

Global Burden of Disease and Injury

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Overview

- GBD
 - What is it? Why does it matter?
 - Method
 - Critiques
- New GBD project
 - What is it? Why does it matter?
 - Injury in the project
 - Opportunity to participate

GBD: What is it?

- Global Burden of Diseases, Injuries and Risk Factors
- One of several methods to summarise impact of diseases and injuries in populations
- Decreased duration of life and decreased functional capacity are combined and presented in units of DALYs
- Initial project: commissioned by the World Bank, led by Murray & Lopez; with WHO involvement, reported in 1996 on burden in 1990.
- Subsequent national & regional studies, risk factor study, WHO regular updates for 14 regions, etc.

GBD: Why does it matter?

- Fairly wide-spread use for health sector priority-setting and related processes.
- This seems likely to increase.
- A force for improving knowledge of health status and burden, especially for parts of the world where this has been lacking.

GBD: Method (1)

- YLL: years of life lost due to condition(s) of interest.
- YLD: years lived with disability due to condition(s) of interest.
(In GBD 'disability' means reduced functional capacity)
- $YLL + YLD = DALYs$
(Disability Adjusted Life Years)
- A period with reduced functional capacity is equated to a period of lost life by means of 'Disability Weights'

GBD: Method (2)

- Disability Weights:
 - A summary of overall decrease in health related to a disease or a particular consequence of a disease.
 - Several variations in method to obtain & apply weights:
 1. Six domains (certain activities of daily living, procreation, occupation, education, recreation); values assigned were average ratings of a panel of public health experts.
 2. Panel of health professionals evaluated 22 indicator conditions using two types of person trade-off; clustered into 7 severity classes; distribution of these estimated for each of c 500 disabling 'Sequelae'. Where relevant, done separately for treated & untreated cases and for age groups.
 3. Dutch disability weights study: similar method, plus health state distributions in terms of EQ-5D instrument.

GBD: Method (3)

- Numerous other issues and decisions:
 - By how much to discount future *vs* current health
 - Whether to weight differently by age-group
 - Bounding and scaling
 - e.g. The sum of cause-specific mortality estimates is bounded by separate all-cause mortality ‘envelopes’. Disability weights are scaled to cover full spectrum from full health to death.
 - Allowing for missing and imperfect data
 - estimation and modelling, including use of DisMod software
 - Ascribing causality
 - categorical and counterfactual approaches

GBD: Practical difficulty

- Data deficiencies:
 - non-existent, scanty, incomplete, unreliable, hidden, inaccessible, etc.
- This constrains:
 - Estimating incidence or prevalence of conditions
 - Assessing duration & degree of decrements in functioning due to conditions
 - Making ‘Disability Weights’

GBD: Critiques

- Numerous. For example:
 - Is it meaningful to equate unhealthy with shortened life?
 - Are available input data too deficient to allow meaningful estimates?
 - Are Disability Weights conceived and developed appropriately? Do they account adequately for:
 - Late consequences?
 - Minor consequences of very frequent conditions?
 - Are GBD methods documented sufficiently?

New GBD project: What is it?

- ‘The first major effort since the original GBD 1990 study to carry out a complete systematic assessment of the data on all diseases and injuries and produce comprehensive and comparable estimates of the burden of diseases, injuries and risk factors for two time periods, 1990 and 2005.’ (Operations Manual)
- Lead investigators from Harvard Initiative for Global Health, Institute for Health Metrics & Evaluation, (U Washington), Johns Hopkins University, University of Queensland, World Health Organization.
- Funded by Gates Foundation; strong focus on less developed regions
- To run for about three years from mid-2007.
- Will make estimates for 21 regions, by age-groups and sex.
- Some foreshadowed differences: the new project will
 - Use additional data (new sources or not found previously)
 - Use new estimation methods (eg to estimate mortality and cause composition)
 - Develop a new set of disability weights, using revised methods
 - Involve many more people than previous projects
 - Be more open concerning methods, assumptions, etc.

New GBD project: Why does it matter?

- Generally:
 - Potential for better methods and estimates.
 - Better information for less developed regions.
 - More transparent.
- For injury:
 - As above. Also:
 - Opportunity to improve the completeness and validity of measurement of injury burden, by improving:
 - reporting groups
 - e.g. better match with importance; more homogenous for burden
 - disability weights
 - incidence estimates
 - better data and better searching/reviewing

New GBD project: Injury

- Starting point: as in previous GBD projects
 - ‘Disease’=external cause (e.g. falls; traffic crashes)
 - ‘Sequelae’=injuries (e.g. fractured hip; TBI), some are qualified as short or long term; burns by area.
 - Weights largely as in earlier studies
- Responsibilities
 - Injury Expert Group
 - Main role in developing YLD estimates
 - Various other tasks
 - Also
 - Other groups in Cluster C of the project with relevant scope
 - e.g. alcohol, other drugs, musculoskeletal diseases, mental diseases, occupational risks, intimate partner violence
 - Parts of the project with overarching responsibilities
 - e.g. lead role in obtaining and analysing mortality data; development of new disability weights

Opportunity to participate

- GBD Injury Expert Group
 - One of about 40 in the GBD project. Commencing work now.
 - Has large tasks; people willing to contribute are welcome.
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