IHME

Global Burden of Disease: Implications for researchers in Sub-Sahara Africa

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26th February 2016

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Institute for Health Metrics and Evaluation

Overview

- About IHME
- Global Burden of Disease; History and Current efforts
- Relevance to researchers in Africa
- Next steps

Institute for Health Metrics and Evaluation

- Dedicated to providing independent, rigorous, and timely scientific measurements to accelerate progress on global health

- Focused on answering three critical questions:
  - What are the world's major health problems?
  - How well is society addressing these problems?
  - How do we best dedicate resources to get the maximum impact in improving population health in the future?

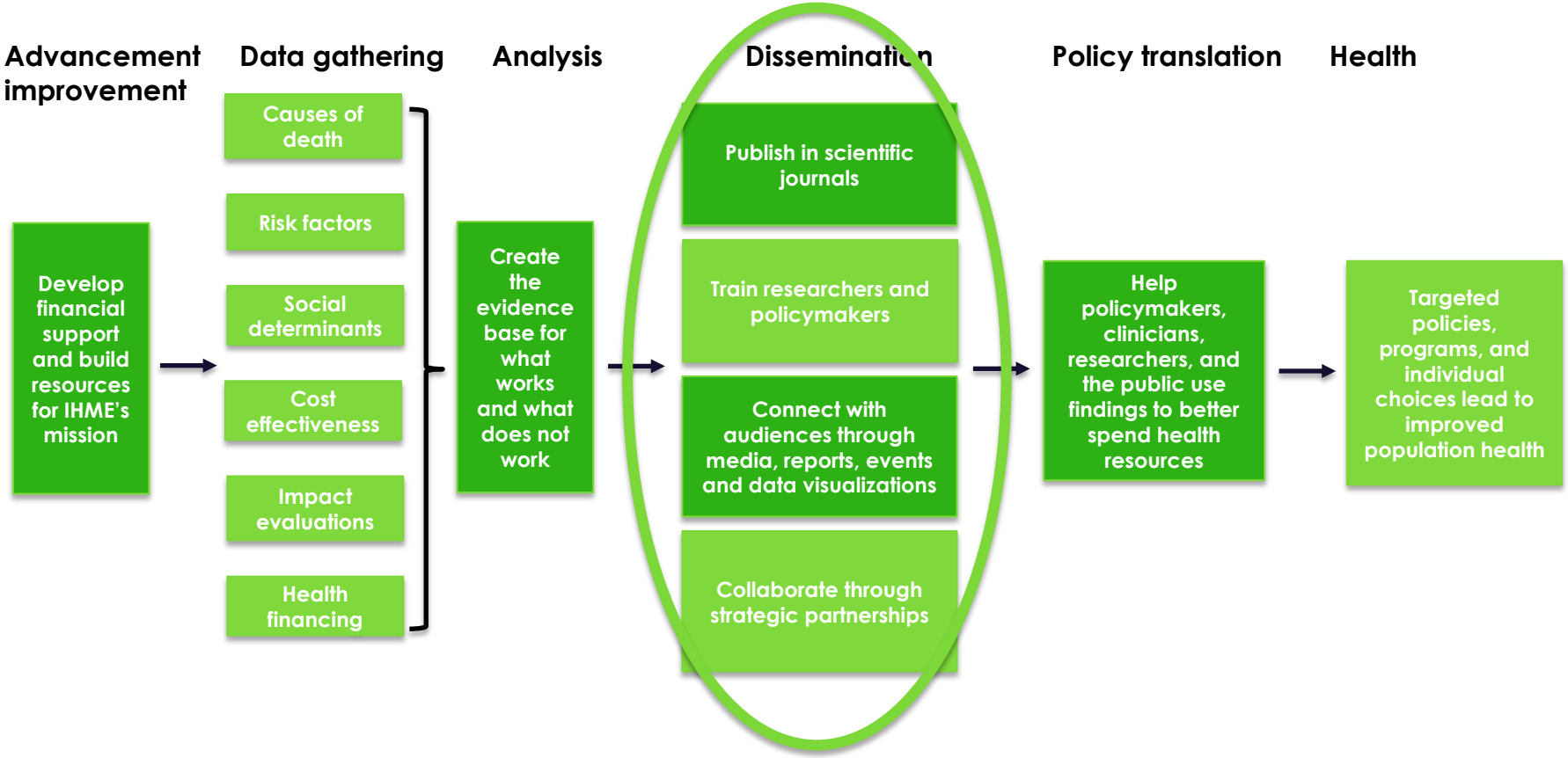
- Created in 2007 at the University of Washington

IHME is bridging the gap

IHME is building the needed base of objective evidence about what works and what does not work to improve health conditions and the performance of health systems.

AND…It is making this evidence freely and readily available in the public domain.

How do we achieve our goal of better health?



Global Burden of Disease

What is the Global Burden of Disease?

A ***systematic scientific*** effort to quantify the ***comparative*** magnitude of ***health loss*** due to diseases, injuries, and risk factors by age, sex, and geographies for specific points in time.

The Global Burden of Disease:
Underlying rationale

- Everyone deserves to live a long life in full health
- By providing a comprehensive picture of what **disables and kills** people across countries, time, ages, and sex
- We can understand what prevents us from achieving this goal

Photo: Susan Elden

Why was the Global Burden of Disease created?

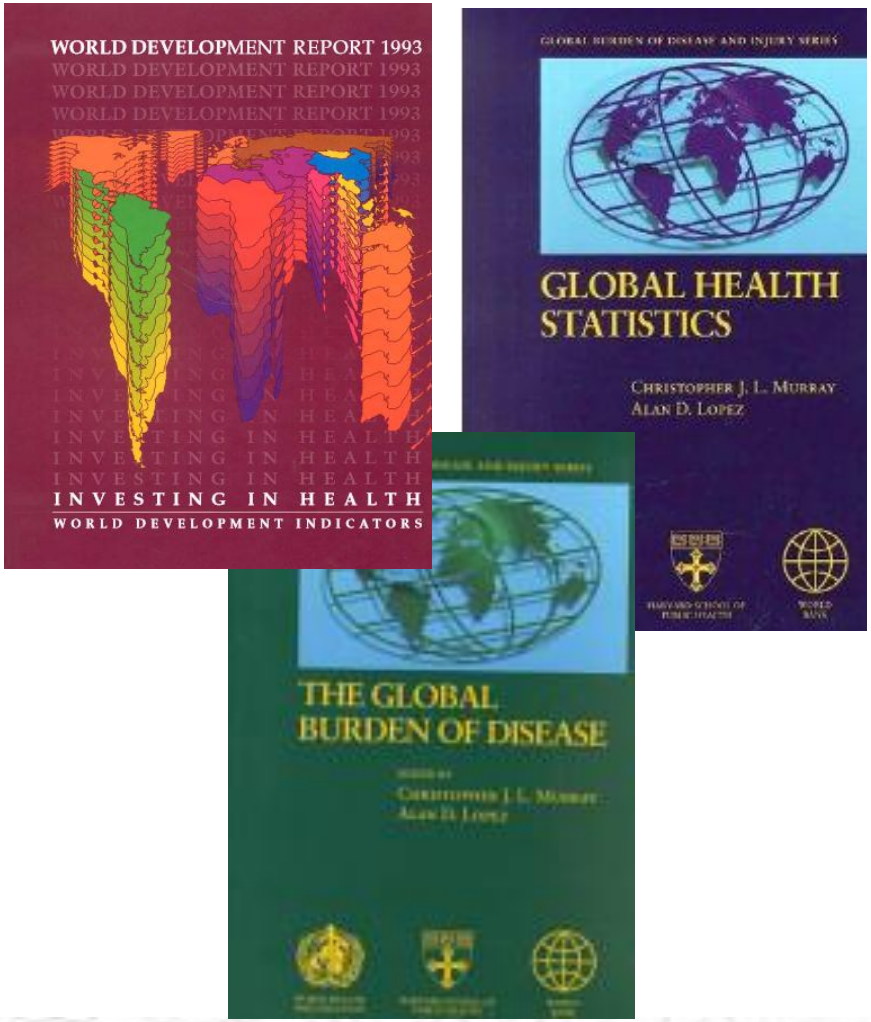
- Health system stewards lacked comprehensive information about major health problems in their countries, especially disabling causes

- Policymakers needed a way to compare the burden of different diseases and injuries
  - Before GBD, it was difficult for health officials to compare the burden of depression to cancer
  - GBD is a common currency used to compare the burden of fatal and non-fatal conditions

Historical Context of GBD

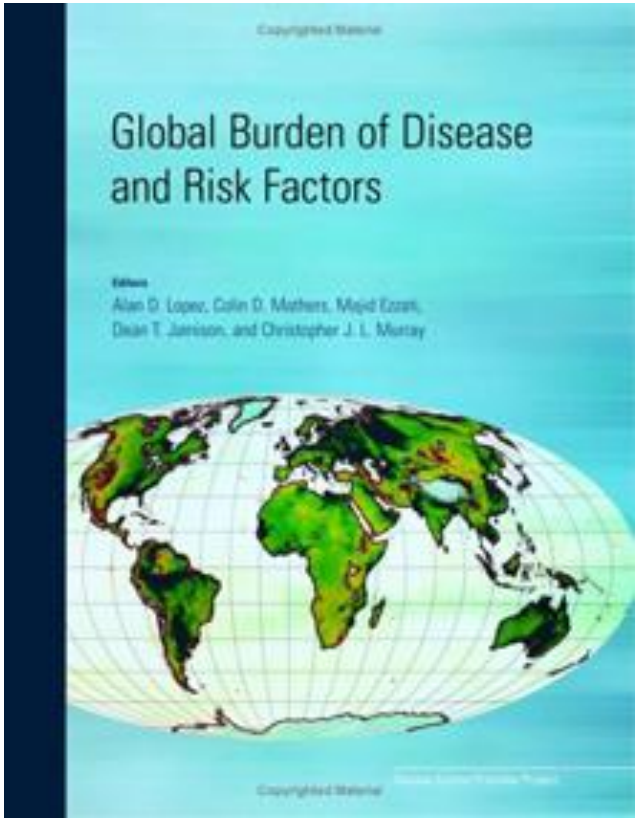
First GBD study

- Originated by the World Bank and WHO in 1991 to address these critical information gaps
- Preliminary results published in World Development Report 1993
- Final results published in two GBD volumes in 1996 and *The Lancet* in 1997
- Eight regions; 107 diseases; 10 risk factors
- Estimates for 1990 and projections to 2020



Subsequent efforts

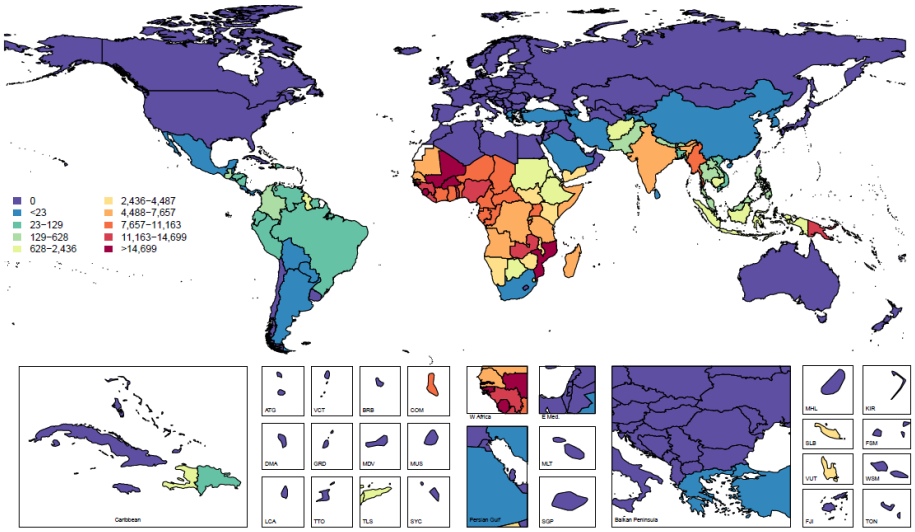
- GBD revisions for 1999, 2000, 2001, 2002, and 2004 published by WHO and World Bank
- National burden of disease studies conducted and published in 37 countries



Current GBD Effort

Global Burden of Disease 2010 Study

- Systematic attempt to quantify health loss from all major diseases, injuries, and risk factors for 187 countries over time from 1990 to 2010
  - 291 diseases and injuries
  - 1,160 sequelae of these diseases and injuries
  - 67 risk factors or clusters of risk factors
- GBD 2010 provided uncertainty intervals for all quantities of interest



GBD 2010

- 488 authors from 50 countries; coordinated by the Institute for Health Metrics and Evaluation (IHME)
- Estimated premature death and disability from 291 diseases and injuries, 1,160 sequelae, and 67 risk factors
- Results for 20 age groups, 187 countries, and 21 regions
- First published in a dedicate issue of *The Lancet* in December 2012; results of study freely accessible online

A global public good (GBD 2.0)

Vision

1) Provide the world access to continuously updated country-level assessments of the burden of disease over time for all major diseases, injuries, and risk factors
2) Rapidly incorporate new evidence on descriptive epidemiology in GBD country, regional, and global estimates and make it widely available
3) Adopt methodological innovations or studies that provide new insights into etiology or causation when the evidence is compelling

GBD 2013

- Covers 21 regions and 188 countries
- Incorporated critical feedback on the GBD 2010 estimates
- Drew on many new datasets proposed by disease, injury, and country experts
- Included subnational analyses of China, Mexico, and the UK
- Papers published on smoking, overweight and obesity, maternal and child mortality, causes of death, and HIV, tuberculosis, and malaria
- Collaborative effort of over 1,000 researchers in more than 100 countries, with IHME as the coordinating center

Key aspects of GBD 2013

1) **Expanding the collaborative network** – in addition to strengthening expert input in key disease, injury and risk factor areas, major emphasis on developing collaborators in each country.
2) **Re-engineering of the code for GBD 2010** – improved computational efficiency, standardization across all analyses, automated archiving, linkage of data to the GHDx, allowing for sub-national estimation within the overall framework.
3) **Improved estimation tools** – DisMod-MR 1.0 extensively used for GBD 2010. Version 2.0 is a major improvement: 100 times faster, more analyst control of modeling options, new visual interface, consistent posterior estimation for each country.

Key aspects of GBD 2013

4) **Documenting sources used for GBD 2010** – many expert groups provided data input sheets with missing source documentation. Major effort to trace back sources and document them in the GHDx.

5) **Incorporating new studies and data** – Extending systematic reviews to 2013, adding new survey data sources, incorporating sources provided by new collaborators, major addition of more recent cancer registry data.

6) **Changes in estimation methods** for diarrhea etiologies and pneumonia etiologies.

7) **Enhanced transparency** of source data for each input – source metadata available for each outcome in GBD 2013 visualization tools consistent with data access policy.

GBD Collaborators

- GBD 2010 collaboration organized around diseases, injuries and risk factors. GBD 2013 and 2015 have substantially expanded this collaboration.

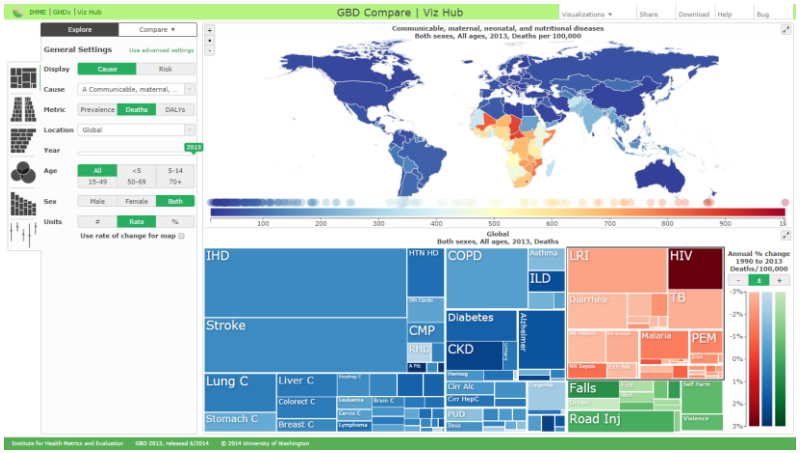
- GBD now has collaborators, organized by country, whose roles are to:
  - Assess the face validity of country results.
  - Identify missing datasets or inadequate or incorrect interpretation of available data.
  - Interpret findings and facilitate country policy translation.
  - Where feasible, undertake sub-national assessments.

GBD Collaborators

Currently, GBD 2015 has enrolled a total of 1,414 collaborators from 115 countries

New data visualizations for GBD 2013

- Mortality Viz explains GBD modeling process and explores results, released December 2014.
- Life expectancy and probability of death, released December 2014.
- Cod Viz update, released December 2014.
- Tobacco, obesity, and MDG viz tools released in 2014.
- Epi Viz, released with YLD paper.
- New GBD Compare tool released with DALYs and risk factor papers.



GBD 2015: Subnational estimation

- **Mexico**
- **Great Britain**
- **China**
- United States
- Brazil
- India
- Kenya
- Japan
- Sweden
- South Africa
- Saudi Arabia
- New Zealand

Public Health England

Instituto Nacional de Salud Pública

Relevance to researchers in Africa

How can we increase the value of GBD results?

- Obtain more data from regions or causes with missing data
- Involve Ministries of Health, other government actors in dissemination of results
- Increase engagement with policymakers by providing policy translation materials to turn results into action

Why become a GBD Collaborator?

- Engage more fully in the GBD enterprise
  - Better understand GBD estimation
  - Provide feedback at earlier stages in the estimation and publication-writing processes
  - Learn about GBD analytic tools and data visualizations
- Connect and collaborate with colleagues in your field of expertise

Areas of potential collaboration

- Research and technical support
  - Global Burden of Disease Technical Training Workshop
  - Collaboration on GBD studies
  - Ongoing opportunity to join study effort as a GBD Collaborator
- Policy dissemination and uptake
  - Possible collaboration to discuss findings and implications of GBD results for the country
- Monitoring progress and challenges in the country
  - Annual updates of GBD will provide insight into evolution of health trends in the country

Next Steps

Four easy steps

- Visit IHME website and get familiar with the GBD visualizations: http://vizhub.healthdata.org/gbd-compare/#
- Become a GBD collaborator by signing up here; http://www.healthdata.org/gbd/call-for-collaborators
- If you know someone who is using GBD data for decision making; nominate them for the Roux Prize: http://www.healthdata.org/roux-prize
- Get in touch with me at : tachoki@uw.edu

Thank You