

Incidence of stroke in the elderly has dropped by 40 percent over the last 20 years

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A new analysis of data from 1988-2008 has revealed a 40% decrease in the incidence of stroke in Medicare patients 65 years of age and older. This decline is greater than anticipated considering this population's risk factors for stroke, and applies to both ischemic and hemorrhagic strokes. Investigators also found death resulting from stroke declined during the same period. Their findings are published in the July issue of *The American Journal of Medicine*.

Preventable but deadly, [stroke](#) is the fourth leading cause of mortality in the United States, with approximately 795,000 strokes occurring each year. Beyond the impact on patients, treatment and after care place high demands on doctors and health care facilities. With an aging population reaching Medicare age, deconstructing and studying stroke statistics are important for understanding the causes underlying this downward trend, benefiting both patients and providers.

"Shedding light on trends in the burden of stroke among Medicare beneficiaries may provide important information for policy purposes, including describing the past and current scope of the condition, assessing the potential effect of stroke prevention interventions on a national level, and identifying areas where resources can be targeted more specifically and effectively," says lead investigator Margaret C. Fang, MD, MPH, an Associate Professor of Medicine at the University of California San Francisco School of Medicine, who also serves as the Medical Director of the UCSF Anticoagulation Clinic.

The study was constructed to analyze stroke cases over the past two decades, not to investigate causation; however, researchers did find evolving patterns in the risk factors associated with strokes. Although the prevalence of diabetes mellitus increased over time, other [risk factors](#), such as cigarette smoking, measured systolic blood pressure, and total cholesterol values, decreased.

The decline in stroke rates paralleled increasing use of antihypertensive and statin medications and might explain the reduction in stroke rates. "Antihypertensive medications reduce the risk of stroke by approximately 32% and statins by approximately 21%. Stroke rates seem to decrease most sharply after year 1998, approximately when statin use became more prevalent," explains Dr. Fang. "If true, then this illustrates how medical interventions have resulted in significant improvements in health on a population level."

Investigators analyzed occurrence [data](#) from a sample of Medicare patients diagnosed as having suffered a stroke. Risk factors such as high blood pressure, diabetes, smoking status, and high lipid levels were gathered from the National Health and Nutrition Examination Survey (NHANES). The Medicare Current Beneficiary Survey was used to determine medication use.

The team identified more than one million stroke events from 1988 to 2008, of which 87.3% were ischemic and 12.7% hemorrhagic strokes. The analysis showed a reduction in ischemic strokes from 927 per 100,000 in 1988 to just 545 per 100,000 in 2008. Hemorrhagic strokes decreased from 112 per 100,000 to 94 per 100,000 over the same time period, primarily among men.

Data indicated that stroke mortality also declined. The risk-adjusted 30-day mortality rate for ischemic strokes fell from 15.9% in 1988 to 12.7% in 2008. For hemorrhagic stroke, the mortality rates declined

slightly from 44.7% in 1988 to 39.3% in 2008.

Dr. Fang notes that "Our analysis confirms the continuing and devastating effect of [hemorrhagic stroke](#), but was unable to assess for casual factors influencing mortality rates; relatively few interventions have been shown to reduce stroke-related mortality. Timely administration of intravenous thrombolytics is associated with more favorable outcomes from [ischemic stroke](#), but has not been shown to have significant effects on mortality. In addition, the rate of thrombolytic administration continues to be low in the United States."

More information: "Trends in Stroke Rates, Risk, and Outcomes in the United States, 1988 to 2008," by Margaret C. Fang, MD, MPH, Marcelo Coca Perrillon, MA, Kaushik Ghosh, PhD, David M. Cutler, PhD, Allison B. Rosen, MD, MPH, ScD (DOI: [dx.doi.org/10.1016/j.amjmed.2014.03.017](https://doi.org/10.1016/j.amjmed.2014.03.017)) appears in *The American Journal of Medicine*, Volume 127/Issue 7 (July 2014)

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