

EAN Fact Sheet

Country profile of Slovakia

EAN Fact Sheet

Country profile of Slovakia

The EAN is pleased to present this fact sheet to each and every national neurological society, offering key insights into the latest epidemiological, economic, and demographic trends. This data aims to support informed decision-making and enhance understanding of neurological conditions on both national and European level with information provided by three EAN projects: the [“Burden of Neurological Disease in Europe”](#) study, the EAN [“COst of Illness in Neurology in EUrope \(COIN-EU\)”](#) project, the EAN NNS 2021-2022 survey.

Burden of Disease in Europe – Collaboration with IHME

Neurological disorders are the second most common cause of disability and premature death in the European Region and their prevalence and burden will likely increase with the progressive ageing of the European population. Greater attention to neurological diseases must be paid by health authorities for prevention and care. For this reason, the European Academy of Neurology is conducting research on gaining and analysing reliable data on the number of patients with neurological diseases.

These data are obtained from the currently most developed data base, the [Global Burden of Disease \(GBD\)](#) study of the Institute for Health Metrics and Evaluation (IHME), University of Washington, Seattle. The burden of neurological disorders in Europe was calculated for the year 2021 as prevalence, mortality, disability-adjusted life-years (DALYs), years of life lost (YLLs), and years lived with disability (YLDs) for the countries in the EU and the WHO European region for a total of 26 neurological disorders.

The study in Europe is run by the EAN and led by Prof. Dr. Günther Deuschl, Dr. Maurizio Leone and Maria Konti, M.Sc., in close collaboration with the leading scientists of the IHME Institute.

In the table below, you will find the national total counts for DALYs, YLDs, YLLs, prevalence, and deaths, the age-standardised rates by neurological disorder category for the years 1990 and 2021, and the percentage change for both of your country and the WHO Europe.

Diseases with counts less than one have been excluded and the number of decimal points has been adjusted individually for each disease.

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Slovakia	WHO Europe	
All Neurological Disorders						
DALYs	286,148	5,143	3,479	-32.4%	-29.0%	
Deaths	9,322	180	99	-44.6%	-43.2%	
Prevalence	2,580,528	42,205	42,256	0.1%	0.3%	
YLDs	126,370	1,724	1,699	-1.5%	2.9%	
YLLs	159,768	3,419	1,780	-47.9%	-44.4%	
Alzheimer's disease and other dementias						
DALYs	36,916	392	387	-1.5%	-2.5%	
Deaths	1,929	20.91	20.67	-1.1%	-2.8%	
Prevalence	60,990	646	635	-1.8%	-2.1%	
YLDs	12,499	132	130	-1.1%	-2.6%	
YLLs	24,417	261	256	-1.7%	-2.5%	
Chromosomal abnormalities						
DALYs	191	4.56	5.26	15.4%	-12.3%	
Prevalence	2,119	51	59	15.5%	-12.8%	
YLDs	191	4.56	5.26	15.4%	-12.4%	
Covid-19 (neurological)						
DALYs	2,415	-	38	-	-	
Prevalence	24,159	-	373	-	-	
YLDs	2,415	-	38	-	-	
Cystic echinococcosis						
DALYs	3	0.05	0.04	-20.9%	-18.3%	
Prevalence	10	0.17	0.16	-5.7%	-9.0%	
YLDs	3	0.05	0.04	-20.9%	-18.4%	
Diabetic neuropathy						
DALYs	26,901	200	291	45.5%	98.1%	
Prevalence	212,500	1,581	2,297	45.3%	97.9%	
YLDs	26,901	200	291	45.5%	98.1%	

Down syndrome						
DALYs	110	2.55	3.11	22.0%	-19.6%	
Prevalence	1,222	28	35	22.1%	-20.7%	
YLDs	110	2.55	3.11	21.9%	-19.8%	
Encephalitis						
DALYs	486	10.38	9.61	-7.4%	-30.1%	
Deaths	9	0.14	0.15	2.9%	-15.9%	
Prevalence	987	19	15	-21.9%	-13.6%	
YLDs	99	2.00	1.61	-19.4%	-12.0%	
YLLs	387	8.39	8.00	-4.6%	-31.0%	
Epilepsy						
DALYs	12,283	241	207	-13.9%	-12.6%	
Deaths	136	2.24	1.94	-13.7%	3.9%	
Prevalence	26,713	431	458	6.2%	3.3%	
YLDs	6,952	133	120	-10.3%	-11.3%	
YLLs	5,330	107	88	-18.4%	-14.3%	
Guillain-Barre Syndrome						
DALYs	26	0.42	0.42	0.2%	12.4%	
Prevalence	88	1.41	1.42	0.2%	12.4%	
YLDs	26	0.42	0.42	0.2%	12.4%	
Idiopathic intellectual disability						
DALYs	580	18	12	-33.2%	-19.7%	
Prevalence	12,707	382	264	-31.0%	-21.2%	
YLDs	580	18	12	-33.2%	-19.7%	
Klinefelter syndrome						
DALYs	2	0.02	0.02	7.4%	5.7%	
Prevalence	120	2.67	2.89	8.3%	5.5%	
YLDs	2	0.02	0.02	7.2%	5.5%	

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Slovakia	WHO Europe	
Meningitis						
DALYs	791	66	16	-75.6%	-80.5%	
Deaths	17	1.00	0.27	-73.3%	-75.4%	
Prevalence	1,538	69	25	-64.0%	-66.7%	
YLDs	126	6	2	-62.0%	-64.6%	
YLLs	666	60	14	-76.9%	-81.3%	
Migraine						
DALYs	31,140	519	517	-0.5%	0.04%	
Prevalence	810,276	13,718	13,618	-0.7%	0.3%	
YLDs	31,140	519	517	-0.5%	0.04%	
Motor neuron disease						
DALYs	464	4.55	6.87	51.0%	37.5%	
Deaths	14	0.09	0.17	80.2%	54.1%	
Prevalence	207	3.75	3.78	0.7%	19.8%	
YLDs	44	0.80	0.80	0.7%	19.5%	
YLLs	420	3.75	6.07	61.8%	38.5%	
Multiple sclerosis						
DALYs	1,780	26	24	-11.0%	-5.0%	
Deaths	39	0.56	0.47	-16.9%	-12.5%	
Prevalence	1,928	22	27	23.3%	26.4%	
YLDs	512	5.98	7.33	22.6%	25.5%	
YLLs	1,268	20	16	-20.8%	-22.2%	
Nervous system cancer						
DALYs	12,977	184	180	-2.5%	-3.3%	
Deaths	429	4.81	5.09	6.0%	10.8%	
Prevalence	740	10	12	26.4%	35.9%	
YLDs	137	1.62	1.86	14.9%	25.3%	
YLLs	12,839	183	178	-2.6%	-3.7%	

Neurocysticercosis						
DALYs	2,100	36.76	25.82	-29.8%	-42.5%	
Deaths	9,467	141.03	115.41	-18.2%	-32.8%	
YLDs	2,100	36.74	25.82	-29.7%	-42.5%	
YLLs	6	0.08	0.02	-70.8%	-70.7%	
Neurosyphilis						
DALYs	2	0.03	0.03	9.4%	-43.6%	
Prevalence	46	0.43	0.72	69.0%	-11.7%	
YLDs	2	0.03	0.03	9.3%	-43.4%	
Other neurological disorders						
DALYs	3,297	48	58	21.7%	25.8%	
Deaths	50	0.64	0.68	7.0%	45.0%	
YLDs	1,600	17	28	67.3%	62.9%	
YLLs	1,687	31	30	-3.4%	14.2%	
Parkinson's disease						
DALYs	6,937	83	70	-15.0%	5.6%	
Deaths	387	4.72	4.00	-15.3%	4.0%	
Prevalence	8,459	81	85	5.2%	21.9%	
YLDs	1,188	11	12	5.3%	21.4%	
YLLs	5,749	71	58	-18.2%	2.0%	
Spinal cord injury						
DALYs	5,727	104	83	-20.0%	-26.9%	
Prevalence	22,041	344	314	-8.7%	-21.9%	
YLDs	5,727	104	83	-20.0%	-26.9%	

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Slovakia	WHO Europe	
Stroke						
DALYs	126,685	2,973	1,346	-54.7%	-52.6%	
Deaths	6,312	144	66	-54.3%	-55.6%	
Prevalence	106,246	1,624	1,186	-27.0%	-19.2%	
YLDs	19,682	299	219	-26.8%	-18.9%	
YLLs	107,003	2,674	1,127	-57.9%	-55.3%	
Tension-type headache						
DALYs	4,706	72.92	73.13	0.3%	-1.6%	
Prevalence	1,768,340	29,990	29,962	-0.1%	-0.8%	
YLDs	4,706	72.92	73.13	0.3%	-1.6%	
Traumatic Brain Injury						
DALYs	9,629	157	127	-19.3%	-28.2%	
Prevalence	66,412	1,072	865	-19.3%	-28.0%	
YLDs	9,629	157	127	-19.3%	-28.2%	

Table 1: National total counts for DALYs, YLDs, YLLs, prevalence, and deaths, age-standardised rates by neurological disorder category for 1990 and 2021, and percentage change of 1990-2021. Diseases with counts less than one have been excluded and the number of decimal points has been adjusted individually for each disease.

Neurological conditions

In figure 1 below, the top 20 neurological disorders are ranked based on the national age-standardised rate of DALYs per 100 000 population in 2021 for all age groups.

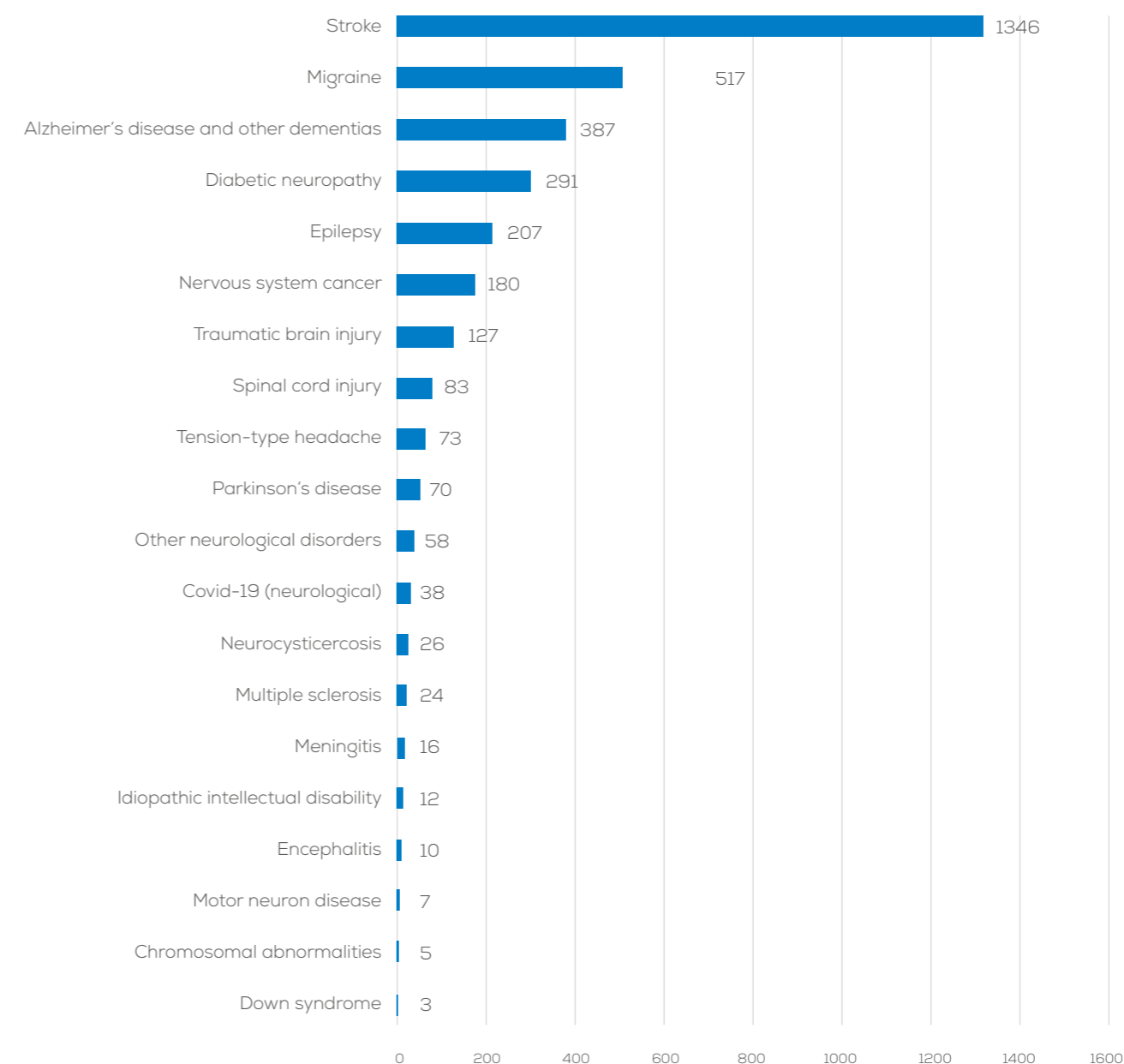


Figure 1: National age-standardised DALYs per 100 000 population by neurological disorder in 2021.

DALYs per 100 000 population

In order to show how the diseases are evolving both in **Slovakia** and the European Region, we present the temporal pattern of DALYs per 100 000 population over the last three decades in the figure below:

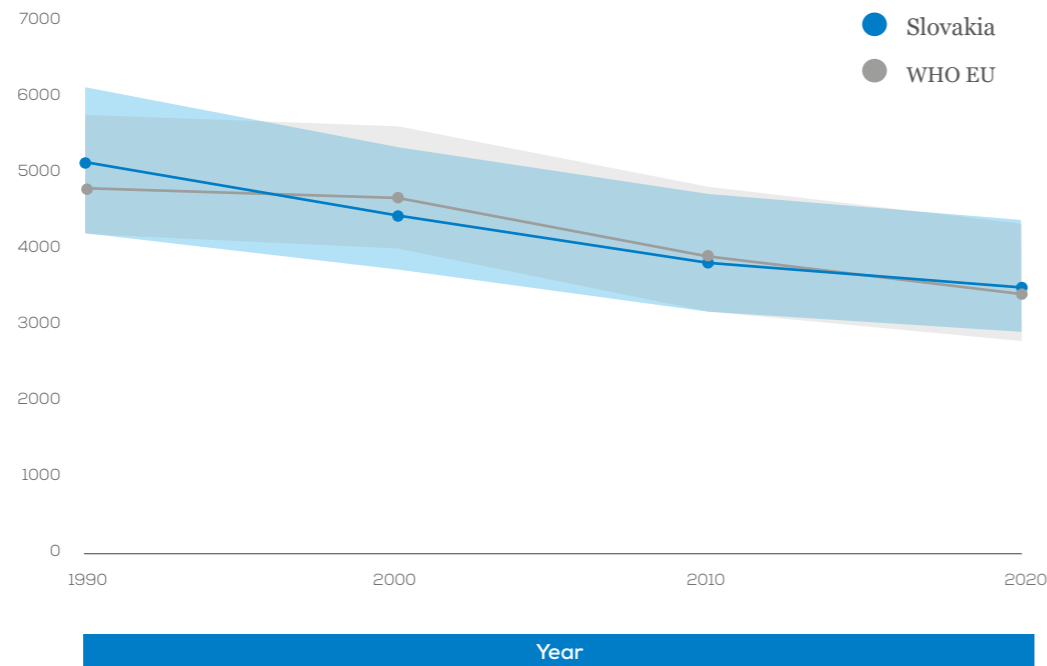


Figure 2: Age-Standardized DALYs per 100 000 population over the last 3 decades.

In figure 3 we show the distribution of DALYs rate per 100 000 population by age group divided in female and male:

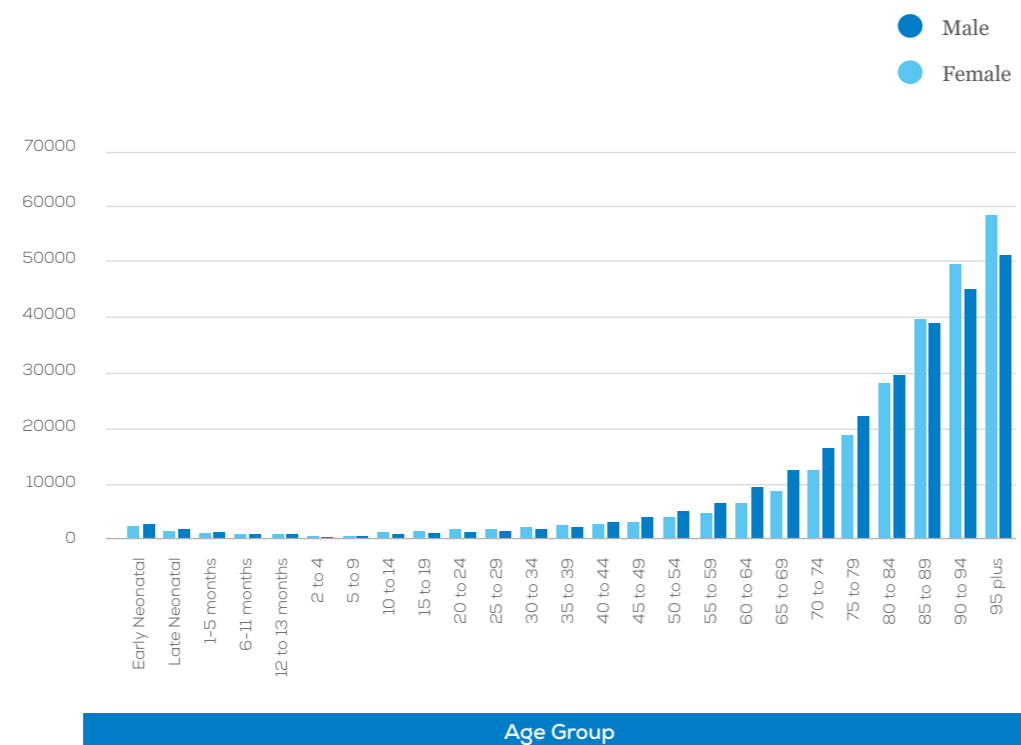


Figure 3: National DALYs per 100 000 population by age group and sex in 2021.

Extensive data and analyses are provided in the published paper and it will be communicated to the National Neurological societies.

COIN-EU (Cost of Illness in Neurology in Europe)

The Cost of Illness in Neurology in Europe (COIN-EU) project, which was launched in 2021, is run by EAN and led by Prof. Richard Dodel, Prof. Uwe Siebert and Prof. Günther Deuschl. This project is overseen at the EAN by Prof. Paul Boon, Prof. Claudio Bassetti and Prof. Thomas Berger.

The aim of the study is to assess disease- and country-specific annual costs for 12 categories of neurological diseases in Europe with a focus on the prevalent adult patient population. Costs have been calculated in three main categories: a) direct health care costs (i.e., all goods and services related to the prevention, diagnosis and treatment of a disorder; e.g. physician visits, hospitalizations and pharmaceuticals), b) informal care costs (i.e. other goods and services related to the disorder; e.g. social services, special accommodation and informal care), and c) indirect costs (i.e., lost productivity due to work absence or early retirement).

As the literature review revealed many gaps in research for many diseases and many countries, the group has developed a method to provide estimations of the above cost categories for the cases where no data are available. Data are imputed for those countries which belong to the same GNI category with countries that do present data. In case none of the countries which belong to the same GNI category present data, then an imputation is not possible.

In the table below, costs for **Slovakia** have been calculated for the diseases with available data, in three main categories where the numbers represent millions € PPP 2019.

million € PPP
2019

Informal Care

Neurological Disorder	Total Costs	Direct Costs	Informal Care Costs	Indirect Costs
Headache disorders	3,575.0	1,700.1	616.5	1,258.3
Sleep disorders	3,088.1	1,724.7	-	1,363.4
Alzheimer's disease and other dementias	873.2	376.9	496.2	0.2
Traumatic brain injury	633.4	273.2	165.2	195.0
Stroke	307.2	194.0	85.6	27.6
Polyneuropathies	192.2	109.5	-	82.6
Idiopathic epilepsy	74.3	21.2	-	53.1
Parkinson's disease	48.4	32.6	13.1	2.7
Multiple sclerosis	19.7	14.9	3.9	0.9
Brain and central nervous system cancer	4.8	2.9	1.9	-
Meningitis	1.7	1.7	-	-
Motor neuron disease	1.6	0.9	0.5	0.2
Total Costs:	8,819.6	4,452.6	1,382.8	2,984.1

Table 2: Total, direct, informal care and indirect costs per neurological disorder. Number of diseases depends on the availability of original studies and imputation of data.

NNS Survey 2021

In December 2021, the EAN conducted a survey among the national neurological societies. By combining the data from the Burden of Disease in Europe study across all European Region countries, we can provide demographic data regarding the workforce of neurologists in Europe for the 37 countries who took part in the survey.

The figure below represents the number of neurologists, fully specialised and in training per 100 000 population.

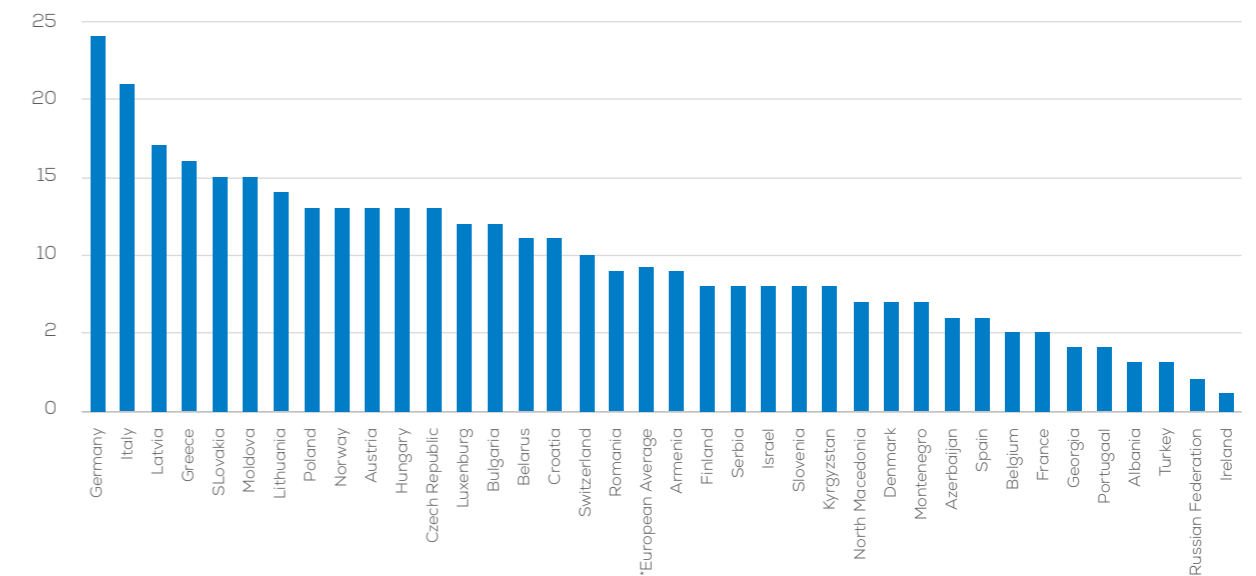


Figure 4: Number of neurologists (fully specialised and in training) per 100 000 population.

In the last figure the number of patients per neurologist is displayed:

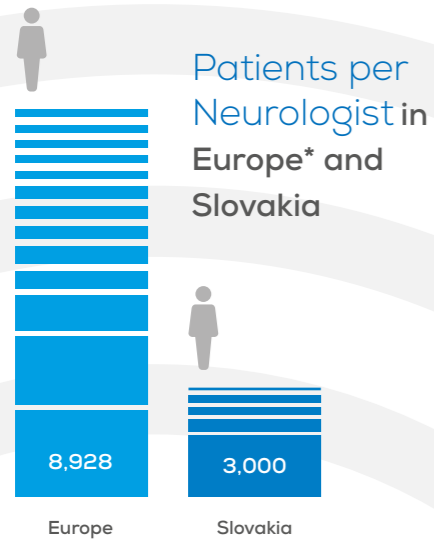
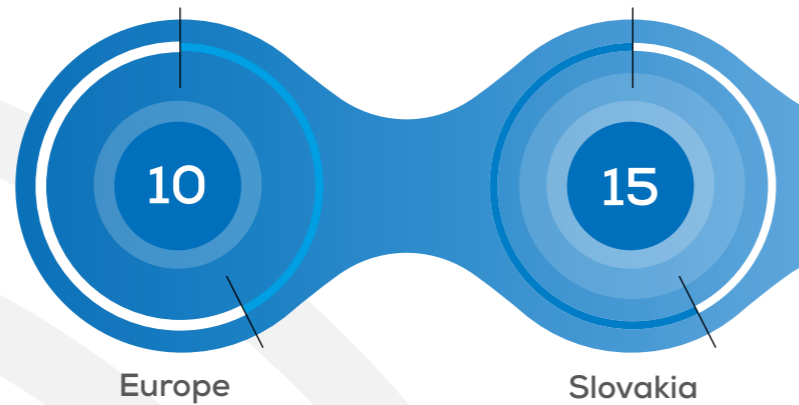


Figure 5: Number of patients per neurologist (fully specialised and in training).

Neurological Diseases in Europe and Slovakia:

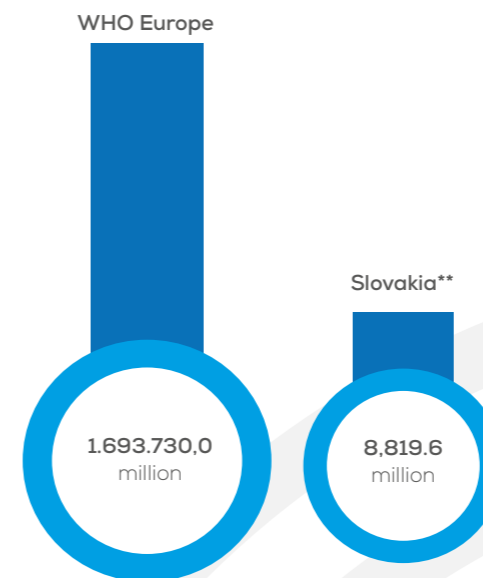
Key Data and Trends from 2021

Neurologists per 100,000 population in Europe* and Slovakia:



Percentage change of age-standardised DALYs, Deaths and prevalence from 1990 to 2021:

	WHO Europe	vs	Slovakia
DALYs	-28.98%		-32.35%
Deaths	-43.19%		-44.63%
Prevalence	0.34%		0.12%



Annual total costs (in million € PPP 2019) for 12 major neurological diseases:

Most prevalent neurological diseases in Slovakia in

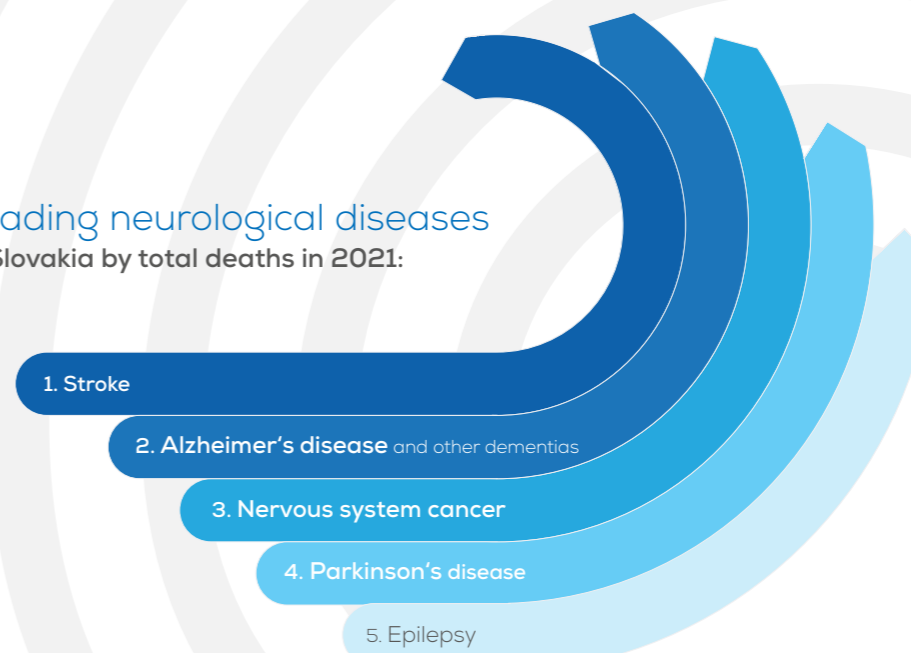
2021

- 1 Tension-type headache
- 2 Migraine
- 3 Diabetic neuropathy
- 4 Stroke
- 5 Traumatic brain injury

	WHO Europe	Male	Female
WHO Europe	3,513	3,351	
Slovakia	3,739	3,260	

Age-standardised DALYs rate per 100,000 population in 2021 by sex

Leading neurological diseases in Slovakia by total deaths in 2021:



*Based on data from 37 countries of the WHO European region
**Cost estimates are derived from country-specific data available for specific diseases.

