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

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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?

**Advancement improvement**
- Develop financial support and build resources for IHME's mission

**Data gathering**
- Causes of death
- Risk factors
- Social determinants
- Cost effectiveness
- Impact evaluations
- Health financing

**Analysis**
- Create the evidence base for what works and what does not work

**Dissemination**
- Publish in scientific journals
- Train researchers and policymakers
- Connect with audiences through media, reports, events and data visualizations
- Collaborate through strategic partnerships

**Policy translation**
- Help policymakers, clinicians, researchers, and the public use findings to better spend health resources

**Health**
- Targeted policies, programs, and individual choices lead to improved population 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


- 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.
Currently, GBD 2015 has enrolled a total of 1,414 collaborators from 115 countries.
New data visualizations for GBD 2013

- Life expectancy and probability of death, 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

Institute for Health Metrics and Evaluation
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
  o Better understand GBD estimation
  o Provide feedback at earlier stages in the estimation and publication-writing processes
  o 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
  o Global Burden of Disease Technical Training Workshop
  o Collaboration on GBD studies
  o Ongoing opportunity to join study effort as a GBD Collaborator

• Policy dissemination and uptake
  o Possible collaboration to discuss findings and implications of GBD results for the country

• Monitoring progress and challenges in the country
  o 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