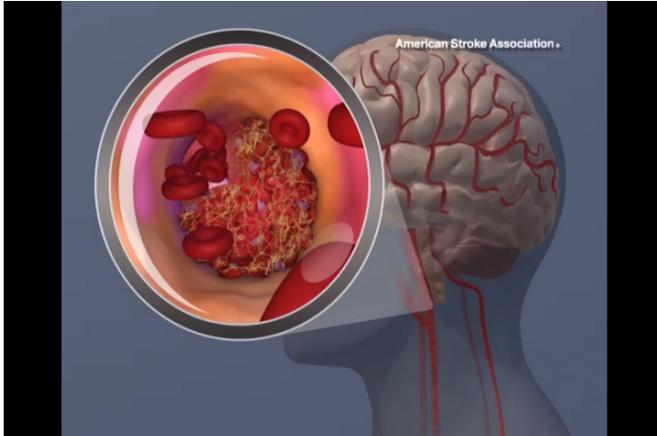


New study reveals 'startling' risk of stroke

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A blood clot forming in the carotid artery. Credit: copyright American Heart Association

Globally, one in four people over age 25 is at risk for stroke during their lifetime, according to a new scientific study.

Researchers found a nearly five-fold difference in lifetime stroke risk worldwide, with the [highest risk](#) in East Asia and Central and Eastern Europe, and lowest in sub-Saharan Africa. The lifetime stroke risk for 25-year-olds in 2016 ranged from 8% to 39%, depending on where they live; people in China have the highest risk.

"Our findings are startling," said Dr. Gregory Roth, Assistant Professor of Health Metrics Sciences at the Institute for Health Metrics and Evaluation (IHME) at the University of Washington, and senior author on the study. "It is imperative that physicians warn their patients about preventing strokes and other vascular diseases at earlier points in patients' lives. We found extremely high lifetime risk for stroke, and based on other research we evaluated, it is clear that [younger adults](#) need to think about long-term health risks. They can make a real difference by eating healthier diets, exercising regularly, and avoiding tobacco and alcohol." The studies and additional

information are available at <http://www.healthdata.org>.

The study, "Global, Regional, and Country-Specific Lifetime Risks of Stroke, 1990-2016," was published today in *The New England Journal of Medicine*.

Using estimates from the Global Burden of Disease study (GBD), researchers developed a new summary measure that combines one's risk of having a stroke and surviving, with suffering a stroke and dying. For the first time, the study estimates lifetime stroke risk starting at age 25, whereas previous studies begin at age 45.

The authors analyzed the lifetime risk of first-ever stroke, categorized by subtype—ischemic and hemorrhagic stroke. They did not assess the lifetime risk of recurring stroke, pediatric stroke, or transient ischemic attack (TIA), commonly known as "mini-stroke," which does not result in permanent brain damage. Findings cover 1990 to 2016 in 195 countries and territories by age and sex.

The findings expose large geographic variations. In 2016, the three regions with the highest estimated lifetime risk of stroke were East Asia (38.8%), Central Europe (31.7%), and Eastern Europe (31.6%); the region with the lowest risk was eastern sub-Saharan Africa (11.8%).

"The lower risk of lifetime stroke in sub-Saharan Africa does not necessarily represent a lower incidence of stroke or more effective prevention and treatment strategies," said Roth. "On the contrary, people there are merely at higher risk of dying of another cause first."

The burden of stroke among adults is largely dependent on modifiable risk factors and the characteristics of health systems. Therefore, the study's findings may be useful for long-term planning, especially in terms of prevention and public education.

Nations' ministers of health and other policymakers need to develop programs encouraging young adults to eat healthier diets with more fruit, vegetables, and whole grains, as well as avoid tobacco and alcohol, and increase physical activity and maintain a healthy weight, Roth said. They also should advocate for lower prices of medications that control high blood pressure and cholesterol.

"This important paper provides reliable data on current lifetime risks across the world for different types of stroke, as well as providing countries with valuable insights into the burden of stroke," said Dr. Peter Rothwell, Head of the Centre for the Prevention of Stroke and Dementia and Professor of Clinical Neurology at the University of Oxford. "These data and insights can be used to prioritize and target strategies for prevention. I hope this important work will be continued so that these trends can be mapped in future decades."

Additional findings include:

- The estimated global lifetime risk of stroke—an average of widely varying rates around the world—from age 25 onward was 24.9% in 2016.
 - Broken out by stroke subtype, the global lifetime risk of ischemic stroke was 18.3% and the risk of hemorrhagic stroke 8.2%. Ischemic stroke occurs when an obstruction within a blood vessel prevents blood supply to the brain, whereas hemorrhagic stroke occurs when a weakened blood vessel ruptures.
- The greatest increases in lifetime stroke risk between 1990 and 2016 were found in East Asia, South Asia, Southeast Asia, eastern sub-Saharan Africa, Central Europe, western sub-Saharan Africa, and North Africa and the Middle East.
 - Conversely, the risk in Central Asia, southern and tropical Latin America, high-income Asia-Pacific, and southern sub-Saharan Africa decreased substantially over the same time period.
- Despite no significant difference in global risk of lifetime stroke between men and women in 2016, the findings revealed substantial regional and country-level variation by sex.
 - Among 21 regions, the highest lifetime risk among men was in East Asia (40.6%), whereas the highest lifetime risks among women were in Eastern Europe (36.5%) and East Asia (36.3%).
 - The greatest risk among men, at 41.1%, was in China; the greatest risk among women, at 41.7%, was in Latvia.

Countries with highest lifetime [stroke](#) risk for individuals beginning at age 25:

1. China: 39.3%
2. Latvia: 37.0%
3. Romania: 36.2%
4. Montenegro: 36.0%
5. Bosnia and Herzegovina: 35.7%
6. Macedonia: 35.2%
7. Serbia: 33.8%
8. Bulgaria: 33.4%
9. Albania: 33.4%
10. Croatia: 33.0%

More information: *New England Journal of Medicine* (2018). [DOI: 10.1056/NEJMoa1804492](https://doi.org/10.1056/NEJMoa1804492)

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