

# EAN Fact Sheet

Country profile of Belgium

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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)		Belgium	WHO Europe
	2021	1990	2021		
<b>All Neurological Disorders</b>					
DALYs	558,417	3,801	2,966	-21.9%	-29.0%
Deaths	20,132	128	69	-46.1%	-43.2%
Prevalence	6,053,461	47,029	48,247	2.6%	0.3%
YLDs	277,266	1,634	1,770	8.3%	2.9%
YLLs	281,121	2,166	1,196	-44.8%	-44.4%
<b>Alzheimer's disease and other dementias</b>					
DALYs	138,881	508	457	-9.9%	-2.5%
Deaths	8,825	29	26	-9.1%	-2.8%
Prevalence	198,767	788	694	-11.9%	-2.1%
YLDs	41,427	164	143	-12.9%	-2.6%
YLLs	97,454	344	315	-8.5%	-2.5%
<b>Chromosomal abnormalities</b>					
DALYs	799	9.07	9.26	2.1%	-12.3%
Prevalence	8,737	101	103	2.6%	-12.8%
YLDs	799	9.07	9.26	2.1%	-12.4%
<b>Covid-19 (neurological)</b>					
DALYs	2,552	-	19	-	-
Prevalence	25,736	-	189	-	-
YLDs	2,552	-	19	-	-
<b>Diabetic neuropathy</b>					
DALYs	53,686	138	270	95.1%	98.1%
Prevalence	431,353	1,099	2,151	95.7%	97.9%
YLDs	53,686	138	270	95.1%	98.1%
<b>Diabetic syndrome</b>					
DALYs	473	4.99	5.16	3.4%	-19.6%
Prevalence	5,108	55	57	3.2%	-20.7%
YLDs	473	4.99	5.16	3.3%	-19.8%

<b>Encephalitis</b>					
DALYs	1,478	8	12	41.3%	-30.1%
Deaths	53	0.17	0.28	68.1%	-15.9%
Prevalence	671	4.94	4.76	-3.6%	-13.6%
YLDs	67	0.52	0.51	-1.8%	-12.0%
YLLs	1,410	8	11	44.1%	-31.0%
<b>Epilepsy</b>					
DALYs	22,790	154	172	11.3%	-12.6%
Deaths	365	1.25	1.93	54.0%	3.9%
Prevalence	55,692	373	426	14.1%	3.3%
YLDs	12,954	100	99	-1.0%	-11.3%
YLLs	9,836	54	72	34.2%	-14.3%
<b>Guillain-Barre Syndrome</b>					
DALYs	76	0.52	0.52	0.2%	12.4%
Prevalence	258	1.76	1.76	0.3%	12.4%
YLDs	76	0.52	0.52	0.3%	12.4%
<b>Idiopathic intellectual disability</b>					
DALYs	1,331	17	13	-25.1%	-19.7%
Prevalence	28,104	362	274	-24.4%	-21.2%
YLDs	1,331	17	13	-25.1%	-19.7%
<b>Klinefelter syndrome</b>					
DALYs	8	0.04	0.04	4.9%	5.7%
Prevalence	577	6.03	6.44	6.8%	5.5%
YLDs	8	0.04	0.04	5.0%	5.5%

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Belgium	WHO Europe	
<b>Meningitis</b>						
DALYs	1,382	46	13	-71.0%	-80.5%	
Deaths	38	0.70	0.24	-65.8%	-75.4%	
Prevalence	2,039	43	16	-62.6%	-66.7%	
YLDs	167	4	1	-61.7%	-64.6%	
YLLs	1,215	42	12	-71.8%	-81.3%	
<b>Migraine</b>						
DALYs	94,015	749	800	6.8%	0.0%	
Prevalence	2,544,608	20,205	21,751	7.7%	0.3%	
YLDs	94,015	749	800	6.8%	0.0%	
<b>Motor neuron disease</b>						
DALYs	9,536	61.59	52.12	-15.4%	37.5%	
Deaths	395	2.54	1.83	-28.1%	54.1%	
Prevalence	1,836	9.28	10.22	10.2%	19.8%	
YLDs	387	1.97	2.16	9.8%	19.5%	
YLLs	9,148	59.62	49.95	-16.2%	38.5%	
<b>Multiple sclerosis</b>						
DALYs	7,314	39	45	16.2%	-5.0%	
Deaths	150	0.68	0.77	12.8%	-12.5%	
Prevalence	12,739	66	83	26.1%	26.4%	
YLDs	3,173	17	21	25.4%	25.5%	
YLLs	4,140	22	24	9.2%	-22.2%	
<b>Nervous system cancer</b>						
DALYs	24,731	209	164	-21.4%	-3.3%	
Deaths	864	6.00	4.58	-23.6%	10.8%	
Prevalence	5,745	37	44	17.7%	35.9%	
YLDs	637	4.08	4.28	5.1%	25.3%	
YLLs	24,094	205	160	-21.9%	-3.7%	

<b>Neurosyphilis</b>						
DALYs	5	0.05	0.03	-39.8%	-43.6%	
Prevalence	66	0.60	0.48	-20.6%	-11.7%	
YLDs	5	0.05	0.03	-39.8%	-43.4%	
<b>Other neurological disorders</b>						
DALYs	14,680	94	103	9.5%	25.8%	
Deaths	466	2.26	2.29	1.5%	45.0%	
YLDs	3,295	15	26	72.3%	62.9%	
YLLs	11,356	79	77	-2.5%	14.2%	
<b>Parkinson's disease</b>						
DALYs	22,456	79	84	5.6%	5.6%	
Deaths	1,306	4.52	4.45	-1.5%	4.0%	
Prevalence	36,420	103	142	38.6%	21.9%	
YLDs	5,066	15	20	37.5%	21.4%	
YLLs	17,391	65	64	-1.5%	2.0%	
<b>Spinal cord injury</b>						
DALYs	15,305	128	104	-18.8%	-26.9%	
Prevalence	56,219	454	374	-17.7%	-21.9%	
YLDs	15,305	128	104	-18.8%	-26.9%	
<b>Stroke</b>						
DALYs	127,024	1,408	511	-63.7%	-52.6%	
Deaths	7,669	80	26	-67.7%	-55.6%	
Prevalence	151,255	874	716	-18.1%	-19.2%	
YLDs	21,949	120	100	-16.8%	-18.9%	
YLLs	105,075	1,288	411	-68.1%	-55.3%	

	Counts (thousands)		Age-standardized rate (per 100 000 people)		Percentage change, 1990-2021	
	2021	1990	2021	Belgium	WHO Europe	
<b>Tension-type headache</b>						
DALYs	8,995	69.35	69.42	0.1%	-1.6%	
Prevalence	3,969,617	32,408	32,397	-0.03%	-0.8%	
YLDs	8,995	69.35	69.42	0.1%	-1.6%	
<b>Traumatic Brain Injury</b>						
DALYs	10,899	77	63	-17.9%	-28.2%	
Prevalence	83,438	578	477	-17.6%	-28.0%	
YLDs	10,899	77	63	-17.9%	-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.

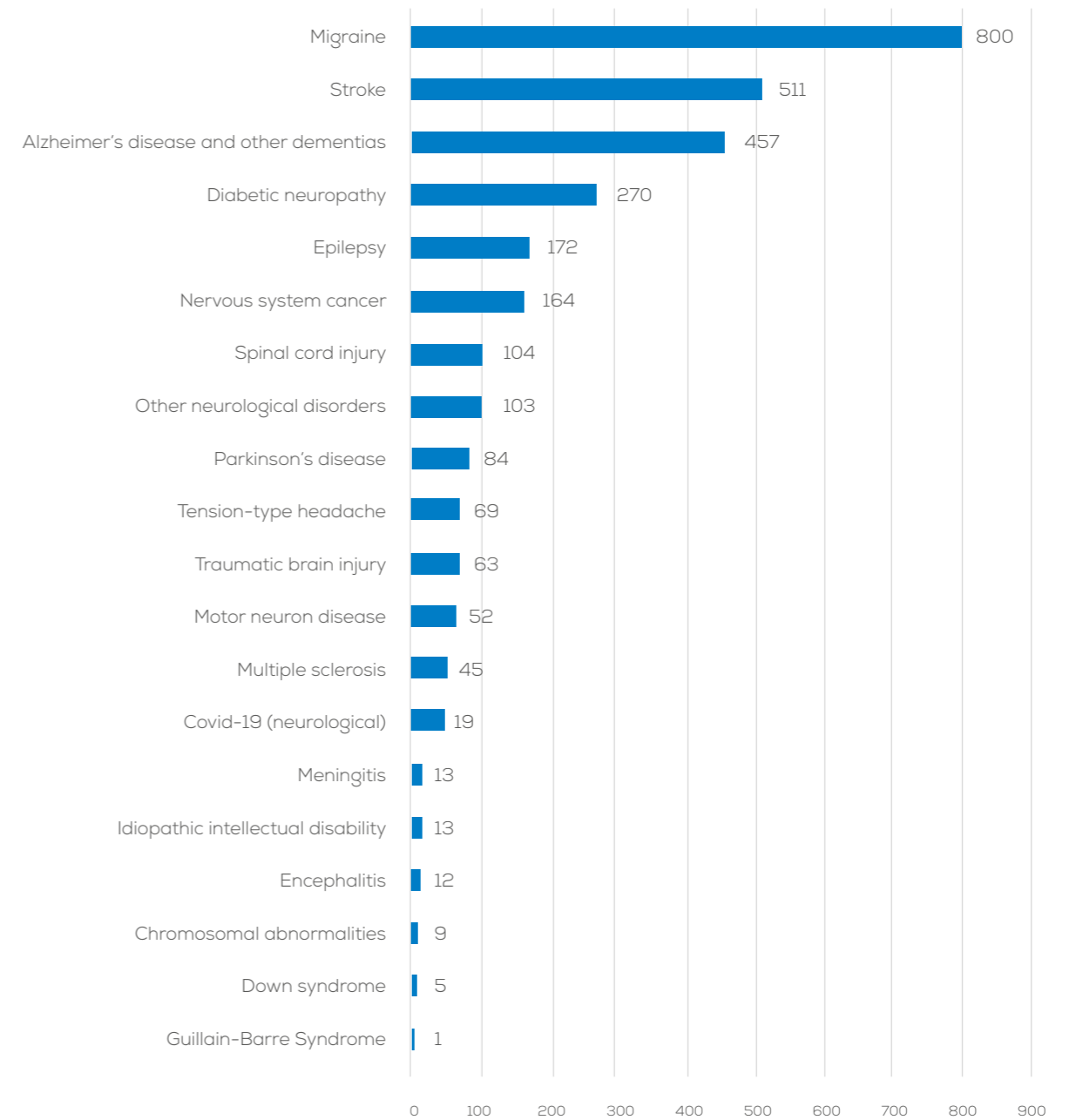


Figure 1: National age-standardised DALYs per 100 000 population by neurological disorder in 2021.

## DALYs per 100 000 population

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

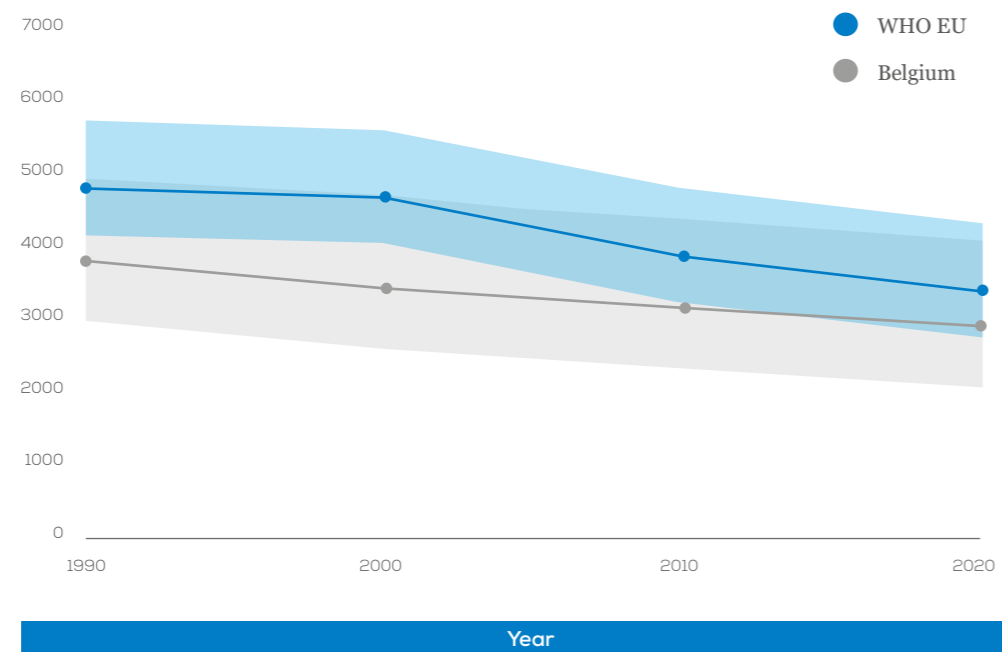


Figure 2: Age-Standardized DALYs per 100 000 population over the last 3 decades.

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

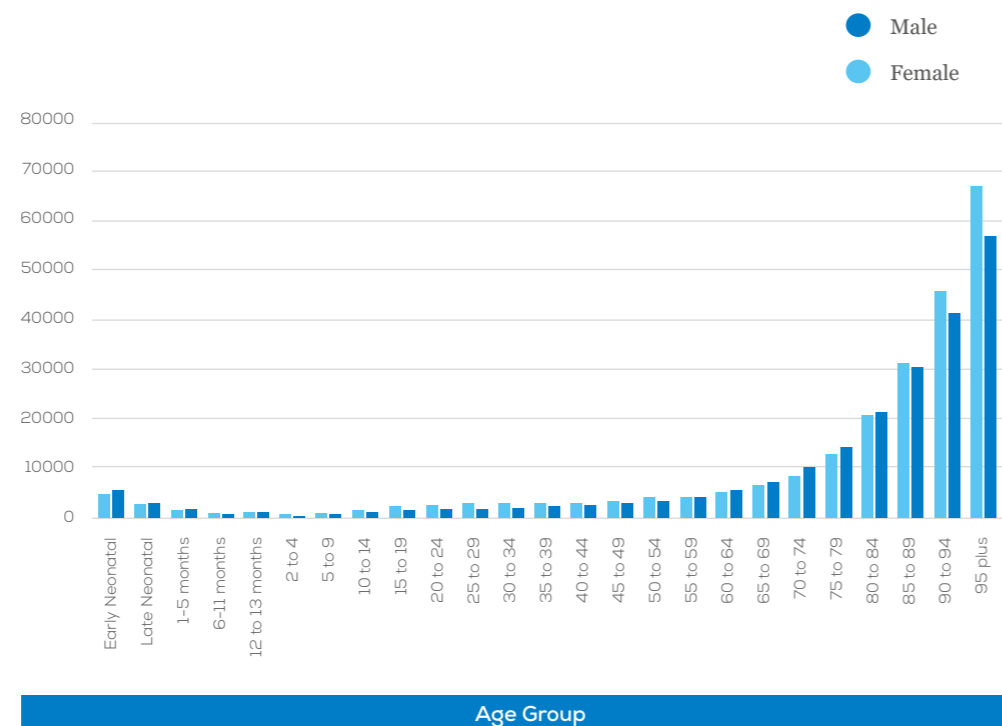


Figure 3: National DALYs per 100 000 population by age group and sex in 2021.

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 **Belgium** 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	15,394.6	6,104.4	2,213.6	7,076.6
Sleep disorders	9,325.7	4,288.4	-	5,037.3
Alzheimer's disease and other dementias	4,143.8	1,667.5	2,475.7	0.6
Stroke	1,584.2	651.1	571.8	361.3
Traumatic brain injury	1,508.8	623.7	321.6	563.5
Polyneuropathies	1,028.5	464.9	-	563.6
Multiple sclerosis	472.1	262.3	64.6	145.2
Idiopathic epilepsy	362.9	167.4	-	195.5
Parkinson's disease	327.8	218.9	88.0	20.9
Brain and central nervous system cancer	24.6	14.9	9.7	-
Motor neuron disease	24.5	14.0	7.5	3.1
Meningitis	4.3	4.3	-	-
<b>Total Costs:</b>	<b>34,201.7</b>	<b>14,481.7</b>	<b>5,752.5</b>	<b>13,967.5</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.

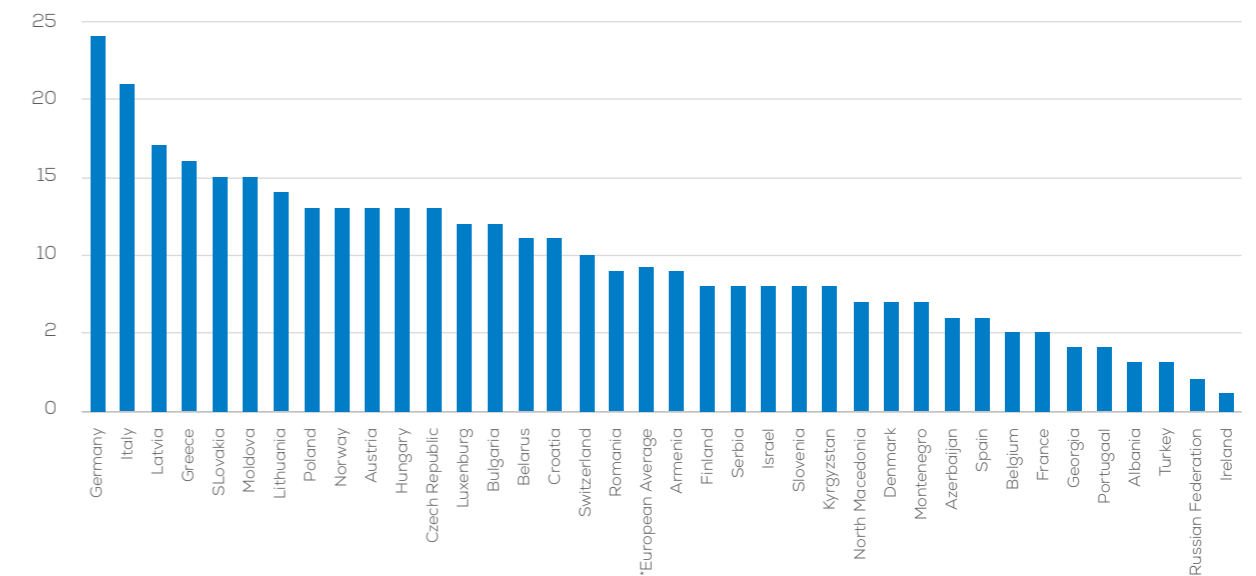


Figure 4: Number of neurologists (fully specialised and in training) per 100 000 population.

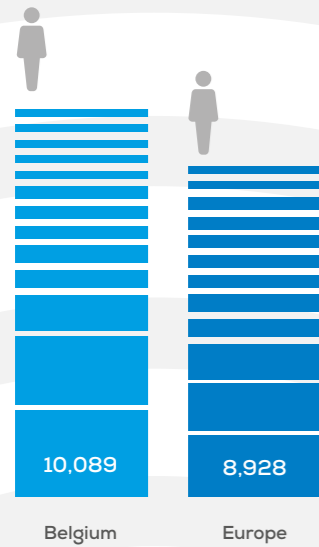
In the last figure the number of patients per neurologist is displayed:



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

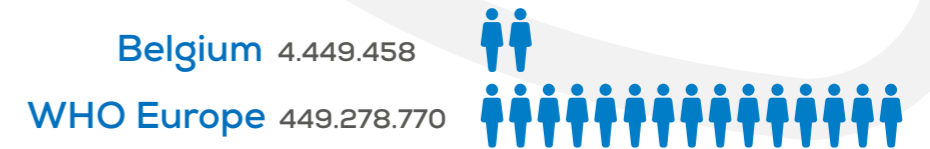
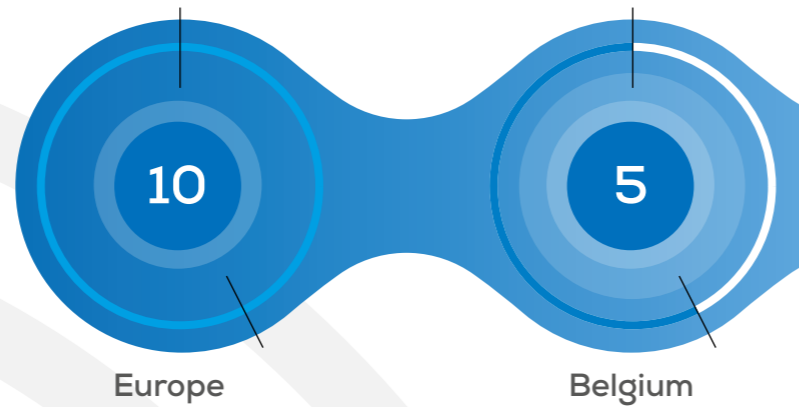
# Neurological Diseases in Europe and Belgium:

Key Data and Trends from 2021

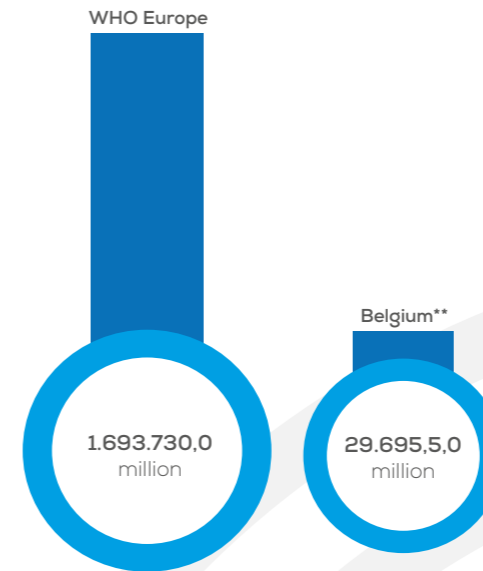


Patients per Neurologist in Europe\* and Belgium

Neurologists per 100,000 population in Europe\* and Belgium:



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



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

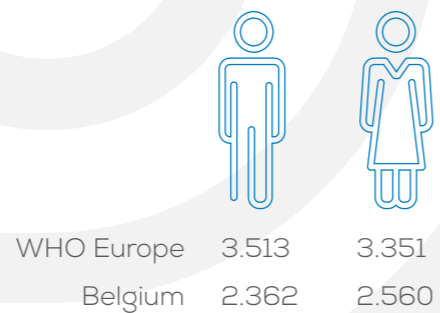
Most prevalent neurological diseases in Belgium in

# 2021

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

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

	WHO Europe	vs	Belgium
DALYs	-28.98%		-31.20%
Deaths	-43.19%		-53.51%
Prevalence	0.34%		0.30%



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

Leading neurological diseases in Belgium by total deaths in 2021:

1. Alzheimer's disease and other dementias
2. Stroke
3. Parkinson's disease
4. Nervous system cancer
5. Motor neuron disease

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

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

