

EAN Fact Sheet

Country profile of Greece

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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)		Greece	WHO Europe
	2021	1990	2021		
All Neurological Disorders					
DALYs	646,526	4,630	3,162	-31.7%	-29.0%
Deaths	30,305	196	93	-52.3%	-43.2%
Prevalence	5,263,767	46,128	46,242	0.2%	0.3%
YLDs	245,593	1,577	1,598	1.3%	2.9%
YLLs	400,901	3,053	1,563	-48.8%	-44.4%
Alzheimer's disease and other dementias					
DALYs	143,588	443	430	-3.0%	-2.5%
Deaths	8,926	24.85	24.23	-2.5%	-2.8%
Prevalence	212,407	704	671	-4.6%	-2.1%
YLDs	44,842	146	140	-4.4%	-2.6%
YLLs	98,746	297	290	-2.2%	-2.5%
Chromosomal abnormalities					
DALYs	737	10.27	10.39	1.1%	-12.3%
Prevalence	8,029	115	116	1.2%	-12.8%
YLDs	737	10.27	10.39	1.1%	-12.4%
Covid-19 (neurological)					
DALYs	1,271	-	11	-	-
Prevalence	11,828	-	104	-	-
YLDs	1,271	-	11	-	-
Cystic echinococcosis					
DALYs	3	0.02	0.02	47.2%	-18.3%
Prevalence	13	0.07	0.10	56.4%	-9.0%
YLDs	3	0.02	0.02	47.5%	-18.4%
Diabetic neuropathy					
DALYs	52,624	159	272	70.6%	98.1%
Prevalence	421,521	1,272	2,163	70.0%	97.9%
YLDs	52,624	159	272	70.6%	98.1%

Down syndrome					
DALYs	550	7.28	7.27	-0.1%	-19.6%
Prevalence	5,973	81	81	-0.2%	-20.7%
YLDs	550	7.28	7.27	-0.2%	-19.8%
Encephalitis					
DALYs	2,109	6	17	201.4%	-30.1%
Deaths	71	0.08	0.38	358.2%	-15.9%
Prevalence	2,923	21	22	4.7%	-13.6%
YLDs	286	2.29	2.39	4.4%	-12.0%
YLLs	1,823	3	15	333.5%	-31.0%
Epilepsy					
DALYs	11,217	87	99	14.0%	-12.6%
Deaths	181	0.46	0.95	107.6%	3.9%
Prevalence	28,181	267	267	0.1%	3.3%
YLDs	6,695	68	64	-5.6%	-11.3%
YLLs	4,522	19	35	82.5%	-14.3%
Guillain-Barre Syndrome					
DALYs	85	0.32	0.62	95.6%	12.4%
Prevalence	289	1.07	2.09	95.5%	12.4%
YLDs	85	0.32	0.62	95.7%	12.4%
Idiopathic intellectual disability					
DALYs	1,453	19	16	-17.1%	-19.7%
Prevalence	30,760	422	347	-18.0%	-21.2%
YLDs	1,453	19	16	-17.1%	-19.7%
Klinefelter syndrome					
DALYs	4	0.03	0.03	10.7%	5.7%
Prevalence	332	4.13	4.55	10.3%	5.5%
YLDs	4	0.03	0.03	10.7%	5.5%

	Counts (thousands)	Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Greece	WHO Europe
Meningitis					
DALYs	1,109	34	13	-62.8%	-80.5%
Deaths	34	0.52	0.22	-57.1%	-75.4%
Prevalence	1,391	39	12	-68.6%	-66.7%
YLDs	112	3.47	1.11	-68.1%	-64.6%
YLLs	997	30	11	-62.2%	-81.3%
Migraine					
DALYs	69,986	679	675	-0.6%	0.0%
Prevalence	1,868,501	18,297	18,255	-0.2%	0.3%
YLDs	69,986	679	675	-0.6%	0.0%
Motor neuron disease					
DALYs	5,123	13.35	28.84	116.1%	37.5%
Deaths	219	0.40	1.02	151.1%	54.1%
Prevalence	1,032	4.64	6.74	45.4%	19.8%
YLDs	219	0.99	1.43	45.4%	19.5%
YLLs	4,904	12.36	27.41	121.7%	38.5%
Multiple sclerosis					
DALYs	4,484	18	29	64.3%	-5.0%
Deaths	111	0.34	0.60	75.6%	-12.5%
Prevalence	5,250	25	38	53.0%	26.4%
YLDs	1,352	7	10	48.8%	25.5%
YLLs	3,132	11	19	73.5%	-22.2%
Nervous system cancer					
DALYs	36,013	254	241	-5.1%	-3.3%
Deaths	1,404	7.26	7.16	-1.3%	10.8%
Prevalence	7,165	55	57	2.7%	35.9%
YLDs	853	5.63	5.78	2.6%	25.3%
YLLs	35,159	248	235	-5.3%	-3.7%

Neurocysticercosis					
DALYs	1,915	15.82	10.46	-33.9%	-42.5%
Deaths	0	0.00	0.00	-78.2%	-69.2%
Prevalence	9,557	72.52	51.13	-29.5%	-32.8%
YLDs	1,913	15.76	10.45	-33.7%	-42.5%
YLLs	2	0.06	0.01	-78.7%	-70.7%
Neurosyphilis					
DALYs	13	0.10	0.08	-20.0%	-43.6%
Prevalence	102	0.78	0.73	-6.9%	-11.7%
YLDs	13	0.10	0.08	-20.0%	-43.4%
Other neurological disorders					
DALYs	10,645	70	85	21.3%	25.8%
Deaths	339	1.75	1.77	1.3%	45.0%
YLDs	2,288	11	19	76.0%	62.9%
YLLs	8,324	59	66	11.2%	14.2%
Parkinson's disease					
DALYs	28,464	80	95	19.3%	5.6%
Deaths	1,813	4.62	5.39	16.6%	4.0%
Prevalence	38,019	110	137	24.5%	21.9%
YLDs	5,315	16	19	24.2%	21.4%
YLLs	23,149	64	76	18.0%	2.0%
Spinal cord injury					
DALYs	11,760	126	91	-27.8%	-26.9%
Prevalence	43,012	450	326	-27.6%	-21.9%
YLDs	11,760	126	91	-27.8%	-26.9%

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Greece	WHO Europe	
Stroke						
DALYs	247,367	2,465	909	-63.1%	-52.6%	
Deaths	17,207	155	52	-66.8%	-55.6%	
Prevalence	184,789	1,131	869	-23.2%	-19.2%	
YLDs	27,248	157	121	-23.1%	-18.9%	
YLLs	220,119	2,308	789	-65.8%	-55.3%	
Tension-type headache						
DALYs	8,272	69	70	0.3%	-1.6%	
Prevalence	3,570,883	32,411	32,409	-0.01%	-0.8%	
YLDs	8,272	69	70	0.3%	-1.6%	
Tetanus						
DALYs	19.25	0.18	0.09	-46.9%	-97.3%	
Deaths	1.06	0.007	0.004	-44.2%	-95.8%	
YLLs	19.23	0.17	0.09	-46.8%	-97.5%	
Traumatic Brain Injury						
DALYs	7,708	74	51	-30.3%	-28.2%	
Prevalence	58,886	554	387	-30.1%	-28.0%	
YLDs	7,708	74	51	-30.3%	-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.

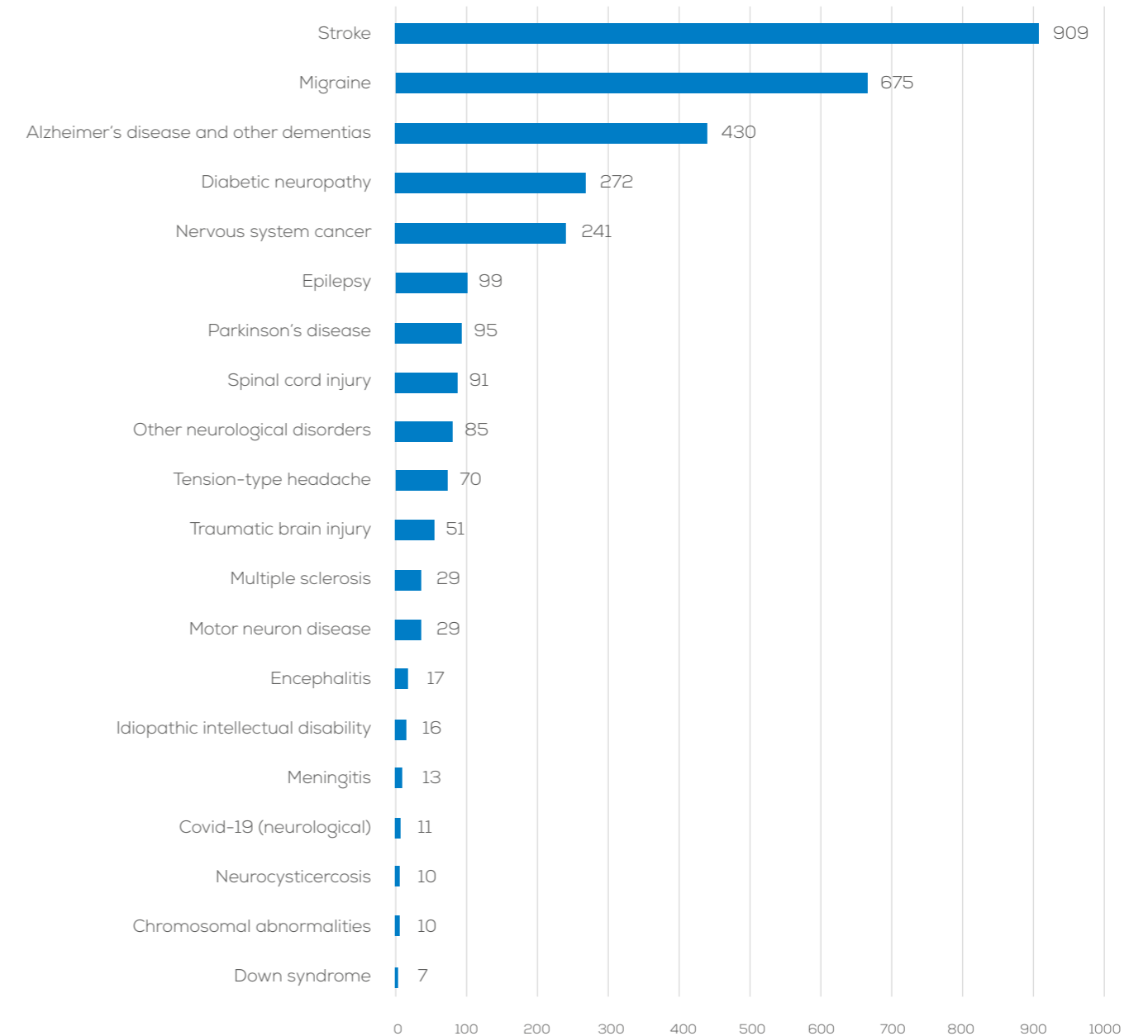


Figure 1: National age-standardised DALYs per 100 000 population by neurological disorder in 2021.

DALYs per 100 000 population

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

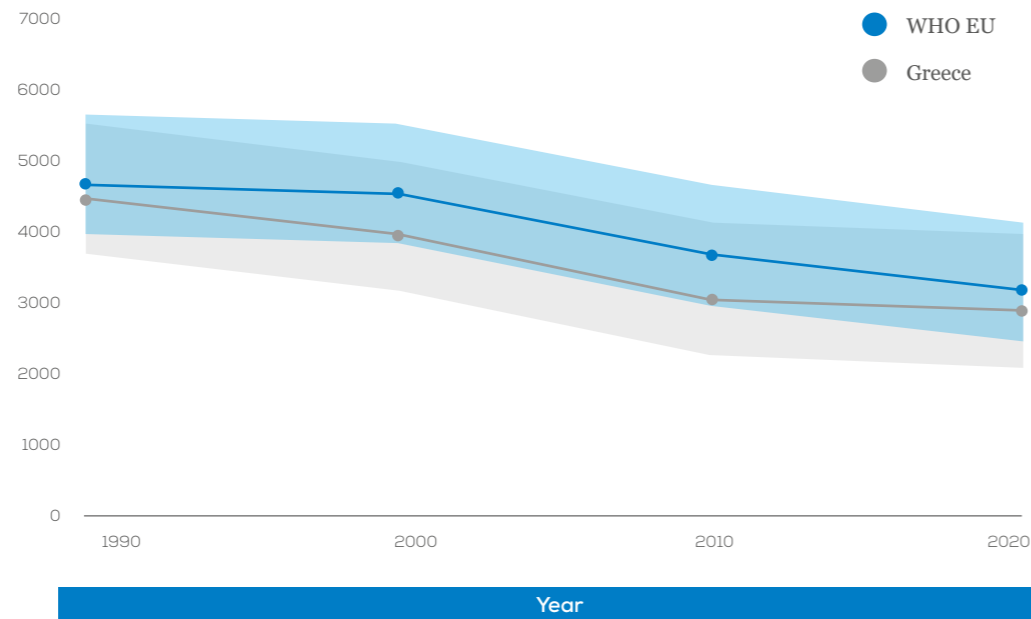


Figure 2: Age-Standardized DALYs per 100 000 population over the last 3 decades.

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

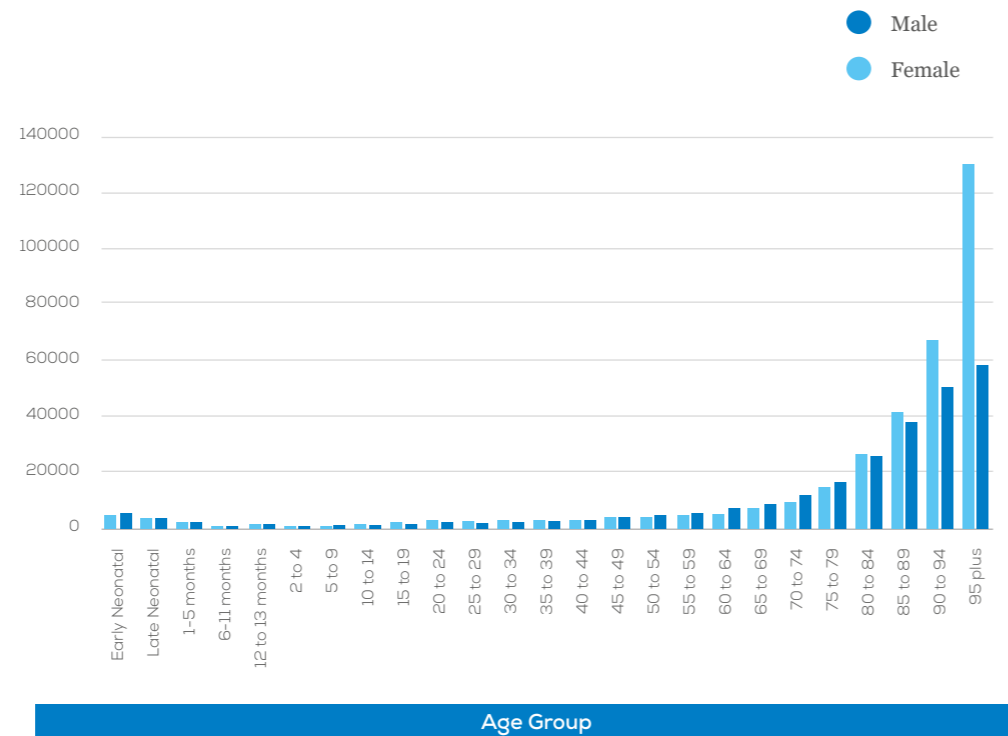


Figure 3: National DALYs per 100 000 population by age group and sex in 2021.

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 **Greece** 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	7,938.8	3,979.7	1,443.1	2,515.9
Alzheimer's disease and other dementias	6,210.7	660.4	5,549.8	0.6
Sleep disorders	4,626.0	2,832.5	-	1,793.5
Traumatic brain injury	538.2	232.6	140.6	165.0
Polyneuropathies	478.8	286.2	-	192.6
Stroke	458.1	276.0	138.0	44.1
Parkinson's disease	242.3	167.4	67.2	7.7
Multiple sclerosis	82.6	53.1	12.1	17.4
Idiopathic epilepsy	69.6	27.5	-	42.2
Brain and central nervous system cancer	27.0	16.3	10.6	-
Motor neuron disease	8.1	5.1	2.2	0.8
Meningitis	1.8	1.8	-	-
Total Costs:	20,682.1	8,538.6	7,363.7	4,779.8

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.

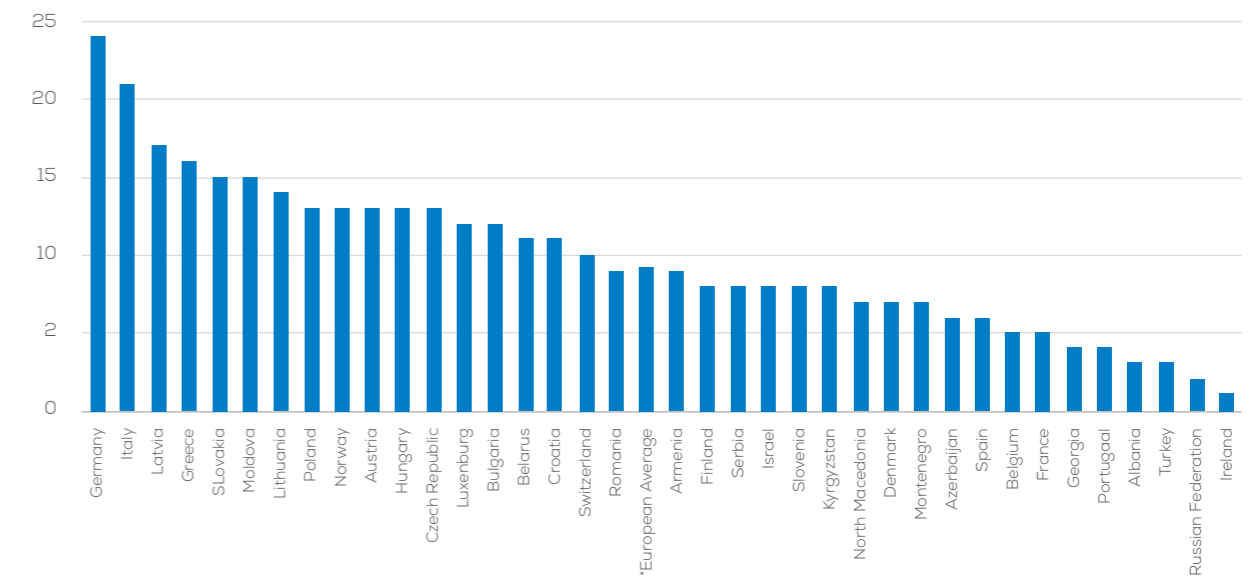


Figure 4: Number of neurologists (fully specialised and in training) per 100 000 population.

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

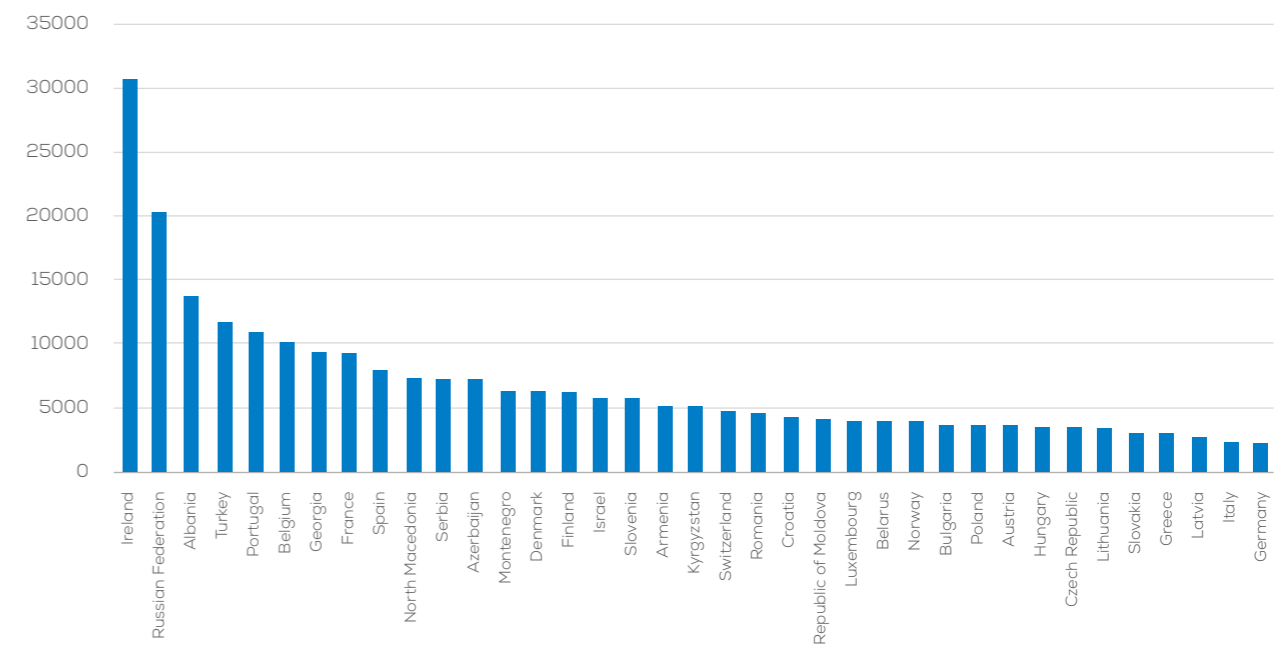
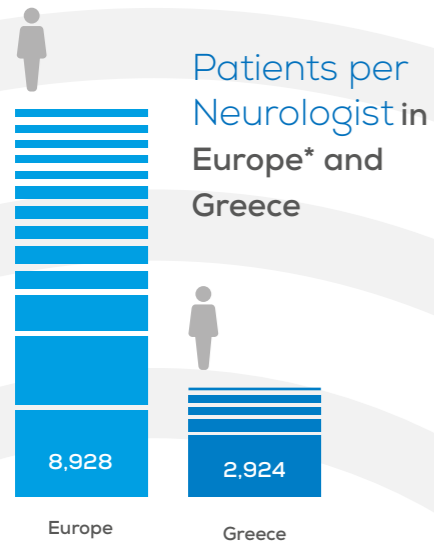
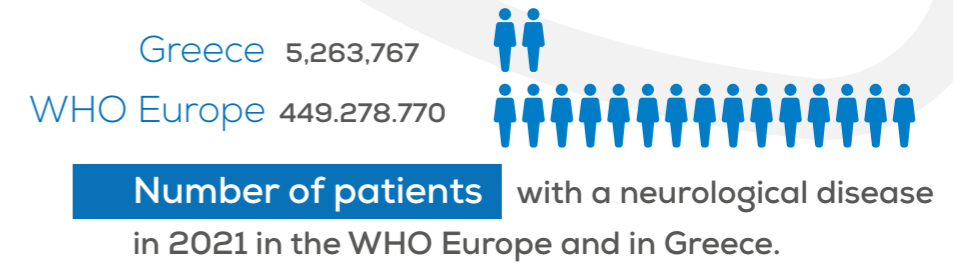
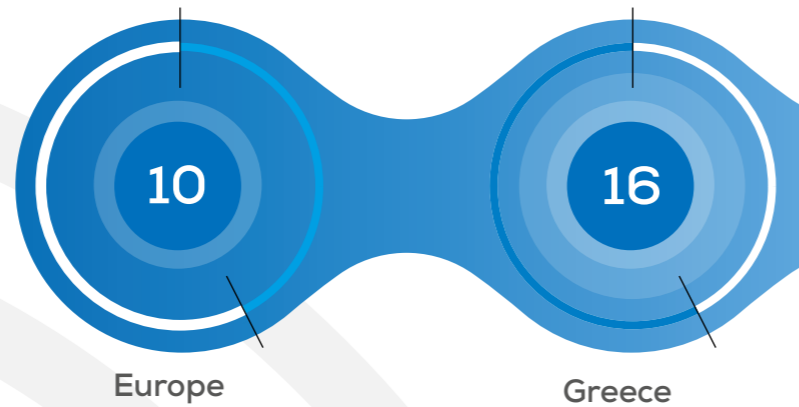


Figure 5: Number of patients per neurologist (fully specialised and in training).

Neurological Diseases in Europe and Greece:

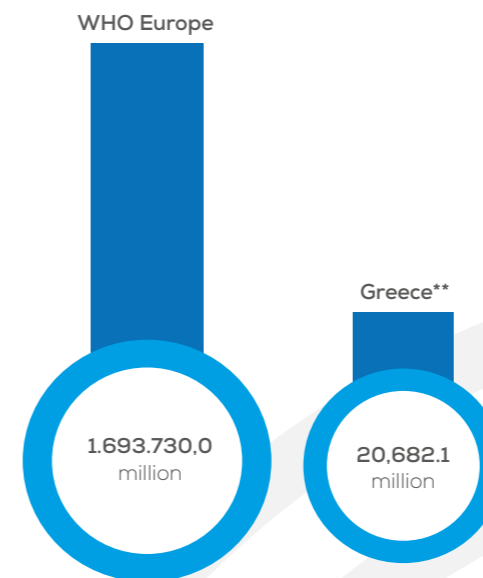
Key Data and Trends from 2021

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



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

	WHO Europe	vs	Greece
DALYs	-28.98%		-31.70%
Deaths	-43.19%		-52.35%
Prevalence	0.34%		0.25%

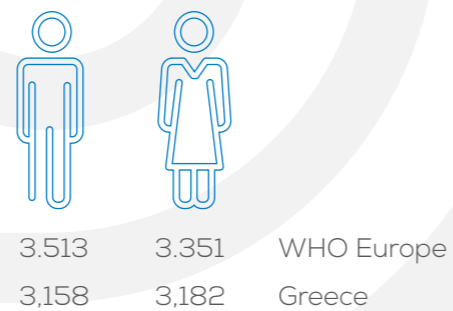


Annual total costs (in million € PPP 2019) for 12 major neurological diseases:

Most prevalent neurological diseases in Greece in

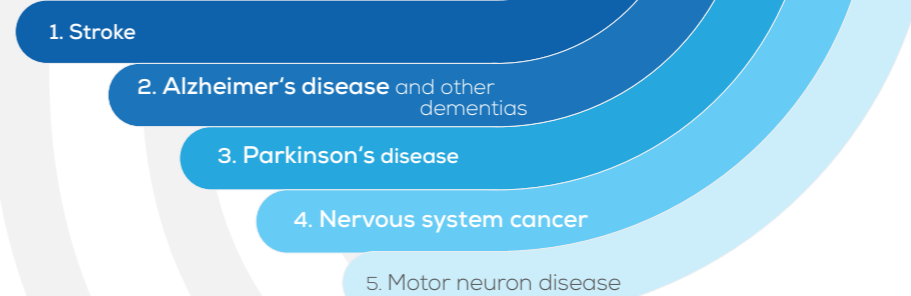
2021

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



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

Leading neurological diseases in Greece 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.

