

EAN Fact Sheet

Country profile of Hungary

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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	Age-standardized rate		Percentage change, 1990-2021	
	(thousands)	(per 100 000 people)		Hungary	WHO Europe
	2021	1990	2021		
All Neurological Disorders					
DALYs	539,079	5,987	3,266	-45.5%	-29.0%
Deaths	18,656	225	88	-61.0%	-43.2%
Prevalence	4,635,485	42,369	42,387	0.0%	0.3%
YLDs	237,615	1,739	1,670	-4.0%	2.9%
YLLs	301,446	4,248	1,595	-62.4%	-44.4%
Alzheimer's disease and other dementias					
DALYs	84,263	386	381	-1.3%	-2.5%
Deaths	4,563	20.73	20.10	-3.0%	-2.8%
Prevalence	139,417	645	638	-1.1%	-2.1%
YLDs	28,799	130	131	0.9%	-2.6%
YLLs	55,464	256	250	-2.4%	-2.5%
Chromosomal abnormalities					
DALYs	395	7.93	6.53	-17.7%	-12.3%
Prevalence	4,398	89	74	-17.4%	-12.8%
YLDs	395	7.93	6.53	-17.7%	-12.4%
Covid-19 (neurological)					
DALYs	5,057	-	43	-	-
Prevalence	49,434	-	422	-	-
YLDs	5,057	-	43	-	-
Cystic echinococcosis					
DALYs	4	0.05	0.04	-26.3%	-18.3%
Prevalence	17	0.17	0.15	-10.2%	-9.0%
YLDs	4	0.05	0.04	-26.4%	-18.4%
Diabetic neuropathy					
DALYs	66,352	233	366	56.8%	98.1%
Prevalence	524,366	1,854	2,886	55.7%	97.9%
YLDs	66,352	233	366	56.8%	98.1%

Down syndrome					
DALYs	234	5.22	3.88	-25.7%	-19.6%
Prevalence	2,592	59	43	-26.2%	-20.7%
YLDs	234	5.22	3.88	-25.7%	-19.8%
Encephalitis					
DALYs	694	25	7	-71.6%	-30.1%
Deaths	16	0.41	0.12	-69.8%	-15.9%
Prevalence	1,337	15	11	-23.0%	-13.6%
YLDs	129	1.52	1.21	-20.7%	-12.0%
YLLs	564	24	6	-74.9%	-31.0%
Epilepsy					
DALYs	15,757	208	154	-26.1%	-12.6%
Deaths	174	1.50	1.31	-12.8%	3.9%
Prevalence	37,146	429	375	-12.6%	3.3%
YLDs	9,567	134	97	-27.7%	-11.3%
YLLs	6,190	74	57	-23.3%	-14.3%
Guillain-Barre Syndrome					
DALYs	48	0.42	0.42	0.0%	12.4%
Prevalence	161	1.41	1.42	0.1%	12.4%
YLDs	48	0.42	0.42	0.1%	12.4%
Idiopathic intellectual disability					
DALYs	1,021	17	12	-27.6%	-19.7%
Prevalence	22,636	377	275	-27.1%	-21.2%
YLDs	1,021	17	12	-27.6%	-19.7%
Klinefelter syndrome					
DALYs	4	0.03	0.03	11.2%	5.7%
Prevalence	289	3.73	4.16	11.4%	5.5%
YLDs	4	0.03	0.03	11.3%	5.5%

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Hungary	WHO Europe	
Meningitis						
DALYs	2,030	117	22	-80.8%	-80.5%	
Deaths	54	1.87	0.42	-77.3%	-75.4%	
Prevalence	1,954	60	18	-70.5%	-66.7%	
YLDs	154	5	2	-69.5%	-64.6%	
YLLs	1,876	112	21	-81.3%	-81.3%	
Migraine						
DALYs	54,588	518	518	-0.1%	0.0%	
Prevalence	1,420,159	13,733	13,660	-0.5%	0.3%	
YLDs	54,588	518	518	-0.1%	0.0%	
Motor neuron disease						
DALYs	4,011	20.03	28.79	43.7%	37.5%	
Deaths	140	0.46	0.83	82.5%	54.1%	
Prevalence	466	3.86	4.57	18.4%	19.8%	
YLDs	99	0.82	0.97	18.3%	19.5%	
YLLs	3,912	19.21	27.82	44.8%	38.5%	
Multiple sclerosis						
DALYs	3,699	43	27	-36.9%	-5.0%	
Deaths	82	0.84	0.52	-38.6%	-12.5%	
Prevalence	4,417	45	36	-20.5%	26.4%	
YLDs	1,150	11	9	-18.7%	25.5%	
YLLs	2,549	31	18	-43.5%	-22.2%	
Nervous system cancer						
DALYs	19,628	199	143	-28.1%	-3.3%	
Deaths	690	5.18	4.19	-19.2%	10.8%	
Prevalence	1,316	11.60	12.40	7.0%	35.9%	
YLDs	236	1.84	1.75	-4.9%	25.3%	
YLLs	19,393	197	142	-28.3%	-3.7%	

Neurocysticercosis						
DALYs	2,927	34.82	18.98	-45.5%	-42.5%	
Prevalence	13,329	130.78	85.31	-34.8%	-32.8%	
YLDs	2,927	34.76	18.97	-45.4%	-42.5%	
Neurosyphilis						
DALYs	3	0.04	0.02	-37.6%	-43.6%	
Prevalence	90	0.82	0.81	-1.6%	-11.7%	
YLDs	3	0.04	0.02	-37.6%	-43.4%	
Other neurological disorders						
DALYs	6,758	71	63	-11.7%	25.8%	
Deaths	135	1.16	0.92	-20.5%	45.0%	
YLDs	2,563	18	25	41.2%	62.9%	
YLLs	4,177	53	37	-29.7%	14.2%	
Parkinson's disease						
DALYs	16,455	75.94	75.22	-0.9%	5.6%	
Deaths	956	4.36	4.25	-2.5%	4.0%	
Prevalence	18,016	76	85	12.3%	21.9%	
YLDs	2,525	10.53	11.99	13.9%	21.4%	
YLLs	13,929	65	63	-3.3%	2.0%	
Spinal cord injury						
DALYs	8,557	100	71	-29.1%	-26.9%	
Prevalence	33,281	332	268	-19.1%	-21.9%	
YLDs	8,557	100	71	-29.1%	-26.9%	

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Hungary	WHO Europe	
Stroke						
DALYs	222,897	3,690	1,143	-69.0%	-52.6%	
Deaths	11,846	189	55	-70.7%	-55.6%	
Prevalence	162,162	1,544	937	-39.3%	-19.2%	
YLDs	29,510	276	169	-38.6%	-18.9%	
YLLs	193,388	3,414	974	-71.5%	-55.3%	
Tension-type headache						
DALYs	8,340	72.75	73.07	0.4%	-1.6%	
Prevalence	3,127,053	29,997	29,976	-0.1%	-0.8%	
YLDs	8,340	72.75	73.07	0.4%	-1.6%	
Traumatic Brain Injury						
DALYs	15,353	160	107	-33.2%	-28.2%	
Prevalence	106,349	1,099	732	-33.4%	-28.0%	
YLDs	15,353	160	107	-33.2%	-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.

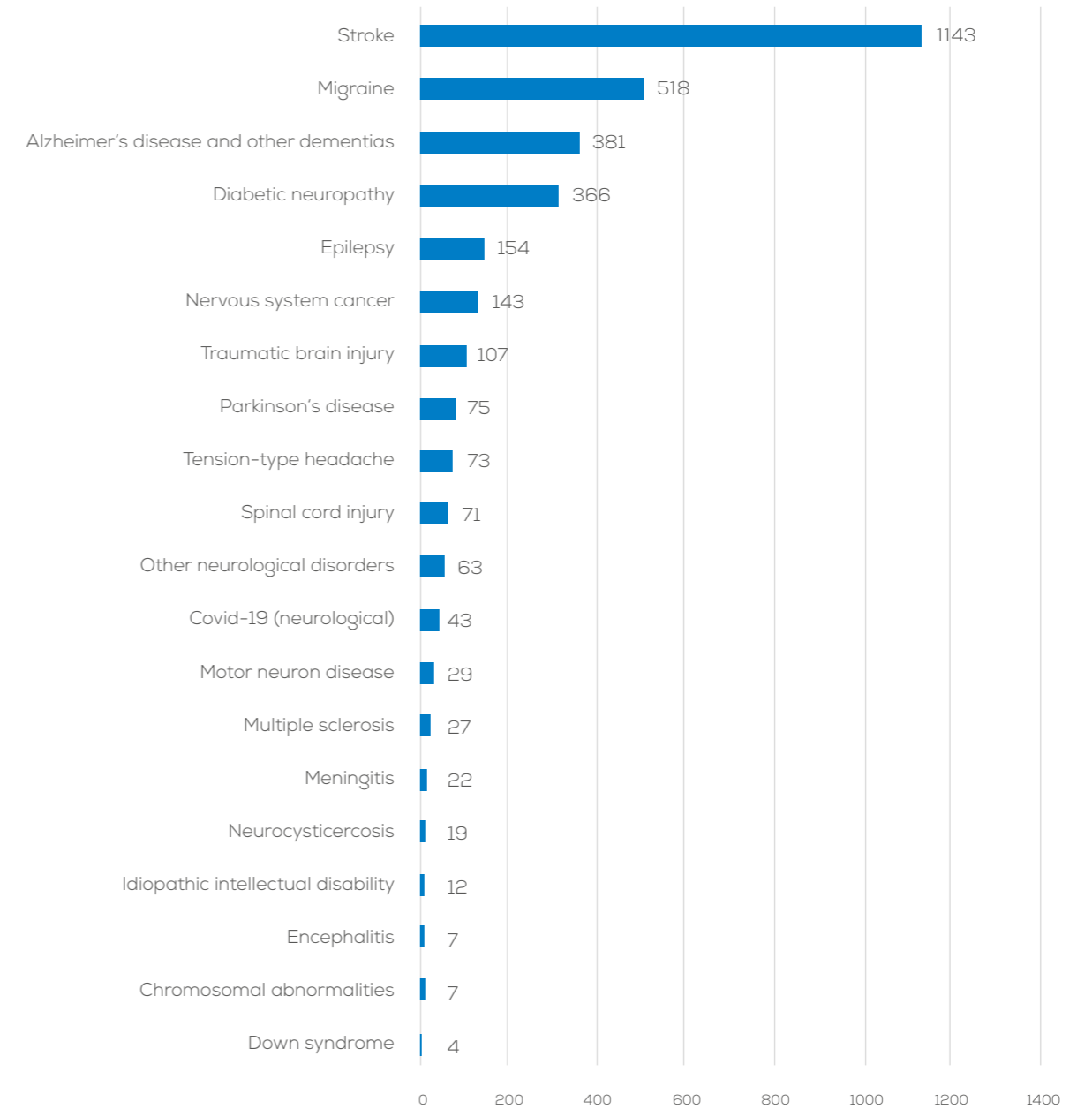


Figure 1: National age-standardised DALYs per 100 000 population by neurological disorder in 2021.

DALYs per 100 000 population

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

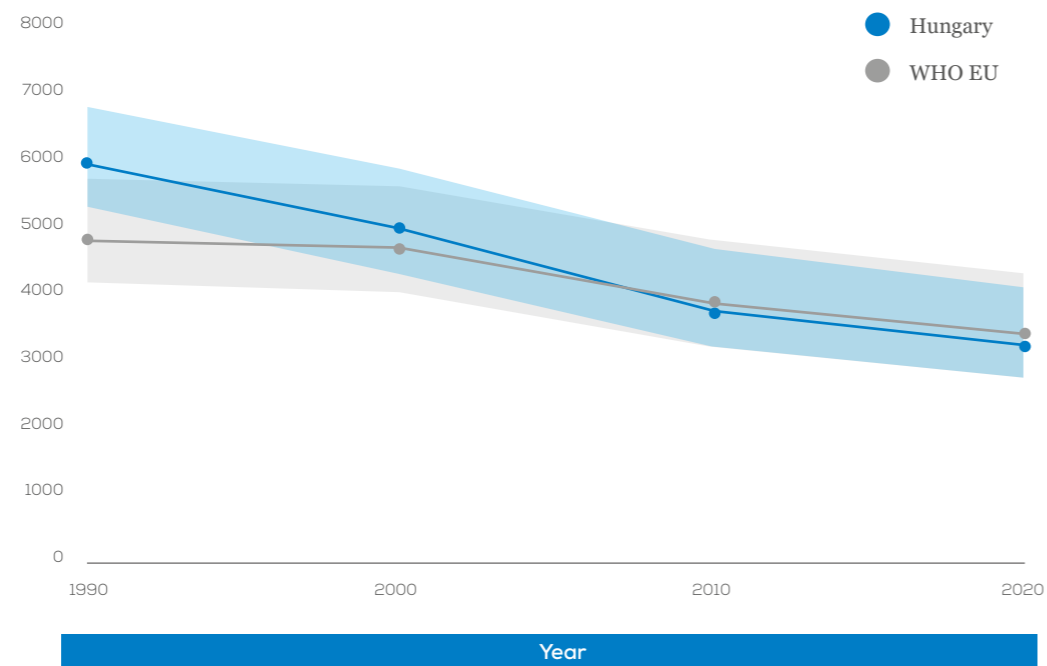


Figure 2: Age-Standardized DALYs per 100 000 population over the last 3 decades.

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

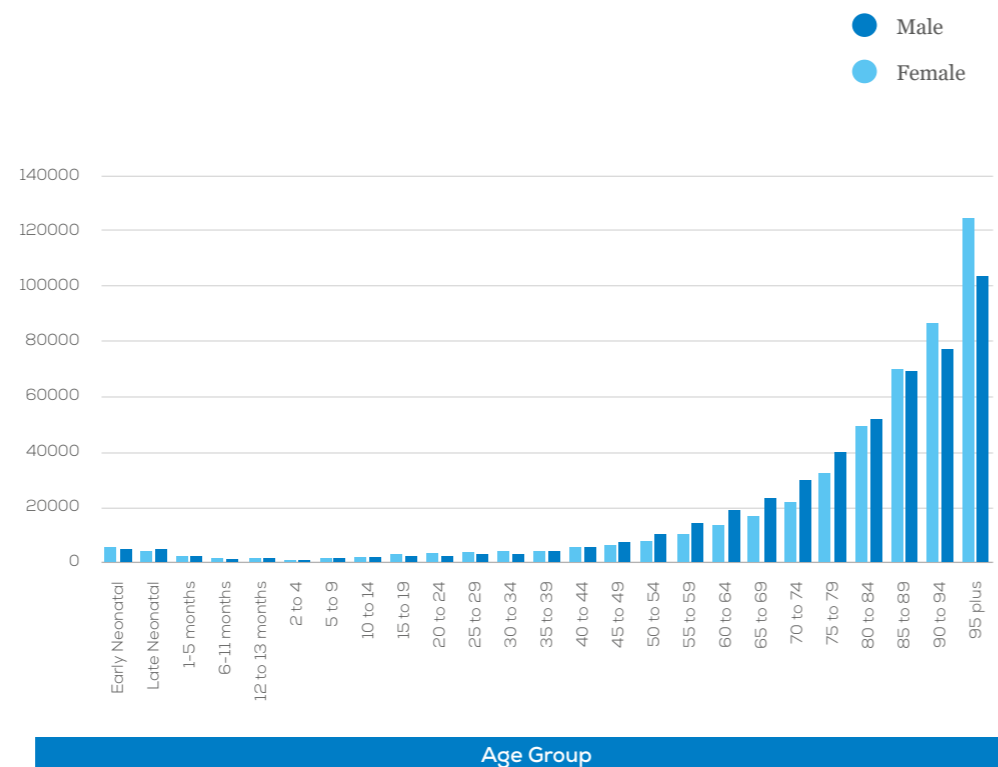


Figure 3: National DALYs per 100 000 population by age group and sex in 2021.

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 **Hungary** 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	5,617.3	2,762.8	1,001.9	1,852.6
Sleep disorders	4,336.6	2,540.1	-	1,796.5
Alzheimer's disease and other dementias	1,380.9	638.4	742.2	0.3
Traumatic brain injury	881.9	417.6	252.4	211.9
Stroke	332.3	196.8	110.6	25.0
Polyneuropathies	296.1	133.8	-	162.3
Parkinson's disease	133.0	69.5	54.5	9.0
Multiple sclerosis	88.4	57.9	10.2	20.3
Idiopathic epilepsy	67.7	11.5	-	56.2
Brain and central nervous system cancer	7.4	4.5	2.9	-
Motor neuron disease	3.3	1.9	1.0	0.4
Meningitis	2.6	2.6	-	-
Total Costs:	13,147.5	6,837.3	2,175.7	4,134.5

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.

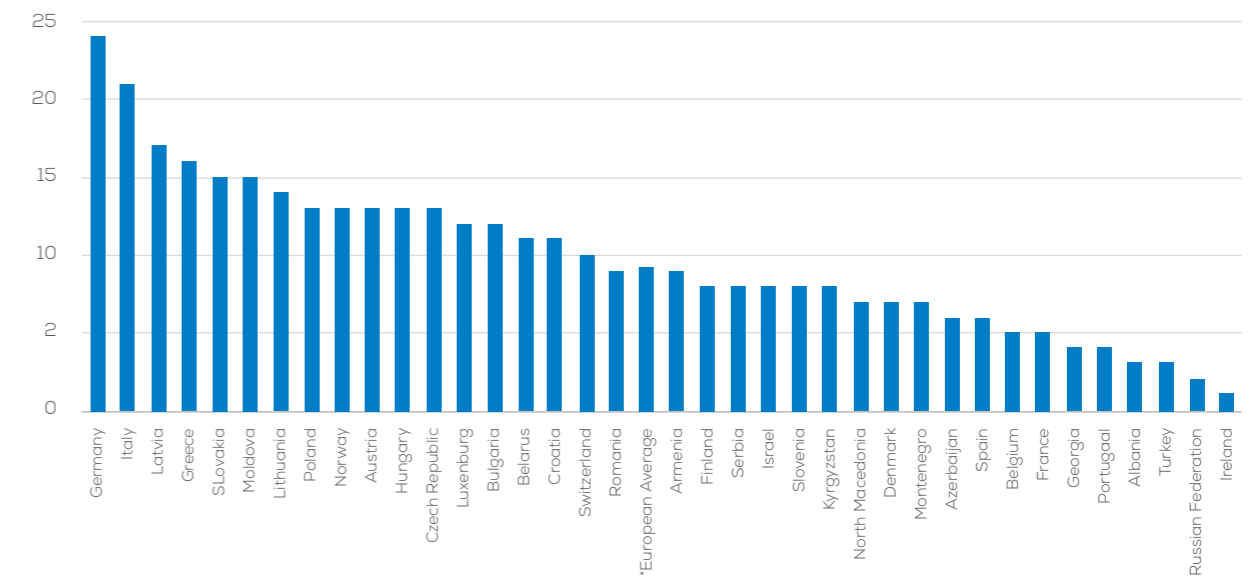


Figure 4: Number of neurologists (fully specialised and in training) per 100 000 population.

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

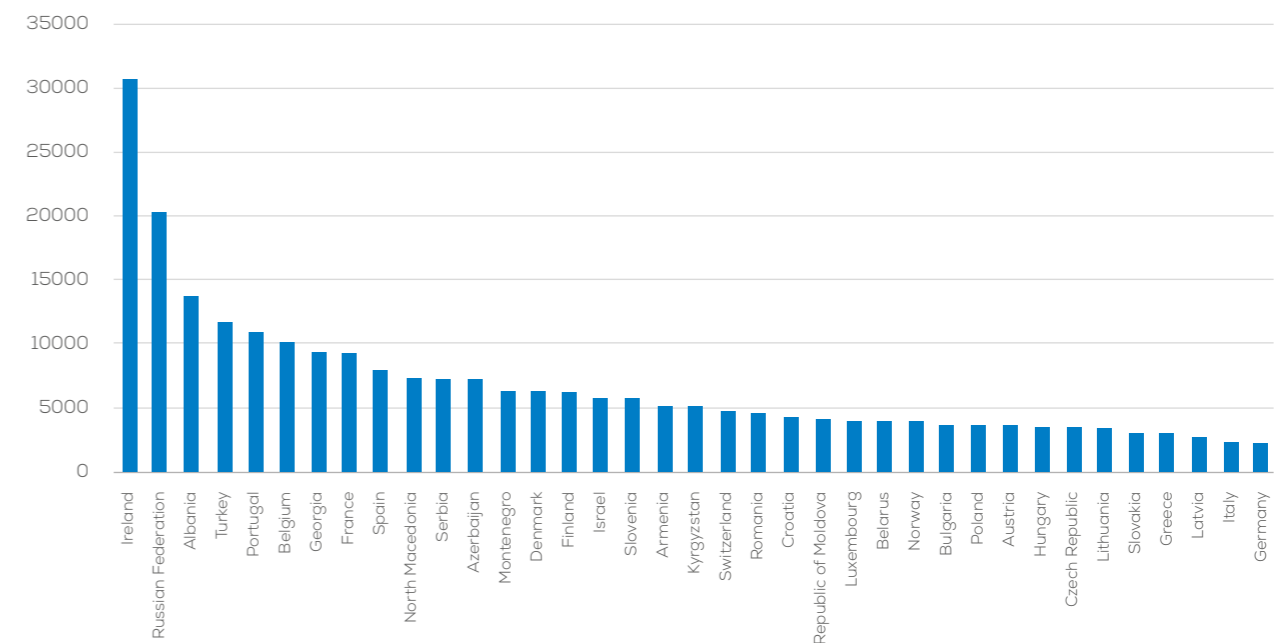
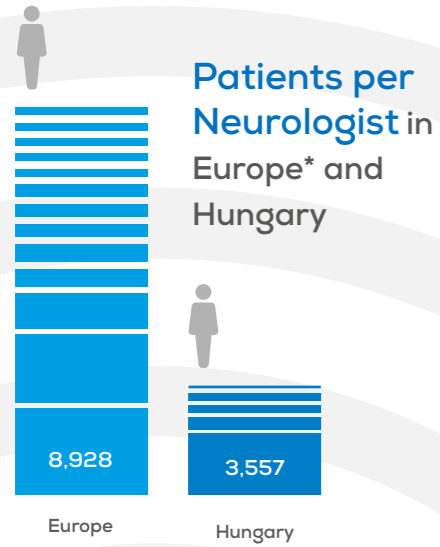
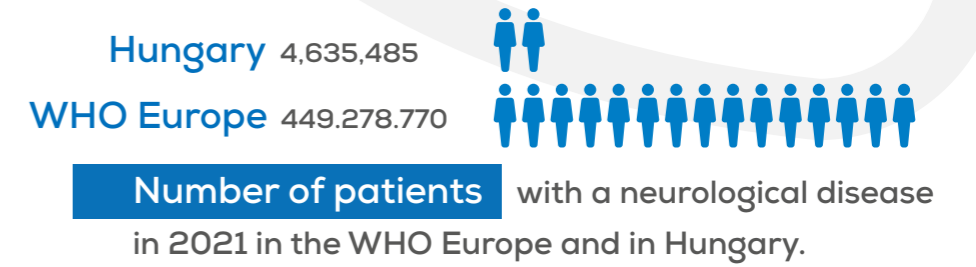
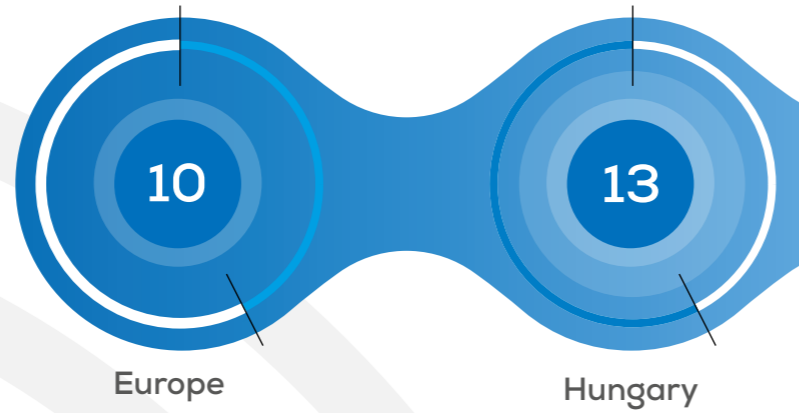


Figure 5: Number of patients per neurologist (fully specialised and in training).

Neurological Diseases in Europe and Hungary:

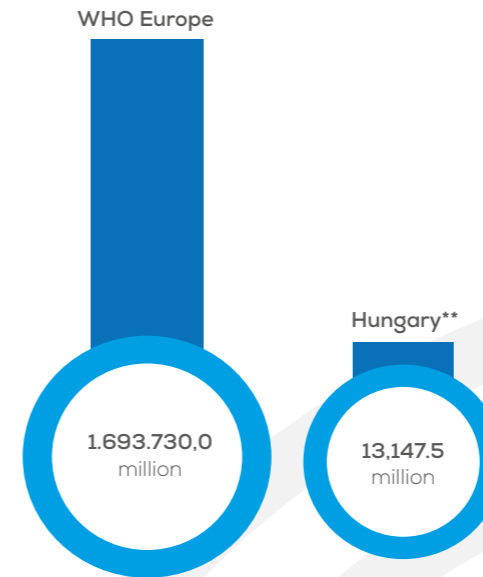
Key Data and Trends from 2021

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



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

	WHO Europe	vs	Hungary
DALYs	-28.98%		-45.46%
Deaths	-43.19%		-61.00%
Prevalence	0.34%		0.04%



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

Most prevalent neurological diseases in Hungary in 2021

2021

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

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

	Male	Female
WHO Europe	3,513	3,351
Hungary	3,493	3,090

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

Leading neurological diseases in Hungary by total deaths in 2021:

1. Stroke
2. Alzheimer's disease and other dementias
3. Parkinson's disease
4. Nervous system cancer
5. Epilepsy

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

