Ischemic heart disease (IHD) was responsible for 8.1 million deaths in 2013 (95% uncertainty interval, 7.3–8.8 million), the most recent year estimated, which was 14.8% of deaths worldwide (95% uncertainty interval, 13.4%–15.8%). IHD was the leading cause of death globally among men and women in both 1990 and 2013. In 2013, it was responsible for nearly half of all deaths from cardiovascular disease, causing as many deaths as chronic obstructive pulmonary disease, diabetes mellitus, cirrhosis, lung cancer, and liver cancer combined. There was an increase of 42% (95% uncertainty interval, 36%–48%) in the number of IHD deaths since 1990. The number of men dying from IHD was consistently higher than the number of women during this time period, and there was a larger relative increase in IHD deaths among men than among women. However, IHD is responsible for a slightly higher percentage of deaths among women than among men (15.3% versus 14.4%) because of significantly more IHD deaths among women aged ≥80 years.

The countries reporting the highest age-standardized rates of IHD mortality are primarily in Central Asia and Eastern Europe, but countries in South Asia have seen substantial increases in age-standardized IHD mortality rates during the past 2 decades. In marked contrast, high-income countries have reported sharp decreases in age-standardized mortality rates. High-income regions saw decline in mortality rates by as much as ≥50% between 1990 and 2013 and now account for some of the lowest IHD mortality rates in the world. Age-standardized death rates are also lower in most of sub-Saharan Africa; however, much of this region saw one of the highest relative increases in age-standardized mortality between 1990 and 2013. At the country level, the upper and lower extremes of IHD mortality rates vary by an order of magnitude: in Belarus, age-standardized mortality rates among men exceeded 600 per 100,000 in 2013; however, women in Japan had a mortality rate of 31 per 100,000 in 2013.

**Method**

The Global Burden of Disease Study 2013 produced consistent measures of death by age and sex for 188 countries for the years 1990 to 2013 for 240 causes of death. Detailed methods and results have been reported. Briefly, all available data on mortality were collected, including data from vital registration and verbal autopsy. Nonspecific conditions reported as underlying causes of death were redistributed using statistical methods or expert opinion. Versions of death coding were mapped to a uniform system. Ensemble modeling was used to estimate cause-specific mortality using death data and country-level covariates. Out-of-sample validity testing was performed for each cause-specific model, and uncertainty was estimated by taking 1000 draws from the posterior distribution of the ensemble model, with point estimates taken as the median value. Cause-specific death was adjusted to fit the envelope of global all-cause mortality. In this visualization, we restricted country-level estimates to those countries which produce vital registration or verbal autopsy data. The Figure is created with Adobe Illustrator.

**Sources of Funding**

This study was supported by the Bill and Melinda Gates Foundation.

**Disclosures**

None.

**References**

ISCHEMIC HEART DISEASE (IHD)

Ischemic heart disease worldwide, 1990-2013
Estimates from the Global Burden of Disease (GBD) Study 2013

Global IHD mortality, 1990-2013

Age-standardized IHD mortality rates for men and women, 1990 and 2013
deaths per 100,000

Countries reporting age-standardized rates of IHD mortality greater than 300 per 100,000 in 2013

Regional trends in IHD mortality
Biggest changes in age-standardized mortality rates due to IHD, 1990-2013

Figure. Ischemic heart disease (IHD) worldwide, 1990 to 2013, from the Global Burden of Disease Study (GBD) 2013. Source: Institute for Health Metrics and Evaluation.
Ischemic Heart Disease Worldwide, 1990 to 2013: Estimates From the Global Burden of Disease Study 2013
Dawn Shepard, Amelia VanderZanden, Andrew Moran, Mohsen Naghavi, Christopher Murray and Gregory Roth

Circ Cardiovasc Qual Outcomes. 2015;8:455-456; originally published online July 7, 2015;
doi: 10.1161/CIRCOUTCOMES.115.002007
Circulation: Cardiovascular Quality and Outcomes is published by the American Heart Association, 7272
Greenville Avenue, Dallas, TX 75231
Copyright © 2015 American Heart Association, Inc. All rights reserved.
Print ISSN: 1941-7705. Online ISSN: 1941-7713

The online version of this article, along with updated information and services, is located on the
World Wide Web at:
http://circoutcomes.ahajournals.org/content/8/4/455

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published
in Circulation: Cardiovascular Quality and Outcomes can be obtained via RightsLink, a service of the
Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for
which permission is being requested is located, click Request Permissions in the middle column of the Web
page under Services. Further information about this process is available in the Permissions and Rights
Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation: Cardiovascular Quality and Outcomes is online
at:
http://circoutcomes.ahajournals.org//subscriptions/