

Metadata – Cerebrovascular diseases

Description	<p>Two indicators were considered:</p> <ol style="list-style-type: none"><i>Stroke prevalence</i>: the number of people who have reported suffering from stroke, expressed in percentage.<i>Stroke incidence</i>: the estimated number of all first events of stroke in a given year.
Rationale	<p>Cerebrovascular diseases (CVD) are one of the main causes of death and disability world-wide, except in lowest-income countries. CVD, of which stroke is the most common manifestation, refers to all diseases in which the blood vessels of the brain are primarily involved. Cerebrovascular diseases could lead to serious symptoms, although they can also be present without any acute symptoms. The current chapter will focus on the occurrence of stroke within Belgium, which includes ischemic and hemorrhagic stroke. An ischemic stroke occurs if an artery to the brain becomes occluded, while hemorrhagic stroke occurs if brain vessels rupture.</p> <p>Epidemiologic studies have identified many risk factors of stroke. The most important non-modifiable risk factors include higher age, low birth weight or genetic predisposition. Important modifiable risk factors include among others hypertension, high cholesterol levels, cardiac disease, diabetes, obesity and smoking. Hypertension is the most important modifiable risk factor for both ischemic and hemorrhagic stroke, as it is found to explain 35% of all occurrences [1].</p> <p>Stroke prevalence and stroke incidence are indicators allowing to monitor the extent of cerebrovascular disease in the population.</p>
Primary Data source	<ol style="list-style-type: none">The Sciensano Belgian Health Interview Survey (HIS) 1997-2004-2008-2013-2018<ol style="list-style-type: none">The hospital discharge data (“Minimum Hospital Summary”) 2016-2021The mortality data from Sciensano SPMA 20016-2021The population data from Sciensano SPMA 2016-2021
Indicator source	<ol style="list-style-type: none">Sciensano: Belgian HIS [2].<ol style="list-style-type: none">The Federal Public Service Health, Foodchain safety and Environment [3].Sciensano: Standardized Procedure for Mortality Analysis (SPMA) [4].
Periodicity	<ol style="list-style-type: none">Every 3-5 yearsAnnual
Calculation, technical definitions and limitations	<ol style="list-style-type: none"><i>Stroke prevalence</i>: the numerator is the number of persons reporting to suffer from stroke by answering “yes” to the following question in the HIS; the denominator is the number of respondents of the following question in the HIS (MA01): “Have you suffered from one of the following diseases or conditions during the past 12 months?” (a list of diseases or conditions is proposed). Results are weighted to account for the survey design. Age-adjustment was made using a direct standardization method, using the age distribution of the Belgium 2018 as weights for age groups.

Data must be interpreted with caution since they are self-reported and thus reflect individual perceptions of health that may differ from actual health: it is not excluded that some people report an illness incorrectly by lack of knowledge or because the disease is perceived as not socially acceptable.

- b) *Stroke incidence*: the number of stroke first events (2016-2021) was estimated by summing the hospital discharged data, i.e. the number of people with a first event of a primary diagnose of stroke who were discharged alive from the hospital (incidence per person) and the mortality data, i.e. the number of people deceased from a stroke in Belgium (in the hospital or not).

Stroke was defined using the WHO International Statistical Classification of Diseases (ICD) [5]:

- For the hospital discharge data: ICD-10 codes I60-I61-I62-I63-I64 (2016-2021)
- For the mortality data: ICD-10 codes I60-I61-I62-I63-I64.

The mid-year population 2016-2021 data from SPMA were used to calculate crude incidence rates per 100,000 population; there were also used as weights to compute age-adjusted rates per 100,000 population.

Several limitations can be pointed out:

- Hospital discharge data do not include patients with stroke who have stayed in the emergency department but were not subsequently hospitalized. This number, however, is estimated to be low.
- Mortality data were used to take into account people with stroke that died before reaching the hospital. But by summing the incidence per person (people with stroke discharged alive from the hospital) and the number of death due to stroke (in the hospital or not), people with stroke that were discharged alive and died later from a stroke may be counted twice. Although, there are probably not many people in that case.
- Hospital discharge data do not include foreign people. But mortality data and population data used to estimate the stroke incidence and to compute age-standardized rates do include foreign people, which lacks of consistency and could lead to an overestimation of the stroke incidence.

International comparability

- a) - Availability: stroke prevalence is an indicator being part of the Eurostat European Health Interview Survey (EHIS) [6] and in the WHO World Health Survey [7]
- Comparability: the self-reported prevalence of stroke indicator of EHIS data are not age-standardized, which can hamper the comparability since the prevalence of stroke increases strongly with age. The general coverage of the World Health Survey is the population aged 18 or over, unlike the EHIS or Belgian HIS in which the population included is aged 15 or over.
- b) - Availability: *stroke (incidence per person)* is an indicator available in the Eurostat Morbidity Statistics project [8]
- Comparability: hospitalization data and causes of death statistics were combined to produce the Eurostat stroke incidence per person, which allows comparability. However, few countries have used the combined method to produce stroke incidence estimates, which may hamper comparability.
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References List

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