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A better way to measure mortality trends?

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A new study from Cleveland Clinic suggests long-term mortality trends may be better understood by focusing on life-years lost—remaining life expectancy for a decedent—instead of solely looking at cause of death.

The research published today in the *American Journal of Public Health*, calculated years of life lost to the top 15 causes of death in the United States between 1995 and 2015 (examining more than 2 million death certificates each year), compared it to the number of deaths and examined reasons for differences.

"Focusing on life-years provides perspective on the societal burden of disease and highlights the disparities in disease burden," said Glen Taksler, Ph.D., Cleveland Clinic researcher and lead author of the study. "Reordering mortality by life-years lost paints a more complete picture of changing mortality and its distribution across various populations."

As an example, researchers concluded that, although heart disease is the leading cause-of-death overall, other conditions, such as cancer, caused more life-years lost. In 2015, heart disease caused 6 percent more deaths than cancer—635,310 compared to 596,730—but cancer caused 23 percent more life-years lost (9,260,413 for cancer compared to 7,529,750 for heart disease), because cancer is more common in young and middle-aged adults.

This analysis also highlights the differential success in treating heart disease and cancer. Improvements in primary and secondary prevention for atherosclerotic coronary artery disease, coupled with better acute

treatments such as primary angioplasty and stenting, have led to a 42 percent reduction in years of life lost to acute myocardial infarction since 1995.

In contrast to the gains in heart disease, years of life lost to cancer increased 16 percent from 1995 to 2015. This was mostly because of growth in the number of middle-aged Americans. Life-years lost only declined for six types of cancer, highlighting the need to target cures for the least survivable cancers to achieve population-level gains.

Conditions that disproportionately affect young people appeared more prominently when measured by life-years lost. For example, highlighting the growing epidemic of drug overdoses, the entire gains of the past 20 years in preventing and treating HIV were offset by the increase in life-years lost to accidental deaths.

Racial disparities were also studied. Progress in heart disease was mostly limited to whites; life-years lost increased 20.8 percent for black males and 3.5 percent for black females, attributable to increased population size and life expectancy for young and middle-aged minorities.

The researchers noted that life-years lost was not a new concept but had rarely been used to assess long-term mortality trends for all leading causes of death.

"Looking at mortality trends through life-years lost tells us that future progress in prevention and treatment of chronic heart conditions, cancers and addictions appear critically important," said Dr. Taksler. "We believe this thinking can best inform policymakers to prioritize research funding and measure progress toward mortality reduction on the basis of disease burden."

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Provided by Cleveland Clinic

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