Deaths from cardiovascular disease increase globally while mortality rates decrease

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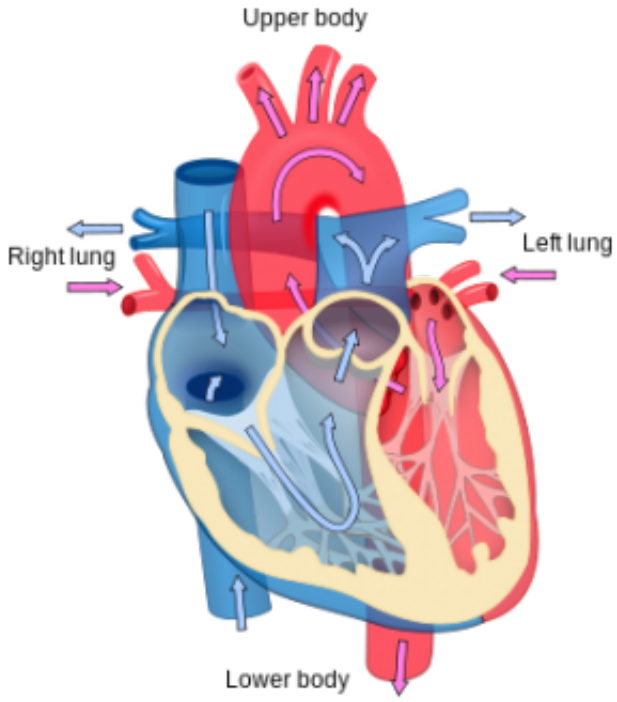

Heart diagram. Credit: Wikipedia

As the global population pushes past 7 billion and more people reach old age, the number of deaths from cardiovascular diseases is on the rise. Cardiovascular diseases, the leading cause of premature death in the world, include heart attacks, strokes, and other circulatory diseases.

At the same time, efforts to prevent and treat cardiovascular diseases

appear to be working as the rise in deaths is slower than the overall growth of the population.

Globally, the number of deaths due to cardiovascular diseases increased by 41% between 1990 and 2013, climbing from 12.3 million deaths to 17.3 million deaths. Over the same period, death rates within specific age groups dropped by 39%, according to an analysis of data from 188 countries. Death rates from cardiovascular diseases were steady or fell in every region of the world except western sub-Saharan Africa, where the rates increased.

Published in *The New England Journal of Medicine* on April 2, the study, "Demographic and Epidemiologic Drivers of Global Cardiovascular Mortality," was conducted by researchers led by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington.

Progress in fighting cardiovascular diseases is evident around the world but varies by region. South Asia, which includes India, experienced the largest jump in total deaths due to cardiovascular diseases, with 1.8 million more deaths in 2013 than in 1990 - an increase of 97%. In line with global trends, the increase in deaths from cardiovascular disease in India is driven by population growth and aging without the decrease in age-specific death rates found in many other countries.

This pattern is reversed to some extent in the Middle East and North Africa, which includes countries such as Saudi Arabia, Lebanon, and Jordan. In these regions, population growth and aging have been offset by a significant decline in age-specific death rates from cardiovascular disease, which has kept the increase in deaths to just under 50%. East Asia experienced a similar rise of almost 50%, 1.2 million additional deaths, because declines in the risk of cardiovascular diseases offset the effect of a rapidly aging population.

Taken together as a region, the United States and Canada were among a small number of places with no detectable change in the number of deaths from cardiovascular diseases, because aging and population growth balanced out declines in age-specific death rates. The same was true in southern Latin America, including Argentina and Chile, as well as Australia and New Zealand.

Two regions— central Europe and western Europe—have managed to do what their global peers have not by significantly reducing not only the death rates but also the total number of deaths from cardiovascular diseases, which fell by 5.2% and 12.8%, respectively, between 1990 and 2013. When looking at cardiovascular death rates, the high-income Asia Pacific region, which includes Japan, achieved the greatest decline globally.

"Cardiovascular diseases will remain a global threat as the population grows and people age," said Dr. Gregory Roth, Assistant Professor at IHME from the Division of Cardiology at the University of Washington. "But the progress seen in some regions shows that reducing the toll of cardiovascular diseases is possible."

Researchers found that population aging contributed to an estimated 55% increase in cardiovascular disease deaths globally, and population growth contributed to a 25% increase. These demographic factors are not the only drivers behind the trend of increasing deaths and falling death rates. Changes in the epidemiology of cardiovascular diseases is another factor.

Ischemic heart disease is both the leading cause of death worldwide and accounts for almost half of the increase in the number of cardiovascular deaths, despite a 34% decrease in age-specific death rates. Several other types of cardiovascular causes of death followed the same pattern, including aortic aneurysm, hypertensive heart diseases, and endocarditis,

among others.

Two conditions that were exceptions to this pattern are atrial fibrillation and peripheral vascular disease, for which deaths have jumped significantly since 1990, due to both higher death rates within specific age groups as well as general aging and population growth.

Only rheumatic heart disease, which had a death rate decrease of more than 100%, had a lower number of total deaths in 2013 than in 1990; deaths fell by an estimated 27% over the 23-year period of the study.

Researchers also examined whether wealthier countries fared better than lower-income countries when it comes to cardiovascular deaths and found there was not a strong correlation between income per capita and lower age-specific death rates. The dramatic improvement in the death rates seen in some regions was attributed to prevention and treatment of cardiovascular diseases, in part by reducing risk factors including smoking. Primary care management of other risk factors for cardiovascular diseases, such as elevated blood pressure and blood sugar, are also important.

"Addressing the range of factors that contribute to cardiovascular disease will help ensure that fewer people around the world die from it prematurely," said IHME Director Dr. Christopher Murray. "Investments and policies aimed at targeting preventable risk factors can reduce the impact of cardiovascular disease."

More information: *The New England Journal of Medicine*, www.nejm.org/doi/full/10.1056/ … Moa1406656#t=article

Provided by Institute for Health Metrics and Evaluation