

EAN Fact Sheet

Country profile of Spain

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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	Spain	WHO Europe
All Neurological Disorders					
DALYs	2,205,432	3,913	2,733	-30.2%	-29.0%
Deaths	81,539	137	63	-54.4%	-43.2%
Prevalence	23,651,233	46,120	46,228	0.2%	0.3%
YLDs	1,127,496	1,654	1,694	2.5%	2.9%
YLLs	1,077,785	2,259	1,038	-54.0%	-44.4%
Alzheimer's disease and other dementias					
DALYs	547,723	460	418	-9.2%	-2.5%
Deaths	36,156	27	25	-6.4%	-2.8%
Prevalence	713,870	676	582	-13.9%	-2.1%
YLDs	150,423	141	121	-14.3%	-2.6%
YLLs	397,300	320	297	-6.9%	-2.5%
Chromosomal abnormalities					
DALYs	2,464	10	7	-27.8%	-12.3%
Prevalence	25,147	107	77	-28.5%	-12.8%
YLDs	2,464	10	7	-27.8%	-12.4%
Covid-19 (neurological)					
DALYs	8,519	-	16	-	-
Prevalence	85,021	-	159	-	-
YLDs	8,519	-	16	-	-
Cystic echinococcosis					
DALYs	24	0.05	0.04	-19.8%	-18.3%
Prevalence	108	0.21	0.19	-7.1%	-9.0%
YLDs	24	0.05	0.04	-19.8%	-18.4%
Diabetic neuropathy					
DALYs	299,380	216	348	61.4%	98.1%
Prevalence	2,405,397	1,726	2,778	60.9%	97.9%
YLDs	299,380	216	348	61.4%	98.1%

Down syndrome					
DALYs	1,910	8	5	-34.6%	-19.6%
Prevalence	19,185	85	54	-36.2%	-20.7%
YLDs	1,910	8	5	-34.6%	-19.8%
Encephalitis					
DALYs	5,833	14	12	-12.6%	-30.1%
Deaths	191	0.26	0.26	2.3%	-15.9%
Prevalence	5,078	7	9	24.4%	-13.6%
YLDs	568	0.86	1.06	22.8%	-12.0%
YLLs	5,265	13	11	-14.9%	-31.0%
Epilepsy					
DALYs	49,580	98	96	-2.3%	-12.6%
Deaths	818	0.66	0.96	45.4%	3.9%
Prevalence	132,303	255	269	5.7%	3.3%
YLDs	30,310	68	62	-8.7%	-11.3%
YLLs	19,271	30	34	12.1%	-14.3%
Guillain-Barre Syndrome					
DALYs	395	0.31	0.67	119.2%	12.4%
Prevalence	1,335	1.04	2.27	118.5%	12.4%
YLDs	395	0.31	0.67	118.8%	12.4%
Idiopathic intellectual disability					
DALYs	19,936	67	50	-25.6%	-19.7%
Prevalence	410,796	1,429	1,042	-27.1%	-21.2%
YLDs	19,936	67	50	-25.6%	-19.7%
Klinefelter syndrome					
DALYs	13	0.02	0.02	19.2%	5.7%
Prevalence	997	2.46	2.94	19.4%	5.5%
YLDs	13	0.02	0.02	18.7%	5.5%

	Counts (thousands)	Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Spain	WHO Europe
Meningitis					
DALYs	4,075	71	10	-85.6%	-80.5%
Deaths	137	1.10	0.20	-81.6%	-75.4%
Prevalence	2,188	20	4	-78.0%	-66.7%
YLDs	201	1.98	0.44	-77.9%	-64.6%
YLLs	3,874	69	10	-85.8%	-81.3%
Migraine					
DALYs	327,243	689	688	-0.2%	0.04%
Prevalence	8,537,878	18,290	18,266	-0.1%	0.3%
YLDs	327,243	689	688	-0.2%	0.04%
Motor neuron disease					
DALYs	27,442	31.85	36.01	13.0%	37.5%
Deaths	1,154	0.91	1.28	39.9%	54.1%
Prevalence	5,937	6.32	8.23	30.3%	19.8%
YLDs	1,261	1.34	1.75	30.3%	19.5%
YLLs	26,181	30.51	34.26	12.3%	38.5%
Multiple sclerosis					
DALYs	19,025	22	29	27.6%	-5.0%
Deaths	248	0.28	0.30	8.5%	-12.5%
Prevalence	47,876	50	75	50.0%	26.4%
YLDs	12,004	13	19	48.3%	25.5%
YLLs	7,021	9.54	9.52	-0.2%	-22.2%
Nervous system cancer					
DALYs	96,275	163	154	-6.0%	-3.3%
Deaths	3,484	4.15	4.37	5.5%	10.8%
Prevalence	19,739	25	38	50.7%	35.9%
YLDs	2,300	2.78	3.79	36.4%	25.3%
YLLs	93,975	161	150	-6.8%	-3.7%

Neurocysticercosis					
DALYs	10,457	16.33	13.01	-20.3%	-42.5%
Deaths	53,816	71.18	65.74	-7.6%	-32.8%
YLDs	10,452	16.27	13.00	-20.1%	-42.5%
YLLs	5	0.05	0.01	-85.3%	-70.7%
Neurosyphilis					
DALYs	28	0.09	0.04	-55.3%	-43.6%
Prevalence	313	0.86	0.54	-37.1%	-11.7%
YLDs	28	0.09	0.04	-55.4%	-43.4%
Other neurological disorders					
DALYs	41,573	74	72	-2.5%	25.8%
Deaths	1,335	1.55	1.56	0.4%	45.0%
YLDs	10,318	12	19	67.3%	62.9%
YLLs	31,104	62	52	-15.8%	14.2%
Parkinson's disease					
DALYs	105,167	87	91	3.8%	5.6%
Deaths	6,062	4.82	4.70	-2.5%	4.0%
Prevalence	196,221	145	178	22.7%	21.9%
YLDs	27,375	20	25	22.6%	21.4%
YLLs	77,792	67	66	-2.0%	2.0%
Spinal cord injury					
DALYs	49,040	111	83	-25.1%	-26.9%
Prevalence	178,670	391	298	-23.8%	-21.9%
YLDs	49,040	111	83	-25.1%	-26.9%

	Counts	Age-standardized rate		Percentage change, 1990-2021	
	(thousands)	(per 100 000 people)		Spain	WHO Europe
	2021	1990	2021		
Stroke					
DALYs	518,428	1,630	484	-70.3%	-52.6%
Deaths	31,953	97	24	-75.1%	-55.6%
Prevalence	694,496	970	777	-19.9%	-19.2%
YLDs	102,451	135	110	-18.9%	-18.9%
YLLs	415,977	1,495	374	-75.0%	-55.3%
Tension-type headache					
DALYs	39,939	73	74	1.0%	-1.6%
Prevalence	15,640,494	31,537	31,536	0.0%	-0.8%
YLDs	39,939	73	74	1.0%	-1.6%
Tetanus					
DALYs	30,943	67	46	-31.1%	-28.2%
Deaths	235,603	501	347	-30.8%	-28.0%
YLLs	30,943	67	46	-31.1%	-28.2%
Traumatic Brain Injury					
DALYs	30,943	67	46	-31.1%	-28.2%
Prevalence	235,603	501	347	-30.8%	-28.0%
YLDs	30,943	67	46	-31.1%	-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.

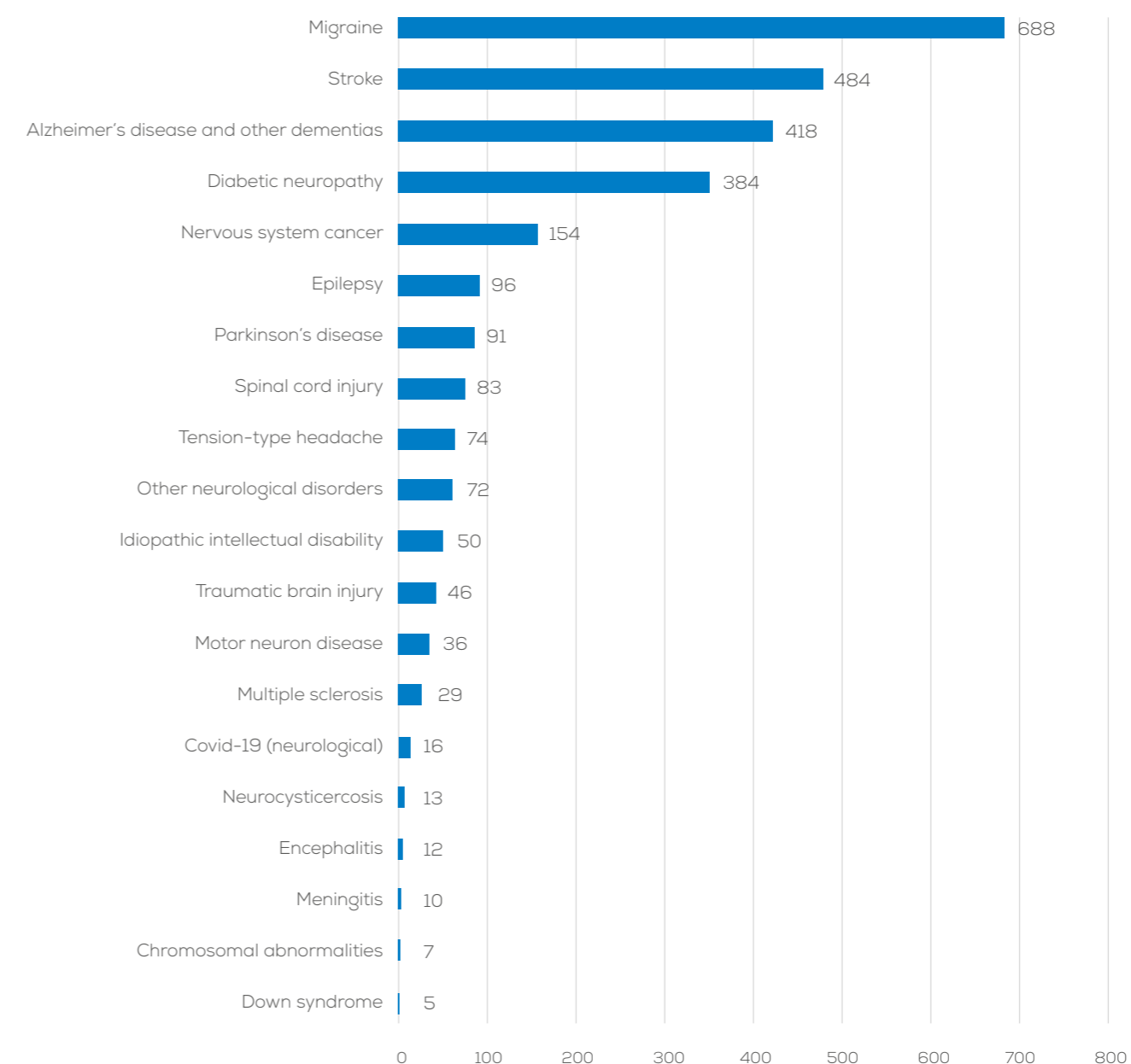


Figure 1: National age-standardised DALYs per 100 000 population by neurological disorder in 2021.

DALYs per 100 000 population

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

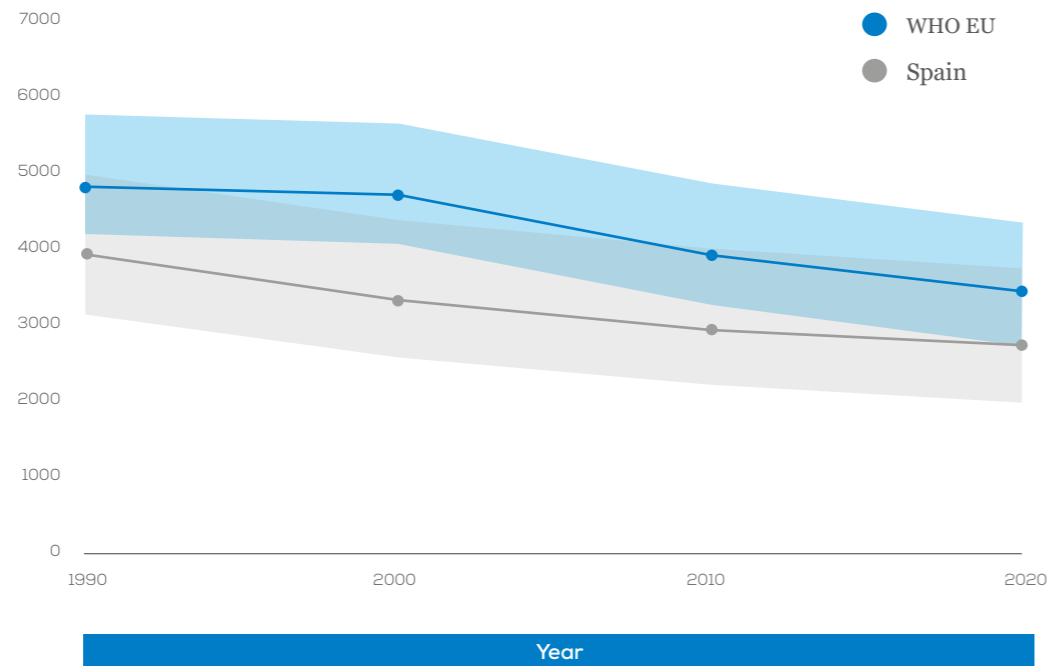


Figure 2: Age-Standardized DALYs per 100 000 population over the last 3 decades.

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

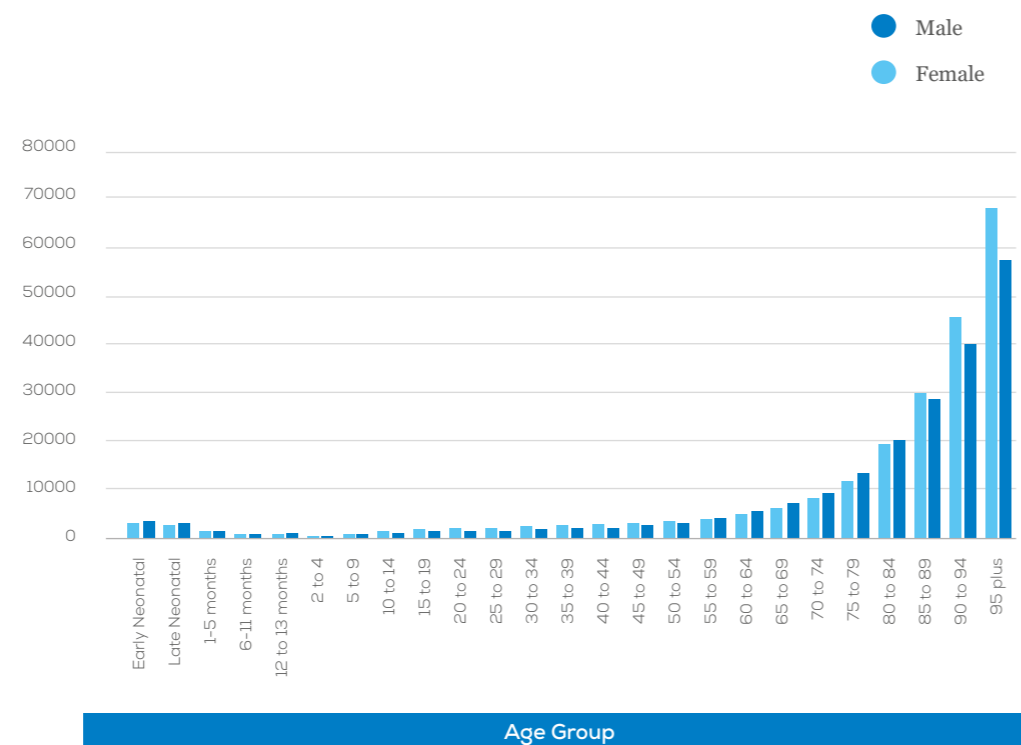


Figure 3: National DALYs per 100 000 population by age group and sex in 2021.

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 **Spain** 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	96,741.6	28,264.8	7,431.7	61,045.0
Sleep disorders	29,539.8	15,738.7	-	13,801.1
Alzheimer's disease and other dementias	19,555.5	7,445.0	12,108.9	1.6
Polyneuropathies	7,033.2	4,615.9	-	2,417.4
Stroke	5,480.5	3,872.8	1,363.6	244.1
Traumatic brain injury	5,045.5	1,974.5	937.0	2,134.0
Parkinson's disease	1,923.9	1,434.8	428.7	60.4
Multiple sclerosis	1,651.0	1,024.7	268.6	357.7
Idiopathic epilepsy	998.1	518.3	-	479.8
Brain and central nervous system cancer	96.1	64.3	31.8	-
Motor neuron disease	59.3	31.7	20.8	6.8
Meningitis	8.6	8.6	-	-
Total Costs:	168,133.2	64,994.2	22,591.2	80,547.8

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.

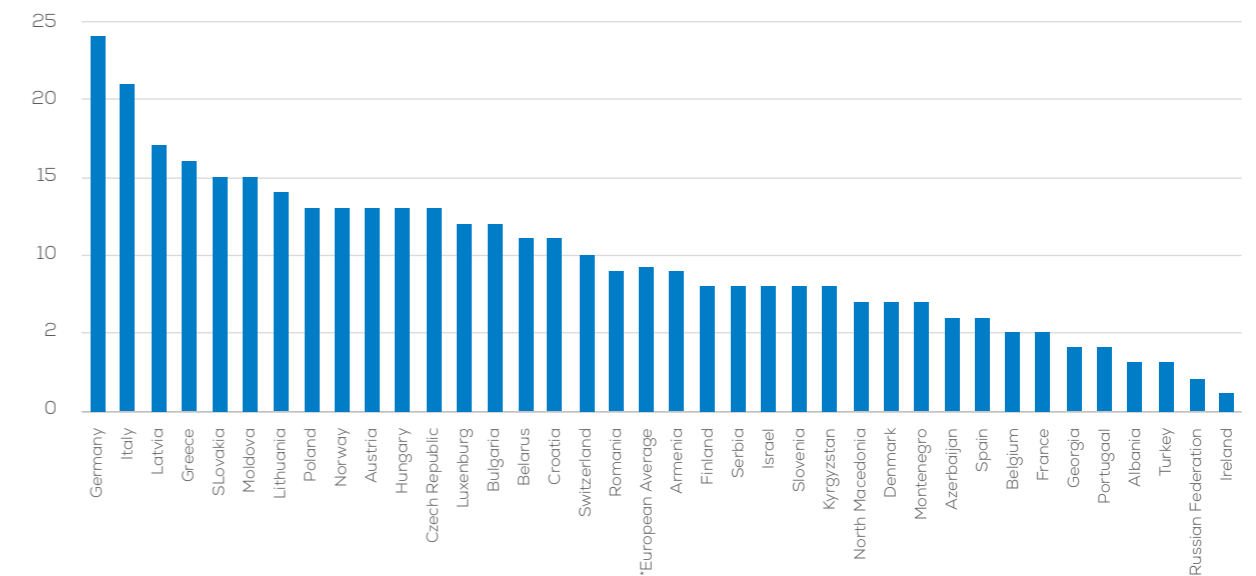


Figure 4: Number of neurologists (fully specialised and in training) per 100 000 population.

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

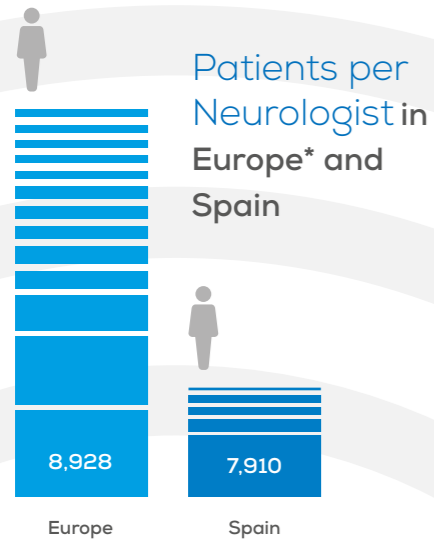
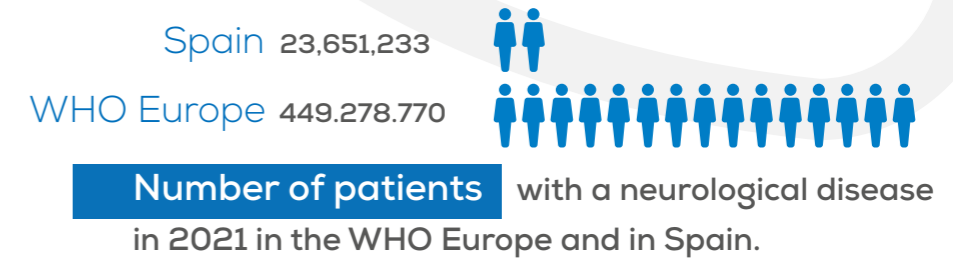
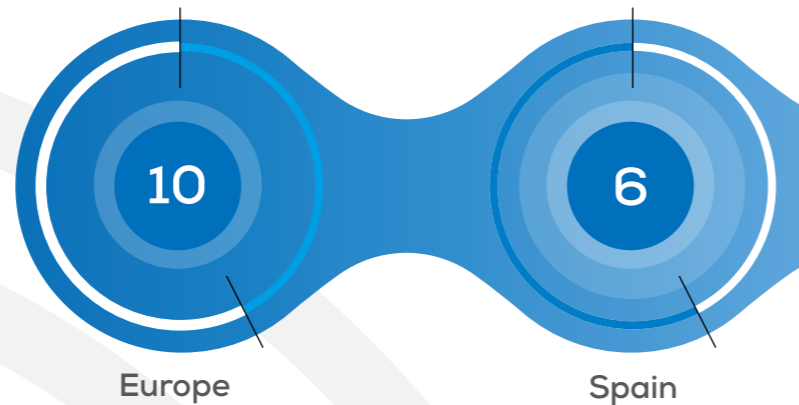


Figure 5: Number of patients per neurologist (fully specialised and in training).

Neurological Diseases in Europe and Spain:

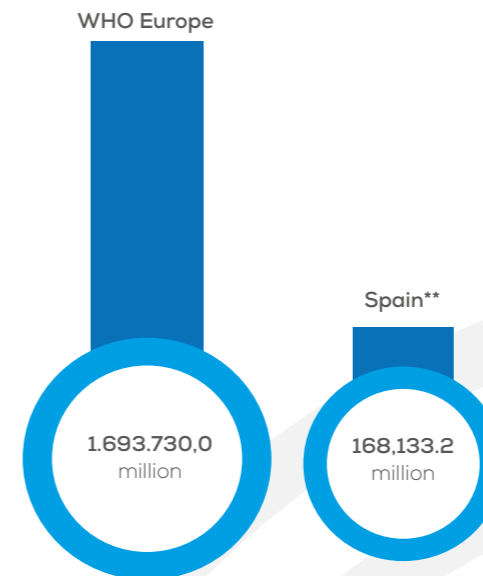
Key Data and Trends from 2021

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



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

	WHO Europe	vs	Spain
DALYs	-28.98%		-30.16%
Deaths	-43.19%		-54.38%
Prevalence	0.34%		0.23%



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

Most prevalent neurological diseases in Spain in

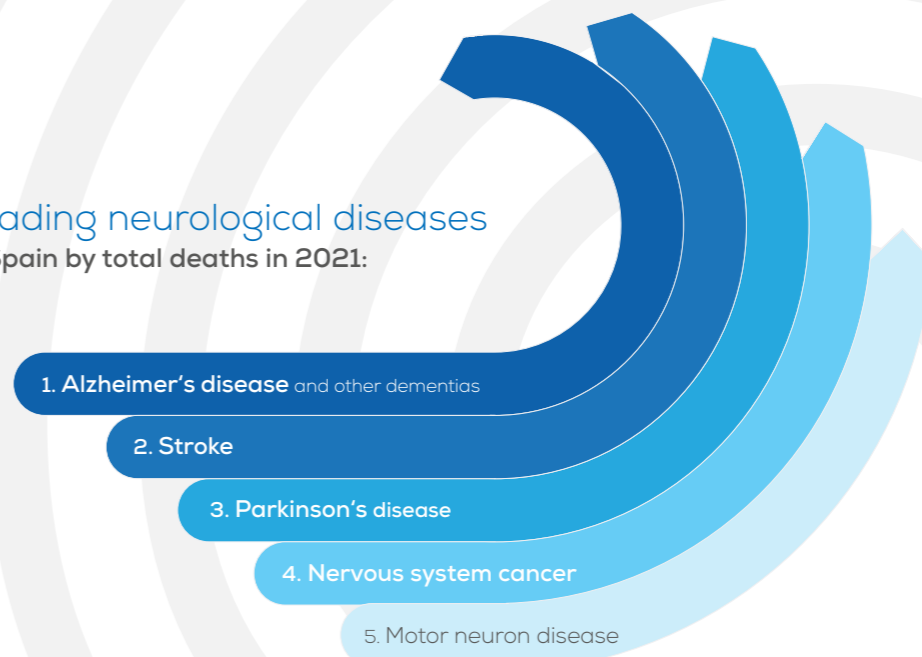
2021

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

	WHO Europe	Spain
Male	3,513	2,620
Female	3,351	2,847

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

Leading neurological diseases in Spain 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.

