

# EAN Fact Sheet

Country profile of Bulgaria

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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	Bulgaria	WHO Europe
All Neurological Disorders					
DALYs	731,659	7,800	5,853	-25.0%	-29.0%
Deaths	33,169	343	231	-32.5%	-43.2%
Prevalence	3,324,950	42,118	42,748	1.5%	0.3%
YLDs	183,609	1,669	1,804	8.1%	2.9%
YLLs	548,036	6,131	4,049	-34.0%	-44.4%
Alzheimer’s disease and other dementias					
DALYs	56,457	384	381	-0.8%	-2.5%
Deaths	2,789	19.96	20.04	0.4%	-2.8%
Prevalence	98,848	658	643	-2.2%	-2.1%
YLDs	20,302	136	133	-1.8%	-2.6%
YLLs	36,155	248	248	-0.2%	-2.5%
Chromosomal abnormalities					
DALYs	230	5.12	5.62	9.8%	-12.3%
Prevalence	2,534	57	63	9.7%	-12.8%
YLDs	230	5.12	5.62	9.7%	-12.4%
Covid-19 (neurological)					
DALYs	4,719	-	58	-	-
Prevalence	49,111	-	590	-	-
YLDs	4,719	-	58	-	-
Cystic echinococcosis					
DALYs	11	0.16	0.14	-12.3%	-18.3%
Prevalence	40	0.51	0.51	0.5%	-9.0%
YLDs	11	0.15	0.14	-11.8%	-18.4%
Diabetic neuropathy					
DALYs	52,302	220	393	78.6%	98.1%
Prevalence	412,916	1,729	3,093	78.9%	97.9%
YLDs	52,302	220	393	78.6%	98.1%

Down syndrome					
DALYs	126	2.84	3.14	10.6%	-19.6%
Prevalence	1,399	32	35	11.1%	-20.7%
YLDs	126	2.84	3.14	10.5%	-19.8%
Encephalitis					
DALYs	3,568	55	62	13.4%	-30.1%
Deaths	87	0.78	1.10	41.2%	-15.9%
Prevalence	1,264	17	15	-12.3%	-13.6%
YLDs	117	1.76	1.58	-10.7%	-12.0%
YLLs	3,451	53	60	14.3%	-31.0%
Epilepsy					
DALYs	15,199	207	216	4.5%	-12.6%
Deaths	180	1.52	2.04	34.0%	3.9%
Prevalence	29,960	404	429	6.3%	3.3%
YLDs	8,436	128	121	-5.5%	-11.3%
YLLs	6,763	79	95	20.6%	-14.3%
Guillain-Barre Syndrome					
DALYs	34	0.42	0.42	-0.2%	12.4%
Prevalence	116	1.42	1.42	-0.2%	12.4%
YLDs	34	0.42	0.42	-0.2%	12.4%
Idiopathic intellectual disability					
DALYs	890	21	15	-26.1%	-19.7%
Prevalence	19,340	457	337	-26.3%	-21.2%
YLDs	890	21	15	-26.1%	-19.7%
Klinefelter syndrome					
DALYs	2	0.02	0.02	9.9%	5.7%
Prevalence	142	2.73	3.03	11.0%	5.5%
YLDs	2	0.02	0.02	9.9%	5.5%

	Counts (thousands)	Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Bulgaria	WHO Europe
Meningitis					
DALYs	1,728	120	28	-76.3%	-80.5%
Deaths	45	1.72	0.52	-70.1%	-75.4%
Prevalence	1,744	65	23	-65.3%	-66.7%
YLDs	132	5	2	-64.1%	-64.6%
YLLs	1,596	115	27	-76.9%	-81.3%
Migraine					
DALYs	38,217	518	514	-0.7%	0.0%
Prevalence	994,945	13,675	13,595	-0.6%	0.3%
YLDs	38,217	518	514	-0.7%	0.0%
Motor neuron disease					
DALYs	626	4.35	7.00	60.9%	37.5%
Deaths	20	0.08	0.17	120.5%	54.1%
Prevalence	209	3.15	3.11	-1.3%	19.8%
YLDs	45	0.67	0.66	-1.2%	19.5%
YLLs	582	3.68	6.33	72.2%	38.5%
Multiple sclerosis					
DALYs	3,531	39	36	-7.9%	-5.0%
Deaths	70	0.75	0.63	-16.1%	-12.5%
Prevalence	5,137	46	51	8.9%	26.4%
YLDs	1,282	12	13	9.2%	25.5%
YLLs	2,249	27	23	-15.3%	-22.2%
Nervous system cancer					
DALYs	25,642	221	265	20.0%	-3.3%
Deaths	893	5	8	44.4%	10.8%
Prevalence	1,420	12	17	43.0%	35.9%
YLDs	264	1.85	2.60	40.6%	25.3%
YLLs	25,378	219	262	19.9%	-3.7%

Neurosyphilis					
DALYs	2	0.02	0.02	-7.8%	-43.6%
Prevalence	22	0.29	0.25	-12.3%	-11.7%
YLDs	2	0.02	0.02	-7.5%	-43.4%
Other neurological disorders					
DALYs	4,463	50	63	26.6%	25.8%
Deaths	72	0.59	0.74	25.6%	45.0%
YLDs	2,127	18	30	71.4%	62.9%
YLLs	2,322	32	33	2.1%	14.2%
Parkinson’s disease					
DALYs	16,590	110	103	-5.9%	5.6%
Deaths	996	7	6	-6.9%	4.0%
Prevalence	15,192	126	95	-24.5%	21.9%
YLDs	2,138	18	13	-23.8%	21.4%
YLLs	14,453	92	90	-2.4%	2.0%
Spinal cord injury					
DALYs	6,784	108	83	-23.4%	-26.9%
Prevalence	24,452	352	292	-17.1%	-21.9%
YLDs	6,784	108	83	-23.4%	-26.9%
Stroke					
DALYs	483,791	5,517	3,430	-37.8%	-52.6%
Deaths	28,017	305	192	-37.1%	-55.6%
Prevalence	159,098	1,416	1,256	-11.3%	-19.2%
YLDs	28,705	254	225	-11.6%	-18.9%
YLLs	455,086	5,263	3,205	-39.1%	-55.3%

	Counts (thousands)	Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Bulgaria	WHO Europe
Tension-type headache					
DALYs	5,907	72.83	72.81	-0.02%	-1.6%
Prevalence	2,209,582	29,965	29,955	-0.03%	-0.8%
YLDs	5,907	72.83	72.81	-0.02%	-1.6%
Traumatic Brain Injury					
DALYs	10,838	145	116	-20.3%	-28.2%
Prevalence	74,974	989	789	-20.2%	-28.0%
YLDs	10,838	145	116	-20.3%	-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.

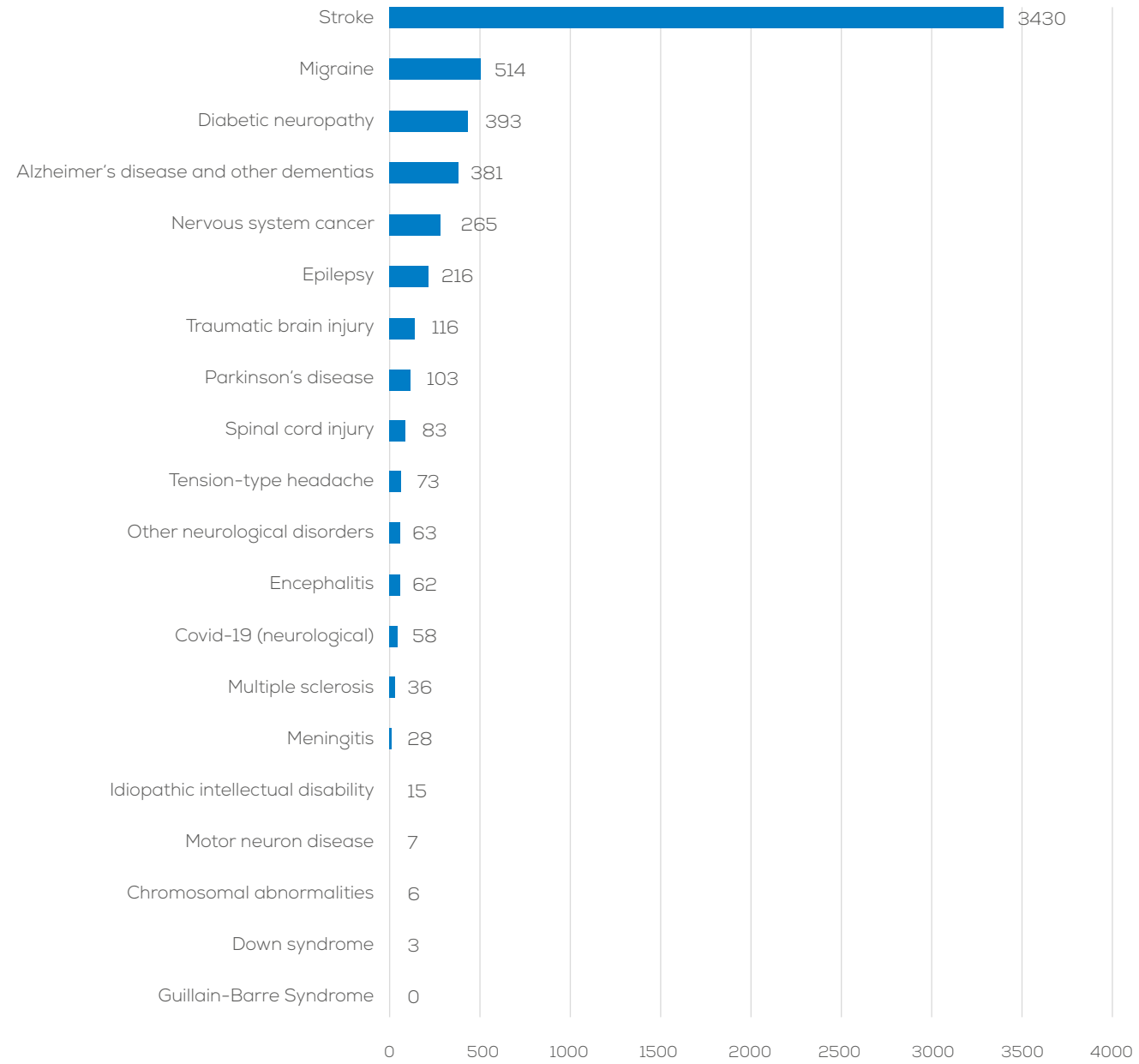


Figure 1: National age-standardised DALYs per 100 000 population by neurological disorder in 2021.

DALYs per 100 000 population

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

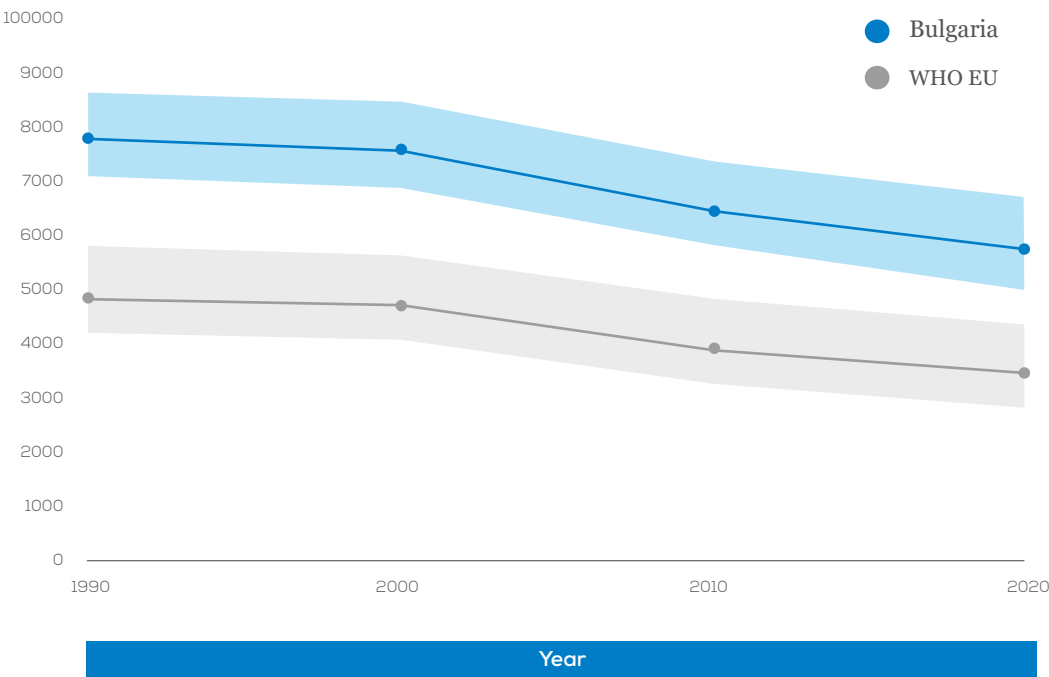


Figure 2: Age-Standardized DALYs per 100 000 population over the last 3 decades.

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

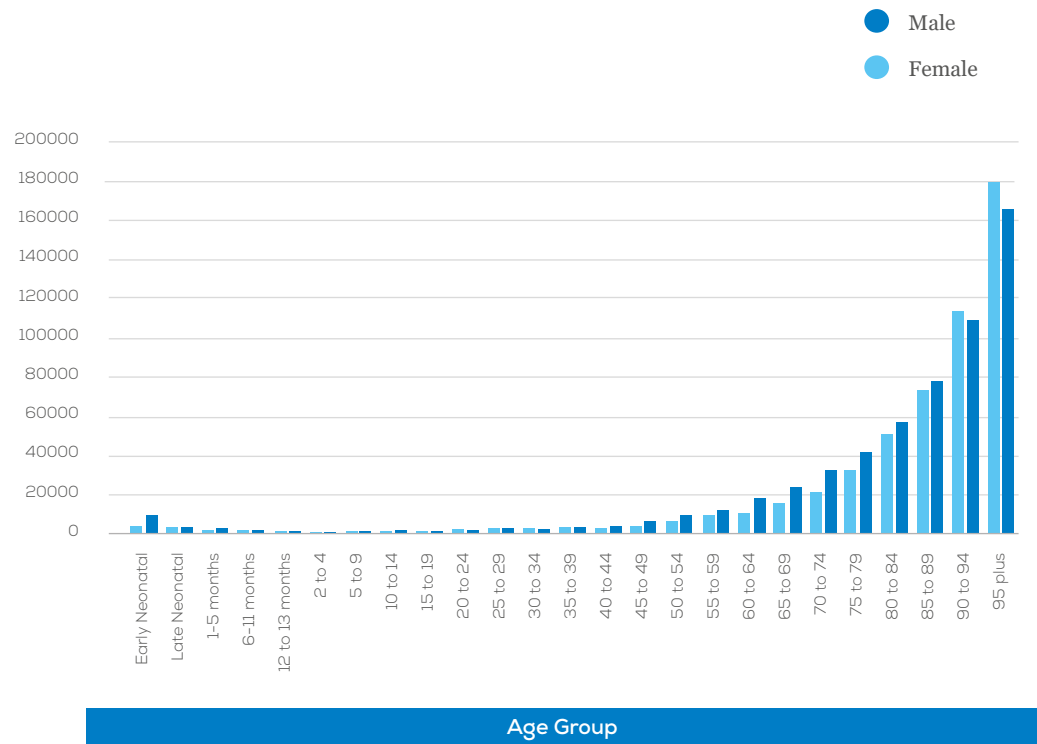


Figure 3: National DALYs per 100 000 population by age group and sex in 2021.

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 **Bulgaria** 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

	Total Costs	Direct Costs	Informal Care Costs	Indirect Costs
Neurological Disorder				
Stroke	169.1	59.4	80.7	29.0
Traumatic brain injury	153.2	153.2	-	-
Multiple sclerosis	102.0	83.5	7.8	10.7
Parkinson's disease	74.1	45.8	24.9	3.4
Idiopathic epilepsy	58.9	53.3	-	5.5
Total Costs:	557.2	395.1	113.4	48.6

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.

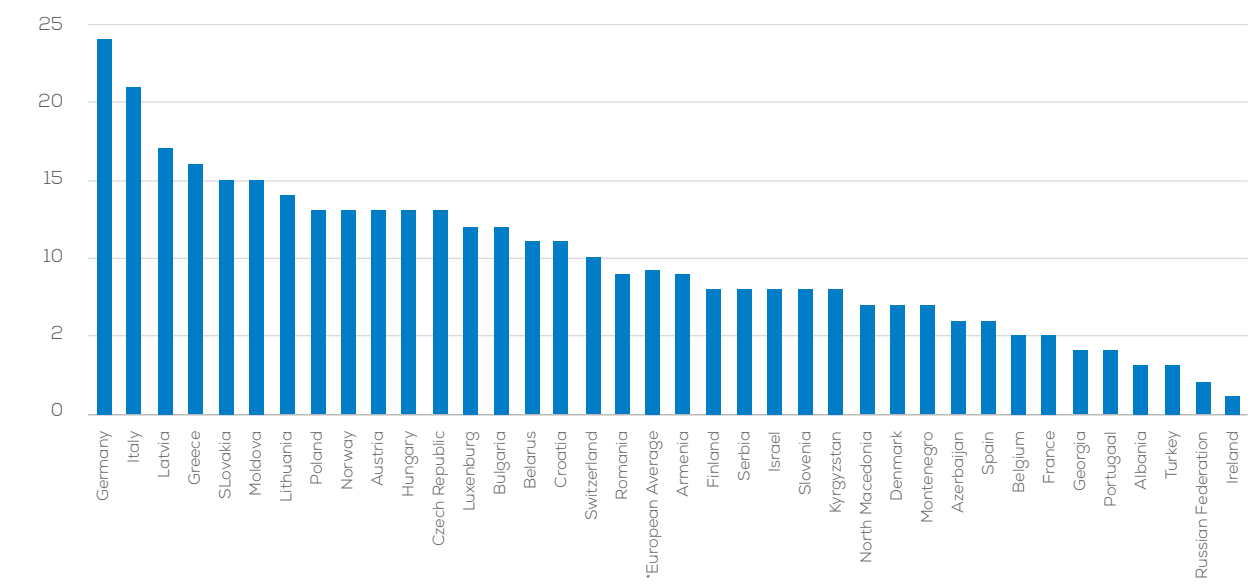


Figure 4: Number of neurologists (fully specialised and in training) per 100 000 population.

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

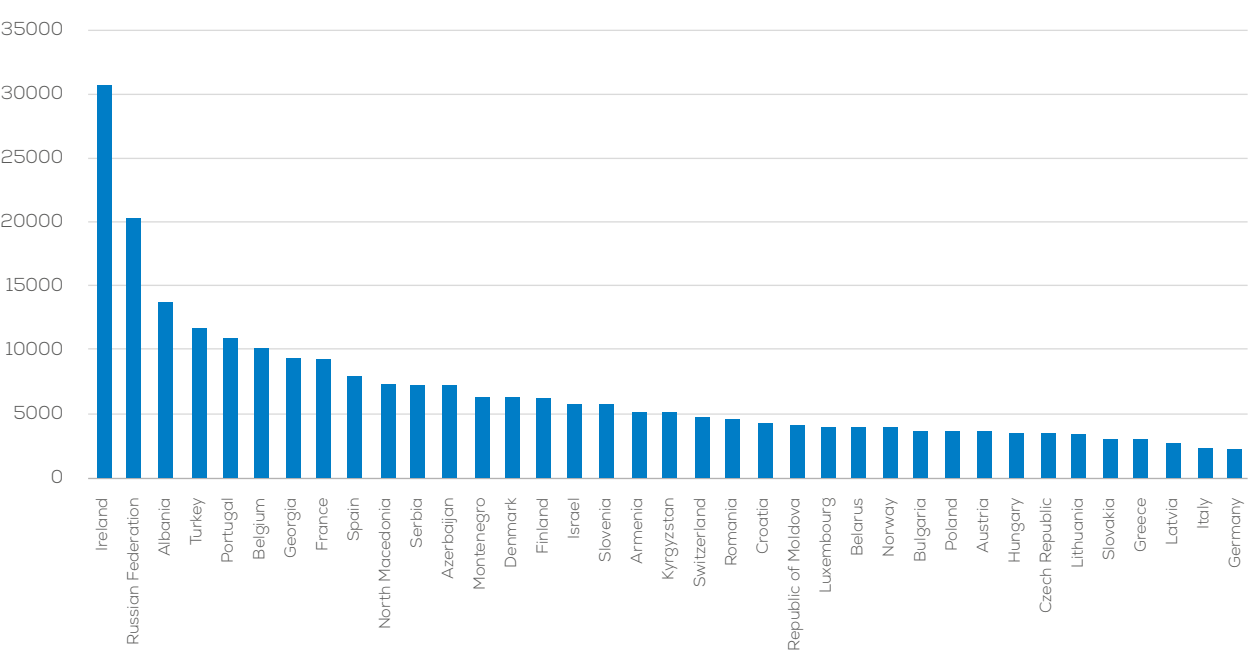
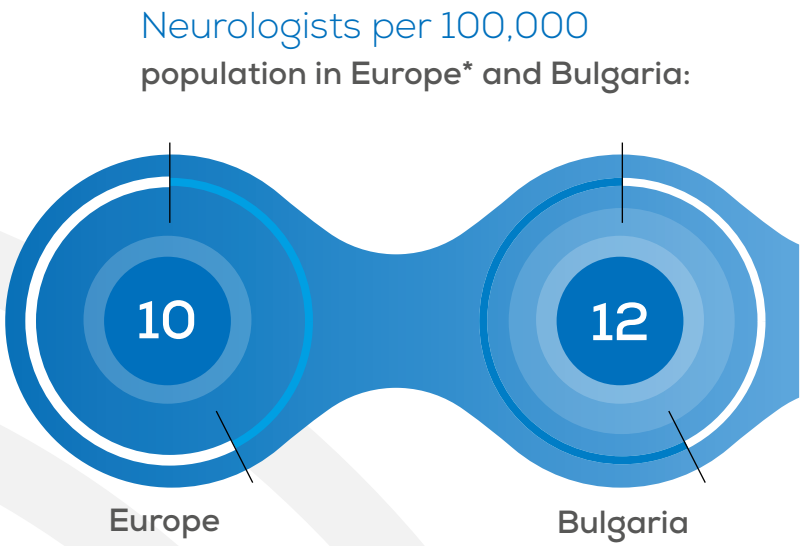
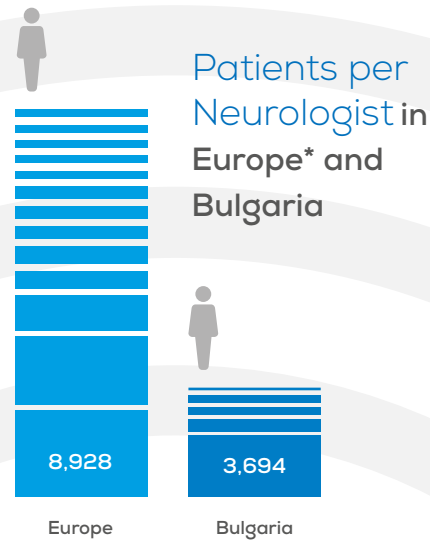


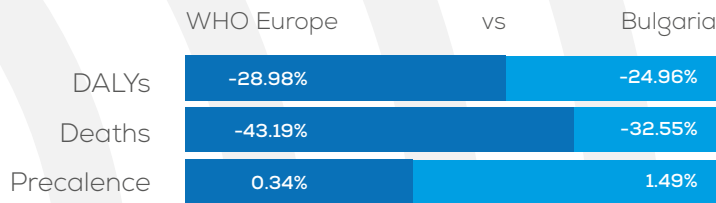
Figure 5: Number of patients per neurologist (fully specialised and in training).

# Neurological Diseases in Europe and Bulgaria:

Key Data and Trends from 2021



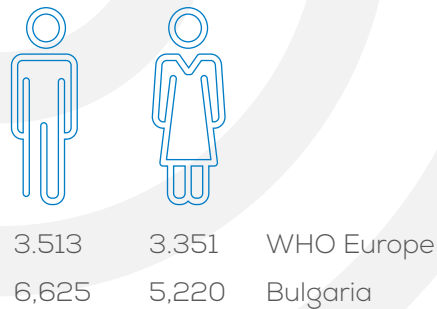
Percentage change of age-standardised DALYs, Deaths and prevalence from 1990 to 2021:



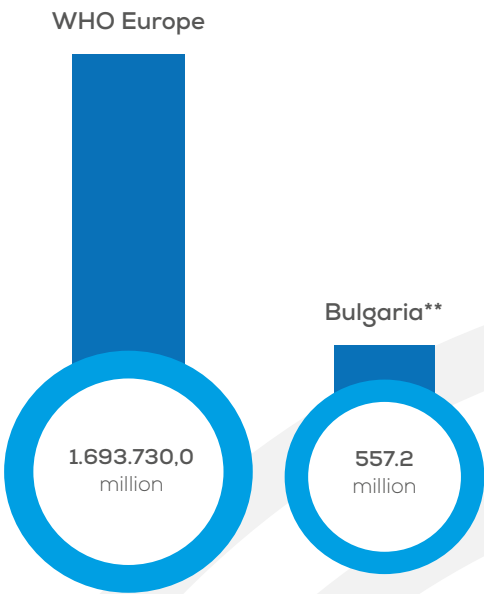
## Most prevalent neurological diseases in Bulgaria in

# 2021

- 1 Tension-type headache
- 2 Migraine
- 3 Diabetic neuropathy
- 4 Stroke
- 5 Alzheimer's disease and other dementias



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



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

## Leading neurological diseases in Bulgaria 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.



