Global Burden of Disease Study - Tuberculosis

An update

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Background

The Global Burden of Diseases, Injuries, and Risk Factors 2010 Study (GBD 2010 Study)

- Started spring of 2007
- Will produce estimates of the burden of
  - More than 220 conditions and injuries
  - More than 40 risk factors
  - For the years 1990, 2005, and 2010
  - For 21 regions
  - Improved methods for the estimation of health state severity weights
Collaborators

- Institute for Health Metrics and Evaluation (lead)
- Harvard University
- Johns Hopkins University
- University of Queensland
- World Health Organization (WHO)
- More than 800 researchers around the world
Plan

- Systematic reviews of incidence, prevalence, case fatality, and mortality for each disease and injury
- Generate all-cause and cause-specific mortality estimates for each age, sex and GBD Study region
- Perform internal consistency analysis using Dismod
- Revise analysis based on the feedback received through the peer review process
- Develop disability weights
- Produce final estimates of YLL, Causes of Death, and YLD for 1990, 2005, and 2010 and for each of the designated regions, and analyze trends
Tuberculosis estimates

**Strengths**
- Notification data available since 1997
- Established methodology for estimating prevalence, incidence and mortality

**Weaknesses**
- No incidence studies in the general population
- Limited number of prevalence studies in general population
- Quality of vital registration data
Revising TB prevalence, incidence and mortality estimates

Expert assessment of current methodology and identification of possibilities for improvement

- **Review parameters**
  - HIV: abandon constant incidence rate ratio
  - Systematic review for duration of disease
  - Distribution of TB cases over age groups
  - Systematic review of case fatality rates
  - Proportion of culture positive among smear positives
  - Abandon use of ARTI and Styblo rule

- **Excel program**
  - Use more appropriate software
Systematic review: Duration of disease

- Studies from pre-chemotherapy area
- 2256 records assessed
- 16 studies included

- Case fatality rate in untreated smear-positive tuberculosis among HIV negative individuals is approximately 70% and about the same for both sexes
- The duration of tuberculosis from onset to cure or death is approximately 3 years and appears to be grossly similar for smear-positive and smear-negative tuberculosis

Systematic review: The effect of TB on mortality in people living with HIV

- Cohort studies comparing mortality in PLWH with and without TB
- 427 studies identified
- 15 included

- Hazard Ratio 1.8 (95% CI: 1.4–2.3)
  - Subanalysis of 8 studies in which the cohort was not exposed to HAART showed an HR of 2.6 (95% CI: 1.8–3.6).
  - Subanalysis of 6 studies in PLWH exposed to HAART: HR 1.1 (95% CI: 0.9–1.3)