

## Introduction

The United States is one of the wealthiest nations in the world (World Bank, 2012a), and Americans pride themselves on the quality of their health care, physicians, hospitals, and academic medical centers. The United States also plays an international leadership role in biomedical and health services research and in developing cutting-edge medical technologies, pharmaceutical products, and treatment innovations.

Although Americans have achieved very high levels of health over the past century and are healthier than people in many other nations, a growing body of research suggests that the health of the U.S. population is not keeping pace with the health of people in other economically advanced, high-income countries. Multiple studies have documented more favorable health outcomes in the United Kingdom, continental Europe, Australia, New Zealand, Japan, and Canada (Banks et al., 2006; Crimmins et al., 2008, 2010; Martinson et al., 2011a; Meslé and Vallin, 2006; National Research Council, 2010, 2011; Rau et al., 2008). This research documents a growing U.S. health disadvantage<sup>1</sup>: the United States is losing ground in the control of diseases, injuries, and other sources of morbidity.

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<sup>1</sup>The term “health disadvantage,” which is used in the statement of task given to the panel and throughout this report, is defined here as a condition of relative inferiority, reflecting the unfavorable health outcomes in the United States compared with those in other high-income countries. The term is not meant to imply that the United States, among the wealthiest countries in the world, is *disadvantaged*, i.e., “lacking in the basic resources or conditions (as standard housing, medical and educational facilities, and civil rights) believed to be necessary for an equal position in society” (Merriam-Webster Dictionary, 2012).

The U.S. health disadvantage also appears to be costing lives: Americans are not living as long as their counterparts in other countries. According to a report from the Paris-based OECD (2011b), 27 countries now outperform the United States on life expectancy at birth.<sup>2</sup> At 78.2 years, the United States is well below the average of 79.5 years among OECD member nations and far below the life expectancy (83.0 years) of Japan, the top-ranking country. Looking at mortality trends only among adults over age 50, a recent National Research Council (2011) study found that the United States began losing ground relative to other high-income countries around 1980, falling from the middle of the group in 1980 to near the bottom by 2007. Between 1980 and 2007, life expectancy at age 50 increased by only 2.5 years in the United States compared with 6.4 years in Japan, 5.2 years in Italy, and an average of 3.9 years in nine high-income countries other than the United States (National Research Council, 2011).

### THE ROLE OF DIVERSITY IN HEALTH DISADVANTAGES

Compared with many other high-income countries, the population of the United States is more racially and ethnically diverse, receives immigrants from multiple countries, and struggles with higher poverty rates (OECD, 2011e). In addition, unlike the populations of most comparable countries, many Americans—especially racial and ethnic minorities and socioeconomically disadvantaged groups—lack health insurance coverage (National Center for Health Statistics, 2012). The poor health of racial and ethnic minorities and socioeconomically disadvantaged groups is well documented (Agency for Healthcare Research and Quality, 2011). As a result, some might question whether the poor health status of the U.S. population in the aggregate reflects the adverse health status of minorities or the poor and whether affluent, white Americans are just as healthy as their counterparts in other countries.

A growing body of research is beginning to suggest that the U.S. health disadvantage is not limited to socioeconomically disadvantaged groups: even the most advantaged Americans are in worse health than their counterparts in other countries. For example, a study that purposely limited its analysis to non-Hispanic whites found that U.S. residents aged 55-64 were less healthy than their English counterparts (Banks et al., 2006). The authors added that “health insurance cannot be the central reason for the better health outcomes in England because the top SES [socioeconomic status] tier of the U.S. population has close to universal access but their health outcomes are often worse than those of their English counterparts” (p. 2,043). Likewise, a similar comparison with England found that “the patterns were similar when

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<sup>2</sup>Life expectancy at birth is the average number of years a newborn can expect to live if, over a lifetime, he or she experienced the age-specific mortality rates that were reported in that year.

the sample was restricted to whites, the insured, nonobese, nonsmoking nondrinkers, and specific income categories and when stratified by normal weight, overweight, and obese weight categories” (Martinson et al., 2011a, p. 858).<sup>3</sup> Two other studies have confirmed that even affluent and highly educated Americans suffer from a health disadvantage relative to residents of other high-income countries (Avendano et al., 2009, 2010).<sup>4</sup>

### FINDING ANSWERS IS CRITICAL

Why is the United States falling behind? Answering this question is not just an academic exercise. The answers could reveal one or more factors that threaten the health of Americans and their economic competitiveness relative to other countries (World Economic Forum, 2011). Understanding the complex factors responsible for the U.S. health disadvantage could improve understanding of the factors responsible for health itself and point toward more strategic policies to improve the health of the American public.

Cross-national comparisons can shed new light on a nation’s health and what drives it, pointing to strengths and unrecognized weaknesses (Marmor et al., 2009). They can suggest critical directions for improvement by identifying what has been achieved elsewhere and suggest key priorities for research. The lessons learned from these comparisons may also be instructive to countries following in the footsteps of the United States. For example, the United States leads the world in the share of the population that is obese, but other countries are close behind (Finucane et al., 2011; OECD, 2011b). To the extent that obesity explains the growing health disadvantage of Americans, other countries can forecast similar threats to the health of their populations from increasing rates of obesity.

One potential explanation for the U.S. health disadvantage is the country’s health care system. Many Americans understand that health care in the United States needs improvement (Pew Research Center, 2009), and indeed, national reform proposals often target specific weaknesses in the U.S. health care system. These weaknesses include fragmentation, duplication, inaccessibility of records, the practice of defensive medicine, misalignment of physician and patient incentives, limited access for many people, and excessively fast adoption of expensive technologies of uncertain efficacy and cost-effectiveness (Fineberg, 2012; Garber and Skinner, 2008). The Institute of Medicine and the National Research Council have issued a number of reports over the past several decades documenting and describing many of

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<sup>3</sup>More recent analyses of these data are available in Martinson (2012).

<sup>4</sup>These data also show much more serious and larger cross-national health differences for people with lower levels of wealth.

these problems and their implications (see, e.g., Institute of Medicine, 2001, 2003c, 2007b, 2010).

But health care systems and the health services they deliver are not the only influences on population health. Life-styles and behaviors, social and economic circumstances, environmental influences, and public policies can also play key roles in shaping individual and community health. And a number of these factors may be critical to understanding why some high-income countries experience significantly better health outcomes than the United States.

As noted above, a recent National Research Council (2011) study of mortality trends began to explore potential explanations for the U.S. health disadvantage, including smoking, obesity, cardiovascular diseases, cancer, and deficiencies in health care. However, the panel for that study was charged with looking at mortality trends only among people age 50 and older. This report extends that study by examining whether a U.S. health disadvantage can also be found among children and young adults. We adopted a life-course approach and a broad social-ecological framework in this study of international differences in health.

### STUDY CHARGE AND PANEL APPROACH

The Office of Behavioral and Social Sciences Research (OBSSR) at the National Institutes of Health (NIH)<sup>5</sup> gave the following charge to the National Research Council and the Institute of Medicine:

Appoint an ad hoc committee of experts to examine what is known about international differences among high-income countries in measures of health and disability over the life cycle, and what those findings imply for public health. The findings from this report could suggest the need for new data collection, an agenda for further research, or the opportunity to design more effective public health strategies in the future. More specifically, the committee was charged with the following tasks:

1. Describe the sources, purpose, and limitations of international health comparisons;
2. Describe the nature and the strength of the evidence that exists to support the conclusion of a health disadvantage of the U.S. population versus comparable industrialized nations;
3. Determine to what extent the reported health disadvantage in the U.S. population holds true across various diseases and conditions;

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<sup>5</sup>Established in 1995, OBSSR is located in the Office of the Director of NIH. Its mission is to stimulate behavioral and social sciences research across NIH and to integrate this research more fully into ongoing areas of NIH research. Its ultimate goal is to improve the nation's understanding, treatment, and prevention of disease.

4. Determine to what extent the reported health disadvantage in the U.S. population holds true across various age ranges (infant, child, adolescent, adult, elderly). Can onset of the difference in health be traced to a single age group or does it develop over certain parts of the life course?
5. Propose alternative explanations, or potential causes of the reported health disadvantage going beyond previously tested explanations. This would include an examination of individual risk factors (e.g., diet, exercise, smoking, drugs, and alcohol); societal level factors (e.g., social organization of work and leisure, social and interpersonal relationships, and social networks); and other factors (e.g., access to health care) that may have a differential impact on health outcomes across countries; and
6. If insufficient evidence (data) exists currently to test new hypotheses, indicate the nature and extent of data that would be required.

The Panel on Understanding Cross-National Health Differences Among High-Income Countries began its work in 2011. Members were drawn from key disciplines relevant to the study charge, including demography, economics, epidemiology, medicine, public health, and sociology. The panel included several members from Europe, individuals working in academia and research, and those with experience in governmental agencies and nongovernmental organizations. It also included several members of the panel that produced the prior National Research Council (2011) study that inspired this report (including its cochairs), providing a useful link between the two studies. The panel produced this report over a period of 18 months and met in person four times between January 2011 and June 2012. Three of these meetings included public sessions during which the panel heard from the study sponsors as well as other leading experts and researchers from both the United States and overseas. Outside experts presented on their areas of expertise with a particular view toward this study's focus on cross-national health differences and the U.S. position relative to other high-income countries. The panel also commissioned several data analyses and research reviews on topics for which it sought additional information. This included an analysis of data on mortality, morbidity, and disease determinants in high-income countries, drawn from databases (e.g., the Human Mortality Database) from the World Health Organization (WHO), the OECD, and other major data repositories.<sup>6</sup> All of these analyses compared the health of the U.S. population with those in a peer group of comparable

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<sup>6</sup>The Human Mortality Database provides detailed mortality and population data to researchers, students, policy analysts, and others interested in human longevity. The database is an outgrowth of earlier projects in the Department of Demography at the University of California, Berkeley, and at the Max Planck Institute for Demographic Research in Rostock, Germany, and can be accessed at <http://www.mortality.org> or <http://www.humanmortality.de>.

affluent countries, and some had a special focus on social factors (based on life-cycle events and living conditions) that might explain health differentials.

The panel began its work acknowledging both the importance of the study and the tremendous scope it might encompass. With less than 2 years to complete the project, it was critical to set some practical boundaries and realistic expectations that would drive the development of a useful report in a timely manner. The panel recognized that relevant scientific evidence was at once vast (e.g., for understanding the determinants of health) and scant (e.g., for establishing causality for the U.S. health disadvantage). As a result, it understood its charge to examine what is currently known and propose a research agenda for future work rather than to draw definitive conclusions on every aspect of this topic. The panel sought to establish a concise and compelling framework for the analysis, citing relevant systematic reviews of the literature from reputable sources.

The panel considered a broad range of potential explanatory factors in response to its charge to “propose alternative explanations or potential causes of the reported health disadvantage, going beyond previously tested explanations.” Potential explanations for the U.S. health disadvantage range from those factors that are commonly understood to influence health (e.g., such health behaviors as diet, physical inactivity, and smoking, or inadequate access to physicians and high-quality medical care) to more “upstream” social and environmental influences on health (e.g., income, education, and the conditions in which people live and work). All of these factors, in turn, may be shaped by broader national contexts and public policies that might affect health and the determinants of health, and therefore might explain why one advanced country enjoys better health than another.

This broad perspective—spanning downstream, proximate determinants of health to more upstream, distal ones—has informed several other major health studies including the World Health Organization’s Commission on the Social Determinants of Health (2008), the “Marmot Review” of health in the United Kingdom (Marmot, 2010), and the Robert Wood Johnson Foundation’s Commission to Build a Healthier America in the United States (Braveman and Egerter, 2008). It has also been central to several other studies conducted by the Institute of Medicine (e.g., 2003a).

In addition to taking a social-ecological approach, both the study sponsor and the panel members recognized the value of adopting a life-course perspective on health development in order to understand international differences in health status. As detailed in Chapter 3, differences between countries in the health of older adults may have much to do with the different conditions they experienced as children, adolescents, and young adults. Furthermore, some diseases in late life, such as cardiovascular disease and many cancers, are attributable in large measure to unhealthy behaviors (e.g., tobacco use) and modifiable risk factors (e.g., obesity) that are estab-

lished in adolescence and young adulthood (Tirosch et al., 2011). Finally, an adult's socioeconomic status—which also affects health—is shaped by childhood circumstances, in particular the adversities a family faces. For these many reasons, understanding why the health of Americans is not keeping pace with that of people in other countries must take into account their entire life experiences.

Given the breadth of factors encompassed in a behavioral and social science perspective, the panel had to be both systematic and selective in its approach. For each group of factors (e.g., health systems, health behaviors, social and environmental factors), the panel reviewed the available evidence that (1) the set of factors matters to health; (2) the set of factors is worse in prevalence or health impact in the United States compared with other high-income countries; and (3) this difference between the United States and other countries could contribute to the U.S. health disadvantage. More details on the methods of the systematic review are discussed in Chapter 3.

### TOPICS BEYOND THE SCOPE OF THIS STUDY

The health disparities that exist between advantaged and disadvantaged populations within countries often eclipse the health disparities between countries. Health inequities are shaped less by the geographic boundaries that define nations, which are often arbitrary by-products of history and geopolitics, than by differences within populations (within and across borders) in demographic characteristics, socioeconomic resources, and environmental factors that affect health (Hans, 2009).<sup>7</sup> Most high-income countries report significant health gradients by income, education, social class, occupation, and other social factors, and in some countries the gradients are alarmingly steep (Mackenbach et al., 2008). In the United States, health status differs markedly for poor people, for people with low educational attainment, and for some minority populations, such as blacks and Native Americans (Agency for Healthcare Research and Quality, 2011; Bleich et al., 2012; Braveman et al., 2011b; Satcher et al., 2005; Woolf et al., 2004).

Although understanding and ameliorating health disparities is a priority in the United States and other countries, the panel focused on its charge of understanding why the *aggregate* health status of the United States is poorer than the *aggregate* health status of other countries. However, because of questions about the role of disparities, the panel did explore whether aggregate health status in the United States might be compromised by the large health inequities that exist within the population, which are

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<sup>7</sup>In addition, as discussed further in Chapters 8 and 9, nations such as the members of the European Union cannot be considered fully independent from each other, from either a statistical or policy perspective.

discussed in Chapters 6 and 7. Moreover, the causal mechanisms for cross-national health differences and for health gradients within countries may differ in important ways that are only beginning to be understood. For example, studies suggest that some Scandinavian countries with superior aggregate health status have larger health disparities than other European countries with poorer aggregate health status (Bambra, 2007; Bambra and Eikemo, 2009; Dahl et al., 2006; Eikemo et al., 2008a; Huijts and Eikemo, 2009; Kunst et al., 1998; Lahelma and Lundberg, 2009; Mackenbach et al., 1997, 2008; Stirbu et al., 2010).

It is also important to note that, unlike the National Research Council (2011) report that examined trends in mortality above age 50 in high-income countries, this panel's work focused more on current cross-national differences and less on trends over time. Although current levels are certainly reflections of past trends and suggest the direction of future trends, both time constraints and inadequacies in available data limited our ability to explore changes over time. This work remains an important priority for future research.

## THE REPORT

This report is structured to address three aims: (1) to document the nature and scope of the U.S. health disadvantage (Part I, Chapters 1-2), (2) to explore potential explanations for this disadvantage (Part II, Chapters 3-8), and (3) to propose next steps for the field (Part III, Chapters 9-10).

### Part I

Part I reviews the current evidence on mortality and morbidity differences across high-income countries. This information establishes a preliminary evidence base on cross-national health differences spanning all ages of life:

- Chapter 1: Shorter Lives
- Chapter 2: Poorer Health Throughout Life

### Part II

Part II of this report is devoted to exploring potential explanations for the U.S. health disadvantage, framed around the factors that are known to influence individual and population health. It is organized as follows:

- Chapter 3: Framing the Question
- Chapter 4: Public Health and Medical Care Systems



- Chapter 5: Individual Behaviors
- Chapter 6: Social Factors
- Chapter 7: Physical and Social Environmental Factors
- Chapter 8: Policies and Social Values

The wide variety of factors considered responds to the panel's charge, which stipulates that we "go beyond previously tested explanations." Part II also develops the argument that these potential explanations are interconnected across chapters in "upstream/downstream" relationships. These relationships are important in two ways: they demonstrate causality, e.g., when policies affect education or obesity rates; and they offer a temporal, life-course perspective, e.g., when environmental conditions in childhood precipitate unhealthy behaviors and pathophysiological disease processes later in life.

### Part III

The panel's conclusions and recommendations are in Part III of this report, which sets out priorities for research and action:

- Chapter 9: Research Agenda
- Chapter 10: Next Steps

Given the ambitious charge to the panel, the significance of the findings to emerge from Part I, and the breadth of the explanatory framework laid out in Part II, we see this report as laying the foundation for a challenging research agenda but also for immediate next steps the nation can take while awaiting the results of future studies.