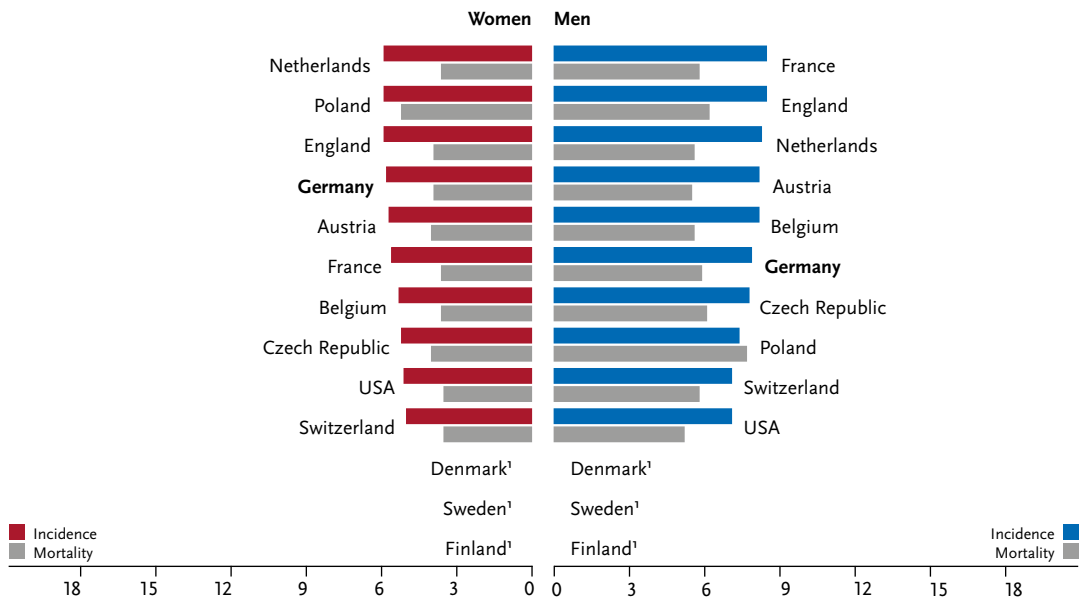
**Figure 3.26.5**  
Relative 5-year survival by histology and sex, ICD-10 C70–C72, Germany 2015–2016



**Figure 3.26.6**  
 Age-standardised incidence and mortality rates in German federal states by sex, ICD-10 C70–C72, 2015–2016  
 (Incidence in Bremen for 2014 and 2016, incidence in eastern Germany for 2014 to 2015)  
 per 100,000 (old European Standard)



**Figure 3.26.7**  
 International comparison of age-standardised incidence and mortality rates by sex, ICD-10 C70–C72,  
 2015–2016 or latest available year (details and sources, see appendix)  
 per 100,000 (old European Standard)



<sup>1</sup> No comparable data available