

EAN Fact Sheet

Country profile of Sweden

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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)		Sweden	WHO Europe
	2021	1990	2021		
All Neurological Disorders					
DALYs	434,295	3,237	2,466	-23.8%	-29.0%
Deaths	16,610	104	61	-41.0%	-43.2%
Prevalence	5,260,066	46,830	46,932	0.2%	0.3%
YLDs	212,449	1,478	1,476	-0.1%	2.9%
YLLs	221,807	1,760	989	-43.8%	-44.4%
Alzheimer's disease and other dementias					
DALYs	115,343	447	417	-6.8%	-2.5%
Deaths	6,924	25	23	-5.9%	-2.8%
Prevalence	185,343	755	697	-7.7%	-2.1%
YLDs	38,694	158	144	-8.8%	-2.6%
YLLs	76,649	289	273	-5.6%	-2.5%
Chromosomal abnormalities					
DALYs	573	7.80	7.10	-9.0%	-12.3%
Prevalence	6,225	87	79	-9.7%	-12.8%
YLDs	573	7.80	7.10	-8.9%	-12.4%
Covid-19 (neurological)					
DALYs	1,784	-	15	-	-
Prevalence	17,300	-	145	-	-
YLDs	1,784	-	15	-	-
Diabetic neuropathy					
DALYs	28,942	98	159	62.2%	98.1%
Prevalence	234,513	793	1,279	61.4%	97.9%
YLDs	28,942	98	159	62.2%	98.1%
Down syndrome					
DALYs	427	5.69	5.01	-12.0%	-19.6%
Prevalence	4,585	63	55	-12.5%	-20.7%
YLDs	427	5.69	5.01	-11.9%	-19.8%

Encephalitis					
DALYs	1,033	4	7	71.0%	-30.1%
Deaths	38	0.07	0.18	158.8%	-15.9%
Prevalence	2,095	17.38	17.21	-1.0%	-13.6%
YLDs	219	1.89	1.92	1.4%	-12.0%
YLLs	814	2	5	125.1%	-31.0%
Epilepsy					
DALYs	10,087	124	91	-26.3%	-12.6%
Deaths	118	1.06	0.79	-25.2%	3.9%
Prevalence	27,028	288	245	-15.0%	3.3%
YLDs	6,285	74	57	-22.8%	-11.3%
YLLs	3,802	49	34	-31.5%	-14.3%
Guillain-Barre Syndrome					
DALYs	102	0.48	0.78	64.5%	12.4%
Prevalence	346	1.61	2.64	64.5%	12.4%
YLDs	102	0.48	0.78	64.4%	12.4%
Idiopathic intellectual disability					
DALYs	1,559	15	17	10.8%	-19.7%
Prevalence	31,634	308	337	9.5%	-21.2%
YLDs	1,559	15	17	10.8%	-19.7%
Klinefelter syndrome					
DALYs	3	0.02	0.02	2.3%	5.7%
Prevalence	264	3.10	3.19	2.8%	5.5%
YLDs	3	0.02	0.02	2.3%	5.5%

	Counts (thousands)	Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Sweden	WHO Europe
Meningitis					
DALYs	1,539	32	15	-53.7%	-80.5%
Deaths	49	0.54	0.30	-44.6%	-75.4%
Prevalence	2,037	36	17	-52.8%	-66.7%
YLDs	170	3.21	1.55	-51.8%	-64.6%
YLLs	1,369	29	13	-53.9%	-81.3%
Migraine					
DALYs	68,595	659	658	-0.2%	0.04%
Prevalence	1,846,704	17,833	17,827	0.0%	0.3%
YLDs	68,595	659	658	-0.2%	0.04%
Motor neuron disease					
DALYs	7,404	37.64	40.74	8.2%	37.5%
Deaths	334	1.30	1.57	20.7%	54.1%
Prevalence	2,051	10.65	12.29	15.4%	19.8%
YLDs	429	2.26	2.59	14.6%	19.5%
YLLs	6,975	35.38	38.15	7.8%	38.5%
Multiple sclerosis					
DALYs	9,274	54	64	18.5%	-5.0%
Deaths	146	0.67	0.78	16.3%	-12.5%
Prevalence	22,713	126	162	28.3%	26.4%
YLDs	5,656	32	41	27.8%	25.5%
YLLs	3,618	22	23	4.7%	-22.2%
Nervous system cancer					
DALYs	19,001	191	140	-26.9%	-3.3%
Deaths	664	4.85	3.87	-20.2%	10.8%
Prevalence	8,706	71	72	1.2%	35.9%
YLDs	777	6.22	5.92	-4.8%	25.3%
YLLs	18,224	185	134	-27.7%	-3.7%

Neurosyphilis					
DALYs	4	0.03	0.02	-21.0%	-43.6%
Prevalence	61	0.59	0.49	-16.2%	-11.7%
YLDs	4	0.03	0.02	-20.9%	-43.4%
Other neurological disorders					
DALYs	10,889	75	85	12.5%	25.8%
Deaths	334	1.52	1.80	18.8%	45.0%
YLDs	2,693	13	22	64.8%	62.9%
YLLs	8,158	62	63	1.1%	14.2%
Parkinson's disease					
DALYs	19,844	73	77	5.1%	5.6%
Deaths	1,193	4.32	4.32	0.0%	4.0%
Prevalence	29,646	77	123	60.9%	21.9%
YLDs	4,171	11	18	59.1%	21.4%
YLLs	15,673	62	59	-4.5%	2.0%
Spinal cord injury					
DALYs	9,979	101	77	-23.8%	-26.9%
Prevalence	36,381	361	275	-24.0%	-21.9%
YLDs	9,979	101	77	-23.8%	-26.9%
Stroke					
DALYs	113,201	1,183	478	-59.5%	-52.6%
Deaths	6,810	65	24	-62.3%	-55.6%
Prevalence	179,366	1,119	929	-16.9%	-19.2%
YLDs	26,680	159	131	-17.5%	-18.9%
YLLs	86,521	1,024	347	-66.1%	-55.3%

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Sweden	WHO Europe	
Tension-type headache						
DALYs	7,850	68.15	68.31	0.2%	-1.6%	
Prevalence	3,771,718	34,266	34,297	0.1%	-0.8%	
YLDs	7,850	68.15	68.31	0.2%	-1.6%	
Tetanus						
DALYs	3	0.04	0.02	-33.4%	-97.3%	
Traumatic Brain Injury						
DALYs	6,856	61	44	-27.2%	-28.2%	
Prevalence	52,379	459	335	-27.0%	-28.0%	
YLDs	6,856	61	44	-27.2%	-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.

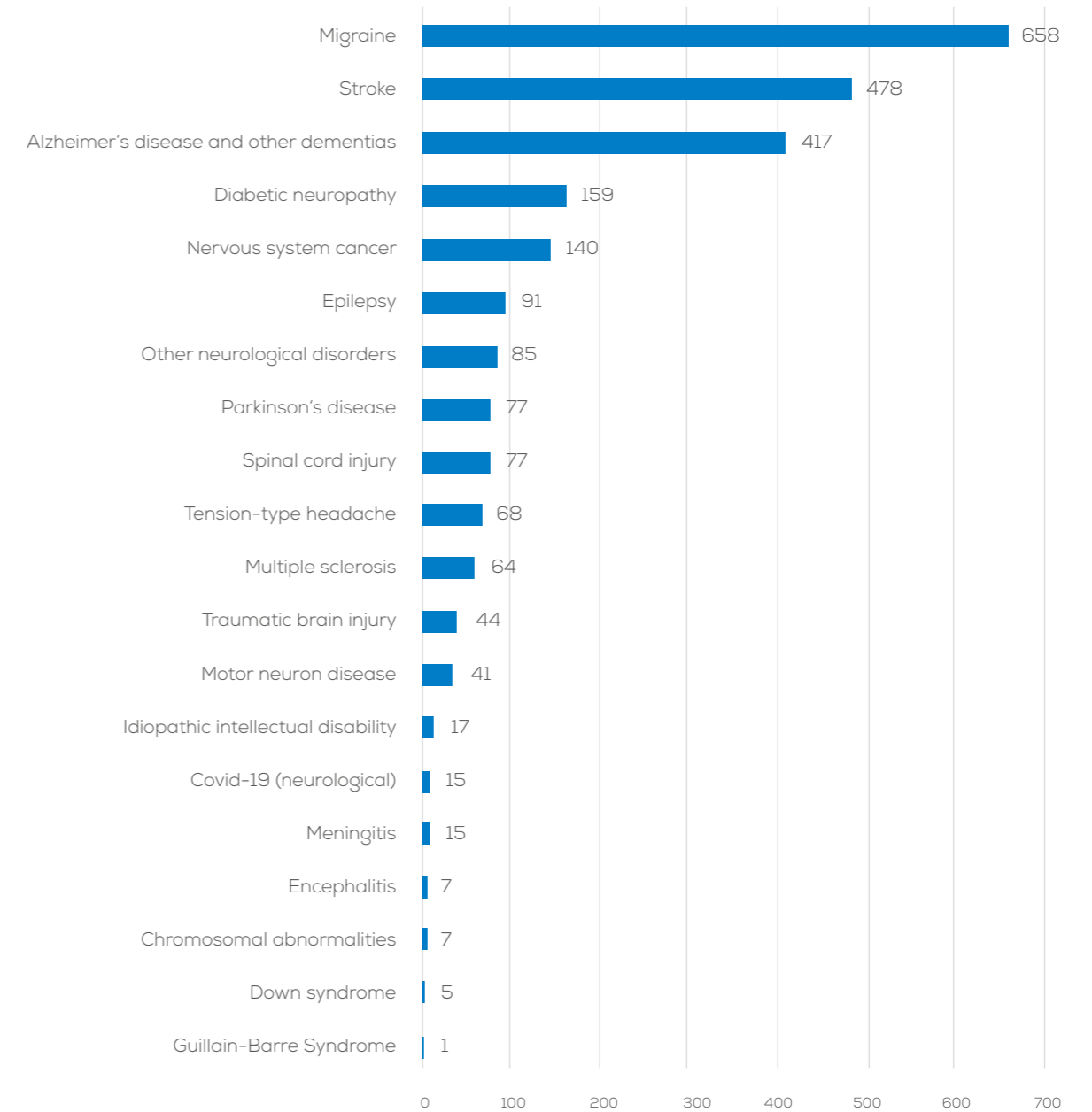


Figure 1: National age-standardised DALYs per 100 000 population by neurological disorder in 2021.

DALYs per 100 000 population

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

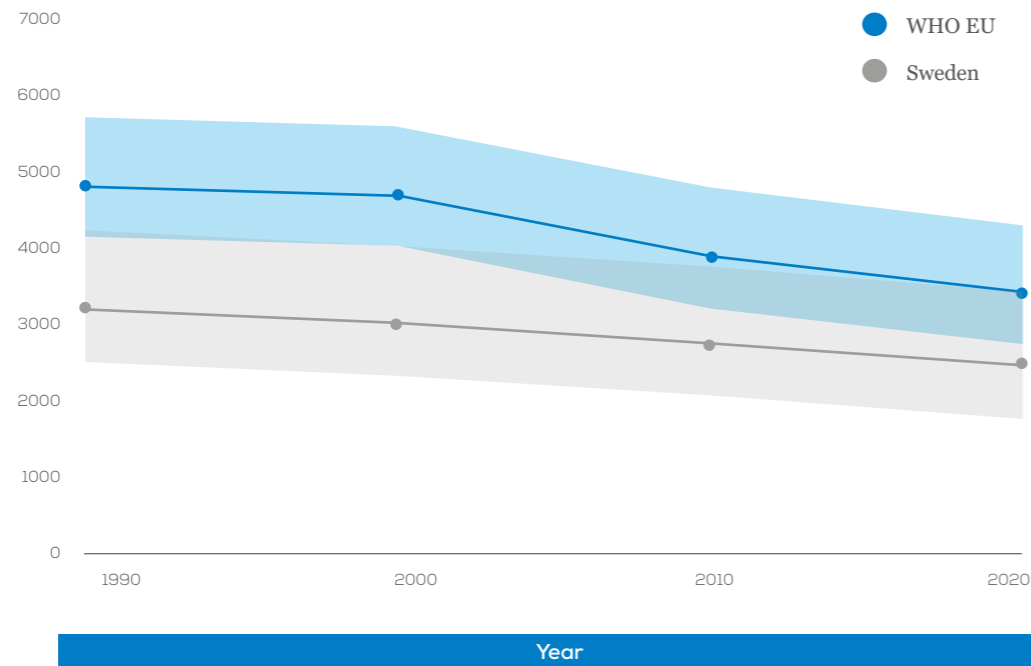


Figure 2: Age-Standardized DALYs per 100 000 population over the last 3 decades.

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

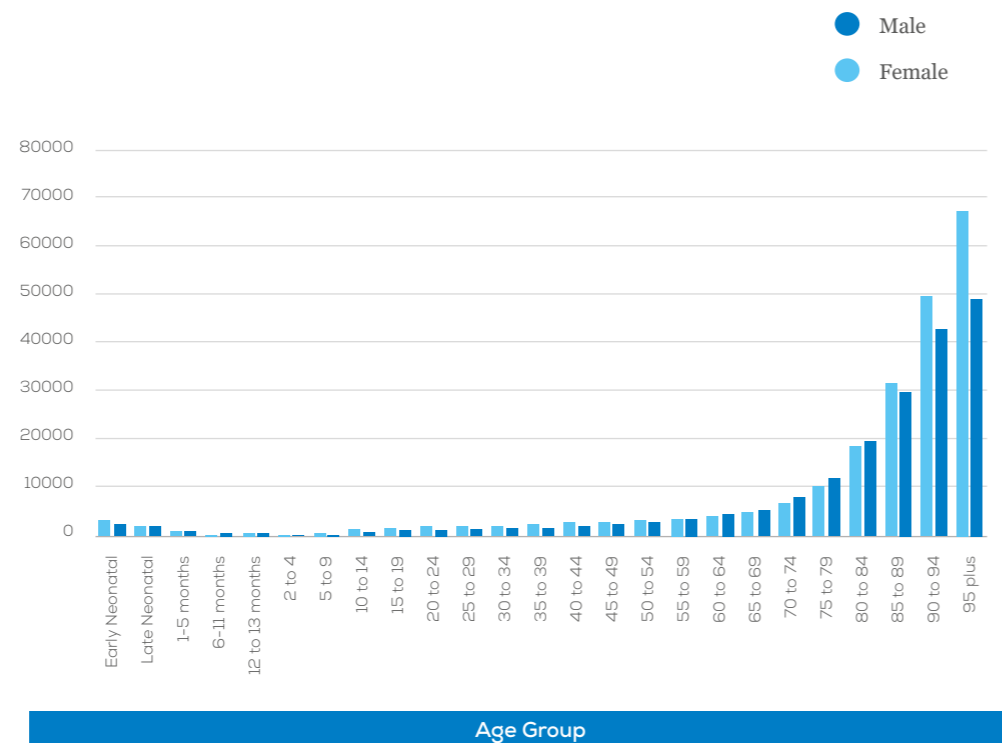


Figure 3: National DALYs per 100 000 population by age group and sex in 2021.

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 **Sweden** 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	47,789.8	8,201.5	1,953.4	37,634.9
Sleep disorders	8,346.4	3,859.4	-	4,487.1
Alzheimer's disease and other dementias	5,364.6	4,471.7	892.2	0.7
Stroke	1,292.0	1,025.5	194.2	72.2
Traumatic brain injury	881.0	340.8	206.0	334.2
Multiple sclerosis	841.0	563.6	70.5	206.9
Polyneuropathies	730.0	339.7	-	390.3
Parkinson's disease	247.6	194.6	39.7	13.3
Idiopathic epilepsy	163.4	35.2	-	128.2
Brain and central nervous system cancer	28.4	17.2	11.2	-
Motor neuron disease	28.0	16.0	8.6	3.5
Meningitis	5.2	5.2	-	-
Total Costs:	65,717.4	19,070.5	3,375.7	43,271.3

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.

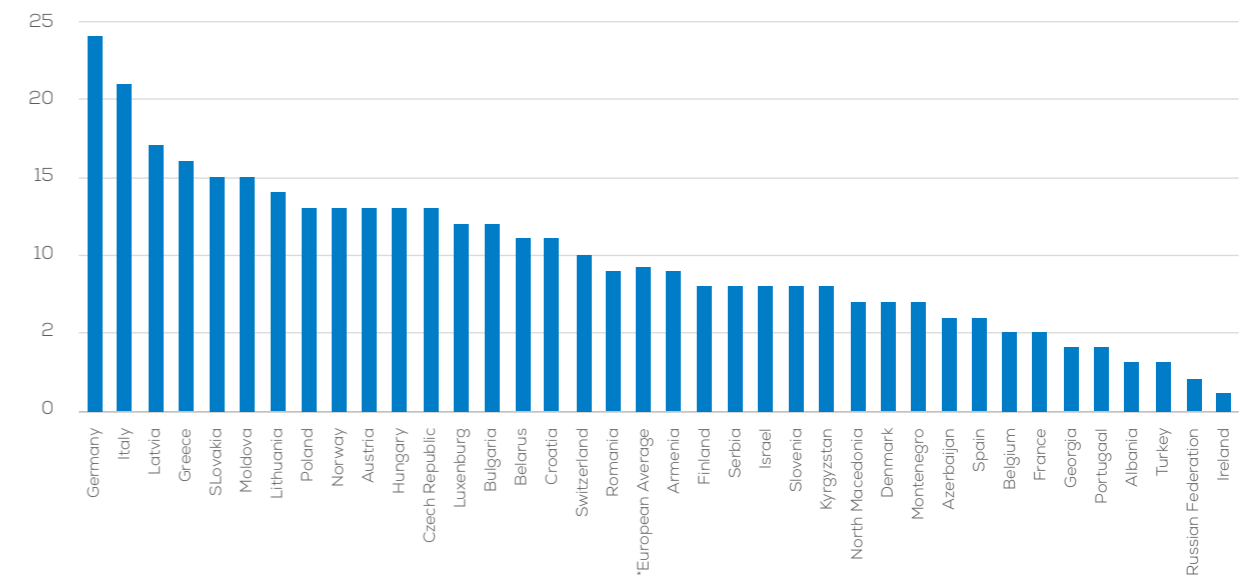


Figure 4: Number of neurologists (fully specialised and in training) per 100 000 population.

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

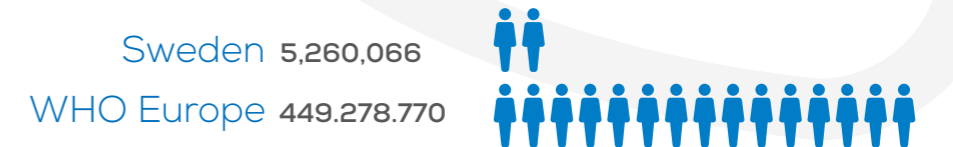
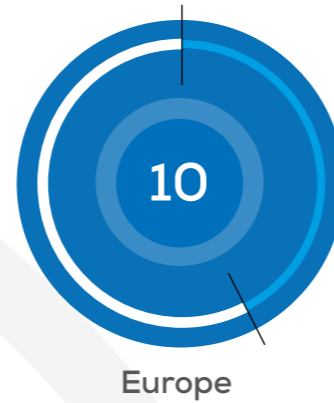


Figure 5: Number of patients per neurologist (fully specialised and in training).

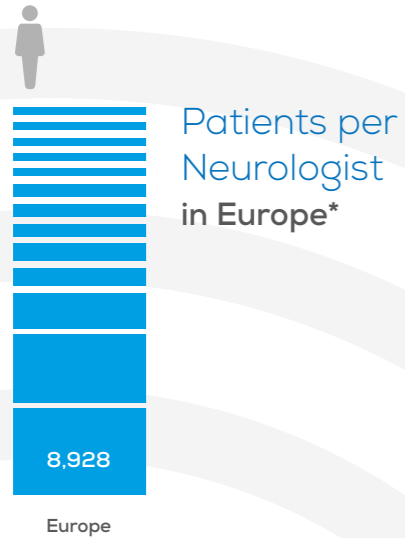
Neurological Diseases in Europe and Sweden:

Key Data and Trends from 2021

Neurologists per 100,000 population in Europe*

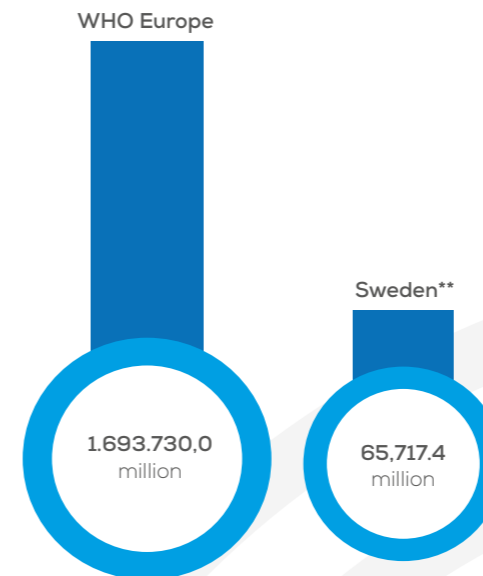


Number of patients with a neurological disease in 2021 in the WHO Europe and in Sweden.



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

	WHO Europe	vs	Sweden
DALYs	-28.98%		-23.83%
Deaths	-43.19%		-40.99%
Prevalence	0.34%		0.22%

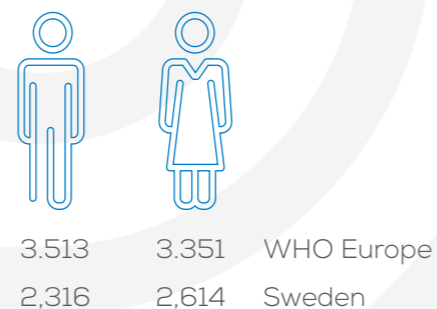


Annual total costs (in million € PPP 2019) for 12 major neurological diseases:

Most prevalent neurological diseases in Sweden in

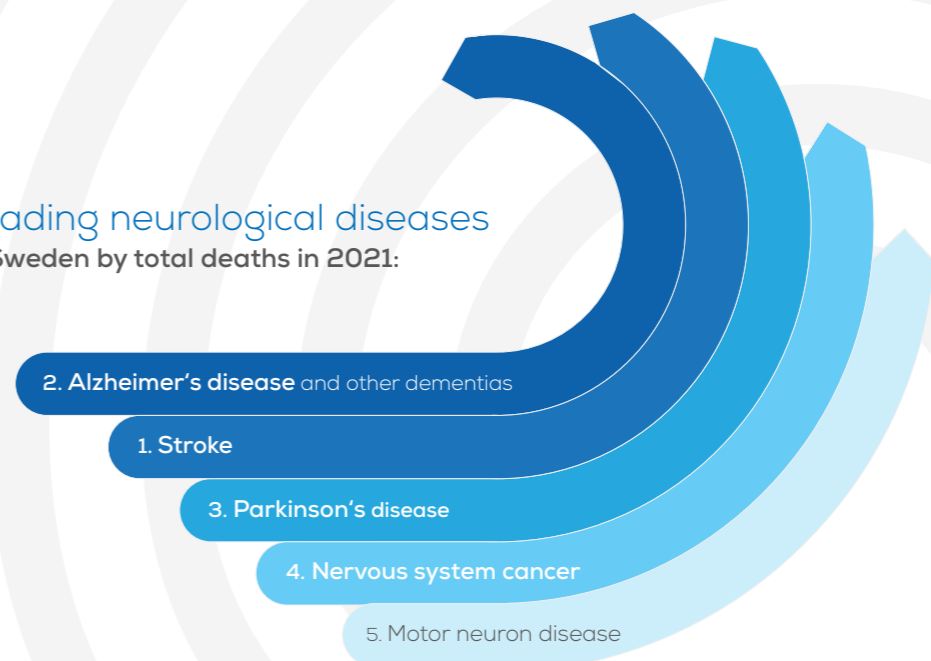
2021

- 1 Tension-type headache
- 2 Migraine
- 3 Diabetic neuropaty
- 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 Sweden 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.

