

## **With Increased Risk Linked to Lifestyle Factors Stroke Remains a Leading Cause of Death Globally**

A group of researchers provided up-to-date global, regional, and national estimates of [stroke](#) burden and attributable risks from 1990 to 2021 to inform evidence-based health care and resource allocation.



### **Study**

The GBD 2021 study on stroke burden and [risk factors](#) employed established methodologies consistent with previous estimates.

Stroke was defined based on the [World Health Organisation](#) (WHO) clinical criteria and classified into three types: ischaemic stroke (Blocked blood flow to the brain), intracerebral hemorrhage (Bleeding within the brain), and subarachnoid hemorrhage (Bleeding between the brain and its covering).

Vital registration and surveillance data were used to produce independent models for each stroke type to ensure accurate modeling. Stroke incidence and prevalence were modeled using DisMod-MR 2.1, a Bayesian software that considers various [disease](#) parameters.

Death estimates were derived using [Cause of Death Ensemble modeling](#) (CODEm). The data for the analysis included a wide range of sources, including vital registration, verbal autopsy, and risk factor exposure data.

To assess stroke burden attributable to 23 risk factors, population attributable fractions (PAFs) of disability-adjusted life years (DALYs) were calculated. These factors were grouped into four categories: environmental, dietary, behavioral, and [metabolic risks](#).

The analysis also considered interactions between risk factors, accounting for [mediation effects](#) in the overall calculation.

The study utilized meta-regression techniques to pool relative risk data and estimate the potential reduction in stroke burden if exposure to risk factors had been at optimal levels. This comprehensive approach allowed for stratification of estimates by region, age, sex, and [Socio-demographic Index](#) (SDI).

### **Findings**

In 2021, global stroke statistics revealed 93.8 million [stroke survivors](#), 11.9 million new stroke cases, 7.3 million stroke-related deaths, and 160.5 million DALYs lost due to stroke, accounting for 10.7% of all deaths and 5.6% of total DALYs across all causes.

Stroke was the third leading cause of death, following ischemic heart disease and coronavirus disease 2019 (COVID-19), and the fourth leading cause of DALYs. The vast majority of stroke burden, including 83.3% of new strokes and 87.2% of [stroke deaths](#), occurred in low- and middle-income countries (LMICs), highlighting a stark geographical disparity.

Stroke burden varied widely across regions. For instance, [Luxembourg](#) had the lowest age-standardized stroke incidence (57.7 per 100,000), while the Solomon Islands had the highest (355.0 per 100,000).

Similarly, Singapore had the lowest death rate from stroke (14.2 per 100,000), whereas North Macedonia had the highest (277.4 per 100,000). Substantial differences in stroke burden were observed between high-income and low-income regions, with Central Asia, East Asia, and Sub-Saharan Africa facing the highest [stroke burden](#). In contrast, high-income regions like North America and Australasia saw the lowest.

Regarding pathological stroke types, ischemic stroke was the most common, accounting for 65.3% of all new strokes in 2021, followed by intracerebral hemorrhage (28.8%) and subarachnoid hemorrhage (5.8%). However, despite [ischemic stroke](#) being the most prevalent, intracerebral hemorrhage contributed a higher percentage of total DALYs (49.6%) compared to ischemic stroke (43.8%).

Subarachnoid hemorrhage caused 6.6% of all stroke-related DALYs. These types also displayed distinct geographic and socioeconomic trends. For example, ischemic strokes constituted 74.9% of new strokes in [high-income countries](#) but only 63.4% in LMICs, where intracerebral hemorrhage was more common.

From 1990 to 2021, age-standardized stroke incidence, prevalence, mortality, and [DALY rates](#) declined globally, with the most significant reductions occurring among those aged 70 and older.

However, the number of strokes, deaths, and DALYs increased during this period due to population growth and [aging](#). Stroke incidence among those younger than 70 also showed a rising trend. In recent years, the decline in stroke incidence has slowed, particularly since 2015, with some regions experiencing a plateau or even an increase in rates.

## **Conclusion**

To summarize, in 2021, stroke was the second leading cause of death and the third leading cause of DALYs among non-communicable disorders globally. Stroke burden was disproportionately higher in LMICs and regions with lower SDI, with [intracerebral hemorrhage](#) occurring nearly twice as often in LMICs compared to high-income countries.

This disparity is likely due to the higher prevalence and poorer control of [hypertension](#) in LMICs. Although there has been a global reduction in age-standardized stroke rates since 1990, the incidence, prevalence, and DALYs have increased in Southeast Asia, east Asia, and Oceania since 2015.

**Source:**

<https://www.news-medical.net/news/20241004/Stroke-remains-a-leading-cause-of-death-globally-with-increased-risk-linked-to-lifestyle-factors.aspx>