

EAN Fact Sheet

Country profile of Ireland

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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)		Ireland	WHO Europe
	2021	1990	2021		
All Neurological Disorders					
DALYs	163,555	3,605	2,452	-32.0%	-29.0%
Deaths	5,146	126	61	-51.5%	-43.2%
Prevalence	2,388,070	45,339	45,292	-0.1%	0.3%
YLDs	86,580	1,463	1,451	-0.8%	2.9%
YLLs	76,963	2,142	1,000	-53.3%	-44.4%
Alzheimer's disease and other dementias					
DALYs	36,029	444	417	-6.1%	-2.5%
Deaths	2,116	25.29	24.09	-4.8%	-2.8%
Prevalence	53,859	691	629	-8.9%	-2.1%
YLDs	11,238	144	131	-9.1%	-2.6%
YLLs	24,791	300	286	-4.6%	-2.5%
Chromosomal abnormalities					
DALYs	464	13	11	-15.1%	-12.3%
Prevalence	5,174	150	128	-14.6%	-12.8%
YLDs	464	13	11	-15.1%	-12.4%
Covid-19 (neurological)					
DALYs	753	-	14	-	-
Prevalence	7,073	-	132	-	-
YLDs	753	-	14	-	-
Diabetic neuropathy					
DALYs	12,158	95	165	74.1%	98.1%
Prevalence	96,357	746	1,303	74.7%	97.9%
YLDs	12,158	95	165	74.1%	98.1%

Down syndrome					
DALYs	315	9	7	-20.1%	-19.6%
Prevalence	3,466	103	82	-20.5%	-20.7%
YLDs	315	9	7	-20.1%	-19.8%
Encephalitis					
DALYs	225	3.55	4.36	22.8%	-30.1%
Deaths	6	0.06	0.09	51.9%	-15.9%
Prevalence	310	7.80	5.47	-29.8%	-13.6%
YLDs	33	0.82	0.60	-27.4%	-12.0%
YLLs	192	2.73	3.76	37.8%	-31.0%
Epilepsy					
DALYs	7,078	140	135	-3.2%	-12.6%
Deaths	85	1.19	1.28	7.6%	3.9%
Prevalence	19,601	337	383	13.7%	3.3%
YLDs	4,435	90	87	-3.4%	-11.3%
YLLs	2,643	50	48	-2.9%	-14.3%
Guillain-Barre Syndrome					
DALYs	31	0.52	0.52	0.0%	12.4%
Prevalence	104	1.76	1.76	0.0%	12.4%
YLDs	31	0.52	0.52	0.0%	12.4%
Idiopathic intellectual disability					
DALYs	414	19	9	-54.0%	-19.7%
Prevalence	9,269	420	201	-52.2%	-21.2%
YLDs	414	19	9	-54.0%	-19.7%
Klinefelter syndrome					
DALYs	3	0.04	0.04	4.5%	5.7%
Prevalence	262	5.87	6.22	6.0%	5.5%
YLDs	3	0.04	0.04	4.5%	5.5%

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Ireland	WHO Europe	
Meningitis						
DALYs	459	54	10	-80.7%	-80.5%	
Deaths	12	0.89	0.20	-77.5%	-75.4%	
Prevalence	369	31	7	-77.5%	-66.7%	
YLDs	31	2.74	0.63	-77.0%	-64.6%	
YLLs	428	51	10	-80.9%	-81.3%	
Migraine						
DALYs	33,360	653	654	0.2%	0.0%	
Prevalence	890,679	17,571	17,632	0.3%	0.3%	
YLDs	33,360	653	654	0.2%	0.0%	
Motor neuron disease						
DALYs	3,976	50	56	12.7%	37.5%	
Deaths	161	1.67	2.07	24.2%	54.1%	
Prevalence	927	10	14	37.6%	19.8%	
YLDs	195	2.11	2.88	36.4%	19.5%	
YLLs	3,782	48	54	11.6%	38.5%	
Multiple sclerosis						
DALYs	3,782	58	59	1.0%	-5.0%	
Deaths	60	0.96	0.83	-12.8%	-12.5%	
Prevalence	8,036	110	130	17.9%	26.4%	
YLDs	2,011	28	33	17.4%	25.5%	
YLLs	1,771	30	26	-14.0%	-22.2%	
Nervous system cancer						
DALYs	9,591	195	153	-21.9%	-3.3%	
Deaths	321	5.38	4.51	-16.2%	10.8%	
Prevalence	2,727	33	48	44.4%	35.9%	
YLDs	281	3.63	4.56	25.7%	25.3%	
YLLs	9,310	192	148	-22.8%	-3.7%	

Neurosyphilis						
DALYs	1	0.03	0.02	-13.7%	-43.6%	
Prevalence	24	0.50	0.42	-15.3%	-11.7%	
YLDs	1	0.03	0.02	-13.9%	-43.4%	
Other neurological disorders						
DALYs	3,824	80	68	-15.1%	25.8%	
Deaths	89	2.02	1.26	-37.7%	45.0%	
YLDs	1,389	15	26	78.1%	62.9%	
YLLs	2,424	66	42	-35.8%	14.2%	
Parkinson's disease						
DALYs	7,090	83	83	-0.2%	5.6%	
Deaths	387	4.75	4.44	-6.5%	4.0%	
Prevalence	12,816	105	154	46.5%	21.9%	
YLDs	1,814	15	22	46.3%	21.4%	
YLLs	5,276	68	61	-10.4%	2.0%	
Spinal cord injury						
DALYs	4,911	101	85	-16.0%	-26.9%	
Prevalence	17,796	354	305	-14.0%	-21.9%	
YLDs	4,911	101	85	-16.0%	-26.9%	
Stroke						
DALYs	32,363	1,477	404	-72.7%	-52.6%	
Deaths	1,907	84	22	-73.5%	-55.6%	
Prevalence	42,863	1,033	596	-42.3%	-19.2%	
YLDs	6,017	143	82	-42.5%	-18.9%	
YLLs	26,345	1,334	321	-75.9%	-55.3%	

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Ireland	WHO Europe	
Tension-type headache						
DALYs	3,837	69.25	69.58	0.5%	-1.6%	
Prevalence	1,696,845	32,405	32,406	0.00%	-0.8%	
YLDs	3,837	69.25	69.58	0.5%	-1.6%	
Traumatic Brain Injury						
DALYs	2,890	59	46	-21.0%	-28.2%	
Prevalence	21,900	441	349	-20.9%	-28.0%	
YLDs	2,890	59	46	-21.0%	-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.

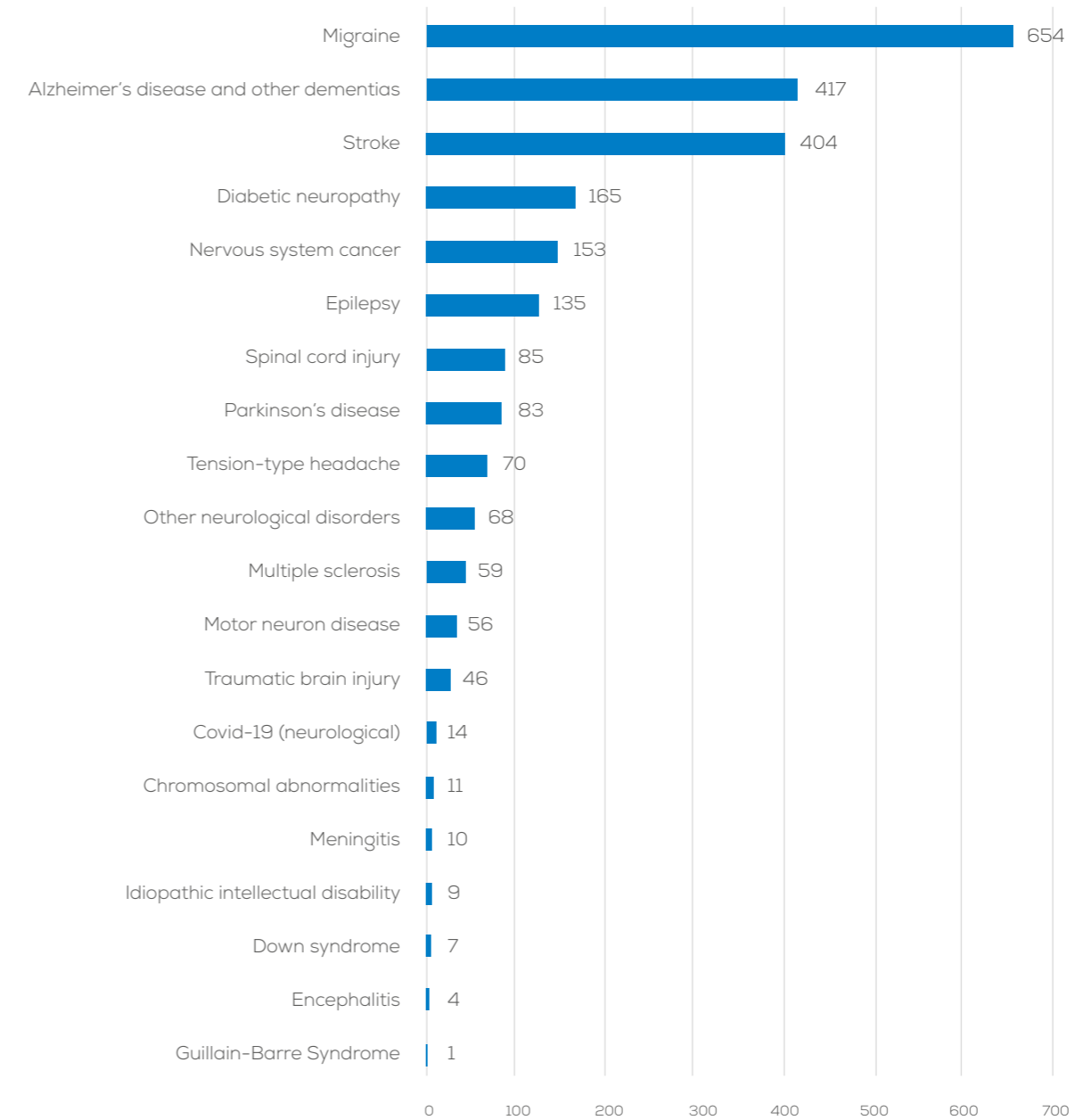


Figure 1: National age-standardised DALYs per 100 000 population by neurological disorder in 2021.

DALYs per 100 000 population

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

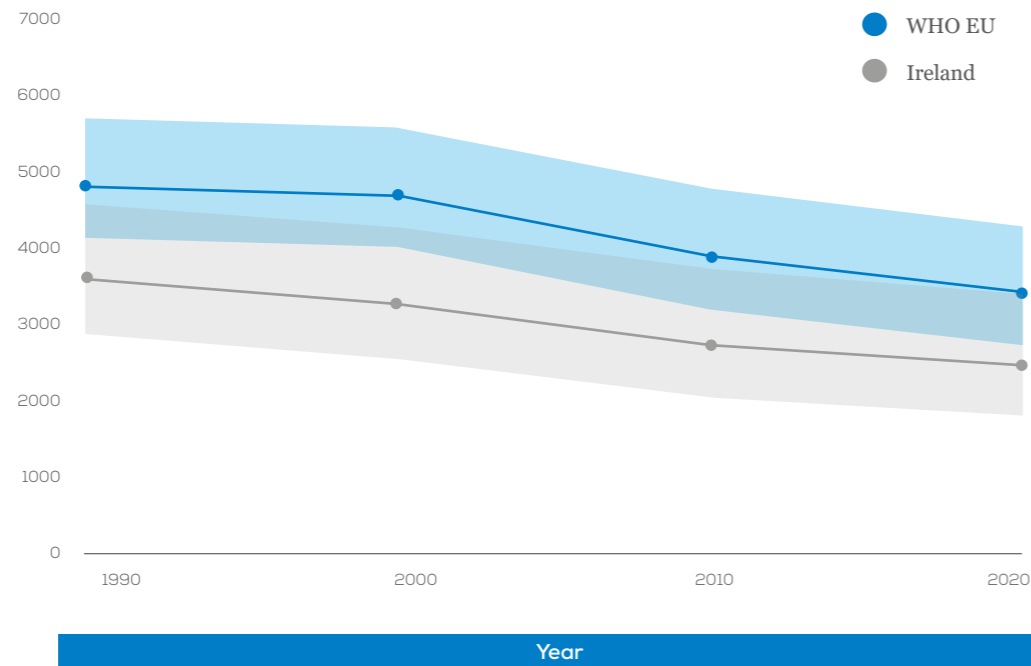


Figure 2: Age-Standardized DALYs per 100 000 population over the last 3 decades.

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

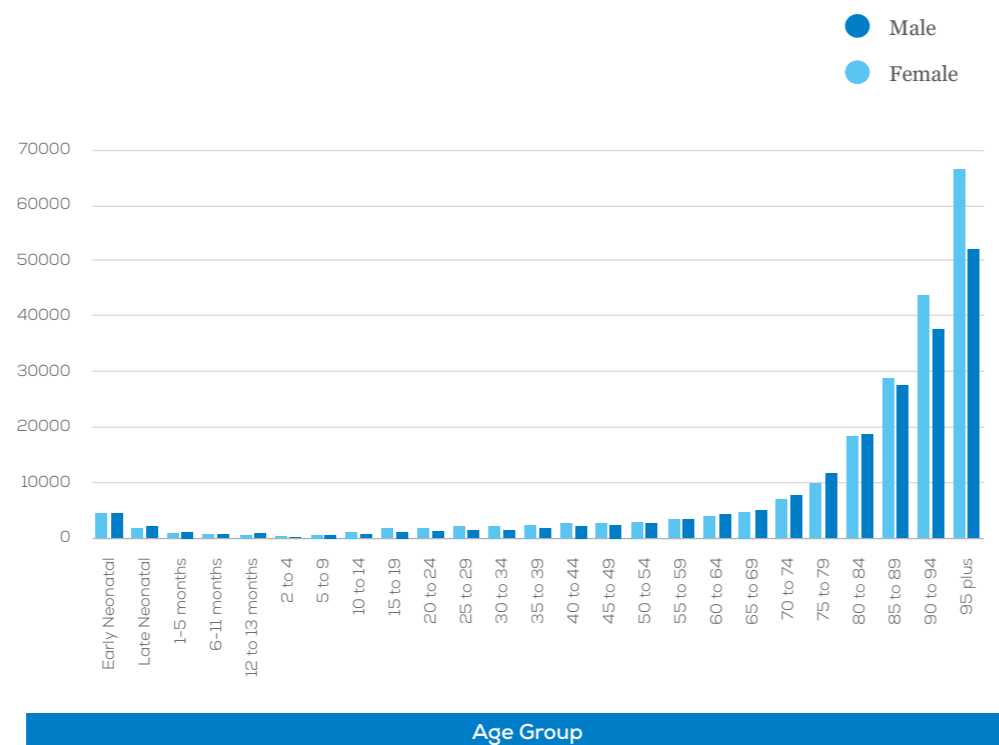


Figure 3: National DALYs per 100 000 population by age group and sex in 2021.

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 **Ireland** 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	7,057.2	1,496.2	542.6	5,018.5
Sleep disorders	3,622.7	808.5	-	2,814.3
Alzheimer's disease and other dementias	1,308.7	305.4	1,003.1	0.3
Traumatic brain injury	402.4	79.7	48.2	274.5
Polyneuropathies	320.7	73.6	-	247.1
Multiple sclerosis	235.3	107.1	49.4	78.8
Stroke	230.2	124.1	54.5	51.7
Idiopathic epilepsy	183.6	56.8	-	126.8
Parkinson's disease	80.1	46.8	18.8	14.4
Motor neuron disease	20.8	15.7	2.3	2.8
Brain and central nervous system cancer	7.0	4.3	2.8	-
Meningitis	0.5	0.5	-	-
Total Costs:	13,469.3	3,118.5	1,721.6	8,629.2

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.

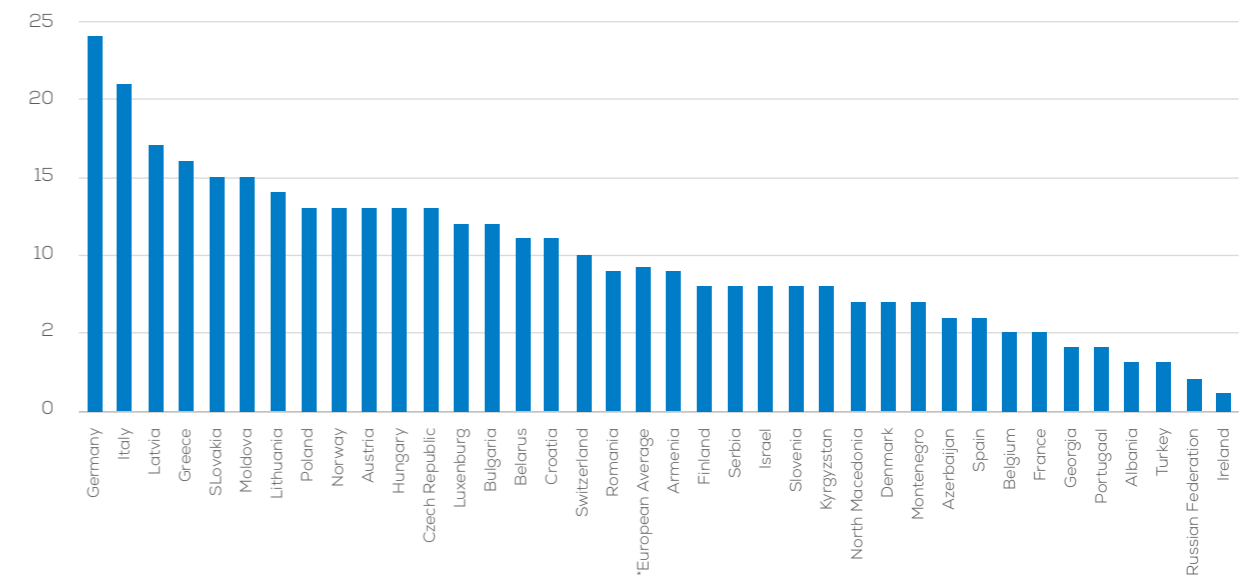


Figure 4: Number of neurologists (fully specialised and in training) per 100 000 population.

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

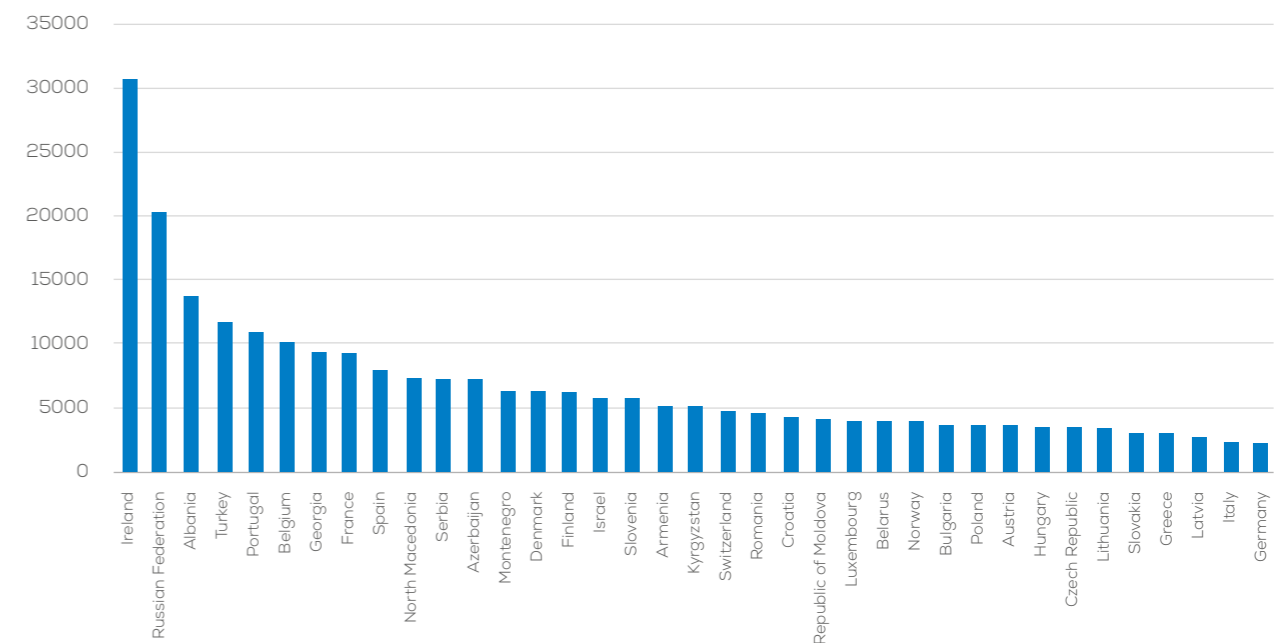
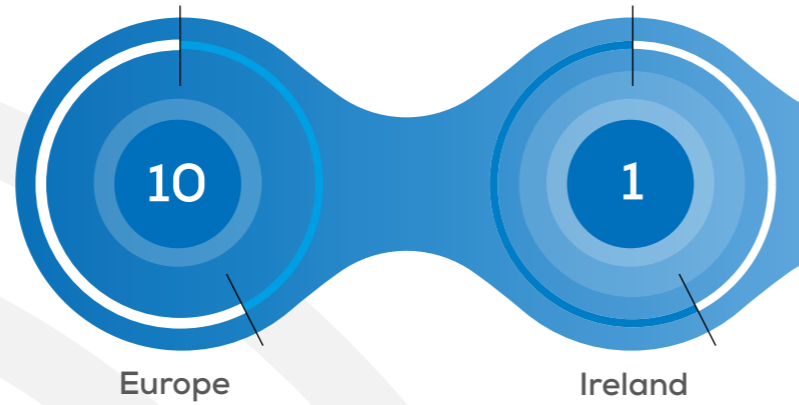


Figure 5: Number of patients per neurologist (fully specialised and in training).

Neurological Diseases in Europe and Ireland:

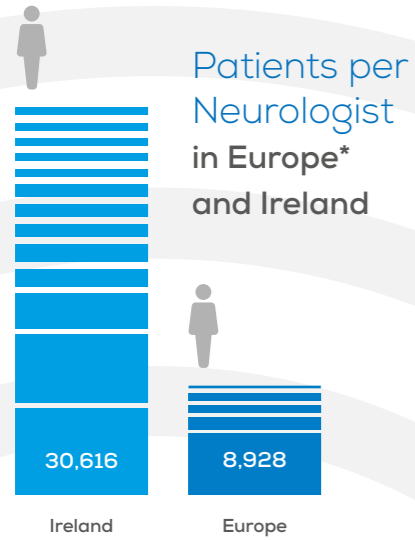
Key Data and Trends from 2021

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



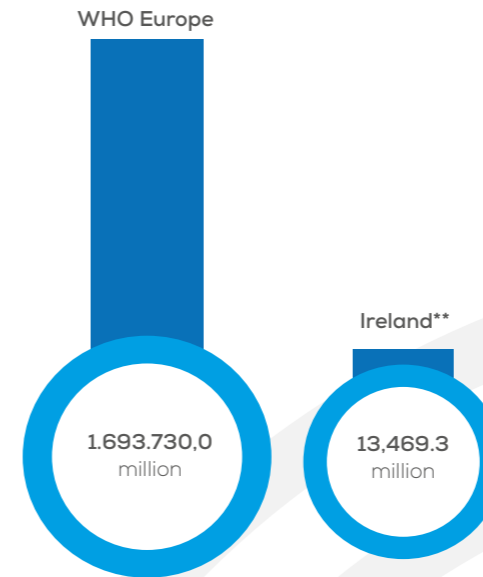
Ireland 2,388,070
WHO Europe 449,278,770

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



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

	WHO Europe	vs	Ireland
DALYs	-28.98%		-32.00%
Deaths	-43.19%		-51.54%
Prevalence	0.34%		-0.10%

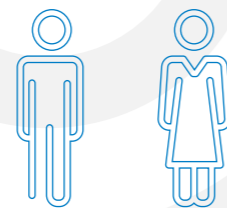


Annual total costs (in million € PPP 2019) for 12 major neurological diseases:

Most prevalent neurological diseases in Ireland in

2021

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

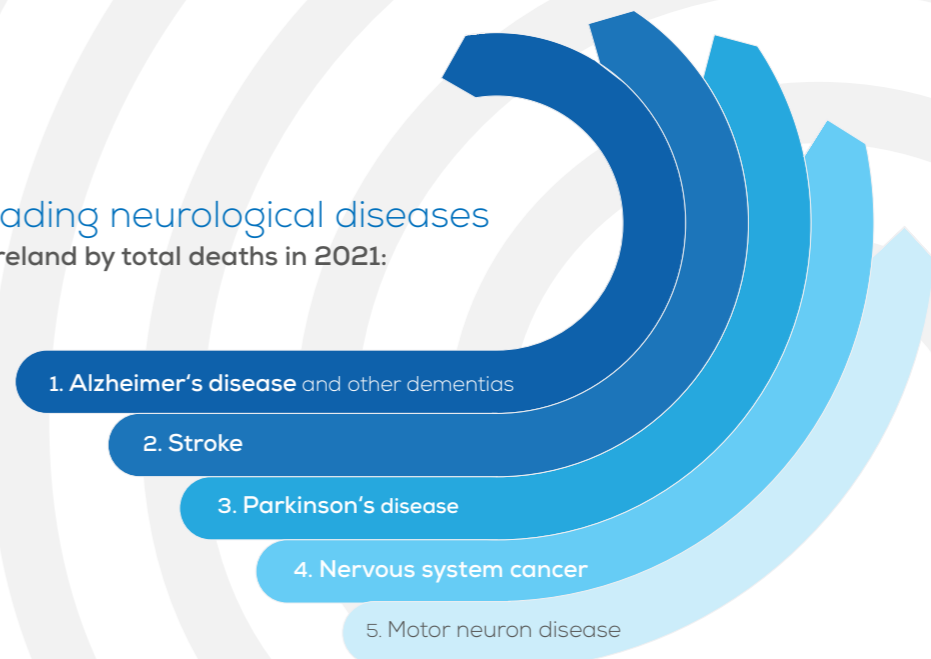


3,513 WHO Europe
2,324 Ireland

3,351 WHO Europe
2,567 Ireland

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

Leading neurological diseases in Ireland 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.

