

## CONCLUSION

The Global Burden of Disease (GBD) provides detailed data on diseases, injuries, and risk factors that are essential inputs for evidence-based policymaking. This collaborative project shows that the world's health is undergoing rapid change.

Global Burden of Diseases, Injuries, and Risk Factors Study 2010 (GBD 2010) identified major trends in global health that can be summarized by the three Ds: demographics, disease, and disability. As most countries have made great strides in reducing child mortality, people are living longer and the population is growing older. These demographic changes are driving up premature deaths and disability, or DALYs, from non-communicable diseases. Health problems are increasingly defined not by what kills us, but what ails us. In 1990, childhood underweight was the leading risk factor for ill health, but high body mass surpassed it in 2010 as a more important cause of premature death and disability. This finding illustrates global shifts away from risk factors for communicable disease in children toward risk factors for non-communicable diseases.

GBD 2010 found that non-communicable diseases and disability caused a greater share of health loss in 2010 compared to 1990 in most regions of the world. At the same time, the study revealed that the leading causes of DALYs in sub-Saharan Africa have changed little over the past 20 years. Still, GBD 2010 provides evidence of encouraging progress in this region, such as reductions in mortality from malaria, HIV/AIDS, and maternal conditions.

In sub-Saharan Africa, GBD 2010 documented important regional trends that reveal remarkable declines in health loss due to a subset of communicable, maternal, and childhood diseases over the last 20 years; the reductions in premature death and disability from diarrheal diseases, lower respiratory infections, and measles are particularly laudable. Despite this great progress, many of these conditions still top many countries' health burdens and account for a large portion of childhood death and illness. Malaria and HIV/AIDS continue to drive substantial health loss throughout the region, and do so at rates higher than those two decades earlier; it appears, however, that the total health burdens caused by these diseases peaked between 2000 and 2005 for most countries.

While most countries in sub-Saharan Africa still face large health burdens due to communicable, neonatal, maternal, and nutritional conditions, many have also experienced an increasing disease burden due to injuries and non-communicable diseases from 1990 to 2010. These dual burdens of communicable and non-communicable diseases are largely found among the lower- and upper-middle-income countries, but even low-income countries, such as Madagascar, are now seeing ailments like stroke among their top 10 drivers of premature death and disability. Road injuries have become an increasingly dominant cause of health loss in the region,

with many countries, such as Ghana, Kenya, and Nigeria, documenting at least twice the health burden caused by road injuries in 2010 than in 1990.

War and conflict affected many countries in sub-Saharan Africa in 1990, accounting for a substantial amount of health loss in countries like Ethiopia and Liberia; by 2010, these causes were no longer primary drivers of premature death and disability. Overall, many risk factors, such as suboptimal breastfeeding, vitamin deficiencies, childhood underweight, and others associated with undernutrition, have declined throughout sub-Saharan Africa, which has likely contributed to the regional progress in reducing health loss caused by several childhood conditions. However, risk factors associated with growing burdens of chronic diseases, such as high body mass index and physical inactivity, have become important threats to public health in many countries in the region.

While GBD 2010 provides key information about health trends at global and regional levels, its tools also allow users to view data specific to 187 countries. Similar to the ways in which governments use financial data to monitor economic trends and make necessary adjustments to ensure continued growth, decision-makers can use GBD data to inform health policy. Continual updates of GBD will incorporate the most recent data on disease patterns as well as the latest science about the effects of different risk factors on health.

Future updates of GBD will be enriched by widening the network of collaborators. Expanded collaboration between researchers, staff of ministries of health, and the Institute for Health Metrics and Evaluation (IHME) on national and subnational burden of disease studies will ensure that GBD tools are used to understand causes of premature death and disability at the community level. Despite similarities of epidemiological trends in most regions, GBD illustrates the unique patterns of diseases, injuries, and risk factors that exist in different countries. Local epidemiological assessment is crucial for informing local priorities. The GBD approach to health measurement can help guide the design of public health interventions to ensure they are tailored to countries' specific needs.

IHME is seeking partners interested in conducting in-depth studies of the burden of disease in countries. Through such partnerships, IHME is helping governments and donors gain insights into localized health trends to inform planning and policymaking. IHME is committed to building capacity for GBD analysis in countries around the world, and will be conducting a variety of training workshops. Information on these trainings can be found at <http://www.healthmetricsandevaluation.org/gbd/training>.

GBD data visualization tools can display regional and national data from burden of disease studies. These user-friendly tools are helpful for planning, presentations, and educational purposes. Also, IHME has designed a variety of data visualization tools to compare trends between various raw data sources at the national level. By visualizing all available data, ministry of health officials and researchers can quickly identify unexpected trends in the data that they may wish to flag for further investigation.

Currently, IHME is working to expand GBD to track expenditure for particular diseases and injuries. Also, IHME is estimating utilization of outpatient and inpatient facilities and other health services for specific diseases and injuries. Side-to-side comparisons of these estimates to the number of DALYs from myriad causes will allow decision-makers to evaluate health system priorities. Data on disease-specific expenditure and disease burden are essential for policymakers facing difficult decisions about how to allocate limited resources.