IMPROVING GLOBAL HEALTH: FORECASTING THE NEXT 50 YEARS

PATTERNS OF POTENTIAL HUMAN PROGRESS

VOLUME 3

Barry B. Hughes
Randall Kuhn
Cecilia M. Peterson
Dale S. Rothman
José R. Solórzano

Barry B. Hughes, Series Editor
Preface

Improving Global Health: Forecasting the Next 50 Years is third in the Patterns of Potential Human Progress (PPHP) series, a series that explores prospects for human development and the improvement of the global human condition. Each volume considers one key aspect of how development appears to be unfolding globally and locally, how we would like it to evolve, and how better to move it in desired directions.

The volumes emerge from the Frederick S. Pardee Center for International Futures at the University of Denver’s Josef Korbel School of International Studies. The International Futures (IFs) project has worked for more than three decades to develop and use the strongest possible long-term, multiple issue capability for exploring the future of key global issues. The philosophical basis of the IFs project includes these beliefs: (1) prediction is impossible, but forecasting is necessary to help us understand change and to support policy development; (2) analysis should be built around alternative possible futures; and (3) forecasting tools should be as open and transparent as possible.

The first PPHP volume focused on the central issue of global poverty reduction, presenting first a long-range, base case forecast—an elaboration of the path we appear to be on. It then explored an extensive set of variations in that path tied to alternative domestic and international interventions. The second volume provided a long-range, base case forecast for global advances in education participation and attainment, and then developed a normative scenario, looking for aggressive, but reasonable, patterns to enhance global advances in formal education.

This third volume drills down into arguably the most important of all issues for humans: that of health. It recognizes the remarkable epidemiologic and demographic transitions that, while long underway, have gained, lost, and regained momentum in the last 50 years. During that half century to 2010, global life expectancy increased from just over 50 years to approximately 70—yet about 20 countries have a lower life expectancy today than they did two decades ago. This volume explores where the next five decades may take us. We consider changing mortality and morbidity patterns, including the remarkable ongoing reduction of global deaths from communicable diseases, a pattern that hopefully will be consolidated and extended. We consider also the growing burden of noncommunicable diseases and injuries, especially as populations age nearly everywhere. And we examine possible alternative patterns of 15 specific causes of death and disability and their impacts.

The volume analyzes not only the drivers of change in human health, including advances in income, education, and technology, but also a number of more immediate risk factors (undernutrition, obesity, smoking, road traffic accidents, inadequate water and sanitation, indoor and outdoor air pollution, and climate change) and their health impacts. We focus heavily on the role of human effort in shaping health outcomes, as well as the roles of the natural environment and biological constraints.

Human health interacts closely with broader human development. Therefore, this volume devotes attention not only to the drivers of change in health prospects but also to the ways in which those prospects affect broader demographic and economic futures. Among the advantages of the IFs modeling system is the manner in which it links health forecasting to larger human systems.

Putting these pieces together, this volume uniquely looks forward across half a century at human health for 183 countries and the regions and groupings into which they fall, exploring a broad range of causes of disease and death, probing the deeper and more immediate drivers of change in human health prospects, and linking that analysis to the dynamics of the larger human development system. Our analysis recognizes the great uncertainty around such forecasts and attempts to explore the bases for alternative health futures and their implications. We hope this broad and deep exploration can contribute to the collective effort to assure improved health and well-being for peoples around the world.

Those who wish to explore or extend our analysis will find the full IFs system at www.ifs.du.edu.
The authors again owe special thanks to Frederick S. Pardee, who conceptualized the Patterns of Potential Human Progress (PPHP) series that this volume continues. We much appreciate Fred's ongoing support for the work of the International Futures (IFs) project and his contribution of energy, enthusiasm, and ideas, including the special responsibility he has taken for the country-specific supporting data tables that accompany the PPHP volumes and appear on-line at the IFs website.

The International Futures simulation modeling system, the core tool of this volume, has been developed over 30 years under the leadership of Barry Hughes at the Josef Korbel School of International Studies, University of Denver. Thanks to the support of the University and the Frederick S. Pardee Center for International Futures, the complete system, including both a downloadable version and an on-line version, is available for all users at www.ifs.du.edu.

IFs, developed originally as an educational tool, owes much to the large number of students, instructors, and analysts who have used or reacted to the system over many years and have provided much appreciated advice for enhancement. The first two volumes of this series provided names of many of those, and without repeating the list we thank them still again (as we do earlier team members, listed also in those two volumes).

IFs team members who made special contributions to this volume include Jonathon Chesebro (data), Brent Corby (data), Eric Firnhaber (photographs), Mariko Frame (photographs), Kia Tamaki Harrold (background working papers), Mohammad Irfan (data and systems support), Josiah Marineau (data and help system), Lisa Matts (supporting research), Jonathan Moyer (web support), Britt Reiersgord (references, photographs, and more), Graham Smith (references), Mark Stelzner (data), Marc Sydnor (photographs and project support on earlier volumes that made this one easier), and Julie Thompson (supporting research). Most especially we express tremendous appreciation to Janet Dickson, who worked closely with the authors throughout the writing and production process. She brainstormed with us, kept us on task, edited the volume, and oversaw the production process.

This volume owes a special debt of gratitude to Colin D. Mathers, Mortality and Burden of Disease Coordinator, Department of Health Statistics and Informatics, World Health Organization, and a founding leader of WHO's Global Burden of Disease project. From our first approach to Dr. Mathers, requesting information about the methods of the GBD project, he was unfailingly helpful. He provided unpublished data from the project and the coefficients used in its formulations, and he patiently answered our questions about the GBD project's methods and approaches. He also reviewed the penultimate manuscript and provided feedback that has saved us from many errors.

We also thank an exceptional group of external reviewers who greatly enhanced this volume through their feedback. They are Jere R. Behrman, William R. Kenan Jr. Professor of Economics and Sociology, University of Pennsylvania; Henk Hilderink, Senior Policy Researcher, Department of Sustainable Development, Netherlands Environmental Assessment Agency (PBL); Gerald Keusch, Professor of Medicine and International Health, Special Assistant for Global Health to the University President, Boston University; Rachel Nugent, Deputy Director of Global Health, Center for Global Development; and Sam Preston, Fredrick J. Warren Professor of Demography, University of Pennsylvania. No one could save us from all of our errors of omission and commission, but they caught many.

Most recent funding for IFs has come from Frederick S. Pardee, the United Nations Environment Programme, the U.S. National Intelligence Council, and the European Commission. Other developments within International Futures have been funded in part by the Strategic Assessments Group of the U.S. Central Intelligence Agency, by the Frederick S. Pardee Center for Longer Range Global Policy.
and the Future of the Human Condition at RAND Corporation, and by the European Union Center at the University of Michigan. Thanks also to the National Science Foundation, the Cleveland Foundation, the Exxon Education Foundation, the Kettering Family Foundation, the Pacific Cultural Foundation, the United States Institute of Peace, and General Motors for funding that contributed to earlier generations of IFs.

At Paradigm Publishers, Jennifer Knerr, longtime editor and friend of the IFs project, was wonderfully helpful and supportive, and the hands-on editorial guidance provided by Carol Smith and Jeska Horgan-Kobelski was invaluable. At Oxford University Press in New Delhi, we are grateful for the warm support and partnership of Neha Kohli, Associate Development Editor, and Urmilla Dasgupta, Commissioning Editor. We are extremely appreciative of the beautiful design and layout work on all of the series volumes by Trevor Bounford and Denise Goodey of Bounford.com. And with this volume, we were extremely fortunate to welcome Eleanora von Dehsen to our team; we much appreciate her help in standardizing our presentation.

Finally, the authors built on tremendous foundations of work directed toward improving global health. The hope that motivated our work was that we might contribute something to that ongoing stream of effort by exploring the possible trajectory of global health and its broader human development consequences over the next 50 years. Other than the authors, of course, none of the named individuals or institutions bears any responsibility for the current status of the model or for the analysis presented here. Their support is nonetheless greatly appreciated.

Barry B. Hughes
Series Editor
Contents

List of Boxes xi
List of Figures xi
List of Tables xiv
Abbreviations and Acronyms xvi

1 The Story So Far
Recent Progress and Significant Challenges 1
Understanding the Story So Far 3
Understanding and Shaping the Story Going Forward 4
Why This Volume? 6
Conclusion 8

2 Understanding Health: Concepts, Relationships, and Dynamics 9
Measuring the Disease Burden 10
Observing mortality 10
Summarizing mortality 12
Observing morbidity 13
Measures of disease occurrence 14
Measures of overall morbidity 15
Combining morbidity and mortality into a single measure 15
Understanding Health Outcomes 16
Distal Drivers of Health 17
Income 18
Education 19
Time and its underlying elements 20
More Proximate Determinants of Health 20
Super-Distal Drivers and the Broader Uncertainty Context of Health 22
Technology and biological limits 23
The social environment 24
Domestic health expenditures and other social influences on health 24
Global health initiatives 26
The natural environment 27
Conclusion 27

3 Forecasting Global Health 29
Integrating Health with Broader Human Development: The Larger IFs System 30
All-Cause Mortality Models 32
The Emergence and Development of Structural Models 34
Global burden of disease 34
Comparative risk assessment and forecasting 35
Specialized disease-cause models and systems dynamics approaches 36
Gismo: Integrating structural and dynamic representations 36
Returning to the general purposes of existing forecasting approaches 37
Building a hybrid, integrated system 38

Modeling Health in IFs 39
The GBD (mostly distal driver) model foundation in IFs 39
Specialized structural model formulations and approaches in IFs 41
  Smoking, smoking impact, and chronic diseases 41
  HIV/AIDS 42
  Road traffic accident deaths 43
  Public spending on health 44
Model extensions to include proximate drivers in IFs 44
  The basic proximate-driver approach in IFs 44
  Mapping proximate drivers to diseases and age categories 45
  An example of the proximate-driver approach in IFs: Undernutrition 46
Dealing with multiple risk factors 47
Other proximate-driver modifications of distal formulations 47
Disability and DALYs 48
Conclusion 49

4 The Current Path as It Seems to Be Unfolding 52
The Base Case 52
  Life expectancy 53
  Changing disease burden 56
  Attention to global goals 58
Comparison with Other Forecasts 61
  Life expectancy forecasts: United Nations Population Division 61
  Death and disability forecasts: GBD project 62
  Child mortality and death cause forecasts: GISMO 63
  HIV and AIDS forecasts: UNAIDS 64
  Road traffic accident deaths: World Bank and GBD 66
Framing Scenario Analysis 67
  Alternative futures for GDP per capita and education 67
  Alternative futures for time/technology 69
Conclusion 70

5 Analysis of Selected Proximate Risk Factors 72
Health Risk Transition 73
Risk Analysis with IFs 73
Childhood Undernutrition 74
  Drivers and forecasts of undernutrition in children 75
  Childhood undernutrition and mortality: Alternative scenarios 77
Overweight and Obesity 78
  Drivers and forecasts of obesity 78
  Adult BMI and related mortality: Alternative scenarios 80
## Contents

- **Tobacco Use**
  - Drivers and forecasts of tobacco use
  - Tobacco use and related mortality: Alternative scenarios

- **Vehicle Ownership and Safety**
  - Drivers and forecasts of vehicle ownership
  - Vehicle ownership, fatality rates, and related mortality: Alternative scenarios

- **Conclusion**

### 6 Analysis of Selected Environmental Risk Factors

- **Environmental Risk Factors and the Environmental Risk Transition**
- **The Environment and Human Health: The Empirical Evidence**
- **Environment and Human Health: Risk Factors Now and in the Future**
  - Water, sanitation, and hygiene
    - Drivers and forecasts of access to improved drinking water and sanitation
    - Improved drinking water and sanitation: Health effects under alternative scenarios
  - Indoor air pollution
    - Drivers and forecasts of solid fuel use for heating and cooking
    - Indoor air pollution: Health effects under alternative scenarios
  - Urban outdoor air pollution
    - Drivers and forecasts of urban air quality
    - Urban outdoor air pollution: Health effects under alternative scenarios
  - Climate change
    - The potential health impacts of climate change
    - Climate change: Health effects under alternative scenarios

- **Comparing and Combining Analyses of Proximate Risk Factors**
  - Comparative risk analysis
  - Combined risk analysis: WHO and World Bank approach
  - Combined risk analysis: The IFs approach

- **Conclusion**

### 7 Forward Linkages

- **From Health to Growth**
  - A core controversy
  - Empirical analysis
  - Decomposing the pathways between health and growth

- **The Paths of Forward Linkages from Health to Economic Growth**
  - Health and labor
  - Health and productivity
    - Immediate effects of disability on productivity
    - Delayed effects of disability on productivity
  - Macro analysis of health and productivity
  - Health and productivity in IFs
List of Boxes

Box 2.1 The J-curve of mortality patterns 12
Box 2.2 Undernutrition and diarrheal disease in developing countries: An example of the interrelationship of distal and proximate drivers of health 21
Box 2.3 Prospects for human longevity: A debate 24
Box 4.1 The base case of IFs 53
Box 4.2 Groupings of country-level data and forecasts 55
Box 4.3 Will the large and rapidly developing BRICs (Brazil, Russia, India, and China) catch up with the high-income countries? 58
Box 4.4 Alternative forecasts 69
Box 5.1 Risk factor variability and exploring potential impacts of interventions in IFs 74
Box 6.1 Understanding different forecasts of climate change impact on health 108
Box 7.1 HIV/AIDS and fertility 119
Box 7.2 The extent of child stunting 121
Box 8.1 Summary of Luck and Enlightenment and Things Go Wrong scenarios 147

List of Figures

Figure 1.1 Infant mortality rates by region (1960 and 2005) 2
Figure 1.2 Probability of child and adult mortality by region (2005) 2
Figure 1.3 Stages of the epidemiologic and demographic transitions 3
Figure 1.4 Trends in maximum female life expectancy (1840–2000) 4
Figure 2.1 J-curve and mortality pyramid (Bangladesh, 2005) 11
Figure 2.2 Survival curve and simplified life expectancy calculation (Bangladesh, 2005–2010) 12
Figure 2.3 Global female mortality and DALY rates by age and major disease group (2004) 16
Figure 2.4 Drivers of health and disease 17
Figure 2.5 Relationship of life expectancy at birth and GDP per capita at PPP 18
Figure 2.6 Changes in the relationship between life expectancy and income per capita over time 19
Figure 3.1 Major models in the IFs modeling system and example connections 31
Figure 3.2 Risk factors and health outcomes in the GISMO integrated model 37
Figure 3.3 Envisioning a hybrid and integrated health forecasting approach 38
Figure 6.3  Global DALYs attributable to water, sanitation, and hygiene (WSH), indoor air pollution (IAP), and outdoor air pollution (OAP) by GDP per capita (2004) 94
Figure 6.4  Percent of population by region without access to improved drinking water and sanitation 96
Figure 6.5  Difference in forecasts of child deaths (thousands) from diarrheal diseases between scenarios with slow and fast improvements in access to improved water and sanitation (by region) 97
Figure 6.6  Percent of population using solid fuel in the household (by region) 99
Figure 6.7  Difference in forecasts of child deaths (thousands) from respiratory infections between scenarios with slow and fast improvements in exposure to indoor air pollution (by region) 99
Figure 6.8  Difference in forecasts of deaths (thousands) in adults over 30 from respiratory diseases between scenarios with slow and fast improvements in exposure to indoor air pollution (by region) 100
Figure 6.9  Population-weighted average annual urban PM$_{2.5}$ concentrations (by region) 101
Figure 6.10  Difference in forecasts of deaths (thousands) in adults over 30 from cardiopulmonary diseases between scenarios with slow and fast improvements in urban air quality (by region) 102
Figure 6.11  Climate change and health: Impacts and pathways 103
Figure 6.12  Climate change impacts via effects on crop yields in Nigeria: Base case and “no CO$_2$ fertilization” scenario compared to “no climate change impact” scenario (percentage differences in 2060) 107
Figure 6.13  Difference in forecasts of deaths (thousands) of children under five from communicable diseases other than HIV/AIDS due to climate change impacts on crop yields 107
Figure 7.1  Two general paths between health and economic growth 115
Figure 7.2  Elaborated paths between health and economic growth 117
Figure 7.3  Pathways linking health and demography 118
Figure 7.4  Pathways between health and productivity 119
Figure 7.5  Pathways between health and capital stock 123
Figure 7.6  High and low global mortality rate profiles, all causes, 2060 127
Figure 7.7  Years of life lost (YLLs) over time by major disease group in high and low mortality profiles: Sub-Saharan Africa and high-income countries 127
Figure 7.8  Size of global population with high and low mortality profiles (full century) 128
Figure 7.9  Ratio of economy size: Low mortality profile compared to high mortality profile by region (2060) 129
Figure 7.10  Working-age population as percent of total population: Selected country groups 130
Figure 7.11  Working years with disability per worker across high and low mortality profiles: Sub-Saharan Africa and high-income countries 131
Figure 7.12  Stunting rate in sub-Saharan Africa with high and low mortality profiles 132
Figure 7.13  Government retirement and pension payments (global) as portion of GDP under high and low mortality profiles 132
List of Tables

Table 2.1  Proximate health risk factors included in the World Health Organization’s Comparative Risk Assessment project 22
Table 3.1  Risk factors and their disease impacts in IFs 46
Table 3.2  Percent changes in disability relative to declines in mortality by cause in IFs 49
Table 4.1  Life expectancy of females in globally leading country: History and forecast 56
| Table 4.2 | Probable number of 15-year-olds per 1,000 dying before age 60: BRICs and high-income countries | 58 |
| Table 4.3 | UNPD and IFs life expectancy forecasts in years by region | 61 |
| Table 4.4 | UNPD and IFs forecasts of countries with longest life expectancies | 62 |
| Table 4.5 | GBD and IFs forecasts of regional deaths (millions) in 2030 by major disease group | 62 |
| Table 4.6 | GBD and IFs forecasts of DALYs (millions) in 2030 by major disease group | 63 |
| Table 4.7 | Spectrum and IFs forecasts of HIV prevalence and AIDS deaths for countries with highest numbers of deaths | 66 |
| Table 4.8 | Estimates and forecasts of road traffic fatalities (thousands) by region using three forecasting systems | 67 |
| Table 5.1 | FAO and IFs forecasts of available calories per capita by region | 76 |
| Table 6.1 | Global deaths and DALYs attributable to environmental risk factors in 2004 | 93 |
| Table 6.2 | Global projections of health impacts of urban air pollution in the baseline scenario of the OECD environmental outlook to 2030 | 102 |
| Table 6.3 | Burden of disease (deaths and DALYs) due to global climate change by disease category, region, and age (2004) | 105 |
| Table 6.4 | Cumulative differences in global forecasts of deaths, YLLs, and DALYs between less and more favorable scenarios of individual proximate risk factors (2005–2060) | 109 |
| Table 6.5 | Global reduction in deaths between 2010 and 2060 by disease group with near-immediate shift to theoretical minimum risk levels | 110 |
| Table 7.1 | Capital stock per worker (thousands of dollars) by region under high and low mortality profiles (2060) | 133 |
## Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS</td>
<td>acquired immune deficiency syndrome</td>
</tr>
<tr>
<td>ARI</td>
<td>acute respiratory infection</td>
</tr>
<tr>
<td>ART</td>
<td>Antiretroviral therapy</td>
</tr>
<tr>
<td>BMI</td>
<td>body mass index</td>
</tr>
<tr>
<td>BRICs</td>
<td>Brazil, Russia, India, and China</td>
</tr>
<tr>
<td>CDC</td>
<td>Centers for Disease Control</td>
</tr>
<tr>
<td>CDs</td>
<td>communicable diseases</td>
</tr>
<tr>
<td>CEC</td>
<td>Commission for Environmental Cooperation</td>
</tr>
<tr>
<td>CD2</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td>COPD</td>
<td>chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td>CRA</td>
<td>Comparative Risk Assessment project (WHO)</td>
</tr>
<tr>
<td>CSDH</td>
<td>Commission on Social Determinants of Health (WHO)</td>
</tr>
<tr>
<td>CVD</td>
<td>cardiovascular disease</td>
</tr>
<tr>
<td>DALYs</td>
<td>disability-adjusted life years</td>
</tr>
<tr>
<td>DHS</td>
<td>Demographic and Health Surveys (USAID)</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
</tr>
<tr>
<td>EPP</td>
<td>Estimation and Projection Package</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization (UN)</td>
</tr>
<tr>
<td>GBD</td>
<td>Global Burden of Disease project (WHO)</td>
</tr>
<tr>
<td>GDP</td>
<td>gross domestic product</td>
</tr>
<tr>
<td>GHIs</td>
<td>Global Health Initiatives</td>
</tr>
<tr>
<td>GISMO</td>
<td>Global Integrated Sustainability Model</td>
</tr>
<tr>
<td>GMAPS</td>
<td>Global Model of Ambient Particulates</td>
</tr>
<tr>
<td>GNI</td>
<td>gross national income</td>
</tr>
<tr>
<td>GUAM</td>
<td>Global Urban Air quality Model</td>
</tr>
<tr>
<td>HDI</td>
<td>Human Development Index</td>
</tr>
<tr>
<td>HIV</td>
<td>human immunodeficiency virus</td>
</tr>
<tr>
<td>IAP</td>
<td>indoor air pollution</td>
</tr>
<tr>
<td>ICD</td>
<td>International Classifications of Disease</td>
</tr>
<tr>
<td>ICSU</td>
<td>International Council for Science</td>
</tr>
<tr>
<td>IFs</td>
<td>International Futures computer simulation model</td>
</tr>
<tr>
<td>IHRs</td>
<td>International Health Regulations</td>
</tr>
<tr>
<td>IIASA</td>
<td>International Institute for Applied Systems Analysis</td>
</tr>
<tr>
<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
</tr>
<tr>
<td>LEB</td>
<td>life expectancy at birth</td>
</tr>
<tr>
<td>LES</td>
<td>linear expenditure system</td>
</tr>
<tr>
<td>MDGs</td>
<td>Millennium Development Goals (UN)</td>
</tr>
<tr>
<td>MICS</td>
<td>Multiple Indicator Cluster Survey (UNICEF)</td>
</tr>
<tr>
<td>NCDs</td>
<td>noncommunicable diseases</td>
</tr>
<tr>
<td>NGOs</td>
<td>non-governmental organizations</td>
</tr>
<tr>
<td>OAP</td>
<td>outdoor air pollution</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>OLS</td>
<td>ordinary least squares</td>
</tr>
<tr>
<td>PAF</td>
<td>population attributable fraction</td>
</tr>
<tr>
<td>PM2.5</td>
<td>particulates with a diameter of 2.5 micrometers or less</td>
</tr>
<tr>
<td>PM10</td>
<td>particulates with a diameter of 10 micrometers or less</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>PPP</td>
<td>purchasing power parity</td>
</tr>
<tr>
<td>RR</td>
<td>relative risk</td>
</tr>
<tr>
<td>SAM</td>
<td>social accounting matrix</td>
</tr>
<tr>
<td>SI</td>
<td>smoking impact</td>
</tr>
<tr>
<td>SIR</td>
<td>smoking impact ratio</td>
</tr>
<tr>
<td>UNEP</td>
<td>United Nations Environment Programme</td>
</tr>
<tr>
<td>UNFPA</td>
<td>United Nations Population Fund</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
</tr>
<tr>
<td>UNPD</td>
<td>United Nations Population Division</td>
</tr>
<tr>
<td>USNIC</td>
<td>United States National Intelligence Council</td>
</tr>
<tr>
<td>WDI</td>
<td>World Development Indicators (World Bank)</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>WHOSIS</td>
<td>World Health Organization Statistical Information System</td>
</tr>
<tr>
<td>WHS</td>
<td>World Health Survey (WHO)</td>
</tr>
<tr>
<td>WSH</td>
<td>water, sanitation, and hygiene</td>
</tr>
<tr>
<td>YLDs</td>
<td>years lived with disability</td>
</tr>
<tr>
<td>YLLs</td>
<td>years of life lost</td>
</tr>
</tbody>
</table>