

# EAN Fact Sheet

Country profile of Iceland

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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)		Iceland	WHO Europe
	2021	1990	2021		
<b>All Neurological Disorders</b>					
DALYs	12,761	3,266	2,570	-21.3%	-29.0%
Deaths	436	100	64	-36.2%	-43.2%
Prevalence	170,431	45,223	45,268	0.1%	0.3%
YLDs	6,477	1,460	1,477	1.1%	2.9%
YLLs	6,284	1,805	1,093	-39.4%	-44.4%
<b>Alzheimer's disease and other dementias</b>					
DALYs	2,983	455	430	-5.5%	-2.5%
Deaths	183	25	24	-1.5%	-2.8%
Prevalence	4,530	761	684	-10.2%	-2.1%
YLDs	957	159	143	-10.1%	-2.6%
YLLs	2,026	296	287	-3.0%	-2.5%
<b>Chromosomal abnormalities</b>					
DALYs	25	8.51	8.65	1.6%	-12.3%
Prevalence	278	95	97	1.7%	-12.8%
YLDs	25	8.51	8.65	1.7%	-12.4%
<b>Covid-19 (neurological)</b>					
DALYs	17	-	4	-	-
Prevalence	151	-	39	-	-
YLDs	17	-	4	-	-
<b>Diabetic neuropathy</b>					
DALYs	941	81	180	122.4%	98.1%
Prevalence	7,399	634	1,410	122.4%	97.9%
YLDs	941	81	180	122.4%	98.1%
<b>Down syndrome</b>					
DALYs	18	5.72	5.81	1.6%	-19.6%
Prevalence	193	63	64	1.7%	-20.7%
YLDs	18	5.72	5.81	1.7%	-19.8%

	Counts	Age-standardized rate		Percentage change, 1990-2021	
	(thousands)	(per 100 000 people)		Iceland	WHO Europe
	2021	1990	2021		
<b>Epilepsy</b>					
DALYs	415	100	111	10.2%	-12.6%
Deaths	5	0.71	1.02	43.1%	3.9%
Prevalence	1,140	278	308	11.0%	3.3%
YLDs	259	69	70	1.1%	-11.3%
YLLs	156	31	40	30.6%	-14.3%
<b>Guillain-Barre Syndrome</b>					
DALYs	2	0.52	0.52	0.2%	12.4%
Prevalence	7	1.76	1.77	0.3%	12.4%
YLDs	2	0.52	0.52	0.3%	12.4%
<b>Idiopathic intellectual disability</b>					
DALYs	35	14	11	-24.0%	-19.7%
Prevalence	753	296	231	-22.0%	-21.2%
YLDs	35	14	11	-24.0%	-19.7%
<b>Meningitis</b>					
DALYs	52	64	16	-74.6%	-80.5%
Deaths	1	1.09	0.32	-70.7%	-75.4%
Prevalence	10	10	3	-73.4%	-66.7%
YLDs	1	0.88	0.24	-72.6%	-64.6%
YLLs	51	63	16	-74.7%	-81.3%
<b>Migraine</b>					
DALYs	2,352	654	651	-0.5%	0.0%
Prevalence	62,574	17,516	17,440	-0.4%	0.3%
YLDs	2,352	654	651	-0.5%	0.0%

	Counts	Age-standardized rate		Percentage change, 1990-2021	
	(thousands)	(per 100 000 people)		Iceland	WHO Europe
	2021	1990	2021		
<b>Motor neuron disease</b>					
DALYs	178	32.79	35.96	9.7%	37.5%
Deaths	7	1.07	1.25	17.5%	54.1%
Prevalence	57	10.28	12.03	17.1%	19.8%
YLDs	12	2.18	2.54	16.1%	19.5%
YLLs	166	30.60	33.42	9.2%	38.5%
<b>Multiple sclerosis</b>					
DALYs	246	49	55	10.5%	-5.0%
Deaths	4	0.73	0.83	12.9%	-12.5%
Prevalence	485	101	111	9.4%	26.4%
YLDs	122	26	28	9.1%	25.5%
YLLs	124	24	27	12.1%	-22.2%
<b>Nervous system cancer</b>					
DALYs	892	242	206	-15.1%	-3.3%
Deaths	29	6.55	5.79	-11.6%	10.8%
Prevalence	285	59	72	21.6%	35.9%
YLDs	28	5.78	6.60	14.2%	25.3%
YLLs	864	236	199	-15.8%	-3.7%
<b>Other neurological disorders</b>					
DALYs	488	99	120	21.0%	25.8%
Deaths	15	2.24	2.88	28.2%	45.0%
YLDs	87	12	23	82.0%	62.9%
YLLs	401	87	98	12.3%	14.2%

	Counts	Age-standardized rate		Percentage change, 1990-2021	
	(thousands)	(per 100 000 people)		Iceland	WHO Europe
	2021	1990	2021		
<b>Parkinson's disease</b>					
DALYs	695	101	109	8.5%	5.6%
Deaths	42	5.67	6.23	9.8%	4.0%
Prevalence	1,060	128	173	34.6%	21.9%
YLDs	150	18	25	34.6%	21.4%
YLLs	544	82	85	2.7%	2.0%
<b>Spinal cord injury</b>					
DALYs	365	109	89	-19.1%	-26.9%
Prevalence	1,316	392	316	-19.3%	-21.9%
YLDs	365	109	89	-19.1%	-26.9%
<b>Stroke</b>					
DALYs	2,567	1,115	420	-62.3%	-52.6%
Deaths	149	57	21	-63.0%	-55.6%
Prevalence	4,295	1,146	799	-30.2%	-19.2%
YLDs	619	161	112	-30.2%	-18.9%
YLLs	1,948	954	308	-67.7%	-55.3%
<b>Tension-type headache</b>					
DALYs	269	69.35	69.37	0.03%	-1.6%
Prevalence	120,532	32,390	32,369	-0.1%	-0.8%
YLDs	269	69.35	69.37	0.03%	-1.6%
<b>Traumatic Brain Injury</b>					
DALYs	217	64	48	-24.2%	-28.2%
Prevalence	1,638	477	361	-24.2%	-28.0%
YLDs	217	64	48	-24.2%	-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.

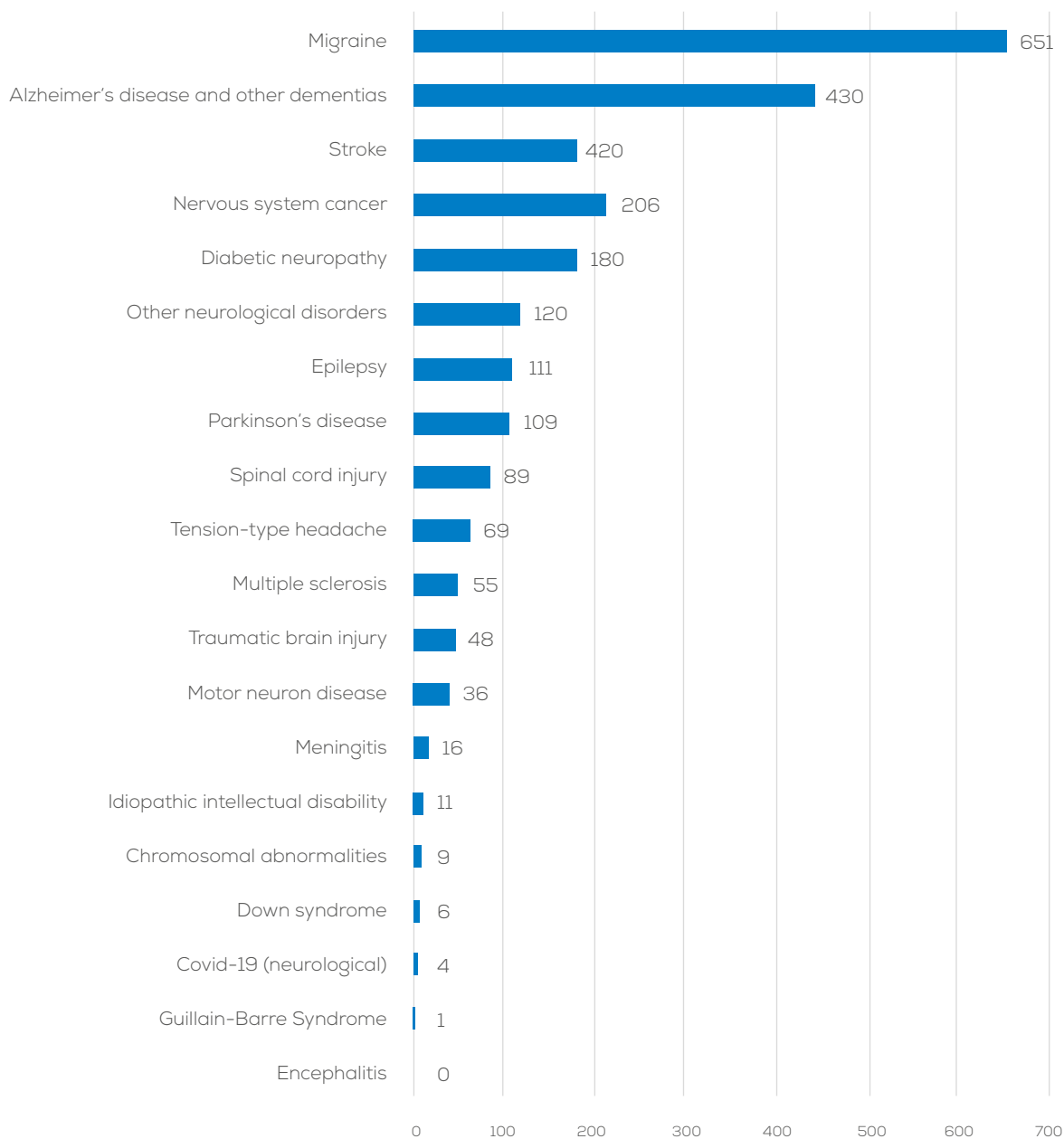


Figure 1: National age-standardised DALYs per 100 000 population by neurological disorder in 2021.

## DALYs per 100 000 population

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

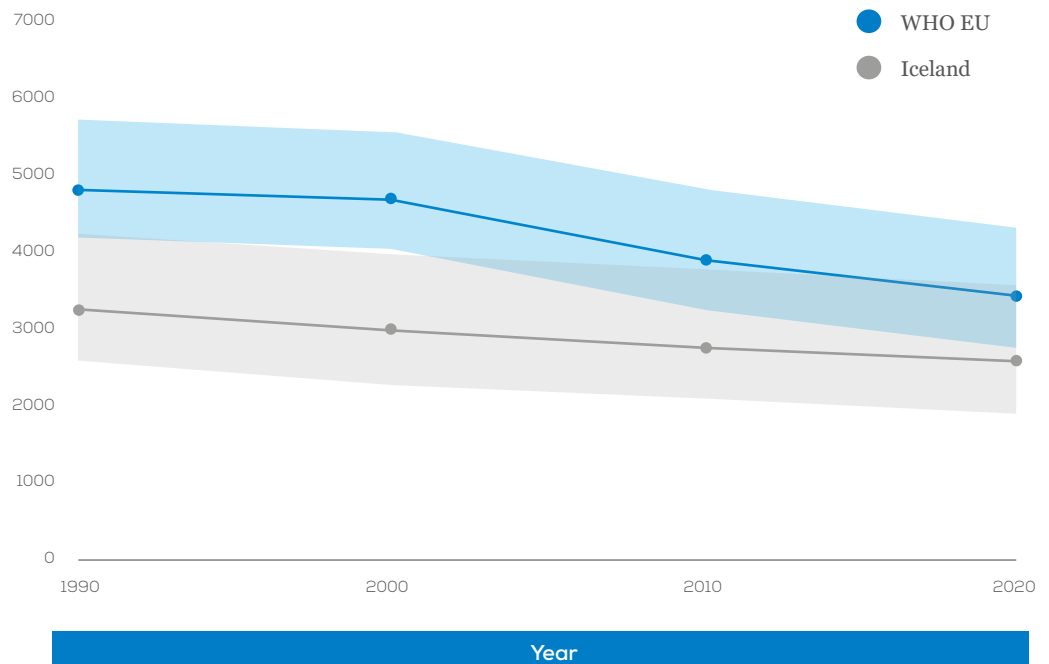


Figure 2: Age-Standardized DALYs per 100 000 population over the last 3 decades.

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

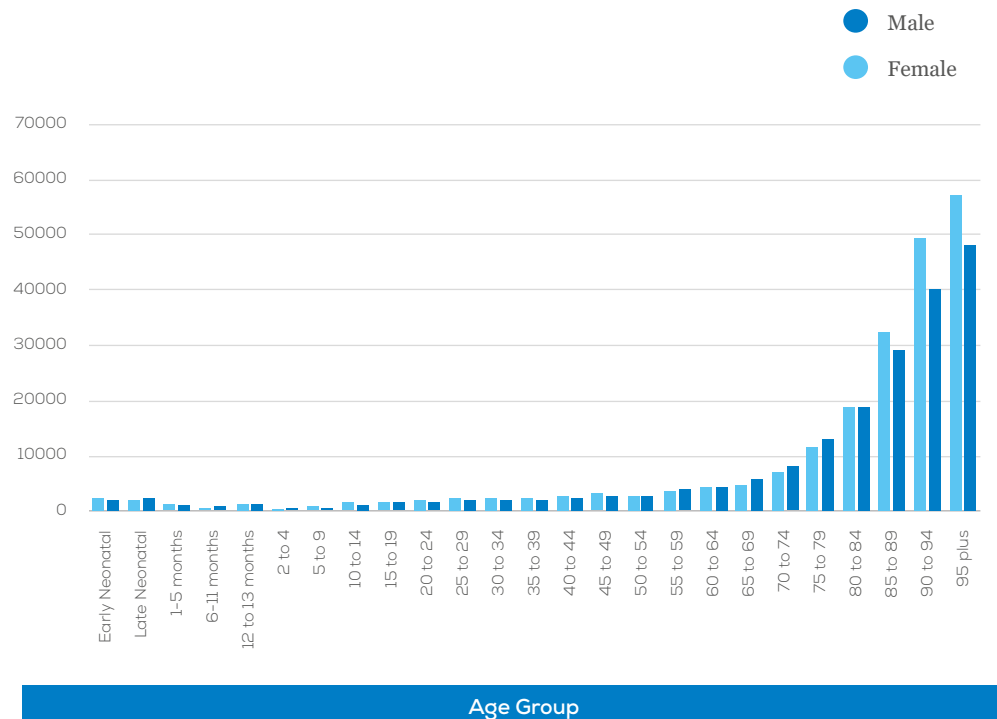


Figure 3: National DALYs per 100 000 population by age group and sex in 2021.

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 **Iceland** 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**

	<b>Total Costs</b>	<b>Direct Costs</b>	<b>Informal Care Costs</b>	<b>Indirect Costs</b>
<b>Neurological Disorder</b>				
Headache disorders	489.7	137.5	49.9	302.4
Sleep disorders	293.9	89.9	-	204.0
Alzheimer's disease and other dementias	78.2	33.7	44.4	0.03
Stroke	39.7	31.6	3.8	4.2
Traumatic brain injury	31.1	8.1	4.9	18.1
Polyneuropathies	26.2	7.6	-	18.6
Multiple sclerosis	12.0	5.2	1.2	5.6
Idiopathic epilepsy	10.3	4.2	-	6.1
Parkinson's disease	7.9	4.9	2.0	1.0
Brain and central nervous system cancer	0.8	0.5	0.3	-
Motor neuron disease	0.7	0.3	0.2	0.2
Meningitis	0.1	0.1	-	-
<b>Total Costs:</b>	<b>990.5</b>	<b>323.7</b>	<b>106.7</b>	<b>560.1</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.

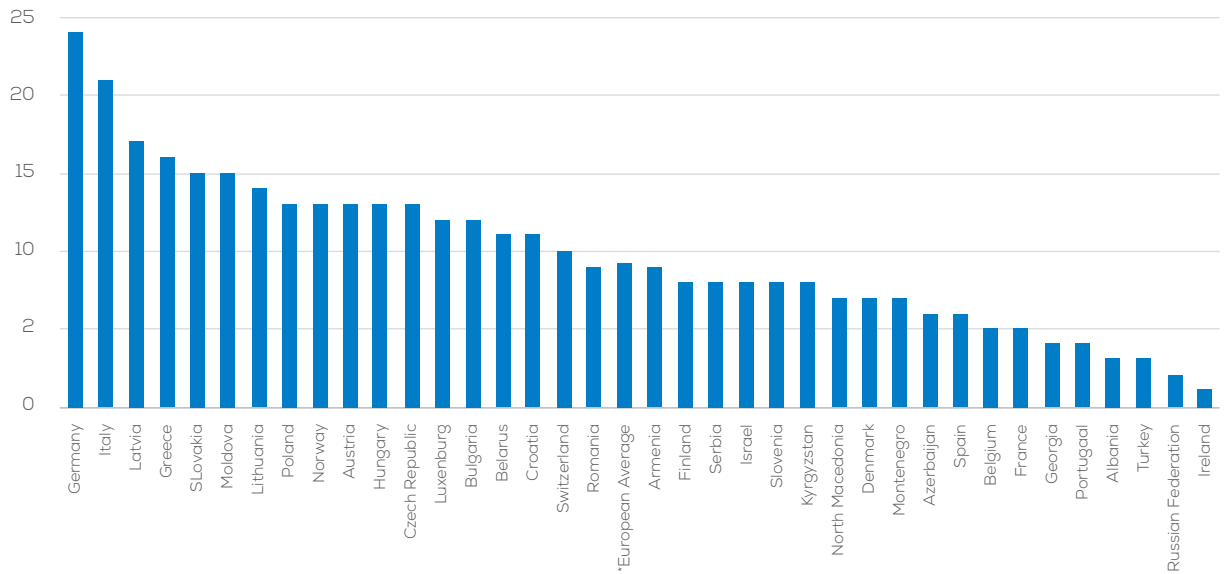


Figure 4: Number of neurologists (fully specialised and in training) per 100 000 population.

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

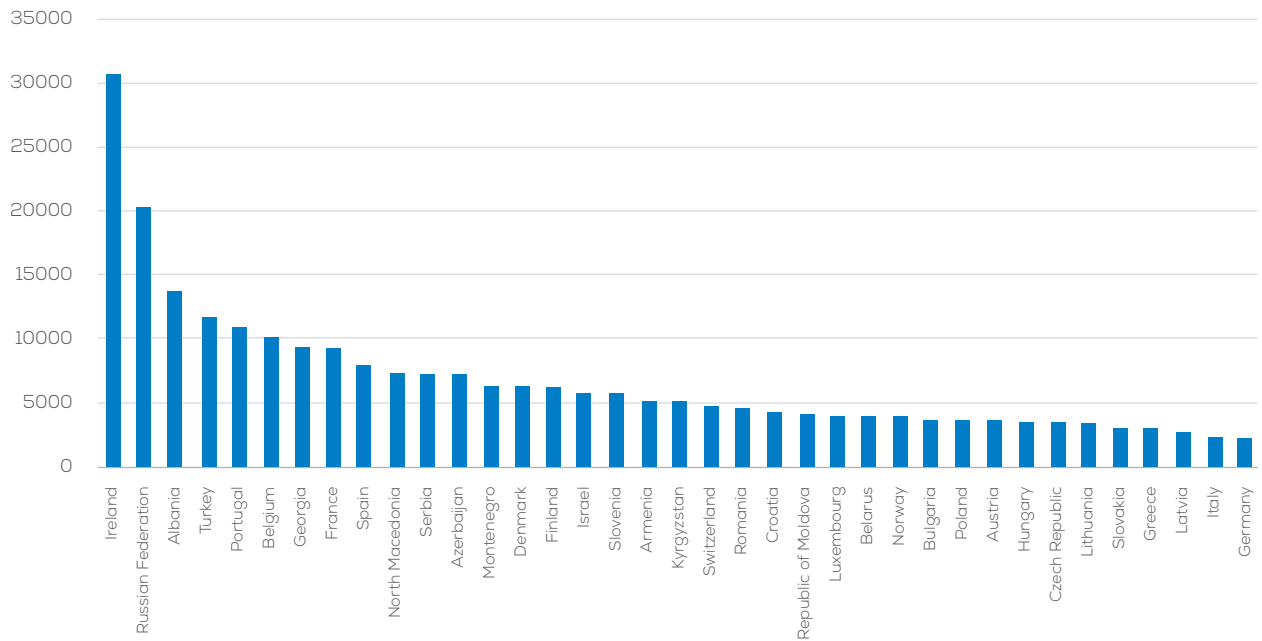
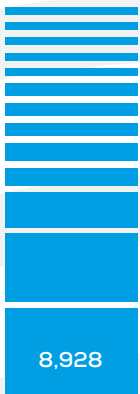


Figure 5: Number of patients per neurologist (fully specialised and in training).

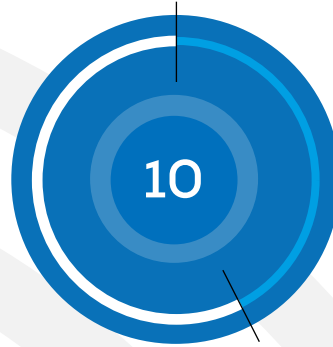
# Neurological Diseases in Europe and Iceland:

Key Data and Trends from 2021



Patients per Neurologist in Europe\*

Europe



Europe

Neurologists per 100,000 population in Europe\*

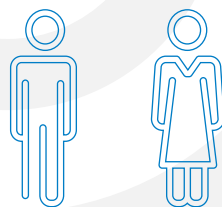
Most prevalent neurological diseases in Iceland in

# 2021

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

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

	WHO Europe	vs	Iceland
DALYs	-28.98%		-21.30%
Deaths	-43.19%		-36.17%
Prevalence	0.34%		0.10%





3,513	3,351	WHO Europe
2,468	2,668	Iceland

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

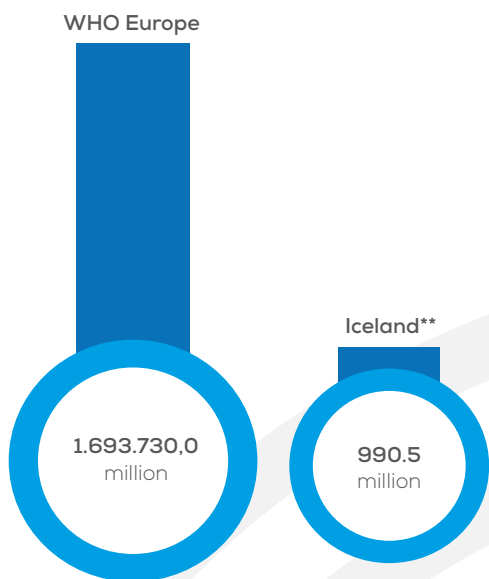
\*Based on data from 37 countries of the WHO European region

\*\*Cost estimates are derived from country-specific data available for specific diseases.

Iceland 170,431  
WHO Europe 449.278.770



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



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

Leading neurological diseases  
in Iceland by total deaths in 2021:

