

# Delivering Health Care in America

A SYSTEMS APPROACH **SEVENTH EDITION**

**Leiyu Shi, DrPH, MBA, MPA**

Professor, Bloomberg School of Public Health  
Director, Johns Hopkins Primary Care Policy Center  
Johns Hopkins University  
Baltimore, Maryland

**Douglas A. Singh, PhD, MBA**

Associate Professor Emeritus of Management  
School of Business and Economics  
Indiana University, South Bend  
South Bend, Indiana



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 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](http://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](mailto:specialsales@jblearning.com).

Copyright © 2019 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.

The content, statements, views, and opinions herein are the sole expression of the respective authors and not that of Jones & Bartlett Learning, LLC. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not constitute or imply its endorsement or recommendation by Jones & Bartlett Learning, LLC and such reference shall not be used for advertising or product endorsement purposes. All trademarks displayed are the trademarks of the parties noted herein. *Delivering Health Care in America: A Systems Approach, Seventh Edition* is an independent publication and has not been authorized, sponsored, or otherwise approved by the owners of the trademarks or service marks referenced in this product.

There may be images in this book that feature models; these models do not necessarily endorse, represent, or participate in the activities represented in the images. Any screenshots in this product are for educational and instructive purposes only. Any individuals and scenarios featured in the case studies throughout this product may be real or fictitious, but are used for instructional purposes only.

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.

21285-3

### Production Credits

VP, Executive Publisher: David D. Cella  
Publisher: Michael Brown  
Associate Editor: Danielle Bessette  
Production Editor: Vanessa Richards  
Senior Marketing Manager: Sophie Fleck Teague  
Manufacturing and Inventory Control Supervisor: Amy Bacus  
Composition: codeMantra U.S. LLC

Cover Design: Scott Moden  
Rights & Media Specialist: Merideth Tumasz  
Media Development Editor: Shannon Sheehan  
Cover Image (Title Page, Part Opener,  
Chapter Opener): © fl1photo/Shutterstock  
Printing and Binding: LSC Communications  
Cover Printing: LSC Communications

### Library of Congress Cataloging-in-Publication Data

Names: Shi, Leiyu, author. | Singh, Douglas A., 1946- author.  
Title: Delivering health care in America : a systems approach / Leiyu Shi,  
Douglas A. Singh.  
Description: Seventh edition. | Burlington, Massachusetts : Jones & Bartlett  
Learning, [2019] | Includes bibliographical references and index.  
Identifiers: LCCN 2017015329 | ISBN 9781284124491 (pbk.)  
Subjects: | MESH: Delivery of Health Care | Health Policy | Health Services |  
United States  
Classification: LCC RA395.A3 | NLM W 84 AA1 | DDC 362.10973—dc23  
LC record available at <https://lccn.loc.gov/2017015329>

6048

Printed in the United States of America  
21 20 19 18 17 10 9 8 7 6 5 4 3 2 1



# Contents

**Preface** .....vii

**List of Exhibits** ..... xi

**List of Figures** .....xii

**List of Tables** ..... xv

**List of Abbreviations/Acronyms** ..... xvii

**Chapter 1 An Overview of U.S. Health Care Delivery** ..... 1

Introduction ..... 2

An Overview of the Scope and Size of the System ..... 2

A Broad Description of the System ..... 4

Basic Components of a Health Care Delivery System ..... 5

Insurance and Health Care Reform ..... 7

Role of Managed Care ..... 9

Major Characteristics of the U.S. Health Care System ..... 10

Trends and Directions ..... 18

Significance for Health Care Practitioners ..... 19

Significance for Health Care Managers ..... 20

Health Care Systems of Other Countries ..... 22

Global Health Challenges and Reform ..... 33

The Systems Framework ..... 34

Summary ..... 37

Test Your Understanding ..... 37

References ..... 38

## **PART I System Foundations** 43

### **Chapter 2 Beliefs, Values, and Health** ..... 45

Introduction ..... 46

Significance for Managers and Policymakers ..... 46

Basic Concepts of Health ..... 47

Quality of Life ..... 49

Risk Factors and Disease ..... 49

Health Promotion and Disease Prevention ..... 53

Disease Prevention Under the Affordable Care Act ..... 54

Public Health ..... 56

Health Protection and Preparedness in the United States ..... 60

Determinants of Health ..... 62

Measures Related to Health ..... 65

Anthro-Cultural Beliefs and Values ..... 72

Integration of Individual and Population Health ..... 79

Summary ..... 85

Test Your Understanding ..... 86

References ..... 88

### **Chapter 3 The Evolution of Health Services in the United States** ..... 95

Introduction ..... 96

Medical Services in the Preindustrial Era ..... 97

Medical Services in the Postindustrial Era . . . . . 103  
 Medical Care in the Corporate Era . . . . . 121  
 Globalization of Health Care . . . . . 122  
 The Era of Health Care Reform . . . . . 124  
 Summary . . . . . 129  
 Test Your Understanding . . . . . 130  
 References . . . . . 131

**PART II System Resources 135**

**Chapter 4 Health Services Professionals . . . . . 137**

Introduction . . . . . 138  
 Physicians . . . . . 140  
 Issues in Medical Practice, Training, and Supply . . . . . 147  
 International Medical Graduates . . . . . 151  
 Dentists . . . . . 153  
 Pharmacists . . . . . 154  
 Other Doctoral-Level Health Professionals . . . . . 155  
 Nurses . . . . . 156  
 Advanced Practice Nurses . . . . . 157  
 Midlevel Providers . . . . . 158  
 Allied Health Professionals . . . . . 160  
 Health Services Administrators . . . . . 163  
 Global Health Workforce Challenges . . . . . 165  
 Summary . . . . . 167  
 Test Your Understanding . . . . . 167  
 References . . . . . 168  
 Appendix 4-A List of Professional Associations . . . . . 173

**Chapter 5 Medical Technology . . . . . 175**

Introduction . . . . . 176  
 What Is Medical Technology? . . . . . 177  
 Information Technology and Informatics . . . . . 177  
 The Internet, E-Health, M-Health, and E-Therapy . . . . . 183

Telemedicine, Telehealth, and Remote Monitoring . . . . . 185  
 Innovation, Diffusion, and Utilization of Medical Technology . . . . . 187  
 The Government’s Role in Technology Diffusion . . . . . 192  
 The Impact of Medical Technology . . . . . 198  
 The Assessment of Medical Technology . . . . . 203  
 Directions and Issues in Health Technology Assessment . . . . . 206  
 Health Care Reform and Medical Technology . . . . . 208  
 Summary . . . . . 209  
 Test Your Understanding . . . . . 210  
 References . . . . . 211

**Chapter 6 Health Services Financing . . . 217**

Introduction . . . . . 218  
 The Role and Scope of Health Services Financing . . . . . 218  
 Financing and Cost Control . . . . . 220  
 The Insurance Function . . . . . 221  
 Private Health Insurance . . . . . 222  
 Private Coverage and Cost Under the Affordable Care Act . . . . . 230  
 Public Health Insurance . . . . . 232  
 The Payment Function . . . . . 247  
 National Health Care Expenditures . . . . . 254  
 Current Directions and Issues . . . . . 259  
 Summary . . . . . 261  
 Test Your Understanding . . . . . 262  
 References . . . . . 263

**PART III System Processes 267**

**Chapter 7 Outpatient and Primary Care Services . . . . . 269**

Introduction . . . . . 270  
 What Is Outpatient Care? . . . . . 270

The Scope of Outpatient Services .....	271	What Is Managed Care? .....	361
Primary Care .....	273	Evolution of Managed Care .....	363
Primary Care and the Affordable Care Act .....	276	Growth of Managed Care .....	365
New Directions in Primary Care .....	277	Efficiencies and Inefficiencies in Managed Care .....	368
Primary Care Providers .....	279	Cost Control in Managed Care .....	368
Growth in Outpatient Services .....	280	Types of Managed Care Organizations .....	374
Types of Outpatient Care Settings and Methods of Delivery .....	282	Trends in Managed Care .....	379
Complementary and Alternative Medicine .....	300	Impact on Cost, Access, and Quality .....	380
Utilization of Outpatient Services .....	302	Managed Care Backlash, Regulation, and the Aftermath .....	383
Primary Care in Other Countries .....	306	Organizational Integration .....	384
Summary .....	307	Basic Forms of Integration .....	388
Test Your Understanding .....	308	Highly Integrated Health Care Systems .....	389
References .....	309	Summary .....	392
		Test Your Understanding .....	393
		References .....	394
<b>Chapter 8 Inpatient Facilities and Services .....</b>	<b>315</b>	<b>Chapter 10 Long-Term Care .....</b>	<b>399</b>
Introduction .....	316	Introduction .....	400
Hospital Transformation in the United States .....	316	The Nature of Long-Term Care .....	402
The Expansion Phase: Late 1800s to Mid-1980s .....	320	Long-Term Care Services .....	406
The Downsizing Phase: Mid-1980s Onward .....	322	Users of Long-Term Care .....	411
Some Key Utilization Measures and Operational Concepts .....	325	Level of Care Continuum .....	412
Factors That Affect Hospital Employment .....	330	Home- and Community-Based Services .....	414
Hospital Costs .....	331	Institutional Long-Term Care Continuum .....	420
Types of Hospitals .....	332	Specialized Care Facilities .....	424
Expectations for Nonprofit Hospitals .....	343	Continuing Care Retirement Communities .....	425
Some Management Concepts .....	344	Institutional Trends, Utilization, and Costs .....	426
Licensure, Certification, and Accreditation .....	347	Insurance for Long-Term Care .....	428
The Magnet Recognition Program .....	348	Summary .....	429
Ethical and Legal Issues in Patient Care .....	349	Test Your Understanding .....	430
Summary .....	351	References .....	431
Test Your Understanding .....	353	<b>Chapter 11 Health Services for Special Populations .....</b>	<b>435</b>
References .....	355	Introduction .....	436
<b>Chapter 9 Managed Care and Integrated Organizations .....</b>	<b>359</b>	Framework to Study Vulnerable Populations .....	436
Introduction .....	360	Racial/Ethnic Minorities .....	437

The Uninsured . . . . . 451  
 Children . . . . . 451  
 Women . . . . . 455  
 Rural Health . . . . . 458  
 Migrant Workers . . . . . 460  
 The Homeless . . . . . 461  
 Mental Health . . . . . 464  
 The Chronically Ill . . . . . 468  
 HIV/AIDS . . . . . 470  
 Summary . . . . . 476  
 Test Your Understanding . . . . . 476  
 References . . . . . 477

**PART IV System Outcomes 485**

**Chapter 12 Cost, Access, and Quality . . . 487**

Introduction . . . . . 488  
 Cost of Health Care . . . . . 488  
 Reasons for Cost Escalation . . . . . 496  
 Cost Containment: Regulatory Approaches . . . . . 501  
 Cost Containment: Competitive Approaches . . . . . 507  
 Cost Containment Under Health Reform . . . . . 508  
 Access to Care . . . . . 509  
 The Affordable Care Act and Access to Care . . . . . 514  
 Quality of Care . . . . . 517  
 Dimensions of Quality . . . . . 518  
 Quality Assessment and Assurance . . . . . 520  
 Public Reporting of Quality . . . . . 524  
 The Affordable Care Act and Quality of Care . . . . . 526  
 Summary . . . . . 527  
 Test Your Understanding . . . . . 528  
 References . . . . . 530

**Chapter 13 Health Policy . . . . . 537**

Introduction . . . . . 538  
 What Is Health Policy? . . . . . 538  
 Principal Features of U.S. Health Policy . . . . . 541  
 The Development of Legislative Health Policy . . . . . 550  
 The Policy Cycle . . . . . 550  
 Policy Implementation . . . . . 553  
 Critical Policy Issues . . . . . 554  
 Summary . . . . . 560  
 Test Your Understanding . . . . . 560  
 References . . . . . 561

**PART V System Outlook 563**

**Chapter 14 The Future of Health Services Delivery . . . . . 565**

Introduction . . . . . 566  
 Forces of Future Change . . . . . 566  
 The Future of Health Care Reform . . . . . 573  
 The Health Care Delivery Infrastructure of the Future . . . . . 577  
 The Future of Long-Term Care . . . . . 582  
 Global Threats and International Cooperation . . . . . 584  
 New Frontiers in Clinical Technology . . . . . 585  
 The Future of Evidence-Based Health Care . . . . . 587  
 Summary . . . . . 590  
 Test Your Understanding . . . . . 590  
 References . . . . . 591

**Glossary . . . . . 595**

**Index . . . . . 619**



# Preface

With this *Seventh Edition*, we celebrate 20 years of serving instructors, students, policymakers, and others, both at home and overseas, with up-to-date information on the dynamic U.S. health care delivery system. Much has changed, and much will continue to change in the future, as the nation grapples with critical issues of access, cost, and quality. Indeed, much of the developing and developed world will also be contending with similar issues.

People in the United States, in particular, have just gotten a taste of a far-reaching health care reform through President Barack Obama's signature Affordable Care Act (ACA), nicknamed "Obamacare." To date, this law has produced mixed results that are documented in this new edition.

At the time this edition went to press, we were left with promises of another reform under the slogan "Repeal and replace Obamacare," a move championed by President Donald Trump, who had made it one of the centerpieces of his presidential campaign. Much remains to be seen as to how this promise will play out.

On May 4, 2017, the U.S. House of Representatives passed the American Health Care Act (AHCA) by a vote of 217 to 213, with Republican support. The bill is likely to undergo significant changes in the U.S. Senate. Hence, what the new law may eventually look like was unknown at the time this manuscript went to press. As was the case with the ACA, for which the Democratic Party played an exclusive role in its passage, contentious debates, partisanship, and deal making among both Republicans and Democrats have marked

the progress in moving the new law through Congress.

Although we have chosen to sidestep any premature speculation about the fate of the ACA and the shape of its replacement, wherever possible, we have presented trends and facts that support certain conclusions. Mainly, experiences and outcomes under the ACA have been highlighted in this edition.

On his first day in office in January 2017, President Trump signed an executive order to "waive, defer, grant exemptions from, or delay the implementation of any provision or requirement of the [Affordable Care] Act that would impose a fiscal burden on any State or a cost, fee, tax, penalty, or regulatory burden on individuals, families, health care providers, health insurers, patients, recipients of health care services, purchasers of health insurance, or makers of medical devices, products, or medications." This executive order effectively repealed small portions of the ACA that deal with taxation and fees.

Going forward, the issues of universal coverage and affordability of insurance and health care will be critical. Under the ACA, approximately 27 million people remained uninsured, even though the uninsurance rate in the United States dropped from 13.3% to 10.9% between 2013 and 2016. The majority of the newly insured individuals were covered under Medicaid, the nation's safety net health insurance program for the poor.

Another thorny issue will be how to provide health care for the millions of illegal immigrants who obtain services mainly through hospital emergency departments, and through charitable sources to some extent. Is there a better, more cost-effective way to address their needs?

The affordability of health insurance in the non-employment-based private market was severely eroded under the ACA, mainly for those who did not qualify for federal subsidies to buy insurance. The reason for the rate hikes in this segment was that few young and healthy people enrolled in health care plans under the ACA. Consequently, for many people, premium costs rose to unaffordable levels in 2016. People who really needed to use health care enrolled in much larger numbers than healthier individuals. Such an adverse selection prompted the chief executive of Aetna Insurance, Mark Bertolini, to remark that the marketplace for individual health insurance coverage was in a “death spiral.” Some large insurance companies either pulled out of the government-sponsored health care exchanges or were planning to do so because of financial losses sustained under the ACA.

## ► New to This Edition

This edition continues to reference some of the main features of the ACA wherever it was important to provide contextual discussions from historical and policy perspectives. Several chapters cover the main provisions of the 21st Century Cures Act, which, after a long delay, was finally passed by Congress and signed by President Obama in December 2016.

As in the past, this text has been updated throughout with the latest pertinent data, trends, and research findings available at the time the manuscript was prepared. Copious illustrations in the form of examples, facts, figures, tables, and exhibits continue to make the text come alive. Following is a list of the main additions and revisions:

### Chapter 1

- Updates the impact of the Affordable Care Act (ACA)

- Critical global health issues and health care reforms in other countries

### Chapter 2

- Health insurance under the ACA
- Evaluation of progress made toward the *Healthy People 2020* goals
- Information on global pandemics and infectious diseases

### Chapter 3

- Expanded section: Reform of mental health care
- Complete revision of the section: Era of health care reform

### Chapter 4

- Major issues related to the health care workforce
- Updated information on nonphysician providers

### Chapter 5

- New section: Electronic health records and quality of care
- Global trends in biomedical research and a new table on R&D expenditures
- New section: Drugs from overseas
- New section: Health care reform and medical technology

### Chapter 6

- New section: Private coverage and cost under the Affordable Care Act
- New section: Medicaid experiences under the ACA



- New section: Issues with Medicaid
- New section: Long-term care hospital payment systems
- New section: Value-based reimbursement (discusses the MACRA and Medicare Shared Savings Program)
- Updated current directions and issues in financing

## Chapter 7

- Research findings using the Primary Care Assessment Tool
- Measurement and achievement of the patient-centered medical home
- The impact of community health centers

## Chapter 8

- New section: Comparative data from the Organization for Economic Cooperation and Development on hospital access and utilization
- Comparative hospital prices in selected countries
- New section: Factors that affect hospital employment
- New section: Rise in bad debts
- New section: State mental health institutions
- Update on physician-owned specialty hospitals
- Medicare designations of sole community hospitals and Medicare-dependent hospitals
- Patient outcomes at Magnet hospitals
- New section: Hospital costs

## Chapter 9

- “Any willing provider” and “freedom of choice” laws under managed care regulations
- The latest on accountable care organizations

## Chapter 10

- New section: Recent policies for community-based services

## Chapter 11

- Updated information on vulnerable subpopulations
- Expanded coverage on chronically ill patients

## Chapter 12

- Current issues in health care costs, access, and quality
- Pay-for-performance in health care
- Quality initiatives in both the public and private sectors

## Chapter 13

- Current critical policy challenges
- Future health policy issues in both the United States and abroad

## Chapter 14

- Almost all sections have been completely updated
- New section: No single payer
- New section: Reforming the reform
- New section: Universal coverage and access
- New section: Toward population health

As in the previous editions, our aim is to continue to meet the needs of both graduate and undergraduate students. We have attempted to make each chapter complete, without making it overwhelming for beginners. Instructors, of course, will choose the sections they decide are most appropriate for their courses.

As in the past, we invite comments from our readers. Communications can be directed to either or both authors:

Leiyu Shi  
Department of Health Policy and Management  
Bloomberg School of Public Health  
Johns Hopkins University  
624 North Broadway, Room 409  
Baltimore, MD 21205-1996  
lshi2@jhu.edu

Douglas A. Singh  
dsingh@iusb.edu

We appreciate the work of Hailun Liang and Megha Parikh in providing assistance in the preparation of selected chapters of this text.



# List of Exhibits

- |                    |  |                     |   |
|--------------------|--|---------------------|---|
| <b>Exhibit 3-1</b> | Evolution of the U.S. Health Care Delivery System <b>97</b>  | <b>Exhibit 6-4</b>  | Medicare Part D Benefits and Individual Out-of-Pocket Costs for 2017 <b>239</b> |
| <b>Exhibit 3-2</b> | Groundbreaking Medical Discoveries <b>104</b>  | <b>Exhibit 9-1</b>  | The Evolution of Managed Care <b>364</b>  |
| <b>Exhibit 4-1</b> | Definitions of Medical Specialties and Subspecialties <b>142</b>                                   | <b>Exhibit 11-1</b> | The Vulnerability Framework <b>436</b>  |
| <b>Exhibit 4-2</b> | Examples of Allied Health Professionals <b>161</b>   | <b>Exhibit 11-2</b> | Predisposing, Enabling, and Need Characteristics of Vulnerability <b>437</b>    |
| <b>Exhibit 6-1</b> | Key Differences Between a Health Reimbursement Arrangement and a Health Savings Account <b>227</b> | <b>Exhibit 12-1</b> | Regulation-Based and Competition-Based Cost-Containment Strategies <b>503</b>   |
| <b>Exhibit 6-2</b> | Medicare Part A Financing, Benefits, Deductible, and Copayments for 2017 <b>235</b>                | <b>Exhibit 13-1</b> | Key Health Care Concerns of Selected Interest Groups <b>544</b>                 |
| <b>Exhibit 6-3</b> | Medicare Part B Financing, Benefits, Deductible, and Coinsurance for 2017 <b>237</b>               | <b>Exhibit 13-2</b> | Arguments for Enhancing States' Role in Health Policy Making <b>547</b>         |



# List of Figures

- Figure 1-1** Basic health care delivery functions. **6**
- Figure 1-2** External forces affecting health care delivery. **10**
- Figure 1-3** Relationship between price, supply, and demand under free-market conditions. **12**
- Figure 1-4** Trends and directions in health care delivery. **18**
- Figure 1-5** The systems model and related chapters. **35**
- Figure 2-1** The four dimensions of holistic health. **48**
- Figure 2-2** The Epidemiology Triangle. **50**
- Figure 2-3** WHO Commission on Social Determinants of Health conceptual framework. **65**
- Figure 2-4** Integrated model for holistic health. **81**
- Figure 2-5** Action model to achieve U.S. *Healthy People 2020* overarching goals. **82**
- Figure 4-1** Ambulatory care visits to physicians according to physician specialty, 2012. **145**
- Figure 4-2** Supply of U.S. physicians, including international medical graduates (IMGs), per 100,000 population, 1985–2013. **148**
- Figure 4-3** Trend in U.S. primary care generalists of medicine. **150**
- Figure 4-4** IMG physicians as a proportion of total active physicians. **152**
- Figure 6-1** Influence of financing on the delivery of health services. **220**
- Figure 6-2** Health insurance status of the total U.S. population, 2015. **222**
- Figure 6-3** Sources of Medicare financing, 2015. **240**
- Figure 6-4** Medicare spending for services, 2015. **241**
- Figure 6-5** Medicaid spending for services, 2014. **244**
- Figure 6-6** Proportional distribution of U.S. private and public shares of national health expenditures. **257**
- Figure 6-7** The U.S. health dollar, 2015. **258**
- Figure 7-1** The coordination role of primary care in health care delivery. **274**
- Figure 7-2** Percentage of total surgeries performed in outpatient departments of U.S. community hospitals, 1980–2013. **281**
- Figure 7-3** Growth in the number of medical group practices in the United States. **283**
- Figure 7-4** Ambulatory care visits in the United States. **284**
- Figure 7-5** Medical procedures by location. **285**
- Figure 7-6** Demographic characteristics of U.S. home health patients, 2013. **291**

- Figure 7-7** Estimated payments for home care by payment source, 2014. **291**
- Figure 7-8** Types of hospice agencies, 2014. **295**
- Figure 7-9** Coverage of patients for hospice care at the time of admission, 2014. **296**
- Figure 8-1** Trends in the number of U.S. community hospital beds per 1,000 resident population. **322**
- Figure 8-2** The decline in the number of U.S. community hospitals and beds. **322**
- Figure 8-3** Ratio of hospital outpatient visits to inpatient days for all U.S. hospitals, 1980–2013 (selected years). **323**
- Figure 8-4** Trends in average length of stay in nonfederal short-stay hospitals, selected years. **327**
- Figure 8-5** Average lengths of stay by U.S. hospital ownership, selected years. **328**
- Figure 8-6** Breakdown of U.S. community hospitals by size, 2013. **329**
- Figure 8-7** Change in occupancy rates in U.S. community hospitals, 1960–2013 (selected years). **329**
- Figure 8-8** Proportion of total U.S. hospitals by type of hospital, 2014. **332**
- Figure 8-9** Breakdown of U.S. community hospitals by type of ownership, 2013. **334**
- Figure 8-10** Hospital governance and operational structures. **345**
- Figure 9-1** Percentage of worker enrollment in health plans, selected years. **360**
- Figure 9-2** Integration of health care delivery functions through managed care. **362**
- Figure 9-3** Growth in the cost of U.S. health insurance (private employers), 1980–1995. **367**
- Figure 9-4** Care coordination and utilization control through gatekeeping. **370**
- Figure 9-5** Case management function in care coordination. **371**
- Figure 9-6** Percentage of covered employees enrolled in HMO plans, selected years. **375**
- Figure 9-7** The IPA-HMO model. **377**
- Figure 9-8** Percentage of covered employees enrolled in PPO plans, selected years. **378**
- Figure 9-9** Percentage of covered employees enrolled in POS plans, selected years. **379**
- Figure 9-10** Share of managed care enrollments in employer-based health plans, 2016. **379**
- Figure 9-11** Organizational integration strategies. **386**
- Figure 10-1** People with multiple chronic conditions are more likely to have activity limitations. **401**
- Figure 10-2** Medicare enrollees age 65 and older with functional limitations according to where they live, 2009. **401**
- Figure 10-3** Key characteristics of a well-designed long-term care system. **404**
- Figure 10-4** Range of services for individuals in need of long-term care. **410**
- Figure 10-5** Users of long-term care by age group. **411**
- Figure 10-6** Most frequently provided services to home health patients. **415**
- Figure 10-7** Sources of payment for home health care, 2014. **416**
- Figure 10-8** Changes in the percentages of nursing home residents with

- various conditions between 2005 and 2015. **422**
- Figure 10-9** Distinctly certified units in a nursing home. **423**
- Figure 10-10** Sources of financing nursing home care, 2014. **428**
- Figure 11-1** Percentage of U.S. live births weighing less than 2,500 grams by mother's detailed race. **438**
- Figure 11-2** Percentage of U.S. mothers who smoked cigarettes during pregnancy according to mother's race. **440**
- Figure 11-3** Alcohol consumption by persons 18 years of age and older. **441**
- Figure 11-4** Use of mammography by women 40 years of age and older, 2013. **441**
- Figure 11-5** U.S. life expectancy at birth, 1970–2014. **442**
- Figure 11-6** Age-adjusted maternal mortality rates. **445**
- Figure 11-7** Respondent-assessed health status. **447**
- Figure 11-8** Current cigarette smoking by persons 18 years of age and older, age adjusted, 2014. **447**
- Figure 11-9** Percentage of female students of total enrollment in schools for selected health occupations, 2013–2014. **455**
- Figure 11-10** Contraceptive use in the past month among women 15–44 years old, 2011–2013. **457**
- Figure 11-11** AIDS cases reported in the United States, 1987–2014. **470**
- Figure 11-12** Federal spending for HIV/AIDS by category, FY 2016. **475**
- Figure 12-1** Average annual percentage growth in U.S. national health care spending, 1960–2014. **489**
- Figure 12-2** Annual percentage change in CPI and medical inflation, 1975–2014. **491**
- Figure 12-3** Annual percentage change in U.S. national health care expenditures and GDP, 1980–2013. **492**
- Figure 12-4** U.S. health care spending as a percentage of GDP for selected OECD countries, 1985 and 2014. **493**
- Figure 12-5** Life expectancy of Americans at birth, age 65, and age 75, 1900–2014 (selected years). **497**
- Figure 12-6** Change in U.S. population mix between 1970 and 2014, and projections for 2030. **498**
- Figure 12-7** Increase in U.S. per capita Medicare spending, 1970–2014 (selected years). **505**
- Figure 12-8** Framework for access in the managed care context. **511**
- Figure 12-9** The Donabedian model. **521**



# List of Tables

<b>Table 1-1</b>	The Complexity of Health Care Delivery <b>3</b>	<b>Table 5-2</b>	MRI Units Available per 1,000,000 Population in Selected Countries, 2014 <b>187</b>
<b>Table 1-2</b>	The Continuum of Health Care Services <b>17</b>	<b>Table 5-3</b>	Global Biomedical R&D Expenditures in Selected Regions, 2007 and 2012 <b>191</b>
<b>Table 2-1</b>	Percentage of U.S. Population with Behavioral Risks <b>51</b>	<b>Table 5-4</b>	Summary of FDA Legislation <b>193</b>
<b>Table 2-2</b>	Annual Percentage Decline in U.S. Cancer Mortality, 1991–2013 <b>55</b>	<b>Table 6-1</b>	Trends in Employment-Based Health Insurance, Selected Years <b>229</b>
<b>Table 2-3</b>	Leading Causes of Death, 2014 <b>58</b>	<b>Table 6-2</b>	Medicare: Enrolled Population and Expenditures in Selected Years <b>240</b>
<b>Table 2-4</b>	U.S. Life Expectancy at Birth—2002, 2007, and 2014 <b>66</b>	<b>Table 6-3</b>	Status of HI and SMI Trust Funds (Billions of Dollars), 2012–2015 <b>241</b>
<b>Table 2-5</b>	Comparison of Market Justice and Social Justice <b>77</b>	<b>Table 6-4</b>	U.S. National Health Expenditures in Selected Years <b>255</b>
<b>Table 2-6</b>	<i>Healthy People 2020</i> Topic Areas <b>83</b>	<b>Table 6-5</b>	Percentage Distribution of U.S. National Health Expenditures, 2010 and 2015 <b>256</b>
<b>Table 4-1</b>	Persons Employed in Health Service Sites <b>139</b>	<b>Table 7-1</b>	Owners, Providers, and Settings for Ambulatory Care Services <b>271</b>
<b>Table 4-2</b>	Active U.S. Physicians According to Type of Physician and Number per 10,000 Population <b>140</b>	<b>Table 7-2</b>	Growth in Female U.S. Resident Population by Age Groups Between 1980 and 2014 (in Thousands) <b>287</b>
<b>Table 4-3</b>	U.S. Physicians According to Activity and Place of Medical Education, 2013 <b>143</b>	<b>Table 7-3</b>	Selected Organizational Characteristics of U.S. Home Health and Hospice Care Agencies in the United States, 2014 <b>292</b>
<b>Table 4-4</b>	Mean Annual Compensation for U.S. Physicians by Specialty, May 2016 (in Dollars) <b>151</b>	<b>Table 7-4</b>	Home Health and Hospice Care Patients Served at the Time of the Interview, by Agency Type and Number of
<b>Table 4-5</b>	Percentage of Total Enrollment of Students in Programs for Selected Health Occupations, by Race, 2008–2009 <b>152</b>		
<b>Table 5-1</b>	Examples of Medical Technologies <b>178</b>		

	Patients in the United States, 2007 <b>293</b>	<b>Table 11-4</b>	Selected Health Risks Among Persons 20 Years and Older, 2011–2014 <b>447</b>
<b>Table 7-5</b>	U.S. Physician Characteristics, 2013 <b>302</b>	<b>Table 11-5</b>	Vaccinations of Children 19–35 Months of Age for Selected Diseases According to Race, Poverty Status, and Residence in a Metropolitan Statistical Area (MSA), 2014 (%) <b>453</b>
<b>Table 7-6</b>	Principal Reason for Visiting a Physician <b>304</b>	<b>Table 11-6</b>	Mental Health Organizations, 2010 <b>466</b>
<b>Table 7-7</b>	Primary Diagnosis Group <b>305</b>	<b>Table 11-7</b>	Mental Health Providers by Discipline, Selected Years <b>468</b>
<b>Table 8-1</b>	Share of Personal Health Expenditures Used for Hospital Care <b>324</b>	<b>Table 11-8</b>	AIDS Cases Reported in the United States, 2010–2014 Cumulative and 2014 <b>471</b>
<b>Table 8-2</b>	Discharges, Average Length of Stay, and Average Cost per Stay in U.S. Community Hospitals, 2012 <b>325</b>	<b>Table 12-1</b>	Average Annual Percentage Increase in U.S. National Health Care Spending, 1975–2014 <b>490</b>
<b>Table 8-3</b>	Inpatient Hospital Utilization: Comparative Data for Selected OECD Countries, 2012 (or Nearest Year) <b>328</b>	<b>Table 12-2</b>	Total U.S. Health Care Expenditures as a Proportion of GDP and per Capita Health Care Expenditures (Selected Years, Selected OECD Countries; per Capita Expenditures in U.S. Dollars) <b>492</b>
<b>Table 8-4</b>	Cost per Inpatient Day in Selected Countries, 2012 <b>331</b>	<b>Table 12-3</b>	Visits to Office-Based Physicians, 2012 <b>515</b>
<b>Table 8-5</b>	Changes in Number of U.S. Hospitals, Beds, Average Size, and Occupancy Rates <b>334</b>	<b>Table 12-4</b>	Number of Health Care Visits According to Selected Patient Characteristics, 2014 <b>515</b>
<b>Table 8-6</b>	The Largest U.S. Multihospital Chains, 2014 <b>335</b>	<b>Table 12-5</b>	Dental Visits in the Past Year Among Persons 18–64 Years of Age, 2014 <b>516</b>
<b>Table 10-1</b>	Trends in Number of Long-Term Care Facilities, Beds/Resident Capacity, and Prices, Selected Years <b>427</b>		
<b>Table 11-1</b>	Characteristics of U.S. Mothers by Race/Ethnicity <b>439</b>		
<b>Table 11-2</b>	Age-Adjusted Death Rates for Selected Causes of Death, 1970–2014 <b>442</b>		
<b>Table 11-3</b>	Infant, Neonatal, and Post-neonatal Mortality Rates by Mother’s Race (per 1,000 Live Births) <b>446</b>		





# List of Abbreviations/Acronyms

## A

**AALL**—American Association of Labor Legislation  
**AAMC**—Association of American Medical Colleges  
**AA/PIs**—Asian Americans and Pacific Islanders  
**AAs**—Asian Americans  
**ACA**—Affordable Care Act  
**ACNM**—American College of Nurse-Midwives  
**ACO**—accountable care organization  
**ACS**—American College of Surgeons  
**ADA**—American Dental Association  
**ADC**—adult day care  
**ADLs**—activities of daily living  
**ADN**—associate’s degree nurse  
**AFC**—adult foster care  
**AHA**—American Hospital Association  
**AHRQ**—Agency for Healthcare Research and Quality  
**AIANs**—American Indians and Alaska Natives  
**AIDS**—acquired immunodeficiency syndrome  
**ALF**—assisted living facility  
**ALOS**—average length of stay  
**AMA**—American Medical Association  
**AMDA**—American Medical Directors Association  
**ANA**—American Nurses Association  
**APCs**—ambulatory payment classifications  
**APN**—advanced practice nurse  
**ARRA**—American Recovery and Reinvestment Act

**ASPR**—Assistant Secretary for Preparedness and Response

## B

**BBA**—Balanced Budget Act  
**BPCI**—bundled payments for care improvement  
**BSN**—baccalaureate degree in nursing  
**BWC**—Biological and Toxin Weapons Convention

## C

**CAH**—critical access hospital  
**CAM**—complementary and alternative medicine  
**CBO**—Congressional Budget Office  
**CAAH**—continuing care at home  
**CCRC**—continuing care retirement center/community  
**CDC**—Centers for Disease Control and Prevention  
**CDSS**—clinical decision support system  
**CEO**—chief executive officer  
**CEPH**—Council on Education for Public Health  
**CER**—comparative effectiveness research  
**CF**—conversion factor  
**CHAMPVA**—Civilian Health and Medical Program of the Department of Veterans Affairs  
**CHC**—community health center  
**CHIP**—Children’s Health Insurance Program

**CMGs**—case-mix groups  
**C/MHCs**—community and migrant health centers  
**CMS**—Centers for Medicare and Medicaid Services  
**CNA**—certified nursing assistant  
**CNM**—certified nurse-midwife  
**CNS**—clinical nurse specialist  
**COBRA**—Consolidated Omnibus Budget Reconciliation Act  
**CON**—certificate of need  
**COPC**—community-oriented primary care  
**COTA**—certified occupational therapy assistant  
**COTH**—Council of Teaching Hospitals and Health Systems  
**CPI**—consumer price index  
**CPOE**—computerized provider order entry  
**CPT**—Current Procedural Terminology  
**CQI**—continuous quality improvement  
**CRNA**—certified registered nurse anesthetist  
**CT**—computed tomography

## D

**DC**—Doctor of Chiropractic  
**DD**—developmental disability  
**DDS**—Doctor of Dental Surgery  
**DGME**—Direct Graduate Medical Education  
**DHHS**—U.S. Department of Health and Human Services  
**DHS**—Department of Homeland Security  
**DMD**—Doctor of Dental Medicine  
**DME**—durable medical equipment  
**DO**—Doctor of Osteopathic Medicine  
**DoD**—Department of Defense  
**DPM**—Doctor of Podiatric Medicine  
**DRA**—Deficit Reduction Act  
**DRGs**—diagnosis-related groups

**DSM-5**—*Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*  
**DTP**—diphtheria/tetanus/pertussis (vaccine)

## E

**EBM**—evidence-based medicine  
**EBRI**—Employee Benefit Research Institute  
**ECG**—electrocardiogram  
**ECU**—extended care unit  
**ED**—emergency department  
**EHRs**—electronic health records  
**EMT**—emergency medical technician  
**EMTALA**—Emergency Medical Treatment and Active Labor Act  
**ENP**—Elderly Nutrition Program  
**ERISA**—Employee Retirement Income Security Act  
**ESRD**—end-stage renal disease

## F

**FD&C Act**—Federal Food, Drug, and Cosmetic Act  
**FDA**—Food and Drug Administration  
**FMAP**—Federal Medical Assistance Percentage  
**FPL**—federal poverty level  
**FTE**—full-time equivalent  
**FY**—fiscal year

## G

**GAO**—General Accounting Office  
**GDP**—gross domestic product  
**GP**—general practitioner

## H

**HAART**—highly active antiretroviral therapy  
**HCBS**—home- and community-based services  
**HCBW**—home- and community-based waiver  
**HCH**—Health Care for the Homeless  
**HCPCS**—Healthcare Common Procedures Coding System  
**HDHP**—high-deductible health plan  
**HDHP/SO**—high-deductible health plan with a savings option  
**HEDIS**—Healthcare Effectiveness Data and Information Set  
**HHRG**—home health resource group  
**HI**—hospital insurance  
**HIAA**—Health Insurance Association of America  
**Hib**—*Haemophilus influenzae* serotype b  
**HIO**—health information organization  
**HIPAA**—Health Insurance Portability and Accountability Act  
**HIT**—health information technology  
**HITECH**—Health Information Technology for Economic and Clinical Health Act  
**HIV**—human immunodeficiency virus  
**HMO**—health maintenance organization  
**HMO Act**—Health Maintenance Organization Act  
**HPSAs**—health professional shortage areas  
**HPV**—human papillomavirus  
**HRA**—health reimbursement arrangement  
**HRQL**—health-related quality of life  
**HRSA**—Health Resources and Services Administration  
**HSA**—health savings account  
**HTA**—health technology assessment

**HUD**—U.S. Department of Housing and Urban Development

## I

**IADLs**—instrumental activities of daily living  
**ICF**—intermediate care facility  
**ICF/IID**—intermediate care facilities for individuals with intellectual disabilities  
**ICF/MR**—intermediate care facilities for the mentally retarded  
**ID**—intellectual disability  
**IDD**—intellectual/developmental disability  
**IDEA**—Individuals with Disabilities Education Act  
**IDS**—integrated delivery systems  
**IDU**—injection drug use  
**IHR**—International Health Regulations  
**IHS**—Indian Health Service  
**IME**—Indirect Medical Education  
**IMGs**—international medical graduates  
**IOM**—Institute of Medicine  
**IPA**—independent practice association  
**IRB**—institutional review board  
**IRF**—inpatient rehabilitation facility  
**IRMAA**—Income-Related Monthly Adjustment Amount  
**IRS**—Internal Revenue Service  
**IS**—information systems  
**IT**—information technology  
**IV**—intravenous

## L

**LPN**—licensed practical nurse  
**LTC**—long-term care  
**LTCH**—long-term care hospital  
**LVN**—licensed vocational nurse

## M

**MA**—Medicare Advantage  
**MA-PD**—Medicare Advantage Prescription Drug Plan  
**MA-SNP**—Medicare Advantage Special Needs Plan  
**MACPAC**—Medicaid and CHIP Payment and Access Commission  
**MACRA**—Medicare Access and CHIP Reauthorization Act  
**MBA**—Master of Business Administration  
**MCOs**—managed care organizations  
**MD**—Doctor of Medicine  
**MDS**—Minimum Data Set  
**MedPAC**—Medicare Payment Advisory Commission  
**MEPS**—Medical Expenditure Panel Survey  
**MERS**—Middle East respiratory syndrome  
**MFP**—Money Follows the Person  
**MHA**—Master of Health Administration  
**MHS**—multihospital system  
**MHSA**—Master of Health Services Administration  
**MIPS**—Merit-based Incentive Payment System  
**MLP**—midlevel provider  
**MLR**—medical loss ratio  
**MMA**—Medicare Prescription Drug, Improvement, and Modernization Act  
**MMR**—measles/mumps/rubella vaccine  
**MPA**—Master of Public Administration/Affairs  
**MPFS**—Medicare Physician Fee Schedule  
**MPH**—Master of Public Health  
**MRHFP**—Medicare Rural Hospital Flexibility Program  
**MRI**—magnetic resonance imaging  
**MSA**—metropolitan statistical area  
**MS-DRGs**—Medicare severity diagnosis-related groups  
**MSO**—management services organization  
**MSSP**—Medicare Shared Savings Program  
**MUAs**—medically underserved areas

## N

**NAB**—National Association of Boards of Examiners of Long-Term Care Administrators  
**NAPBC**—National Action Plan on Breast Cancer  
**NCCAM**—National Center for Complementary and Alternative Medicine  
**NCCIH**—National Center for Complementary and Integrative Health  
**NCHS**—National Center for Health Statistics  
**NCQA**—National Committee for Quality Assurance  
**NF**—nursing facility  
**NGC**—National Guideline Clearinghouse  
**NHC**—neighborhood health center  
**NHE**—national health expenditures  
**NHI**—national health insurance  
**NHS**—national health system  
**NHS**—U.K. National Health Service  
**NHSC**—National Health Service Corps  
**NICE**—National Institute for Health and Clinical Excellence  
**NIH**—National Institutes of Health  
**NIMH**—National Institute of Mental Health  
**NP**—nurse practitioner  
**NPP**—nonphysician practitioner  
**NRP**—National Response Plan

## O

**OAM**—Office of Alternative Medicine  
**OBRA**—Omnibus Budget Reconciliation Act  
**OD**—Doctor of Optometry  
**OI**—opportunistic infection  
**OPPS**—Outpatient Prospective Payment System  
**OT**—occupational therapist  
**OWH**—Office on Women's Health

**P**

**P4P**—pay-for-performance  
**PA**—physician assistant  
**PACE**—Program of All-Inclusive Care for the Elderly  
**PAHPA**—Pandemic and All-Hazards Preparedness Act  
**PASRR**—Preadmission Screening and Resident Review  
**PBMs**—pharmacy benefits managers  
**PCCM**—primary care case management  
**PCGs**—primary care groups  
**PCMH**—patient-centered medical home  
**PCP**—primary care physician  
**PDP**—stand-alone prescription drug plan  
**PERS**—personal emergency response system  
**PET**—positron emission tomography  
**PFFS**—private fee-for-service  
**PharmD**—Doctor of Pharmacy  
**PhD**—Doctor of Philosophy  
**PHI**—personal health information  
**PHO**—physician-hospital organization  
**PhRMA**—Pharmaceutical Research and Manufacturers of America  
**PMPM**—per member per month  
**POS**—point-of-service (plan)  
**PPD**—per-patient day (rate)  
**PPM**—physician practice management  
**PPO**—preferred provider organization  
**PPS**—prospective payment system  
**PRO**—peer review organization  
**PSO**—provider-sponsored organization  
**PSRO**—professional standards review organization  
**PsyD**—Doctor of Psychology  
**PTA**—physical therapy assistant  
**PTCA**—percutaneous transluminal coronary angioplasty  
**PT**—physical therapist

**Q**

**QALY**—quality-adjusted life year  
**QI**—quality indicator  
**QIO**—quality improvement organization

**R**

**R&D**—research and development  
**RBRVS**—resource-based relative value scales  
**RN**—registered nurse  
**RUGs**—resource utilization groups  
**RVUs**—relative value units  
**RWJF**—Robert Wood Johnson Foundation

**S**

**SAMHSA**—Substance Abuse and Mental Health Services Administration  
**SARS**—severe acute respiratory syndrome  
**SAV**—small area variations  
**SES**—socioeconomic status  
**SGR**—sustainable growth rate  
**SHI**—socialized health insurance  
**SMI**—supplementary medical insurance  
**SNF**—skilled nursing facility  
**SPECT**—single-photon emission computed tomography  
**SSI**—Supplemental Security Income  
**STD**—sexually transmitted disease

**T**

**TAH**—total artificial heart  
**TANF**—Temporary Assistance for Needy Families  
**TCU**—transitional care unit

**TEFRA**—Tax Equity and Fiscal Responsibility Act

**TPA**—third-party administrator

**TQM**—total quality management

## **U**

**UCR**—usual, customary, and reasonable

**UR**—utilization review

## **V**

**VA**—Department of Veterans Affairs

**VBP**—Value-Based Purchasing

**VHA**—Veterans Health Administration

**VISN**—Veterans Integrated Service Network

## **W**

**WHO**—World Health Organization

**WIC**—Special Supplemental Nutrition Program for Women, Infants, and Children