

# EAN Fact Sheet

Country profile of Poland

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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)	1990	2021	Poland	WHO Europe
<b>All Neurological Disorders</b>					
DALYs	2,086,664	5,454	3,386	-37.9%	-29.0%
Deaths	72,495	206	95	-54.0%	-43.2%
Prevalence	19,006,209	43,638	43,866	0.5%	0.3%
YLDs	921,907	1,635	1,694	3.6%	2.9%
YLLs	1,164,684	3,819	1,692	-55.7%	-44.4%
<b>Alzheimer's disease and other dementias</b>					
DALYs	312,584	406	395	-2.8%	-2.5%
Deaths	17,165	21.47	21.08	-1.8%	-2.8%
Prevalence	501,492	683	646	-5.5%	-2.1%
YLDs	103,515	139	132	-5.0%	-2.6%
YLLs	209,069	267	262	-1.7%	-2.5%
<b>Chromosomal abnormalities</b>					
DALYs	1,143	4.65	4.36	-6.2%	-12.3%
Prevalence	12,482	52	48	-6.6%	-12.8%
YLDs	1,143	4.65	4.36	-6.3%	-12.4%
<b>Covid-19 (neurological)</b>					
DALYs	18,268	-	40	-	-
Prevalence	180,032	-	390	-	-
YLDs	18,268	-	40	-	-
<b>Cystic echinococcosis</b>					
DALYs	28	0.07	0.06	-17.7%	-18.3%
Prevalence	111	0.22	0.22	1.3%	-9.0%
YLDs	28	0.07	0.06	-17.7%	-18.4%
<b>Diabetic neuropathy</b>					
DALYs	260,349	254	385	51.3%	98.1%
Prevalence	2,052,642	2,012	3,026	50.4%	97.9%
YLDs	260,349	254	385	51.3%	98.1%

<b>Down syndrome</b>					
DALYs	690	2.88	2.58	-10.4%	-19.6%
Prevalence	7,485	32	28	-11.1%	-20.7%
YLDs	690	2.88	2.58	-10.3%	-19.8%
<b>Encephalitis</b>					
DALYs	5,073	47	14	-71.0%	-30.1%
Deaths	133	0.69	0.28	-60.4%	-15.9%
Prevalence	1,456	12	3	-75.0%	-13.6%
YLDs	144	1.29	0.33	-74.6%	-12.0%
YLLs	4,929	46	13	-70.9%	-31.0%
<b>Epilepsy</b>					
DALYs	77,631	154	180	17.1%	-12.6%
Deaths	1,161	117	2.15	83.4%	3.9%
Prevalence	141,073	297	351	18.1%	3.3%
YLDs	36,940	96	92	-4.3%	-11.3%
YLLs	40,691	57	88	53.1%	-14.3%
<b>Guillain-Barre Syndrome</b>					
DALYs	192	0.47	0.43	-8.3%	12.4%
Prevalence	649	1.59	1.46	-8.1%	12.4%
YLDs	192	0.47	0.43	-8.1%	12.4%
<b>Idiopathic intellectual disability</b>					
DALYs	4,450	23	13	-43.7%	-19.7%
Prevalence	98,010	573	292	-49.0%	-21.2%
YLDs	4,450	23	13	-43.7%	-19.7%
<b>Klinefelter syndrome</b>					
DALYs	8	0.01	0.01	7.3%	5.7%
Prevalence	578	1.89	2.04	8.2%	5.5%
YLDs	8	0.01	0.01	6.6%	5.5%

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Poland	WHO Europe	
<b>Meningitis</b>						
DALYs	6,169	113	15	-86.6%	-80.5%	
Deaths	180	1.65	0.34	-79.7%	-75.4%	
Prevalence	3,453	70	7	-89.3%	-66.7%	
YLDs	276	6	1	-89.1%	-64.6%	
YLLs	5,893	107	15	-86.4%	-81.3%	
<b>Migraine</b>						
DALYs	230,606	543	543	0.0%	0.04%	
Prevalence	5,973,361	14,325	14,259	-0.5%	0.3%	
YLDs	230,606	543	543	0.0%	0.04%	
<b>Motor neuron disease</b>						
DALYs	17,210	10.77	31.51	192.6%	37.5%	
Deaths	616	0.22	0.95	334.6%	54.1%	
Prevalence	2,025	3.60	4.39	22.1%	19.8%	
YLDs	430	0.77	0.93	22.1%	19.5%	
YLLs	16,780	10.00	30.57	205.6%	38.5%	
<b>Multiple sclerosis</b>						
DALYs	19,406	60	36	-39.5%	-5.0%	
Deaths	401	1.21	0.64	-46.8%	-12.5%	
Prevalence	27,978	53	58	8.0%	26.4%	
YLDs	7,163	14	15	9.0%	25.5%	
YLLs	12,243	46	21	-53.7%	-22.2%	
<b>Nervous system cancer</b>						
DALYs	96,845	228	180	-21.2%	-3.3%	
Deaths	3,492	5.45	5.49	0.7%	10.8%	
Prevalence	5,677	12	13	6.0%	35.9%	
YLDs	1,057	1.95	1.99	2.0%	25.3%	
YLLs	95,788	226	178	-21.4%	-3.7%	

<b>Neurocysticercosis</b>						
DALYs	14,462	33.61	25.08	-25.4%	-42.5%	
Deaths	0	0.00	0.00	-81.6%	-69.2%	
Prevalence	64,792	122.43	111.23	-9.2%	-32.8%	
YLDs	14,458	33.57	25.07	-25.3%	-42.5%	
YLLs	3	0.04	0.01	-82.6%	-70.7%	
<b>Neurosyphilis</b>						
DALYs	17	0.06	0.03	-51.8%	-43.6%	
Prevalence	211	0.71	0.46	-35.5%	-11.7%	
YLDs	17	0.06	0.03	-51.8%	-43.4%	
<b>Other neurological disorders</b>						
DALYs	24,366	70	58	-17.4%	25.8%	
Deaths	445	1.11	0.80	-27.6%	45.0%	
YLDs	10,241	14	25	75.4%	62.9%	
YLLs	14,051	56	33	-41.3%	14.2%	
<b>Parkinson's disease</b>						
DALYs	65,504	81	85	5.2%	5.6%	
Deaths	3,836	4.62	4.85	5.0%	4.0%	
Prevalence	78,525	89	103	15.9%	21.9%	
YLDs	10,961	12	14	16.2%	21.4%	
YLLs	54,543	68	70	3.2%	2.0%	
<b>Spinal cord injury</b>						
DALYs	34,685	99	71	-28.2%	-26.9%	
Prevalence	132,902	316	266	-15.8%	-21.9%	
YLDs	34,685	99	71	-28.2%	-26.9%	

	Counts	Age-standardized rate		Percentage change, 1990-2021	
	(thousands)	(per 100 000 people)		Poland	WHO Europe
	2021	1990	2021		
<b>Stroke</b>					
DALYs	800,349	3,096	1,119	-63.9%	-52.6%
Deaths	45,065	168	58	-65.5%	-55.6%
Prevalence	484,802	900	749	-16.8%	-19.2%
YLDs	89,657	162	137	-15.2%	-18.9%
YLLs	710,692	2,934	981	-66.6%	-55.3%
<b>Tension-type headache</b>					
DALYs	35,441	77.64	78.06	0.5%	-1.6%
Prevalence	13,140,255	31,560	31,533	-0.1%	-0.8%
YLDs	35,441	77.64	78.06	0.5%	-1.6%
<b>Traumatic Brain Injury</b>					
DALYs	61,188	148	112	-24.3%	-28.2%
Prevalence	423,535	1,012	766	-24.3%	-28.0%
YLDs	61,188	148	112	-24.3%	-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.

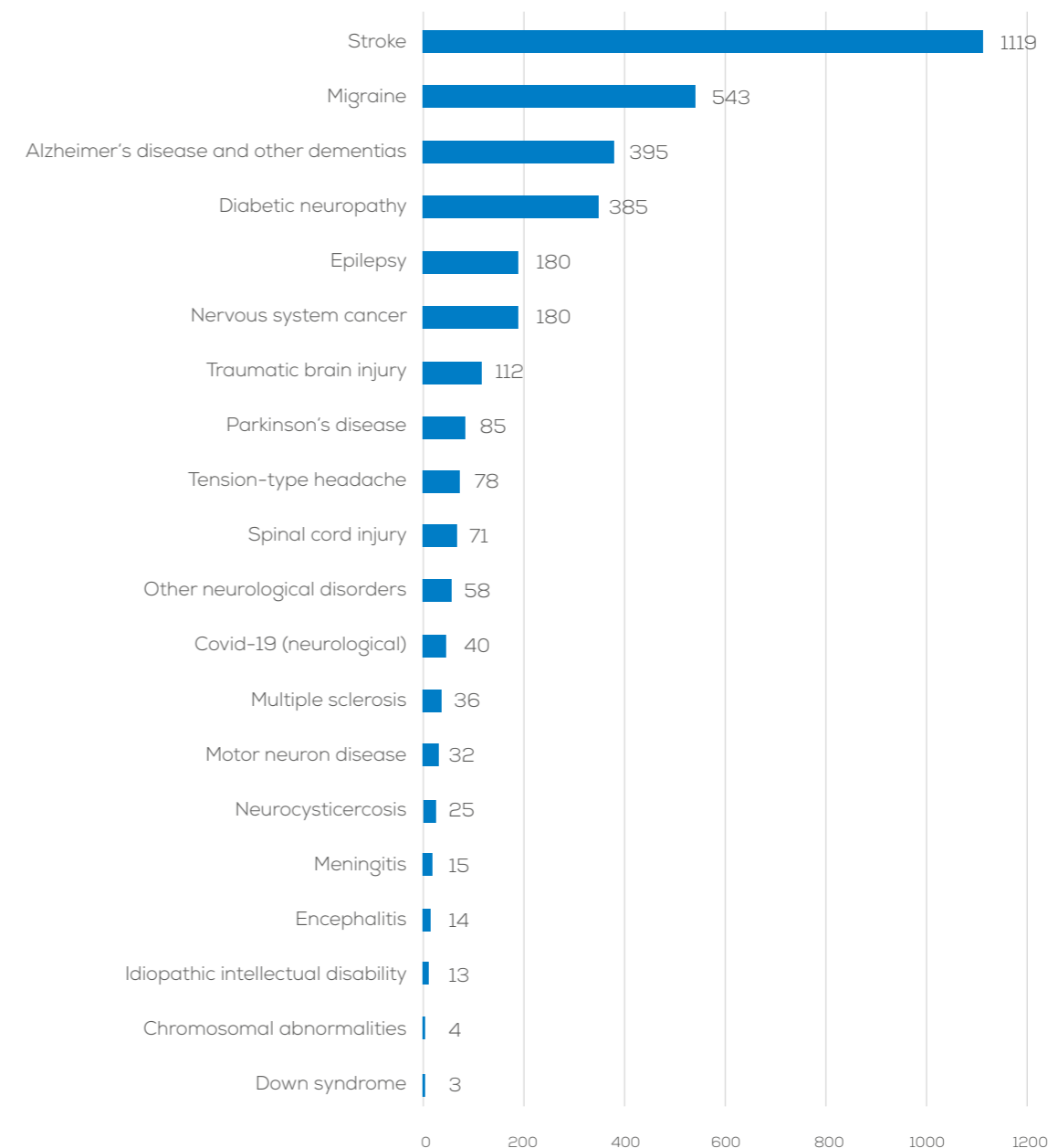


Figure 1: National age-standardised DALYs per 100 000 population by neurological disorder in 2021.

## DALYs per 100 000 population

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

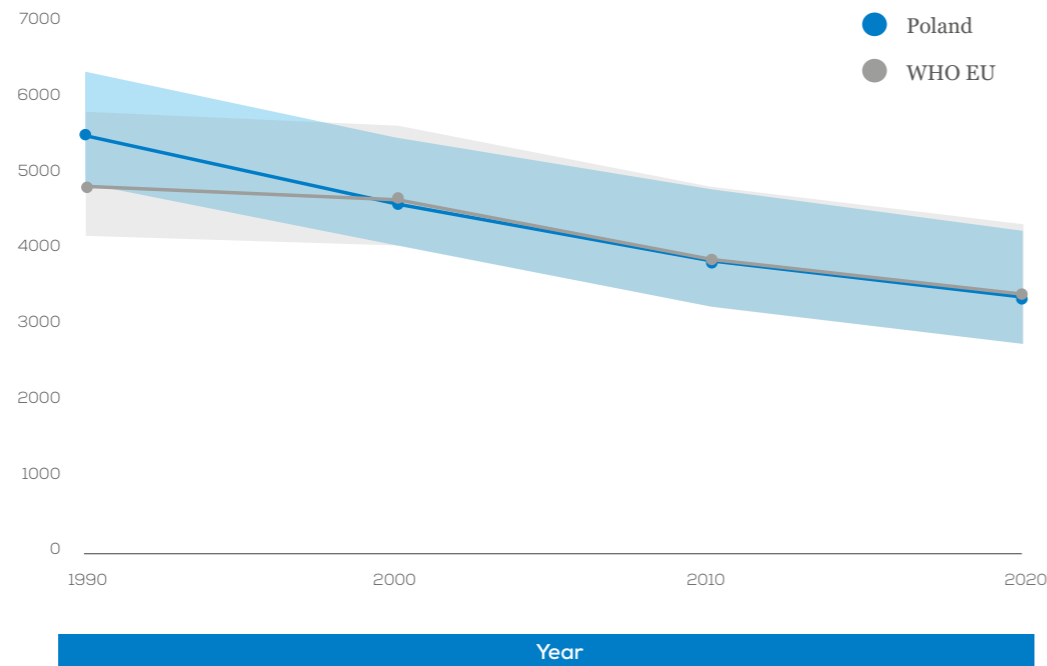


Figure 2: Age-Standardized DALYs per 100 000 population over the last 3 decades.

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

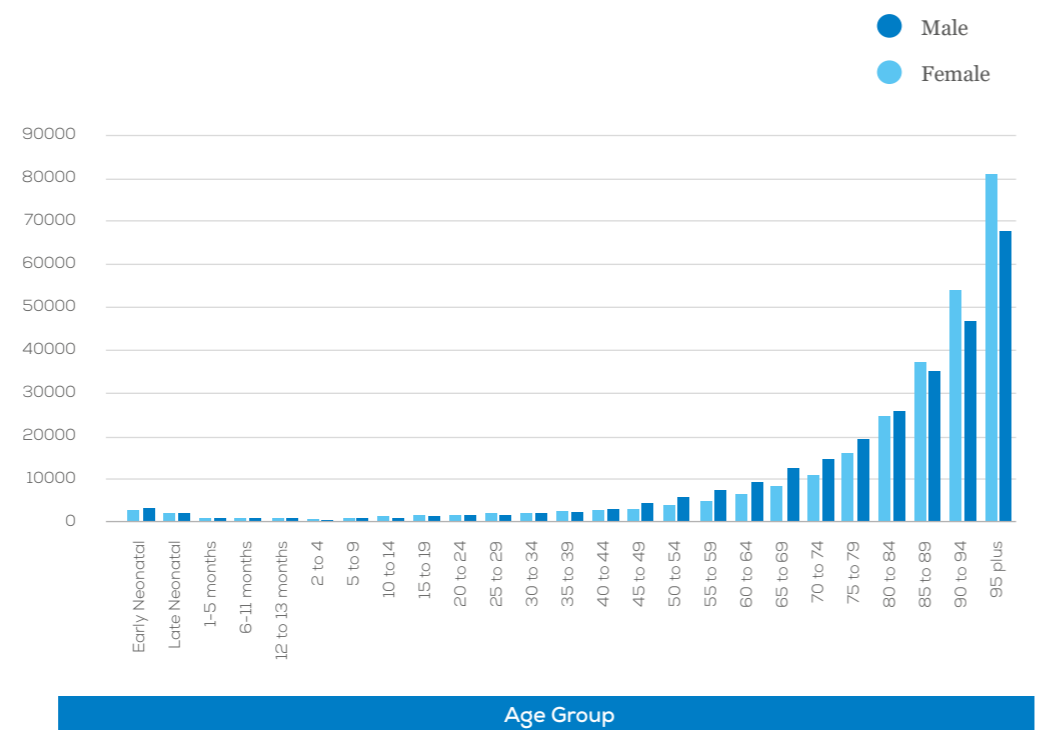


Figure 3: National DALYs per 100 000 population by age group and sex in 2021.

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 **Poland** 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	23,321.6	11,665.1	4,230.0	7,426.5
Sleep disorders	15,858.5	9,459.6	-	6,398.9
Alzheimer's disease and other dementias	6,726.6	2,903.2	3,822.2	11
Traumatic brain injury	3,483.7	1,559.7	942.8	981.1
Stroke	2,147.1	473.3	724.8	949.0
Polyneuropathies	1,566.9	957.2	-	609.7
Multiple sclerosis	606.3	395.6	61.4	149.3
Parkinson's disease	417.9	285.7	114.8	17.4
Idiopathic epilepsy	213.7	119.9	-	93.8
Brain and central nervous system cancer	36.4	22.0	14.3	-
Motor neuron disease	15.2	8.8	4.7	1.6
Meningitis	8.8	8.8	-	-
<b>Total Costs:</b>	<b>54,402.6</b>	<b>27,859.2</b>	<b>9,915.0</b>	<b>16,628.5</b>

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.

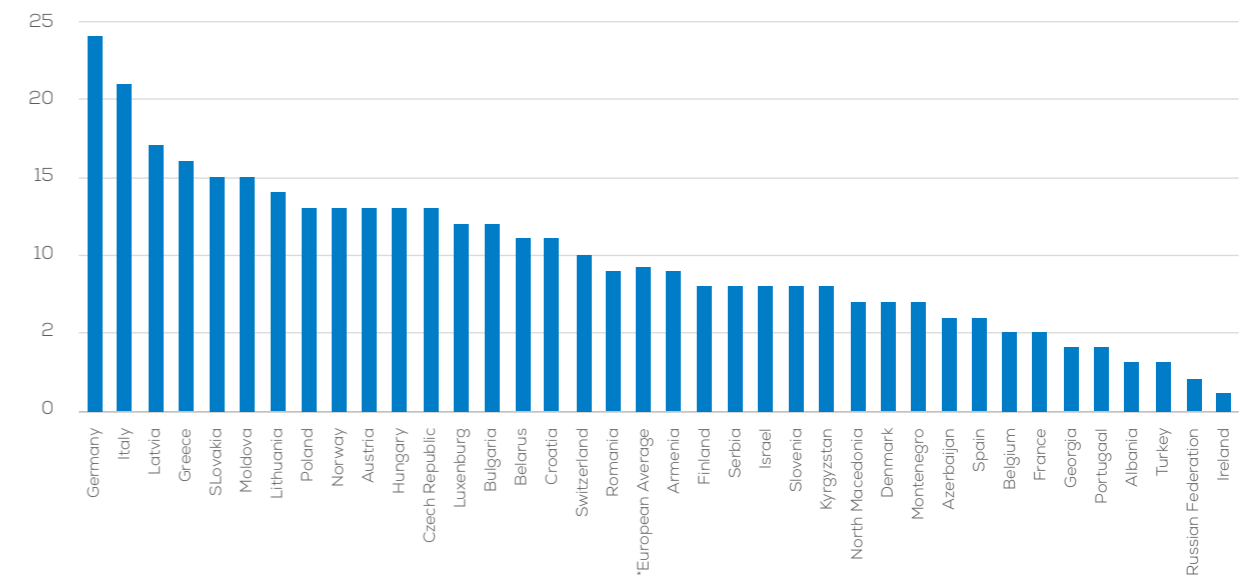


Figure 4: Number of neurologists (fully specialised and in training) per 100 000 population.

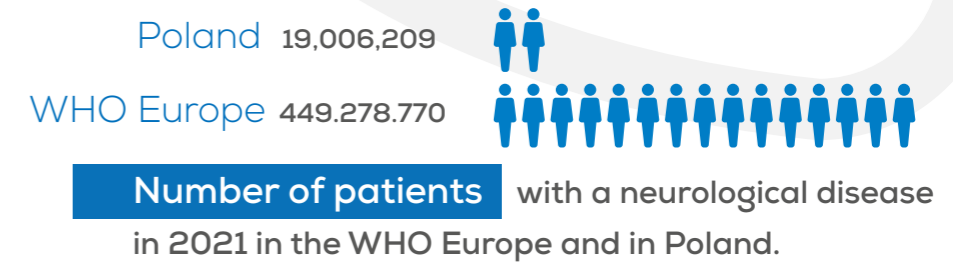
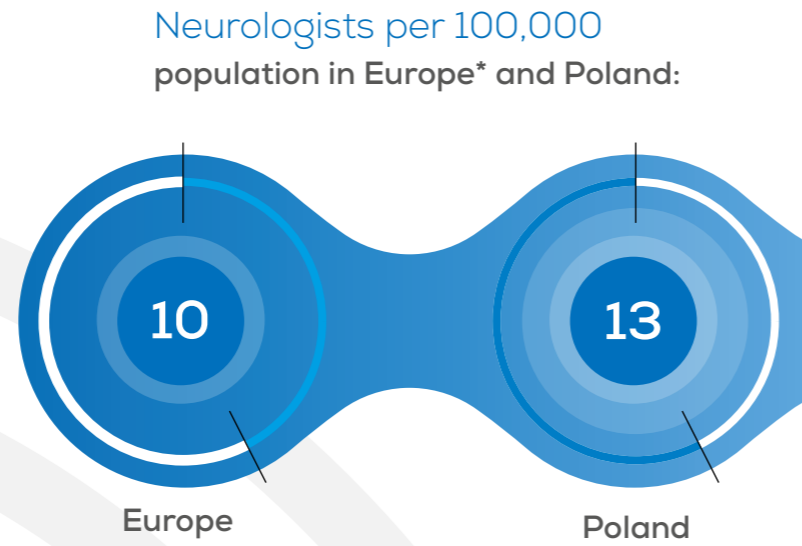
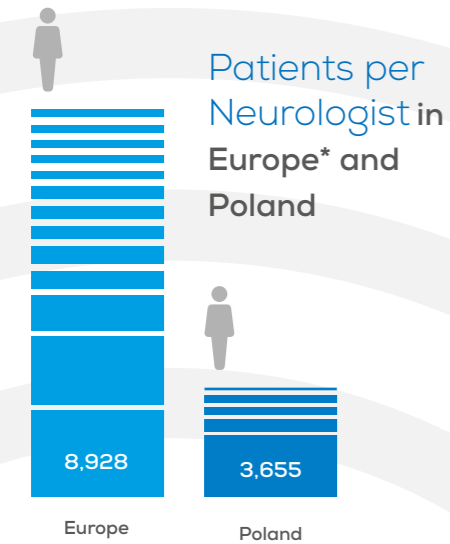
In the last figure the number of patients per neurologist is displayed:



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

# Neurological Diseases in Europe and Poland:

Key Data and Trends from 2021



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

	WHO Europe	vs	Poland
DALYs	-28.98%		-37.91%
Deaths	-43.19%		-54.01%
Prevalence	0.34%		0.52%

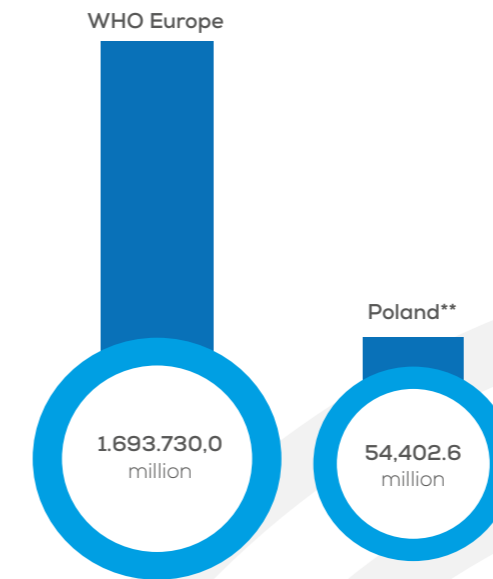
## Most prevalent neurological diseases in Poland in

# 2021

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

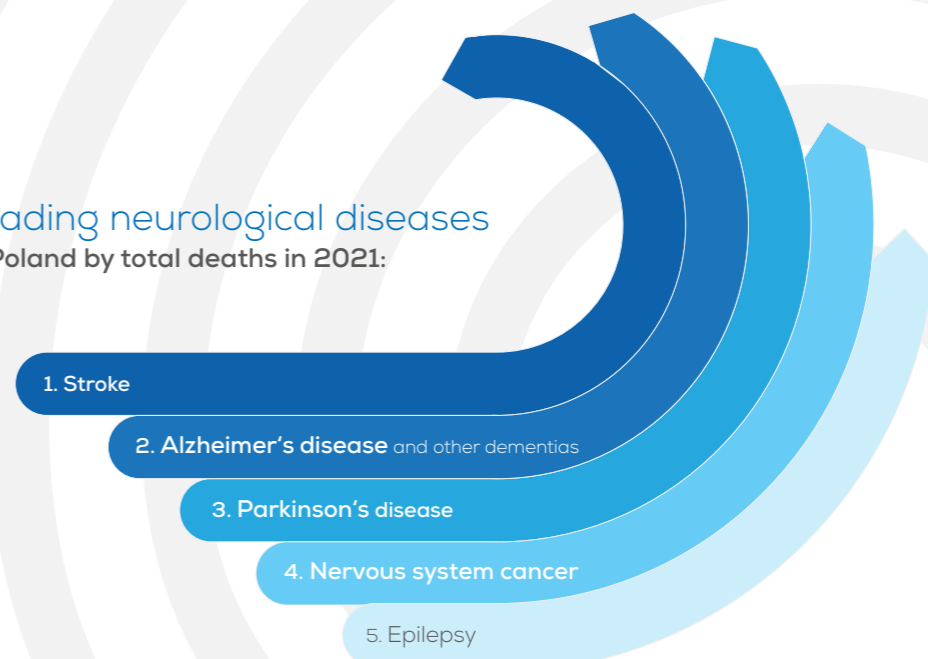
	WHO Europe	Poland
Male	3,513	3,351
Female	3,673	3,128

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 Poland 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.

