

# Deaths from heart disease and stroke could rise unless countries address risk factors

September 29 2015

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Micrograph showing cortical pseudolaminar necrosis, a finding seen in strokes on medical imaging and at autopsy. H&E-LFB stain. Credit: Nephron/Wikipedia

Over the next decade, early deaths from cardiovascular disease are expected to climb from 5.9 million in 2013 to 7.8 million in 2025 - according to the first-ever forecasting analysis for heart disease from the Global Burden of Disease project.

As a result, many United Nations member states will not meet targets set in 2013 as part of a global action plan to address [non-communicable diseases](#), which includes reducing [premature deaths](#) from cardiovascular disease by 25% by 2025. Cardiovascular diseases, the leading cause of premature death in the world, include heart attacks, strokes, and other heart and circulatory diseases.

The UN target is achievable for some countries, including the US, but only by addressing trends related to risk factors such as high blood pressure, tobacco use, obesity, and diabetes.

If current trends continue, many of the world's most populous countries - including China, India, Russia, Mexico, and Ethiopia - would see no improvement in premature mortality due to [heart disease](#) and stroke. Southeast Asia, East Asia, and South Asia would account for 60% of these deaths. Premature deaths from cardiovascular disease would rise in some countries in Africa, Eastern Europe, and Central Asia. Countries such as the US, Brazil, and South Africa would see declines in premature mortality from cardiovascular disease but not enough to meet the UN goal of a 25% reduction.

Published in the journal *Circulation* on September 29, the study, "Estimates of global and regional premature cardiovascular mortality in 2025," was conducted by a global collaborative network of researchers led by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington. The study is the first by IHME to forecast health trends.

"We can clearly see what needs to be done over the next decade to reduce cardiovascular death worldwide," said Dr. Gregory Roth, Assistant Professor at IHME and the Division of Cardiology at the University of Washington. "To have the greatest impact, we need to focus on the leading risk factors in each country. For most, that means

healthier diets, more exercise, quitting tobacco, and less binge drinking of alcohol. But it also means investing in high-quality primary care and hospitals because many treatments for heart disease work well and can make a real difference."

Researchers outlined future scenarios for early deaths from cardiovascular disease depending on how trends for hypertension, tobacco smoking, diabetes, and obesity may change by 2025.

Scenarios examine changes that would result from progress made in addressing risk factors individually or together. Reducing hypertension prevalence would yield the greatest benefit in decreasing premature mortality from cardiovascular disease in most countries globally, followed by less tobacco smoking. For a smaller group of countries, reducing obesity would have the greatest impact.

These countries include the US, Canada, Australia, and New Zealand. For men in high-income Asia Pacific, which includes countries such as Japan and South Korea, and women in tropical Latin America, which includes Brazil and Paraguay, reducing obesity also would have the greatest impact. Smoking reductions would have the greatest impact for men in the Middle East and North Africa, which includes countries such as Saudi Arabia, Lebanon, and Jordan; men in central sub-Saharan Africa; and women in Western Europe and the high-income Asia Pacific region.

Globally, the outlook for premature mortality changes dramatically if targets for all the risk factors studied are met, but gains would not be shared equally around the world. In this scenario where all the risk factor targets are achieved, the number of projected premature deaths from cardiovascular disease would drop to 5.7 million in 2025 instead of 7.8 million, due to a 26% reduction for men and a 23% reduction for women. Despite the projected decrease in the number of deaths globally,

many countries would still not meet the 25% reduction target. At the same time, some countries - including the US, Brazil, China, Vietnam, and Iran - would exceed this goal.

Change would vary by region if these risk factor targets are all met, ranging from an increase of 1% for men in central sub-Saharan Africa, which includes countries such as Angola and the Central African Republic, to as much as a 53% reduction for women in East Asia, which includes countries such as China and North Korea. Some countries in the high-income Asia Pacific region, as well as certain countries in Western and Central Europe would see greater reductions in premature mortality from cardiovascular disease beyond the 25% target. The regional variation in high-, middle- and low-income countries reveals that even in addressing hypertension, diabetes, smoking, and obesity, country-specific approaches will be most effective in reducing [premature mortality](#) from cardiovascular disease.

"Countries need to select policies focused on both prevention and treatment of [cardiovascular disease](#)," said IHME Director Dr. Christopher Murray. "Using the best available data now can help us make decisions that will impact future trends."

**More information:** *Circulation*, [www.healthdata.org/research-articulate-mortality-2025](http://www.healthdata.org/research-articulate-mortality-2025)

Provided by Institute for Health Metrics and Evaluation

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