



Global Health 101

SECOND EDITION

Richard Skolnik, MPA

Lecturer

The George Washington University

Washington, DC



JONES & BARTLETT
LEARNING

World Headquarters

Jones & Bartlett Learning
5 Wall Street
Burlington, MA 01803
978-443-5000
info@jblearning.com
www.jblearning.com

Jones & Bartlett Learning Canada
6339 Ormindale Way
Mississauga, Ontario L5V 1J2
Canada

Jones & Bartlett Learning International
Barb House, Barb Mews
London W6 7PA
United Kingdom

Jones & Bartlett Learning books and products are available through most bookstores and online booksellers. To contact Jones & Bartlett Learning directly, call 800-832-0034, fax 978-443-8000, or visit our website, www.jblearning.com.

Substantial discounts on bulk quantities of Jones & Bartlett Learning publications are available to corporations, professional associations, and other qualified organizations. For details and specific discount information, contact the special sales department at Jones & Bartlett Learning via the above contact information or send an email to specialsales@jblearning.com.

Copyright © 2012 by Jones & Bartlett Learning, LLC, an Ascend Learning Company

All rights reserved. No part of the material protected by this copyright may be reproduced or utilized in any form, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written permission from the copyright owner.

This publication is designed to provide accurate and authoritative information in regard to the Subject Matter covered. It is sold with the understanding that the publisher is not engaged in rendering legal, accounting, or other professional service. If legal advice or other expert assistance is required, the service of a competent professional person should be sought.

Production Credits

Publisher: Michael Brown
Managing Editor: Maro Gartside
Editorial Assistant: Teresa Reilly
Editorial Assistant: Chloe Falivene
Production Manager: Carolyn F. Rogers
Marketing Manager: Grace Richards
Associate Marketing Manager: Jody Sullivan
Manufacturing and Inventory Control Supervisor: Amy Bacus
Composition: Publishers' Design and Production Services, Inc.
Illustrations: diacriTech
Cover Design: Kate Ternullo
Cover, Title Page, Section Opener, and Chapter Opener Image: A young girl receives the drug ivermectin (treatment for river blindness) from a community worker in Nigeria. © Kate Holt/Sightsavers
Printing and Binding: Malloy, Inc.
Cover Printing: Malloy, Inc.

Library of Congress Cataloging-in-Publication Data

Skolnik, Richard L.

Global health 101 / Richard Skolnik. — 2nd ed.

p. ; cm. — (Essential public health)

Rev. ed. of: Essentials of global health. c2008.

Includes bibliographical references and index.

ISBN 978-0-7637-9751-5 (pbk.)

1. World health. 2. health—Developing countries. 3. Public health—International cooperation. I. Skolnik, Richard L.

Essentials of global health. II. Title. III. Series: Essential public health.

[DNLM: 1. World Health. 2. Health Services Accessibility. 3. Public Health. WA 530.1]

RA441.S56 2012

362.1—dc23

2011014355

6048

Printed in the United States of America

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1



Contents

Comprehensive Online Resources Available	x
Prologue	xi
Foreword	xiii
Acknowledgments	xvii
About the Author	xxi
Abbreviations	xxiii
Quotable Global Health Quotes	xxvi
Introduction	xxvii
Part I Principles, Measurements, and the Health–Development Link	
Chapter 1 The Principles and Goals of Global Health	3
Vignettes	3
Why Study Global Health	4
Health, Public Health, and Global Health	6
Critical Global Health Concepts	8
Some Key Terms	8
Note on the Use of Data	9
The Millennium Development Goals	9
The Case Studies	11
Smallpox Eradication—The Most Famous Success Story	11
Central Messages of the Book	12
Study Questions	14
References	15

Chapter 2	Health Determinants, Measurements, and Trends	17
	Vignettes	17
	The Importance of Measuring Health Status	18
	The Determinants of Health	18
	Key Health Indicators	20
	Vital Registration	24
	Measuring the Burden of Disease	25
	The Global Burden of Disease	28
	Risk Factors	31
	Demography and Health	33
	Progress in Health Status	36
	The Burden of Disease: Looking Forward	38
	The Development Challenge of Improving Health	41
	Case Study	42
	Main Messages	43
	Study Questions	45
	References	46
Chapter 3	Health, Education, Poverty, and the Economy	49
	Vignettes	49
	Introduction	49
	Health, Education, Productivity, and Poverty	50
	Health and Equity	52
	Health Expenditure and Health Outcomes	58
	Public and Private Expenditure on Health	60
	The Cost-Effectiveness of Health Interventions	61
	Health and Development	63
	Case Study	64
	Main Messages	65
	Study Questions	67
	References	68
Part II	Cross-Cutting Global Health Themes	
Chapter 4	Ethical and Human Rights Concerns in Global Health	71
	Vignettes	71
	The Importance of Ethical and Human Rights Issues in Global Health	71
	The Foundations for Health and Human Rights	72
	Selected Human Rights	73
	Research on Human Subjects	75
	Research Ethics Guidelines	77
	Evaluating the Ethics of Human Subjects Research	79
	Ethical Issues in Making Investment Choices in Health	81
	Key Challenges for the Future	83

	Study Questions	85
	References	86
Chapter 5	An Introduction to Health Systems	87
	Vignettes	87
	Introduction	87
	What Is a Health System?	88
	The Functions of a Health System	88
	How Are Health Services Organized?	90
	Primary Health Care	92
	The Roles of the Public, Private, and NGO Sectors	93
	Health Sector Expenditure	94
	Selected Examples of Health Systems	94
	Key Health Sector Issues	97
	Addressing Key Health Sector Concerns	100
	Policy and Program Briefs	103
	Case Studies	109
	Main Messages	113
	Study Questions	115
	References	116
Chapter 6	Culture and Health	119
	Vignettes	119
	The Importance of Culture to Health	119
	The Concept of Culture	120
	Health Beliefs and Practices	121
	Health Behaviors and Behavior Change	124
	Understanding and Engendering Behavior Change	127
	Social Assessment	128
	Policy and Program Briefs	130
	Main Messages	134
	Study Questions	136
	References	137
Part III	The Burden of Disease	
Chapter 7	The Environment and Health	141
	Vignettes	141
	The Importance of Environmental Health	141
	Key Concepts	143
	Key Environmental Health Burdens	144
	The Burden of Environmentally Related Diseases	145
	The Costs and Consequences of Key Environmental Health Problems	147
	Reducing the Burden of Disease	147

Policy and Program Briefs	151
Future Challenges	155
Main Messages	155
Study Questions	157
References	158
Chapter 8 Nutrition and Global Health	161
Vignettes	161
The Importance of Nutrition	161
Definitions and Key Terms	162
The Determinants of Nutritional Status	163
Gauging Nutritional Status	165
Key Nutritional Needs	165
Nutritional Needs Throughout the Life Cycle	168
The Nutritional State of the World	169
Nutrition, Health, and Economic Development	172
Policy and Program Briefs	173
Case Studies	176
Addressing Future Nutrition Challenges	177
Main Messages	179
Study Questions	181
References	182
Chapter 9 Women's Health	185
Vignettes	185
The Importance of Women's Health	186
Key Definitions	186
The Determinants of Women's Health	186
The Burden of Health Conditions for Females	189
Differences Between the Health of Men and Women	192
The Costs and Consequences of Women's Health Problems	193
Policy and Program Briefs	194
Case Studies	197
Addressing Future Challenges	200
Main Messages	204
Study Questions	205
References	206
Chapter 10 Child Health	209
Vignettes	209
The Importance of Child Health	209
Key Terms	210
Note on Data	210
The Burden of Childhood Illness	211
Risk Factors for Neonatal, Infant, and Child Deaths	218

The Costs and Consequences of Child Morbidity and Mortality	218
Policy and Program Briefs	219
Case Studies	224
Addressing Key Challenges in Child Health	227
Main Messages	232
Study Questions	233
References	234
Chapter 11 Communicable Diseases	237
Vignettes	237
The Importance of Communicable Diseases	237
Key Terms, Definitions, and Concepts	239
Note on the Use of Data in This Chapter	239
The Burden of Communicable Diseases	239
The Costs and Consequences of Communicable Diseases	242
The Leading Burdens of Communicable Diseases	242
Policy and Program Briefs	263
Case Studies	267
Future Challenges to the Control of Communicable Diseases	271
Main Messages	272
Study Questions	274
References	275
Chapter 12 Noncommunicable Diseases	279
Vignettes	279
The Importance of Noncommunicable Diseases	279
Key Definitions	280
A Note on Data	280
The Burden of Noncommunicable Diseases	280
The Costs and Consequences of Noncommunicable Diseases, Tobacco Use, and Alcohol Abuse	286
Addressing the Burden of Noncommunicable Diseases	288
Case Studies	291
Future Challenges	295
Main Messages	296
Study Questions	298
References	299
Chapter 13 Unintentional Injuries	301
Vignettes	301
The Importance of Unintentional Injuries	301
Key Definitions	302
The Burden of Unintentional Injuries	302
Risk Factors for Unintentional Injuries	304
The Costs and Consequences of Injuries	306

Addressing Key Injury Issues	306
Emergency Medical Services	307
Case Studies	308
Future Challenges	309
Main Messages	309
Study Questions	310
References	311
Part IV Working Together to Improve Global Health	313
Chapter 14 Natural Disasters and Complex Humanitarian Emergencies	315
Vignettes	315
The Importance of Natural Disasters and Complex Emergencies to Global Health	315
Key Terms	316
The Characteristics of Natural Disasters	318
The Characteristics of Complex Emergencies	319
The Health Burden of Natural Disasters	319
The Health Effects of Complex Humanitarian Emergencies	320
Addressing the Health Effects of Natural Disasters	322
Addressing the Health Effects of Complex Humanitarian Emergencies	323
Policy and Program Briefs	325
Future Challenges in Meeting the Health Needs of Complex Humanitarian Emergencies and Natural Disasters	330
Main Messages	330
Study Questions	332
References	333
Chapter 15 Working Together to Improve Global Health	335
Vignettes	335
Introduction	336
Cooperating to Improve Global Health	336
Key Actors in Global Health	336
Trends in Global Health Efforts	350
Setting the Global Health Agenda	352
Policy and Program Briefs	353
Case Study	358
Future Challenges	359
Main Messages	360
Study Questions	362
References	363
Chapter 16 Science, Technology, and Global Health	367
Vignettes	367
Introduction	367

The Need for New Products	368
The Potential of Science and Technology	369
Constraints to Applying Science and Technology to Global Health Problems	370
Enhancing New Product Development	373
Policy and Program Briefs	374
Case Studies	378
Main Messages	380
Study Questions	382
References	383
Chapter 17 Working in Global Health	385
Vignettes	385
Introduction	386
Opportunities in Global Health	386
Your Future in Global Health	388
Selected Additional Resources in Careers in Global Health	393
Main Messages	393
Study Questions	394
References	395
Chapter 18 Profiles of Global Health Actors	397
Vignettes	397
Introduction	398
Joanne Carter	398
Pape Gaye	399
David Heymann	400
Jerker Liljestrand	402
Elaine Murphy	403
Poonam Muttreja	404
Albertina Nyatsi	405
Carol Nyirenda	406
Ellyn Ogden	407
Dan and Lindsay Palazuelos	408
David Peters	409
Ouk Vong Vathiny	411
Abdo Yazbeck	412
Main Messages	413
Study Questions	414
Glossary	415
Index	419



Comprehensive Online Resources Available

go.jblearning.com/skolnik2e

A companion website with an exceptional array of valuable, current material, for faculty and students, to support the text.

FOR STUDENTS

Weblinks

Links to additional online resources, organized by chapter of the book, including global health videos; key journal articles and reports on important global health topics; presentations on critical issues in global health; interactive learning modules on topics central to the book; model policy briefs; and lists of work and study abroad opportunities.

Quizzes

Multiple choice quizzes for each chapter help reinforce material learned in the text.

Matching Questions

These exercises further emphasize key terms and topics in an interactive and fun way by having students match each term to its definition.

Animated Flashcards

These study tools provide a definition and ask for the key term—the student submits the answer.

Crossword Puzzles

Based on key terms and concepts in the text, crossword puzzles are an engaging way to reinforce information presented in the text.

Interactive Glossary

Allows you to search for key terms and their definitions alphabetically or by chapter.

FOR INSTRUCTORS

This text also offers a full suite of instructor resources to help facilitate in-class discussion and provide ideas for assignments and further study.

Visit <http://www.jblearning.com> to locate your sales representative and request these valuable resources.



Prologue

In the Prologue to the first edition, I wrote: “The issues of global health have finally arrived in the consciousness of the developed world through a unique union of efforts by former presidents, software pioneers, and rock stars. It is now time that students have a textbook . . . that systematically leads them through the issues of global health from basic principles, to the burden of disease, to examples of successful efforts to improve lives and livelihoods.” The first edition of Richard Skolnik’s book fulfilled these expectations and more.

What can you as students and as faculty expect from the second edition of *Global Health 101*? The second edition builds upon the strengths of the first edition, provides new and updated material, and links the book with one of the widest arrays of web-based global health materials available. Moreover, the second edition is part of the “101” approach to public health education, which fulfills the Recommendations for Undergraduate Public Health Education and learning outcomes published by the Association of American Colleges and Universities and the Association for Prevention Teaching and Research. These recommendations encourage the teaching of global health along with public health and epidemiology in all 4-year and 2-year colleges.

In terms of new and updated materials, you will find an increased emphasis on equity, the social determinants of health, and the use of the latest available data on the burden of specific diseases and their projected burden. This edition also includes many new materials on communicable diseases, including neglected tropical diseases, emerging and re-emerging infectious diseases, and anti-microbial resistance. The chapters on ethics and noncommunicable diseases have also been enhanced. The chapter on health systems has been substantially revised and 30 “Policy and Program Briefs” have been added to the book. Together these changes—and others—make the book the most up to date and comprehensive of the introductory texts available on global health.

In addition, the second edition is accompanied by a unique collection of ancillary materials for use by students and faculty. Try out the book’s website at go.jblearning.com/skolnik2e.

As students you’ll enjoy and learn from the engaging videos, expand your knowledge using the web links, and test your understandings using the interactive questions and answers. For faculty, the book’s website provides an abundance of additional resources to help broaden and deepen students’ understanding of global health.

The field of global health is fast becoming a cornerstone of public health education. Careers in global health are sought after options for many of today’s college graduates. Richard Skolnik has captured the enthusiasm for global health in his book and capped it off with two chapters related to careers in global health. Whether you are taking a global health course as part of general education, a major or minor in public health or global health, your health professions education, or as part of your interest in international affairs, you will find the second edition an exhilarating experience that opens your mind and your heart to the world of global health.

Richard Riegelman, MD, MPH, PhD
Essential Public Health series editor



Foreword

Only a decade ago, a textbook on global health might have targeted students in the health sciences—public health, nursing, or medicine—without any thought that undergraduates might share an enthusiasm and engagement with this topic. Today, interest in global health has exploded and been embraced on campuses across America and around the world. Global Health has attracted the interest of students from many diverse fields—business, law, engineering, computer sciences, economics, and behavioral sciences—not just the health sciences. What has happened to bring about this extraordinary change? Why the tremendous growth in interest in the health of people in the far corners of the world and how does understanding their health affect others?

The end of the 20th century has brought about many changes that have emphasized the fact that we share a common destiny on a shrinking planet. Advances in information and communication technology have made global events instantaneously available, provided us electronic tools to interact with colleagues anywhere in the world at low cost and given us the power to access an incredible store of knowledge on the web. Modern travel makes no location on earth more than a day or so away. Similar advances in molecular biology and genomics have shortened the time between identifying problems and devising novel solutions for new drugs, vaccines, and interventions. These changes have not only opened the world to us but have changed our way of thinking about our fellow humans in this global village. We have been emboldened to want to work together to improve global health and reduce disparities among nations.

One shared and common goal of all humankind is the desire to have a long and healthy life for oneself, one's family, and one's community. The immediate metric that commands our attention is life expectancy at birth, understanding that a child born in many high-income countries today can expect to live about 80 years while a child born in Haiti or in Nigeria will be lucky to reach 40. Why should longevity be so dramatically determined by where we were born? These differences point to a central and motivating theme of global health: the issue of social equity and health disparities. These same inequities that exist globally, among countries, also exist locally, within countries. For example, in some inner cities in the United States, African American children can expect to live a decade or more less than a white child living a few blocks away. Throughout the developing world, these demographic and ethnic disparities apply as well. It is clear then, that while addressing these major disparities in the health of populations in low- and middle-income countries, high-income countries might also better understand and redress their own problems. In essence, global health and domestic health are not opposites but are part of the same continuum. Studies of one can certainly help us understand and find solutions for the other.

In the 20th century, life expectancy at birth, except for sub-Saharan Africa, has increased throughout the world, in part due to public health interventions, disease prevention, and economic development. In the United States, a child born at the turn of the 20th century could expect to live about 40 years and by the turn of the 21st century, this

had increased to nearly 80 years. In China, life expectancy at birth was 39 years in 1960 and increased to 74 years by 2010, the most rapid prolongation of life expectancy in the history of humankind. Only in sub-Saharan Africa did life expectancy that was steadily increasing until 1990 fall off precipitously due to the combined impact of HIV/AIDS and tuberculosis—and it is just beginning to recover.

Global health in the 20th century focused primarily on the control of communicable diseases and diseases of children that were the major determinants of a short life span. As countries have addressed many of these problems and can now anticipate a life expectancy of 60 or more years, many of the problems they face are similar to those in high-income countries and noncommunicable diseases must become a new focus of attention for global health. In fact, in the world today, heart disease has become the number one cause of death, with cancer, stroke, diabetes, and accidents not far behind. Other disabling but nonfatal conditions, such as mental illness, Alzheimer's disease, obesity, and arthritis also diminish our quality of life. Global health in the 21st century will have to address not only the problems of communicable diseases and child survival that were predominant in the 20th century but also the second epidemic of noncommunicable diseases that affect much of the world's population today. We also see a third generation of new global health problems looming in our future—the obesity epidemic, addictions to drugs, alcohol, smoking, environmental hazards, and climate change—that will affect people everywhere and for which we do not have any obvious or simple solutions. These problems will require global solutions that can only be achieved by working together.

If the common aspiration of humankind is to achieve a long, healthy, and productive life for all, then the goal of global health is to create a path to achieve this. We now recognize that place of birth, social class, or ethnic group need not be the single determinant of life expectancy. We have learned a great deal about how to achieve a longer and healthier life—from interventions around clean water and sanitation to prevention programs to immunize children, stop smoking, and reduce obesity, as well as the organization of health systems to screen for disease and deliver care. Yet this huge body of knowledge gleaned over the past century has yet to be adapted and implemented in many parts of the world. The skill sets needed to understand and address these inequities in life expectancy are not the sole province of trained public health and medical specialists. Solutions must include the social scientists who understand and can help change human behavior, lawyers who can address public policies and ethical issues, economists who can identify priorities and economic incentives, business people who understand supply chains and marketing, communications and IT specialists who can link people to knowledge platforms, and engineers who can provide the innovations for change. Success in bringing about global improvements in health will require people with a diverse set of skills who are able to work in environments that are often different from their own and with people whose receptiveness to change may differ.

Ultimately, we may ask “Why should students be concerned about the health of others living with different beliefs in far off places?” The answer is, because it benefits us as much as them. We know that many contagious diseases can be spread rapidly by travel, so we are never more than a flight away from an imported infection. Global health research can be our first line of prevention and can help us identify problems and solutions where the problems are most urgent. Beyond this, the population of many countries is increasingly becoming a melting pot of people who have come from around the world—importing with them different genetic predisposition for diseases and environmental exposures from the past. By understanding global patterns of disease, we can identify hot spots for genetic or noncommunicable diseases or unusual environmental exposures that might provide clues to their origin and risk factors for prevention and cure. Through collaborations in global health research, we can extend our ability to address the most pressing health problems of mankind, combining forces to arrive at solutions faster than we could by working alone. We can also benefit from discoveries like oral rehydration therapy to treat diarrhea, new drugs like artemesin to treat malaria, and interventions like DOTs, directly observed treatment for tuberculosis that were developed through global collaborations in low income settings and are now the standard of care worldwide. Beyond these scientific rationales, global health plays upon the basic humanitarian instinct in all of us—to help those in need. And with this comes a political twist—“health diplomacy”—and the recognition that by working to improve the health of others, we can also improve their well-being, the progress of economic development of their country, and perhaps remove feelings of hopelessness that can lead to despair and terrorism. Indeed, investments in global health can bring many positive returns.

This remarkable volume provides a clear and cogent introduction to the essentials of global health. It lays out the complicated landscape of the field with examples, challenges, and approaches that should be engaging to students in a wide variety of fields of study. It demonstrates how difficult it has been to link ideas we know can improve health with their implementation in the field. And it challenges our morality to appreciate that people born a short flight away are dying at an early age of diseases long addressed in today's high-income societies with solutions that are known to be effective but which are not sufficiently being put in place. This book provides an entrée for students to begin to consider and perhaps engage in opportunities in global health that can address some of these most critical areas relevant to the future of humankind. The pursuit of health is an inherently global enterprise. It will be young people with energy, creativity, leadership, and drive who create the agenda and solutions to address and improve the health condition. Seize the opportunity. The need has never been greater nor the timing more urgent.

Roger I. Glass, MD, PhD
Director, Fogarty International Center
National Institutes of Health
Bethesda, Maryland, USA



Acknowledgments

THE FIRST EDITION

Many people graciously assisted me with the preparation of the first edition of this book, which could never have been completed without their help.

Four colleagues prepared initial chapter drafts and were the co-authors of the chapters indicated: Victor Barbiero for Communicable Diseases; Michael Doney for Unintentional Injuries; Heidi Larson for Child Health; and John Tharakan for Ethics and Human Rights. Vic also provided the Quotable Quotes at the beginning of the book.

A large number of individuals contributed case studies to the first edition. Florence Baingana prepared the case study on mental health in Uganda in Chapter 12. Sadia Chowdhury provided the case study on oral rehydration in Bangladesh in Chapter 5. Ambar Kulshreshtra prepared the case study of Kerala in Chapter 2. Nancy J. Haselow and Musa Obadiah, assisted by Julia Ross, prepared the case study on vitamin A and Ivermectin in Chapter 5. Peter J. Hotez, Ami Shah Brown, and Kari Stoeber provided the case study on the Human Hookworm Vaccine Initiative in Chapter 16 of the first edition. Orin Levine prepared the case study on pneumococcal vaccine that is also in Chapter 16 of the first edition. Andrea Thoumi, a student at Tufts University, provided drafts of the case studies on fistula, the earthquake in Pakistan, refugees in Goma, motorcycle helmets in Taiwan, and speed bumps in Ghana. Andrea also prepared drafts of cases on cataract blindness in India and vitamin A in Nepal, based on *Case Studies in Global Health: Millions Saved*.

A large number of friends and colleagues also reviewed and commented on different book chapters, always adding great value as they did so. These people included: Ian Anderson, Alan Berg, Florence Baingana, Stephanie Calves, Roger-Mark de Souza, Wafaie Fawzi, Charlotte Feldman-Jacobs, Adrienne Germain, Reuben Granich, Robert Hecht, Judith Justice, James Levinson, Kseniya Lvovsky, Venkatesh Mannar, William McGreevey, Anthony Measham, Tom Merrick, Elaine Murphy, Rachel Nugent, Kris Olson, Ramanan Laxminarayanan, Rudy van Puymbroeck, Richard Southby, Ron Waldman, and Abdo Yazbeck.

Several of my former students at The George Washington University, including Yvonne Orji, Sapna Patel, David Schneider, and Melanie Vant, provided background information for the first edition and reviewed various book chapters. Pamela Sud, then a student at Stanford University, also reviewed a number of chapters.

Andrea Thoumi not only helped me to prepare cases, as noted above, but also provided background materials, help with citations, and reviewed a number of chapters.

Jessica Gottlieb, Molly Kinder, and Ruth Levine, then of the Center for Global Development, were especially helpful to the preparation of this book. I am very grateful to them and to the Center for agreeing to make *Case Studies in Global Health: Millions Saved* the companion reader to my book. In addition, my book includes abbreviated versions of 16 of the 20 cases in *Millions Saved*, 14 of which the Center graciously prepared for me. Jessica, Molly, and Ruth also reviewed many of the chapters of my book and Jessica Pickett, who then worked with the Center, also commented on a chapter.

Jessica Roeder, my former colleague at the Harvard School of Public Health, was kind enough to take on a second job at night to help me prepare tables and figures.

I am also especially grateful to my daughter, Rachel, who worked with me almost full time for many months and assisted in preparing background information, tables, figures, and citations and reviewing and editing each chapter of the first edition.

Barry Bloom, then Dean of the Harvard School of Public Health, was kind enough to prepare the preface for the first edition, for which I remain very appreciative.

I remain grateful, as well, to Sir George Alleyne, Dean Jamison, and Adrienne Germaine who very kindly wrote advance praise for the first edition. I am honored, of course, that three such distinguished people would do so.

The staff of Jones & Bartlett Learning, especially Katey Birtcher, Mike Brown, Sophie Fleck, and Rachel Rossi, were also immensely helpful to the preparation of the first edition.

THE SECOND EDITION

The second edition would also have been impossible without the extensive assistance of many people.

Roger Glass, the Director of the Fogarty International Center of the United States National Institutes of Health, has honored me by preparing the foreword for this edition.

Elizabeth H. Bradley, Professor of Public Health and Faculty Director, Global Health Leadership Institute at Yale University, and Prabhat Jha, Canada Research Chair in Health and Development and Director, Centre for Global Health Research at the Li Ka Shing Knowledge Institute, St. Michael's Hospital and Dalla Lana School of Public Health, University of Toronto, prepared advance praise for the book.

Joe Millum, of the United States National Institutes of Health, graciously co-authored the chapter on ethics and global health. Joe did marvelous work revising, expanding, and illuminating the text of the first edition to make the chapter more coherent, more enlightening, and more vibrant.

This edition of the book includes 30 new “Policy and Program Briefs,” many of which were written with the assistance of friends and professional colleagues who provided drafts of the briefs or other major inputs to the brief writing process. These people included: Kate Acosta and Luzon Pahl of TOSTAN, Soji Adeyi of the Affordable Medicines Facility—malaria; Faruque Ahmed of BRAC; Lisa Beyer from the International AIDS Vaccine Initiative (IAVI); Aya Caldwell and Kris Olson of Massachusetts General Hospital; Susan Higman of the Global Health Council, Peg Willingham of Aeras; Dan Kammen, of the University of California, Berkeley and the World Bank, who prepared the draft of the brief on cookstoves; Linda Kupfer of the Fogarty International Center of the US National Institutes of Health; Anjana Padmanabhan of The Global Network on Neglected Tropical Diseases; Jennifer Staple-Clark of Unite for Sight; Eteena Tadjioqueu from the Human Hookworm Vaccine Initiative; and Karen Van der Westhuizen and Patrizia Carlevaro of the Eli Lilly Corporation. Josephine Francisco and her mentor, Tom Davis, allowed me to prepare a brief about breastfeeding in Burundi that was based on Josie's MPH research project. Josie also kindly reviewed the draft of the brief we prepared from her work.

Many former colleagues at the World Bank, WHO, and PRB, as well as other friends, helped me assemble data and other resources for the book. These included John Briscoe, Dave Gwatkin, Rob Hecht, Dean Jamison, Pete Kolsky, Joel Lamstein, Kseniya Lvovsky, Colin Mathers, Kris Olson, Eduardo Perez, David Peters, and Abdo Yazbeck.

A number of colleagues and friends were also kind enough to review sections of the book or whole book chapters, including Leslie Elder of the World Bank, Robert Hecht of the Results for Development Institute, Peter Hotez of The George Washington University, Susan Higman of the Global Health Council, and Rachel Nugent of the Center for Global Development.

I am also exceptionally grateful to the friends and colleagues for whom I have so much respect and who allowed me to prepare a profile of them for the chapter we have added to the second edition called “Profiles of Global Health Actors.” These wonderful people gave much of their time and energy to help us develop a profile about them. Their names appear in Chapter 18.

It would have been impossible, over any time frame, to have prepared this edition without the many former students I was sensible enough to employ for this effort. Laura Chambers, Becky Crowder, Lindsay Gordon, and Emma Morse served as Principal Research Assistants for the second edition. Lindsay and Laura gathered research materials

and data, prepared graphs and tables, and drafted countless policy and program briefs, with which Emma also helped. Lindsay and Laura also developed the initial drafts of most of the profiles in Chapter 18. Becky and Emma reviewed each chapter of the book at each stage of writing and production. Becky, Emma, Laura, and Lindsay were instrumental to the preparation of the book and a delight to work with at all times.

The same enjoyment and many valuable inputs came from working with another group of former students who put in a substantial number of hours on data collection; the review of draft chapters, copyedited chapters, and page proofs; and the preparation of materials for the website. These major contributors to the book included: Shannon Doyle, Elizabeth Gomes, Tae Min Kim, and Sara Walker.

A number of former students also assisted me with data collection for the book and the website including: Ahsan Butt, Tanvi Devi, Jenny Durina, David Hidalgo, and Mara Leff. Lisa Hendrickson commented on the brief on Calcutta Kids. Demitsa Rakitsa prepared the initial draft of the brief on HIV financing in Cambodia and South Africa. Candace Martin helped gather data, prepare references and materials for both the book and the website, and also helped to prepare the brief on sanitation in Indonesia.

My thanks also go to former students who allowed me to put on the book's website the policy briefs they wrote for my classes. Their names appear on their briefs on the website, unless they preferred to make their contributions anonymously.

Richard Riegelman, my former Dean at the George Washington University, friend, and editor of the series of which my book is a part, provided irreplaceable help throughout the preparation of the first and second editions.

The staff of Jones & Bartlett Learning was a delight to work with and immensely helpful, including Mike Brown, Sophie Fleck, Maro Gartside, Catie Heverling, Nicole LaLonde, Carolyn Rogers, and Teresa Reilly.



About the Author

Richard Skolnik has worked for more than 35 years in education, health, and development. Richard is now a half-time Lecturer in Global Health at The George Washington University (GWU) where he teaches two introductory global health courses for undergraduates each term and supervises Master of Public Health (MPH) student projects. Richard also works as an independent consultant on program design, monitoring, and evaluation activities in a number of global health areas.

Until November 2008, Richard was the Vice President for International Programs at the Population Reference Bureau. Earlier, he served as the Executive Director of the Harvard School of Public Health PEPFAR program for AIDS treatment in Botswana, Nigeria, and Tanzania. From 2001 to 2004, Richard was the Director of the Center for Global Health at The George Washington University, where he also taught undergraduate and graduate courses in global health.

Richard worked at the World Bank from 1976 to 2001, last serving as the Director for Health and Education for South Asia. His work at the World Bank focused on health systems development, family planning and reproductive health, child health, the control of communicable diseases, and nutrition in low-income countries. He was extensively engaged with TB, leprosy, and cataract blindness control projects in India that have been cited as important public health successes.

Richard has also participated extensively in policy-making and program development at the international level. Richard coordinated the World Bank's work on TB for 5 years, was deeply involved in the establishment of STOP TB, served on a number of WHO working groups on TB, and served three rounds on the Technical Review Panel of the Global Fund. Richard has led two evaluations of the International AIDS Vaccine Initiative and also led an evaluation of the Global Alliance to Eliminate Leprosy.

In addition, Richard has served on advisory groups and faculty for the Harvard Humanitarian Initiative, the development of a women's health program at Harvard University, and the Global Health Leadership Institute at Yale University. He was also a member of an expert panel that reviewed the Framework Program of the Fogarty Center of the United States National Institutes of Health. He is on the Advisory Board for the College of Health and Human Services at George Mason University. He has given numerous guest lectures.

Richard has been Undergraduate Public Health Teacher of the Year at The George Washington University and was asked in 2009 to deliver a lecture in the GWU "Last Lecture" series (<http://gwired.gwu.edu/sac/LeadershipDevelopment/LastLecture/20092010LastLecture>). In May 2011, Richard was the commencement speaker for the George Mason University College of Health and Human Services.

Richard received a BA from Yale University and an MPA from the Woodrow Wilson School of Princeton University. At Yale, he participated in the Experimental 5-Year BA Program, under which he spent 1 year teaching high

school biology in Laoag City, Philippines, living with the same family with whom he had lived as an exchange student in 1966. Upon graduation from Yale, Richard was selected for a fellowship by the Yale–China Association and spent 2 years teaching at The Chinese University of Hong Kong. In between his 2 years at the Woodrow Wilson School, Richard was a Research Fellow at the Institute of Southeast Asian Studies in Singapore, where he authored a monograph on education and training in Singapore.

Richard has worked in health in Africa, Latin America and the Caribbean, the Middle East and North Africa, South Asia, and Southeast Asia. He has also studied and learned to varying degrees Cantonese, French, Ilocano, Mandarin, Spanish, and Tagalog.



Abbreviations

TERM	DEFINITION
ADB	Asian Development Bank
AfDB	African Development Bank
AIDS	acquired immune deficiency syndrome
APOC	African Programme for Onchocerciasis Control
ARI	acute respiratory infection
ART	antiretroviral therapy
AusAID	Australian Agency for International Development
BCG	Bacillus Calmette-Guérin (the tuberculosis vaccine)
BMI	body mass index
BOD	burden of disease
CDC	The U.S. Centers for Disease Control and Prevention
CFR	case fatality ratio
CHE	complex humanitarian emergency
CIDA	Canadian International Development Agency
CMR	crude mortality rate
CVD	cardiovascular disease
DALY	disability-adjusted life year
DANIDA	Danish International Development Agency
DFID	Department for International Development of the United Kingdom
DHS	Demographic and Health Survey
DPT	diphtheria, pertussis, and tetanus vaccine
EPI	Expanded Program on Immunization
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FSU	Former Soviet Union
GAVI	GAVI Alliance (formerly the Global Alliance for Vaccines and Immunisation)

GDP	gross domestic product
GNP	gross national product
GOBI	growth monitoring, oral rehydration, breastfeeding, and immunization
HALE	health-adjusted life expectancy
Hib	<i>Haemophilus influenzae</i> type b
HIV	human immunodeficiency virus
IAVI	International AIDS Vaccine Initiative
IBRD	International Bank for Reconstruction and Development (World Bank)
IDA	International Development Association (the “soft” lending window of the World Bank)
IDB	Inter-American Development Bank
IDD	iodine deficiency disorder
IDP	internally displaced person
IEC	information, education, and communication
IHD	ischemic heart disease
IMCI	integrated management of childhood illness
IMF	International Monetary Fund
IMR	infant mortality rate
IPT	intermittent preventive treatment
IPV	injectable polio vaccine
IQ	intelligence quotient
IRB	institutional review board
ITI	International Trachoma Initiative
ITN	insecticide-treated net
IUD	intrauterine device
LMICs	low- and middle-income countries
MCH	maternal and child health
MDG	Millennium Development Goal
MDT	multi-drug therapy
MI	The Micronutrient Initiative
MMR	maternal mortality rate
MSF	Doctors Without Borders (Médecins Sans Frontières in French)
NCD	noncommunicable disease
NGO	nongovernmental organization
NID	National Immunization Day
NNMR	neonatal mortality rate
OCP	Onchocerciasis Control Program
OPV	oral polio vaccine
ORS	oral rehydration solution
ORT	oral rehydration therapy
PAHO	Pan American Health Organization
PDP	product development partnership
PEPFAR	President’s Emergency Plan for AIDS Relief
PHC	primary health care
PMTCT	prevention of mother-to-child transmission

PPP	public–private partnership
RBM	Roll Back Malaria
RTI	road traffic injury
SIDA	Swedish International Development Cooperation Agency
STI	sexually transmitted infection
SWAp	sector-wide approach
TB	tuberculosis
TBA	traditional birth attendant
TFR	total fertility rate
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
TT	tetanus toxoid
UN	United Nations
UNAIDS	United Nations Program on HIV/AIDS
UNDP	United Nations Development Program
UNFPA	United Nations Family Planning Association
UNICEF	United Nations Children’s Fund
USAID	U.S. Agency for International Development
WFP	World Food Program
WHA	World Health Assembly of the World Health Organization
WHO	World Health Organization
WHO/TDR	WHO Special Programme for Research and Training in Tropical Diseases
WTO	World Trade Organization
YLD	years lived with disability
YLL	years of life lost



Quotable Global Health Quotes

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.

World Health Organization

Public health . . . represents an organised response to the protection and promotion of human health and encompasses a concern with the environment, disease control, the provision of health care, health education and health promotion.

**Research Unit in Health and Behavioural Change,
University of Edinburgh**

Public health is the science and art of promoting health. It does so based on the understanding that health is a process engaging social, mental, spiritual and physical well-being. Public health acts on the knowledge that health is a fundamental resource to the individual, to the community and to society as a whole and must be supported by soundly investing in living conditions that create, maintain and protect health.

Ilona Kickbusch

Prevention is better than cure.

Desiderius Erasmus

Every patient carries her or his own doctor inside.

Albert Schweitzer

The doctor of the future will give no medicine, but will interest his patients in the care of the human frame, in diet and in the cause and prevention of disease.

Thomas A. Edison

Of all forms of inequality, injustice in health care is the most shocking and inhumane.

Martin Luther King, Jr.

It is health that is real wealth and not pieces of gold and silver.

Mohandas K. (Mahatma) Gandhi

. . . class differences in health represent a double injustice: life is short where its quality is poor.

Richard G. Wilkinson

Where once it was the physician who waged bellum contra morbum, the war against disease, now it's the whole society.

Susan Sontag

Health consists of having the same diseases as one's neighbors.

Quentin Crisp

Be careful about reading health books. You may die of a misprint.

Mark Twain



Introduction

THE IMPORTANCE OF GLOBAL HEALTH

Why should we care about the health of other people, especially that of people in other countries? Why should global health matter to those who live in Australia, France, the United States, or other developed countries? Actually, for a number of critical reasons, the health of people everywhere must be a growing concern for all of us.

First, diseases do not respect boundaries. Human immunodeficiency virus (HIV) has spread worldwide. A person with tuberculosis can infect 15 people a year, wherever they are. The West Nile Virus came from Egypt but occurs today in many countries. In addition, there is an important risk of a worldwide epidemic of influenza. Clearly, the health of each of us increasingly depends on the health of others.

Second, there is an ethical dimension to the health and well-being of other people. Many children in poor countries get sick and die needlessly from malnutrition or from diseases that are preventable and curable. Many adults in poor countries die because they lack access to medicines that are customarily available to people in rich countries. Is this just? Are we prepared to accept such deaths without taking steps to prevent them?

Third, health is closely linked with economic and social development in an increasingly interdependent world. Children who suffer from malnutrition may not reach their full mental potential and may not enroll in or stay in school. Sick children from developing countries are less likely than healthy children to become productive adults who can contribute to the economic standing of their family, community, or country. Adults who suffer from AIDS, tuberculosis, malaria, and other diseases lose income while they are sick and out of work, which is a major contributor to keeping their families in an endless cycle of poverty.

Finally, the health and well-being of people everywhere have important implications for global security and freedom. High rates of HIV have had a destabilizing impact on some countries, as more teachers and health workers died than were being trained, and as there were increasingly insufficient numbers of rural workers to grow and harvest crops. Outbreaks of other diseases, such as cholera, the plague, and SARS (Severe Acute Respiratory Syndrome), for example, threaten people's ability to engage freely in economic pursuits. The 1991 outbreak of cholera in Peru cost that country about \$1 billion, the plague in 1994 cost India about \$2 billion, and SARS in Asia in 2003 cost the economies of Asia a staggering \$18 billion in lost economic activity.

Indeed, these factors have caused an increasing interest in health within universities and a growing call for all university students to study health from a global perspective. The aim of this book is to examine the most critical global health topics in a clear and engaging manner. The book will provide the reader with an overview of the importance of global health in the context of development, an examination of the most important global health issues and their economic and social consequences, and a discussion of some of the steps that are being taken to address these concerns.

It will also provide numerous cases of “success stories” in dealing with important global health problems.

This book is intended to provide an introduction to global health for all students. This includes students who have never studied public health before and who will not take additional public health courses. It also includes those students, whether they have studied public health before or not, who may wish to pursue additional studies in public health later.

This book is largely based on an undergraduate course on global health that I have taught (with a 2-year break) since 2001 at The George Washington University in Washington, DC. The text seeks to “speak” to the reader in a manner one would find in an exciting and motivating classroom. In addition to covering key concepts in global health and frameworks for the analysis of global health issues, this book also contains numerous examples of on-the-ground experiences in addressing key global health problems. Those students who want to explore case studies in greater depth can read the companion volume to this textbook, *Case Studies in Global Health: Millions Saved*.

Very few introductory materials on global health are available to students or their professors. Hopefully, this book will help to close that gap by providing a foundation for enhanced studies in public health, global health, and economic and social development.

THE ORGANIZATION OF THE BOOK

This book is organized in several parts that closely follow the topics mentioned previously. Part I introduces the reader to the basic principles of global health, key measures of health, and the concepts of the health and the development link. Chapter 1 introduces readers to some key principles, themes, and goals of global health. Chapter 2 examines the determinants of health, how health is measured, and how health conditions change over time and as countries develop economically. Chapter 3 looks at the links between health and development, touching upon the connections between health and education, equity, and poverty.

Part II reviews cross-cutting themes in global health. Chapter 4 examines human rights and ethical issues in global health. Chapter 5 covers health systems. This chapter reviews the purpose and goals of health systems and how different countries have organized their health systems. The chapter also reviews the key challenges that health systems face, the costs and consequences of those challenges, and how some countries have addressed health system challenges. Culture plays an extremely important part in health, and Chapter 6 examines the links between culture and health. This chapter reviews the importance of culture to health, how health is perceived in different groups, the manner in which different culture groups seek health care and engage in health practices, and how one can promote change in health behavior.

Part III reviews the most important causes of illness, disability, and death, particularly in low- and middle-income countries. The chapters in this part of the book will examine environmental issues, nutrition, reproductive health, and child health. The book then looks at communicable diseases, noncommunicable diseases, and unintentional injuries.

Part IV examines how cooperative action can address global health issues. Chapter 14 reviews the impact on health of conflicts, natural disasters, and other health emergencies. Chapter 15 examines how different actors in the global health field work both individually and cooperatively to address key global health problems. Chapter 16 reviews how science and technology have helped to improve public health and how further advances in science and technology could help to address some of the most important global health challenges that remain.

A new Part V has been added to the second edition and focuses on careers in the global health field. Chapter 17 examines the types of careers in global health; the skills, knowledge, and experience needed to pursue these careers; and how you can get those skills, knowledge, and experience. The book ends with Chapter 18, which includes profiles of 18 actors in the global health field whose personal stories are meant to inspire you, as well as provide guidance about pursuing a career in global health if that is your interest.

Each chapter follows a similar outline. The chapters begin with vignettes that relate to the topic to be covered and which are intended to make the topic “real” for the reader. Some of these vignettes are not true in the literal sense. However, each of them is based on real events that occur regularly in the countries discussed in this book. Most chapters then explain key concepts, terms, and definitions. The chapters that deal with cross-cutting issues in the second and fourth parts of the book then examine the importance of the topic to enhancing global health, some key chal-

lenges in further improving global health, and what can be done to address those challenges.

The chapters that focus on health conditions look at the importance of the topic to the burden of disease; key issues related to this cause of illness, disability, and death; and the costs and consequences of these issues for individuals, communities, and the world. These chapters then examine what has been learned about how to deal with these health burdens in the most cost-effective ways, the future challenges in each of these areas, and some specific cases of successful efforts at addressing such challenges.

Most chapters contain several case studies. Some of these deal with well-known cases that have already proven to be models for global health efforts. Others, however, are based on experiences that show good promise, both for success and for providing lessons, but which have not yet proven themselves.

Many chapters also contain “policy and program briefs” that are meant to introduce you to important global health topics, actors, and organizations.

Each chapter concludes with a summary of the main messages in the chapter and a set of study questions that can assist the reader in reviewing the materials included in the chapter. Each chapter also contains endnotes with citations for the data that are used in the book. The book does not contain any additional lists of reference materials. Those wishing to explore topics in greater depth will find ample suggestions for additional reading in the endnotes, as well as on the book’s website.

The reader should note that the chapters are not in order of importance. Nutrition, for example, is fundamental to all health concerns; however, it only makes sense to cover nutrition in this book after establishing the context for studying global health and after covering some cross-cutting global health issues. In addition, you will note that there is no chapter called “globalization and health.” Rather, you will find that the relationships between globalization and health are integrated into all of the chapters. Some students may also wish to read Chapter 15 on global health policy, actors, and actions before they cover too many of the other chapters. This will help them understand at an earlier stage how the world has organized to address key global health issues.

THE PERSPECTIVE OF THE BOOK

The book will take a global perspective to all that it covers. Although the book includes many country case studies, topics will be examined from the perspective of the world as a whole. The book also pays particular attention to the links between poverty and health and the relationship between health and equity. Special attention will also be given to gender and ethnicity and their relation to health. Another theme that runs through the book is the connection between health and development.

The book follows the point of view that health is a human right. The book is written with the presumption that governments have an obligation to try to ensure that all of their people have access to an affordable package of healthcare services and that all people are protected from the costs of ill health. The book is also based on the premise, however, that the development of a health system by any country, as discussed further in Chapter 5, is inextricably linked to the value system and the political structure of that country.

The book covers key global health topics, including those that affect developed and developing countries; however, the book pays particular attention to low- and middle-income countries and to poor people within them. The rationale for this is that improving health status indicators within and across countries can only be accomplished if the health of the poor and other disadvantaged groups is improved. In addition, the idea of social justice is at the core of public health.

