3.26 Central nervous system

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

Incidence		2019		2020		
	Women	Men	Women	Men		
Incident cases	3,240	4,140	3,250	4,080		
Crude incidence rate [1]	7.7	10.1	7.7	10.0		
Age-standardised incidence rate [1, 2]	5.6	7.7	5.5	7.5		
Median age at diagnosis	65	64	66	63		
Mortality		**2019**		**2020**		**2021**
	Women	Men	Women	Men	Women	Men
Deaths	2,583	3,430	2,585	3,427	2,610	3,406
Crude mortality rate [1]	6.2	8.3	6.1	8.3	6.2	8.3
Age-standardised mortality rate [1, 2]	3.8	5.9	3.7	5.8	3.9	5.7
Median age at death	70	67	70	67	68	67
Prevalence and survival rates		**5 years**		**10 years**		**25 years**
	Women	Men	Women	Men	Women	Men
Prevalence	6,000	7,500	9,700	11,200	15,700	18,500
Absolute survival rate (2019 – 2020) [3]	21 (19 – 27)	20 (17 – 26)	17 (13 – 22)	15 (10 – 21)		
Relative survival rate (2019 – 2020) [3]	23 (20 – 28)	21 (18 – 27)	18 (14 – 24)	17 (11 – 23)		

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

Epidemiology

Cancers of the central nervous system (CNS) affect 95% of the brain, with the remaining 5% being spread across the meninges, cranial nerves and spinal cord.

CNS tumours can occur at any age. Histologically, gliomas originating from the supporting tissue of the nerve cells are predominantly found in adults, of which a good two thirds are glioblastomas (grade IV astrocytoma) with an unfavourable prognosis. In infants and young children, on the other hand, embryonal tumours predominate.

In 2020, about 3,250 women and 4,080 men were diagnosed with malignant CNS tumours in Germany. No significant changes in incidence and mortality rates have been observed since 1999. The relative 5-year survival rates for malignant CNS tumours are 23% for women and 21% for men. These figures do not include histologically benign CNS tumours or tumours of uncertain or unknown behaviour, which can also lead to complications or even death depending on their location. These diagnoses together account for about 7,000 new cases per year, almost two thirds of which originate from the meninges. Women are significantly more frequently affected.

Risk factors

The triggers of the various brain tumours are still largely unclear. Some very rare hereditary tumour syndromes are associated with a significantly increased risk of brain tumours. After radiotherapy in the head area, the risk of developing a brain tumour years later is slightly increased. This applies in particular to radiotherapy in childhood and adolescence. A diagnostic computer tomography scan in childhood can also probably slightly increase the risk of a brain tumour.

A clear connection between mobile phone use and brain tumours has not been proven so far. However, an increased risk cannot be ruled out beyond doubt. This applies in particular to people who use mobile phones frequently and for particularly long periods of time.

The role played by pollutants such as N-nitroso compounds or pesticides is not clearly understood. According to current knowledge, viruses or lifestyle factors such as smoking or alcohol do not contribute to an increase in risk.

Brain tumours occur more frequently in some families. If close relatives suffer from a brain tumour, the risk of developing the disease increases statistically, but remains very low in absolute terms.

▶ *Additional information: www.krebsdaten.de/cns*

Figure 3.26.1a
Age-standardised incidence and mortality rates by sex, ICD-10 C70 – C72, Germany 1999 – 2020/2021
per 100,000 (old European Standard)

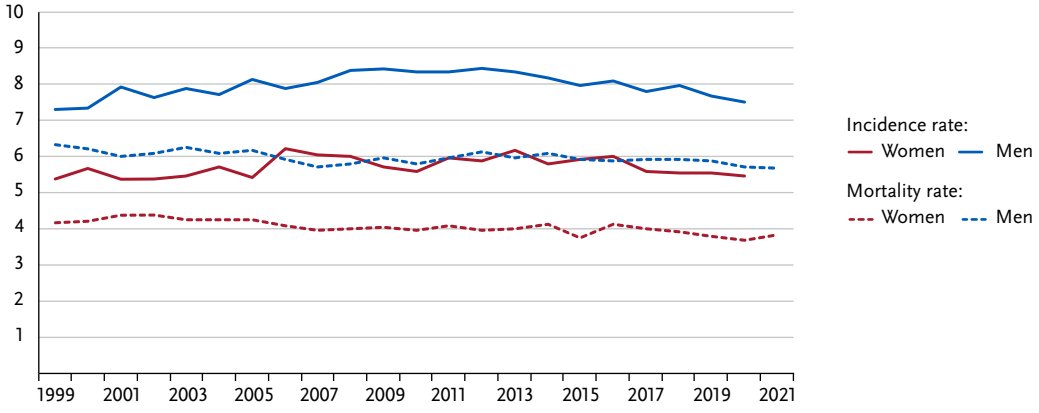


Figure 3.26.1b
Absolute numbers of incident cases and deaths by sex, ICD-10 C70 – C72, Germany 1999 – 2020/2021

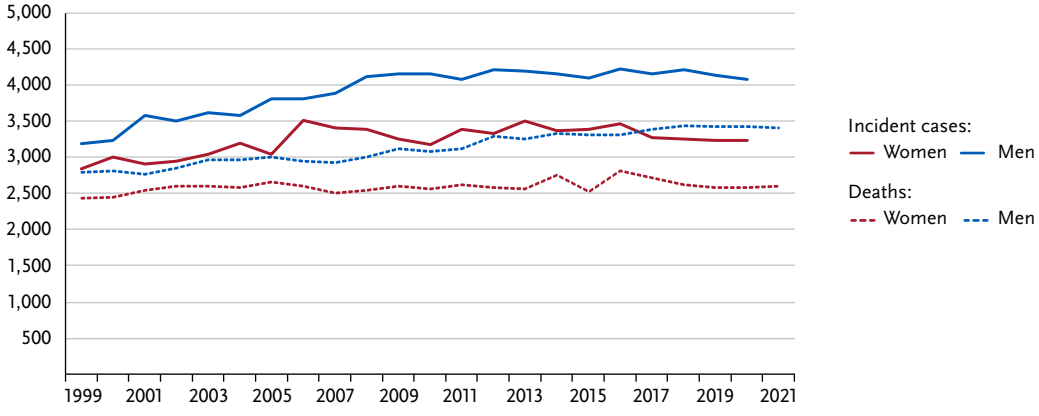


Figure 3.26.2
Age-specific incidence rates by sex, ICD-10 C70 – C72, Germany 2019 – 2020
per 100,000

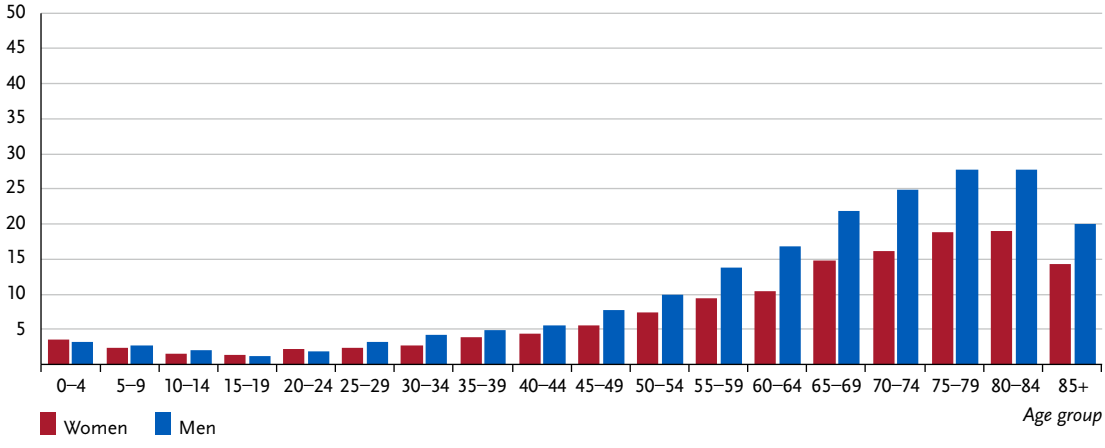
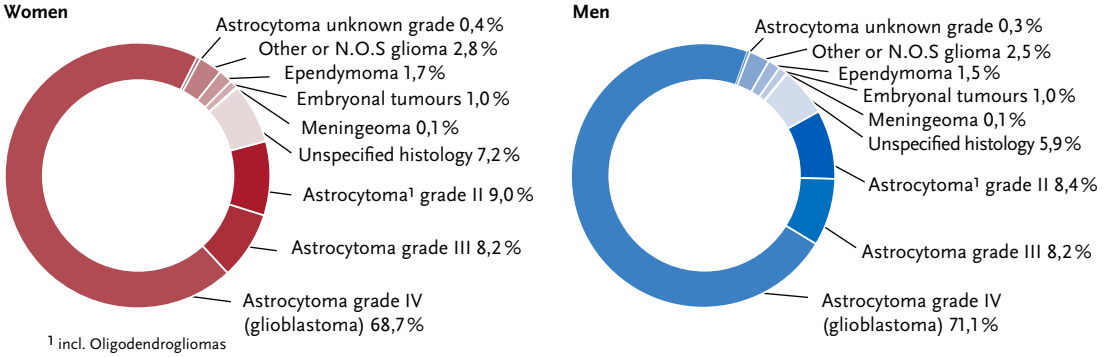


Table 3.26.2
Cancer incidence and mortality risks in Germany by age and sex, ICD-10 C70 – C72, database 2019

	Risk of developing cancer				Mortality risk			
Women aged	**in the next 10 years**		**ever**		**in the next 10 years**		**ever**	
35 years	< 0.1 %	(1 in 2,400)	0.5 %	(1 in 190)	< 0.1 %	(1 in 6,200)	0.5 %	(1 in 220)
45 years	0.1 %	(1 in 1,600)	0.5 %	(1 in 210)	< 0.1 %	(1 in 2,300)	0.4 %	(1 in 230)
55 years	0.1 %	(1 in 970)	0.4 %	(1 in 230)	0.1 %	(1 in 1,200)	0.4 %	(1 in 250)
65 years	0.1 %	(1 in 690)	0.3 %	(1 in 290)	0.1 %	(1 in 720)	0.3 %	(1 in 300)
75 years	0.2 %	(1 in 650)	0.2 %	(1 in 450)	0.2 %	(1 in 650)	0.2 %	(1 in 450)
Lifetime risk			0.6 %	(1 in 170)			0.5 %	(1 in 210)
Men aged	**in the next 10 years**		**ever**		**in the next 10 years**		**ever**	
35 years	0.1 %	(1 in 1,900)	0.7 %	(1 in 150)	< 0.1 %	(1 in 3,200)	0.6 %	(1 in 170)
45 years	0.1 %	(1 in 1,100)	0.6 %	(1 in 160)	0.1 %	(1 in 1,500)	0.6 %	(1 in 180)
55 years	0.1 %	(1 in 700)	0.6 %	(1 in 180)	0.1 %	(1 in 780)	0.5 %	(1 in 190)
65 years	0.2 %	(1 in 460)	0.5 %	(1 in 220)	0.2 %	(1 in 480)	0.4 %	(1 in 230)
75 years	0.2 %	(1 in 450)	0.3 %	(1 in 340)	0.2 %	(1 in 470)	0.3 %	(1 in 350)
Lifetime risk			0.8 %	(1 in 130)			0.6 %	(1 in 160)

Figure 3.26.3
Distribution of histological types of malignant brain tumours (C71) in Germany according to WHO-classification (2016), by sex, DCO cases excluded, 2019 – 2020



¹ incl. Oligodendrogliomas
Grade I astrocytomas are histologically benign tumours and are therefore not included.

Figure 3.26.4
Absolute and relative survival rates up to 10 years after diagnosis, by sex, ICD-10 C70 – C72, Germany 2019 – 2020

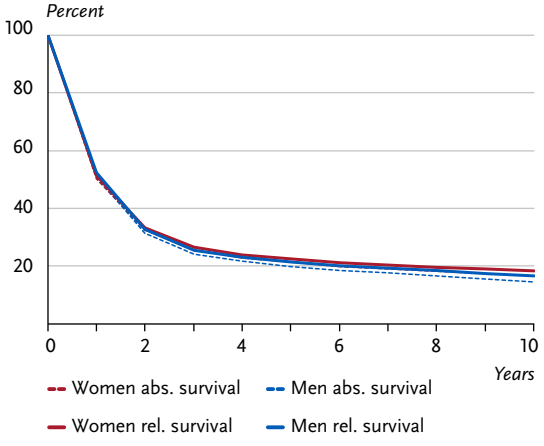


Figure 3.26.5
Relative 5-year survival by histology and sex, ICD-10 C71, Germany 2019 – 2020

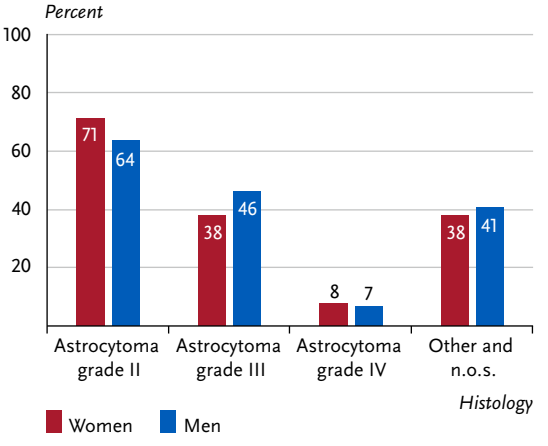


Figure 3.26.6
Age-standardised incidence and mortality rates in German federal states by sex, ICD-10 C70 – C72, 2019 – 2020
per 100,000 (old European Standard)

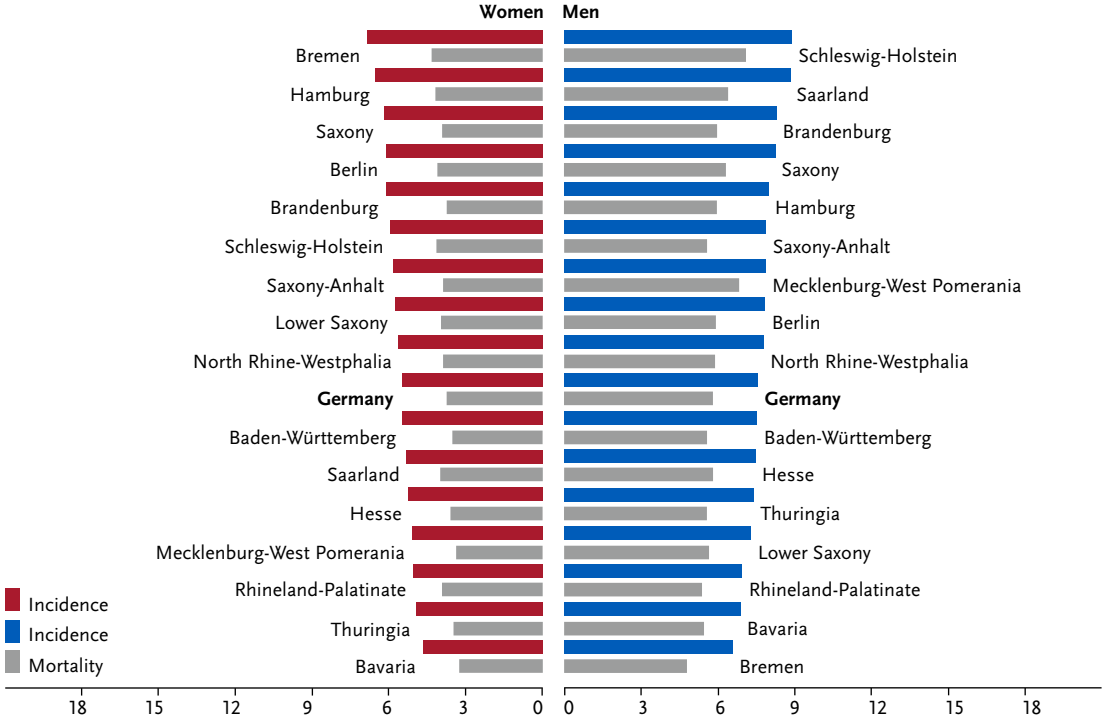
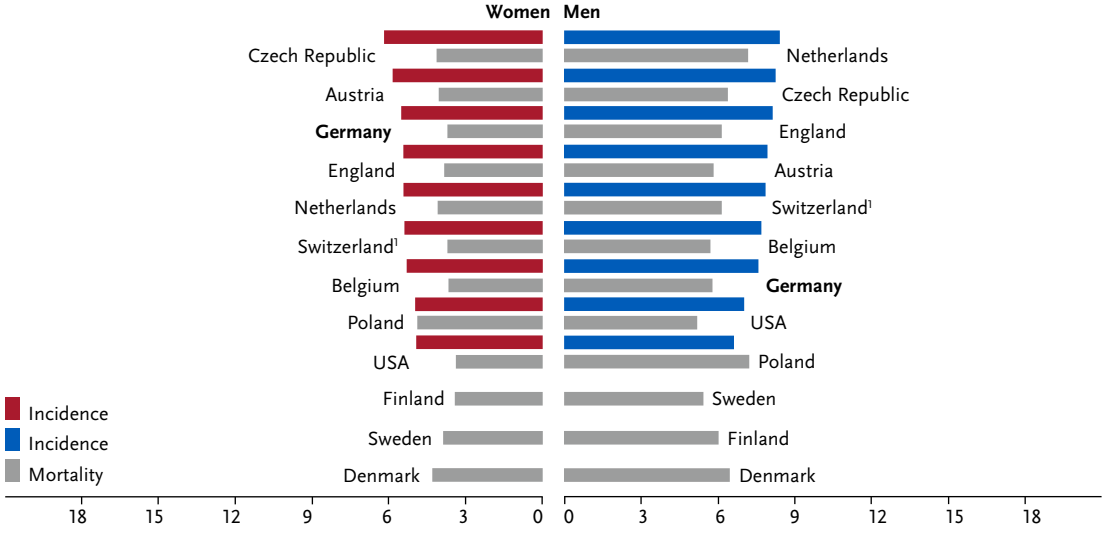


Figure 3.26.7
International comparison of age-standardised incidence and mortality rates by sex, ICD-10 C70 – C72, 2019 – 2020 or latest available year (details and sources, see appendix)
per 100,000 (old European Standard)



[1] Switzerland: incidence data for 2015 – 2019