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EAN Fact Sheet

Country profile of Romania

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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	Romania	WHO Europe
All Neurological Disorders					
DALYs	1,492,542	6,659	4,474	-32.8%	-29.0%
Deaths	66,439	272	163	-40.0%	-43.2%
Prevalence	8,917,768	41,927	41,995	0.2%	0.3%
YLDs	435,184	1,647	1,611	-2.2%	2.9%
YLLs	1,057,322	5,012	2,863	-42.9%	-44.4%
Alzheimer's disease and other dementias					
DALYs	160,363	383	383	0.0%	-2.5%
Deaths	8,536	20.17	20.06	-0.6%	-2.8%
Prevalence	265,107	639	637	-0.2%	-2.1%
YLDs	55,443	132	133	0.4%	-2.6%
YLLs	104,920	251	250	-0.3%	-2.5%
Chromosomal abnormalities					
DALYs	552	4.96	4.45	-10.3%	-12.3%
Prevalence	6,079	55	50	-10.3%	-12.8%
YLDs	552	4.96	4.45	-10.4%	-12.4%
Covid-19 (neurological)					
DALYs	9,945	-	44	-	-
Prevalence	98,416	-	435	-	-
YLDs	9,945	-	44	-	-
Cystic echinococcosis					
DALYs	33	0.14	0.15	8.1%	-18.3%
Prevalence	129	0.42	0.57	34.9%	-9.0%
YLDs	33	0.13	0.15	8.2%	-18.4%
Diabetic neuropathy					
DALYs	87,105	161	252	56.2%	98.1%
Prevalence	685,101	1,272	1,981	55.8%	97.9%
YLDs	87,105	161	252	56.2%	98.1%
Down syndrome					
DALYs	278	2.76	2.25	-18.5%	-19.6%
Prevalence	3,058	31	25	-18.8%	-20.7%
YLDs	278	2.76	2.25	-18.6%	-19.8%
Encephalitis					
DALYs	5,976	110	38	-65.5%	-30.1%
Deaths	126	1.41	0.63	-55.7%	-15.9%
Prevalence	3,450	25	15	-41.3%	-13.6%
YLDs	329	2.60	1.57	-39.8%	-12.0%
YLLs	5,646	107	36	-66.1%	-31.0%
Epilepsy					
DALYs	36,577	234	186	-20.5%	-12.6%
Deaths	416	1.76	1.70	-3.2%	3.9%
Prevalence	77,719	411	398	-3.1%	3.3%
YLDs	20,780	139	107	-23.1%	-11.3%
YLLs	15,797	95	79	-16.8%	-14.3%
Guillain-Barre Syndrome					
DALYs	93	0.42	0.42	0.0%	12.4%
Prevalence	315	1.42	1.42	0.0%	12.4%
YLDs	93	0.42	0.42	0.0%	12.4%
Idiopathic intellectual disability					
DALYs	2,346	22	14	-34.5%	-19.7%
Prevalence	50,637	479	311	-35.1%	-21.2%
YLDs	2,346	22	14	-34.5%	-19.7%
Klinefelter syndrome					
DALYs	5	0.02	0.02	3.9%	5.7%
Prevalence	402	2.75	2.91	5.8%	5.5%
YLDs	5	0.02	0.02	3.9%	5.5%

	Counts (thousands)	Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Romania	WHO Europe
Meningitis					
DALYs	3,315	203	19	-90.4%	-80.5%
Deaths	81	2.60	0.34	-86.9%	-75.4%
Prevalence	4,145	73	19	-73.3%	-66.7%
YLDs	320	6	2	-71.6%	-64.6%
YLLs	2,995	197	18	-91.0%	-81.3%
Migraine					
DALYs	106,719	518	517	-0.1%	0.04%
Prevalence	2,766,761	13,680	13,609	-0.5%	0.3%
YLDs	106,719	518	517	-0.1%	0.04%
Motor neuron disease					
DALYs	3,047	13.63	12.88	-5.5%	37.5%
Deaths	96	0.22	0.32	46.0%	54.1%
Prevalence	645	3.06	3.41	11.3%	19.8%
YLDs	137	0.65	0.73	11.3%	19.5%
YLLs	2,910	12.98	12.15	-6.4%	38.5%
Multiple sclerosis					
DALYs	4,070	27	15	-42.3%	-5.0%
Deaths	94	0.58	0.31	-46.6%	-12.5%
Prevalence	4,087	16	17	4.8%	26.4%
YLDs	1,127	4.48	4.71	5.2%	25.5%
YLLs	2,943	22	11	-51.9%	-22.2%
Nervous system cancer					
DALYs	52,267	187	199	6.4%	-3.3%
Deaths	1,790	4	6	41.4%	10.8%
Prevalence	3,157	11	15	40.8%	35.9%
YLDs	572	1.53	2.17	42.2%	25.3%
YLLs	51,695	186	197	6.1%	-3.7%
Neurocysticercosis					
DALYs	6,442	37.58	21.76	-42.1%	-42.5%
Deaths	28,167	130.24	94.11	-27.7%	-32.8%
YLDs	6,436	37.50	21.74	-42.0%	-42.5%
YLLs	6	0.08	0.02	-70.8%	-70.7%
Neurosyphilis					
DALYs	7	0.03	0.03	-4.3%	-43.6%
Prevalence	190	0.93	0.88	-6.0%	-11.7%
YLDs	7	0.03	0.03	-4.4%	-43.4%
Other neurological disorders					
DALYs	9,278	49	48	-1.4%	25.8%
Deaths	114	0.51	0.45	-11.7%	45.0%
YLDs	5,233	18	26	46.6%	62.9%
YLLs	4,009	30	21	-29.7%	14.2%
Parkinson's disease					
DALYs	36,356	81	87	7.4%	5.6%
Deaths	2,183	4.78	5.07	6.1%	4.0%
Prevalence	35,513	75	88	17.3%	21.9%
YLDs	5,013	10.62	12.48	17.5%	21.4%
YLLs	31,343	71	75	5.9%	2.0%
Spinal cord injury					
DALYs	18,222	121	79	-35.0%	-26.9%
Prevalence	68,075	375	288	-23.3%	-21.9%
YLDs	18,222	121	79	-35.0%	-26.9%

	Counts (thousands)	Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Romania	WHO Europe
Stroke					
DALYs	903,023	4,275	2,361	-44.8%	-52.6%
Deaths	53,000	236	128	-45.5%	-55.6%
Prevalence	368,875	1,316	1,083	-17.8%	-19.2%
YLDs	67,991	237	198	-16.6%	-18.9%
YLLs	835,032	4,038	2,163	-46.4%	-55.3%
Tension-type headache					
DALYs	16,296	72.74	73.08	0.5%	-1.6%
Prevalence	6,117,198	29,975	29,957	-0.1%	-0.8%
YLDs	16,296	72.74	73.08	0.5%	-1.6%
Tetanus					
DALYs	25.01	1.59	0.11	-93.3%	-97.3%
Deaths	0.86	0.036	0.003	-92.1%	-95.8%
YLDs	0.43	0.015	0.002	-88.4%	-32.0%
YLLs	24.96	1.59	0.11	-93.3%	-97.5%
Traumatic Brain Injury					
DALYs	30,200	155	115	-25.6%	-28.2%
Prevalence	207,813	1,056	783	-25.9%	-28.0%
YLDs	30,200	155	115	-25.6%	-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.

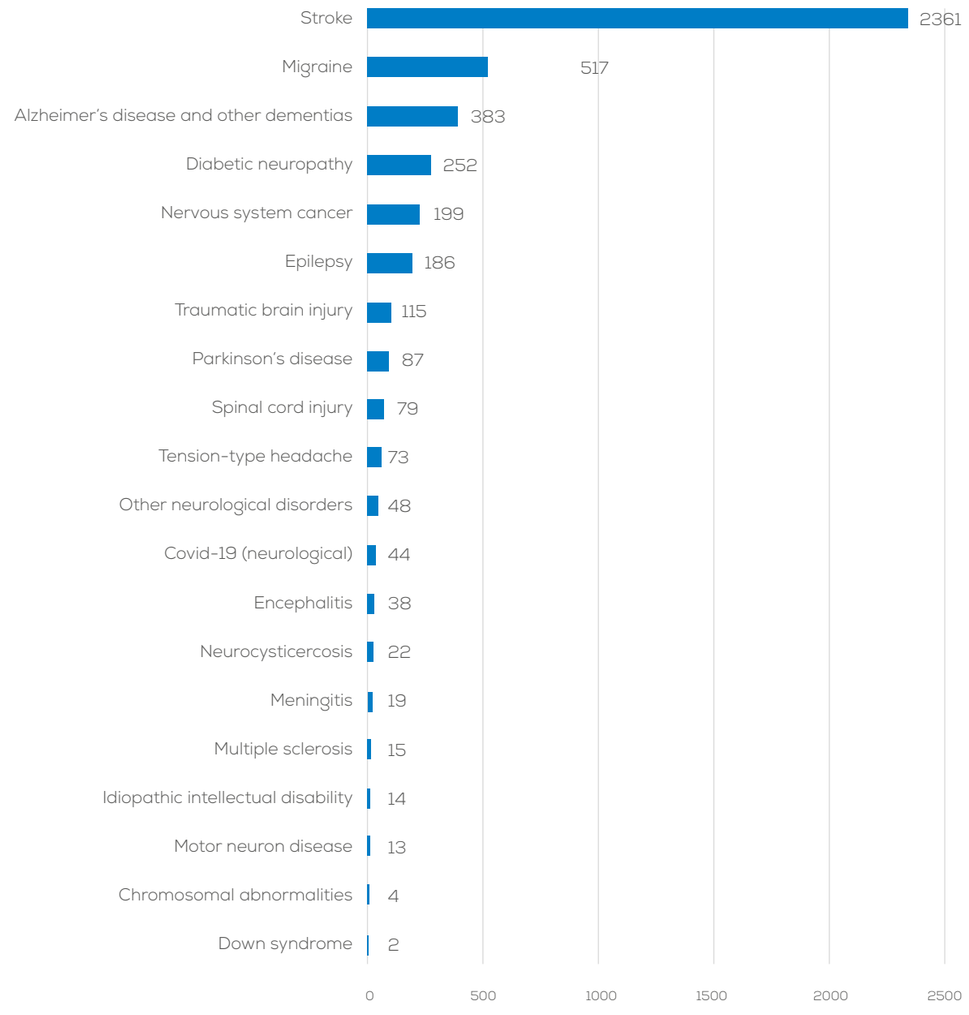


Figure 1: National age-standardised DALYs per 100 000 population by neurological disorder in 2021.

DALYs per 100 000 population

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

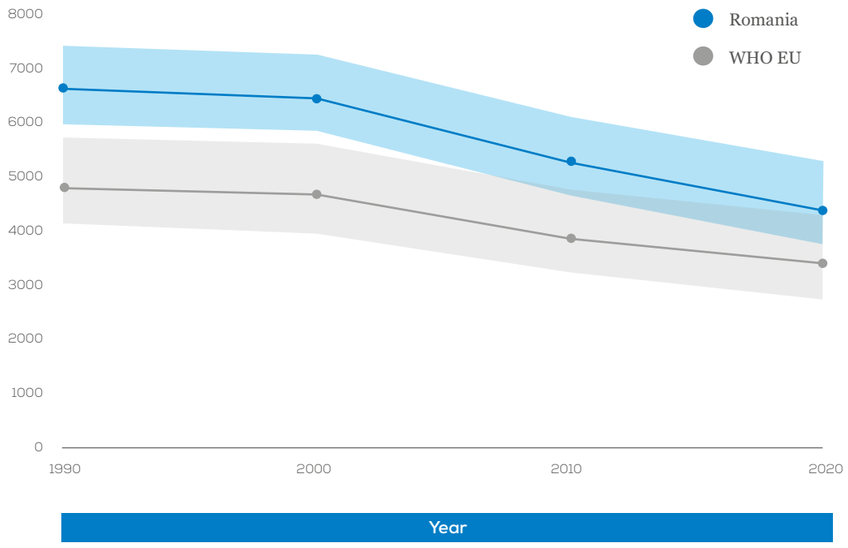


Figure 2: Age-Standardized DALYs per 100 000 population over the last 3 decades.

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

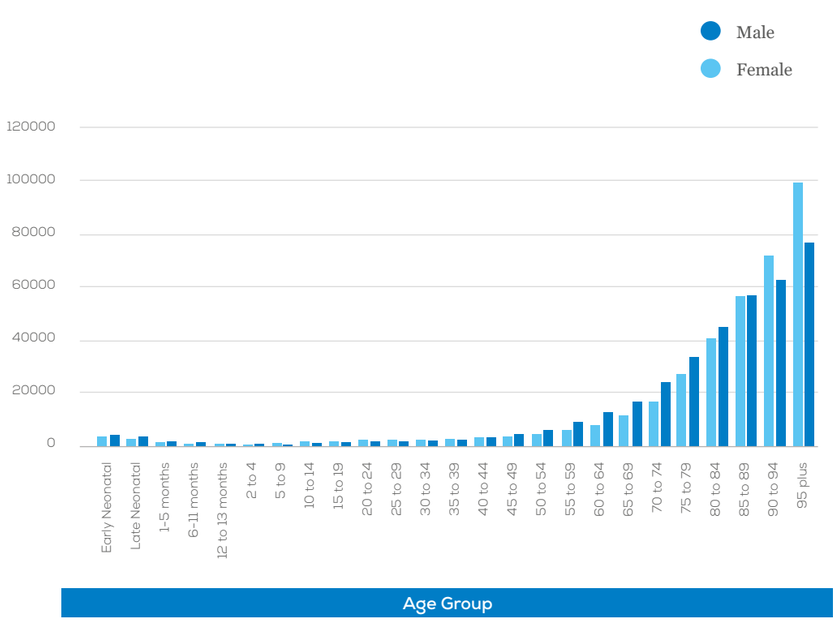


Figure 3: National DALYs per 100 000 population by age group and sex in 2021.

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 be 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 **Romania** 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				
Headache disorders	9,398.1	4,847.8	1,757.9	2,792.4
Sleep disorders	8,299.3	5,157.4	-	3,141.9
Alzheimer's disease and other dementias	3,195.6	1,379.3	1,815.9	0.4
Traumatic brain injury	1,381.5	611.7	369.8	400.0
Stroke	947.1	666.4	209.7	71.0
Polyneuropathies	483.7	306.1	-	177.7
Parkinson's disease	171.0	117.4	47.2	6.5
Idiopathic epilepsy	121.2	27.4	-	93.8
Multiple sclerosis	46.8	30.0	6.8	10.0
Brain and central nervous system cancer	16.7	10.1	6.6	-
Meningitis	4.0	4.0	-	-
Motor neuron disease	4.0	2.3	1.2	0.5
Total Costs:	**24,069.1**	**13,159.9**	**4,215.1**	**6,694.1**

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.

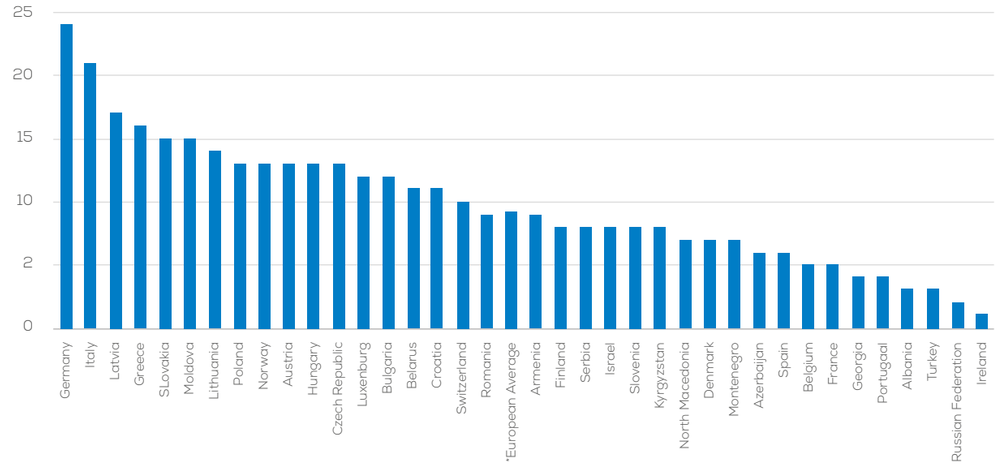


Figure 4: Number of neurologists (fully specialised and in training) per 100 000 population.

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

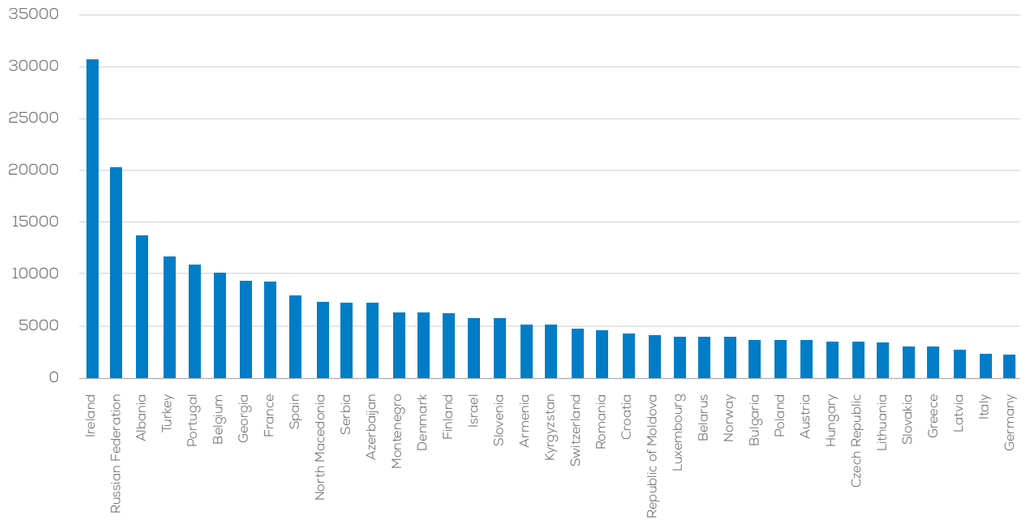


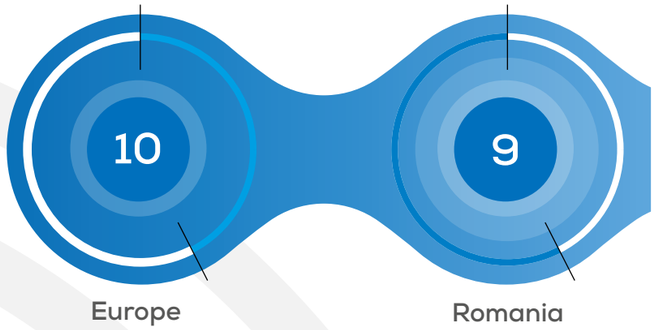
Figure 5: Number of patients per neurologist (fully specialised and in training).

Neurological Diseases in Europe and Romania:

Key Data and Trends from 2021

Patients per Neurologist in Europe* and Romania

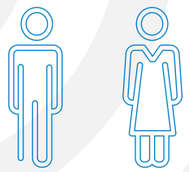
Neurologists per 100,000 population in Europe* and Romania:



Most prevalent neurological diseases in Romania in 2021

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

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



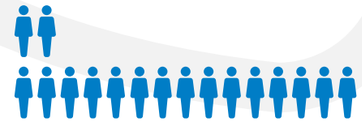
WHO Europe	3.513	3.351
Romania	4,947	4,080

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

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

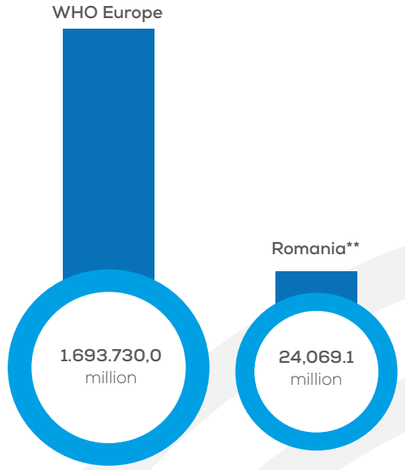
Romania 8,917,768

WHO Europe 449.278.770



Number of patients with a neurological disease in 2021 in the WHO Europe and in Romania.

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



Leading neurological diseases in Romania by total deaths in 2021:

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