



## U.S. Health in International Perspective: Shorter Lives, Poorer Health

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## Summary

The United States is among the wealthiest nations in the world, but it is far from the healthiest. Although life expectancy and survival rates in the United States have improved dramatically over the past century, Americans live shorter lives and experience more injuries and illnesses than people in other high-income countries. A growing body of research is calling attention to this problem, with a 2011 report by the National Research Council confirming a large and rising international “mortality gap” among adults age 50 and older. The U.S. health disadvantage cannot be attributed solely to the adverse health status of racial or ethnic minorities or poor people, since recent studies suggest that even highly advantaged Americans may be in worse health than their counterparts in other countries.

As a follow-up to the 2011 National Research Council report and in light of this new evidence, the National Institutes of Health asked the National Research Council (NRC) and the Institute of Medicine (IOM) to convene a panel of experts to study this issue. The Panel on Understanding Cross-National Health Differences Among High-Income Countries was charged with examining whether the U.S. health disadvantage exists across the life span, exploring potential explanations, and assessing the larger implications of the findings.

### THE INFERIOR HEALTH STATUS OF THE UNITED STATES

The panel’s analysis compared health outcomes in the United States with those of 16 comparable high-income or “peer” countries: Australia, Austria, Canada, Denmark, Finland, France, Germany, Italy, Japan,

Norway, Portugal, Spain, Sweden, Switzerland, the Netherlands, and the United Kingdom. We examined historical trends dating back several decades, with a focus on the more extensive data available from the late 1990s to 2008.

Over this time period, we uncovered a strikingly consistent and pervasive pattern of higher mortality and inferior health in the United States, beginning at birth:

- For many years, Americans have had a shorter life expectancy than people in almost all of the peer countries. For example, as of 2007, U.S. males lived 3.7 fewer years than Swiss males and U.S. females lived 5.2 fewer years than Japanese females.
- For the past three decades, this difference in life expectancy has been growing, especially among women.
- The health disadvantage is pervasive—it affects all age groups up to age 75 and is observed for multiple diseases, biological and behavioral risk factors, and injuries.

More specifically, when compared with the average for peer countries, the United States fares worse in nine health domains:

1. **Adverse birth outcomes:** For decades, the United States has experienced the highest infant mortality rate of high-income countries and also ranks poorly on other birth outcomes, such as low birth weight. American children are less likely to live to age 5 than children in other high-income countries.
2. **Injuries and homicides:** Deaths from motor vehicle crashes, non-transportation-related injuries, and violence occur at much higher rates in the United States than in other countries and are a leading cause of death in children, adolescents, and young adults. Since the 1950s, U.S. adolescents and young adults have died at higher rates from traffic accidents and homicide than their counterparts in other countries.
3. **Adolescent pregnancy and sexually transmitted infections:** Since the 1990s, among high-income countries, U.S. adolescents have had the highest rate of pregnancies and are more likely to acquire sexually transmitted infections.
4. **HIV and AIDS:** The United States has the second highest prevalence of HIV infection among the 17 peer countries and the highest incidence of AIDS.
5. **Drug-related mortality:** Americans lose more years of life to alcohol and other drugs than people in peer countries, even when deaths from drunk driving are excluded.

6. **Obesity and diabetes:** For decades, the United States has had the highest obesity rate among high-income countries. High prevalence rates for obesity are seen in U.S. children and in every age group thereafter. From age 20 onward, U.S. adults have among the highest prevalence rates of diabetes (and high plasma glucose levels) among peer countries.
7. **Heart disease:** The U.S. death rate from ischemic heart disease is the second highest among the 17 peer countries. Americans reach age 50 with a less favorable cardiovascular risk profile than their peers in Europe, and adults over age 50 are more likely to develop and die from cardiovascular disease than are older adults in other high-income countries.
8. **Chronic lung disease:** Lung disease is more prevalent and associated with higher mortality in the United States than in the United Kingdom and other European countries.
9. **Disability:** Older U.S. adults report a higher prevalence of arthritis and activity limitations than their counterparts in the United Kingdom, other European countries, and Japan.

The first half of the above list occurs disproportionately among young Americans. Deaths that occur before age 50 are responsible for about two-thirds of the difference in life expectancy between males in the United States and peer countries, and about one-third of the difference for females. And the problem has been worsening over time; since 1980, the United States has had the first or second lowest probability of surviving to age 50 among the 17 peer countries. Americans who do reach age 50 generally arrive at this age in poorer health than their counterparts in other high-income countries, and as older adults they face greater morbidity and mortality from chronic diseases that arise from risk factors (e.g., smoking, obesity, diabetes) that are often established earlier in life.

The U.S. health disadvantage is more pronounced among socioeconomically disadvantaged groups, but even advantaged Americans appear to fare worse than their counterparts in England and some other countries. That is, Americans with healthy behaviors or those who are white, insured, college-educated, or in upper-income groups appear to be in worse health than similar groups in comparison countries.

Certain factors do *not* appear to be responsible for the U.S. health disadvantage. The United States has higher survival after age 75 than do peer countries, and it has higher rates of cancer screening and survival, better control of blood pressure and cholesterol levels, lower stroke mortality, lower rates of current smoking, and higher average household income. In addition, U.S. suicide rates do not exceed the international average. Finally, the nation's large population of recent immigrants is generally in better health than native-born Americans.

With these important exceptions, Americans under age 75 fare poorly among peer countries on most measures of health. This health disadvantage is particularly striking given the wealth and assets of the United States and the country's enormous level of per capita spending on health care, which far exceeds that of any other country.

### POSSIBLE EXPLANATIONS FOR THE U.S. HEALTH DISADVANTAGE

The panel's search for potential explanations revealed that important antecedents of good health—such as the quality of health care and the prevalence of health-related behaviors—are also frequently problematic in the United States. For example, the U.S. health system is highly fragmented, with limited public health and primary care resources and a large uninsured population. Compared with people in other countries, Americans are more likely to find care inaccessible or unaffordable and to report lapses in the quality and safety of care outside of hospitals.

In terms of individual behaviors, Americans are less likely to smoke and may drink less heavily than their counterparts in peer countries, but they consume the most calories per capita, abuse more prescription and illicit drugs, are less likely to fasten seatbelts, have more traffic accidents involving alcohol, and own more firearms than their peers in other countries. U.S. adolescents seem to become sexually active at an earlier age, have more sexual partners, and are less likely to practice safe sex than adolescents in other high-income countries.

Adverse social and economic conditions also matter greatly to health and affect a large segment of the U.S. population. Despite its large and powerful economy, the United States has higher rates of poverty and income inequality than most high-income countries. U.S. children are more likely than children in peer countries to grow up in poverty, and the proportion of today's children who will improve their socioeconomic position and earn more than their parents is smaller than in many other high-income countries. In addition, although the United States was once the world leader in education, students in many countries now outperform U.S. students. Finally, Americans have less access to the kinds of "safety net" programs that help buffer the effects of adverse economic and social conditions in other countries.

Although all of these differences are compelling and important, no single factor fully explains the U.S. health disadvantage, for example:

- Problems with the health care system might exacerbate illnesses and heighten mortality from certain diseases but cannot account for transportation-related accidents or violence.

- Individual behaviors may contribute to the overall disadvantage, but studies show that even Americans with healthy behaviors, for example, those who are not obese or do not smoke, appear to have higher disease rates than their peers in other countries.
- The problem is not confined to socially or economically disadvantaged Americans; as noted above, several recent studies have suggested that even Americans with high socioeconomic status may experience poorer health than their counterparts in peer countries.

Many conditions that might explain the U.S. health disadvantage—from individual behaviors to systems of care—are also influenced by the physical and social environment in U.S. communities. For example, built environments that are designed for automobiles rather than pedestrians discourage physical activity. Patterns of food consumption are also shaped by environmental factors, such as actions by the agricultural and food industries, grocery store and restaurant offerings, and marketing. U.S. adolescents may use fewer contraceptives because they are less available than in other countries. Similarly, more Americans may die from violence because firearms, which are highly lethal, are more available in the United States than in peer countries. A stressful environment may promote substance abuse, physical illness, criminal behavior, and family violence. Asthma rates may be higher because of unhealthy housing and polluted air. In the absence of other transportation options, greater reliance on automobiles in the United States may be causing higher traffic fatalities. And when motorists do take to the road, injuries and fatalities may be more common if drunk driving, speeding, and seatbelt laws are less rigorously enforced, or if roads and vehicles are more poorly designed and maintained.

The U.S. health disadvantage probably has multiple explanations, some of which may be causally interconnected, such as unemployment and a lack of health insurance. Other explanations may share antecedents, especially those rooted in social inequality. Still others may have no obvious relationship, as in the very distinct causes of high rates of obesity and traffic fatalities. The relationships between some factors may develop over time, or even over a person's entire life course, as when poor social conditions during childhood precipitate a chain of adverse life events. Turmoil and risk-taking in adolescence can lead to subsequent setbacks in education or employment, fomenting life-long financial instability or other stresses that inhibit healthy life-styles or access to health care. In some cases, the explanation may simply be that the United States is at the leading edge of global trends that other high-income countries will follow, such as smoking and obesity.

Given the pervasive nature of the low U.S. rankings—on measures of health, access to care, individual behaviors, child poverty, and social

mobility—the panel considered the possibility that a common thread might link the multiple domains of the U.S. health disadvantage. Might certain aspects of life in modern America—including some of the choices that American society is making (knowingly or not)—be part of the explanation for the U.S. health disadvantage? There are no definitive studies on this subject, but the public health literature certainly documents the health benefits of strengthening systems for health and social services, education, and employment; promoting healthy life-styles; and designing healthier environments. These functions are not solely the province of government: effective policies in both the public and private sector can create incentives to encourage individuals and industries to adopt practices that protect and promote health and safety. In countries with the most favorable health outcomes, resource investments and infrastructure often reflect a strong societal commitment to the health and welfare of the entire population.

Because choices about political governance structures, and the social and economic conditions they reflect and shape, matter to overall levels of health, the panel asked whether some of these underlying societal factors could be contributing to greater disease and injury rates and shorter lives in the United States. And might these choices also explain the inability of the United States to keep pace with peer countries in other important health-related domains, such as education and child poverty? These are important questions for which further research is needed. It will also be important for Americans to engage in a thoughtful discussion about what investments and compromises they are willing to make to keep pace with health advances other countries are achieving. Before this can occur, the public must first be informed about the country's growing health disadvantage, a problem that may come as a surprise to many Americans.

### NEXT STEPS

The evidence regarding the U.S. health disadvantage is considerable and growing, but many fundamental questions remain about its underlying causes, the complex causal pathways that link health determinants with health outcomes, and how these pathways differ for specific subgroups of people over time and place. New data and new analyses are needed to answer these questions and to uncover the best ways of improving health outcomes in the future.

The panel offers three research recommendations for the scientific community to better understand what is driving the U.S. health disadvantage and how it can be reduced: see Box S-1. The panel recommends work to harmonize the data that are currently collected in many countries and to add questions to existing surveys, both in the United States and elsewhere; to develop new measures of health outcomes and new analytic methods

**BOX S-1**  
**Recommendations Relating to Research**

**RECOMMENDATION 1** Acting on behalf of all relevant data-gathering agencies in the U.S. Department of Health and Human Services, the National Institutes of Health and the National Center for Health Statistics should join with an international partner (such as the OECD or the World Health Organization) to improve the quality and consistency of data sources available for cross-national health comparisons. The partners should establish a data harmonization working group to standardize indicators and data collection methodologies. This harmonization work should explore opportunities for relevant U.S. federal agencies to add questions to ongoing longitudinal studies and population surveys that include various age groups—especially children and adolescents—and to replicate validated questionnaire items already in use by other high-income countries.

**RECOMMENDATION 2** The National Institutes of Health and other research funding agencies should support the development of more refined analytic methods and study designs for cross-national health research. These methods should include innovative study designs, creative uses of existing data, and novel analytical approaches to better elucidate the complex causal pathways that might explain cross-national differences in health.

**RECOMMENDATION 3** The National Institutes of Health and other research funding agencies should commit to a coordinated portfolio of investigator-initiated and invited research devoted to understanding the factors responsible for the U.S. health disadvantage and potential solutions, including lessons that can be learned from other countries.

for determining how various factors affect these outcomes; and to adopt a long-term sustained commitment to support this research agenda.

While these efforts are under way, the panel urges that the nation not simply wait for more data before addressing the U.S. health disadvantage: evidence is already available to begin tackling this important problem and the lead conditions responsible for it. The strength of our findings—which was a surprise to us—led us to consider what public- and private-sector leaders can do to begin to catch up with the health advances that other countries are achieving. In the recommendations related to policy, listed in Box S-2 and explained in greater detail in Chapter 10, we encourage three avenues for action: pursuing established national health objectives, alerting

**BOX S-2**  
**Recommendations Relating to Policy**

**RECOMMENDATION 4** The nation should intensify efforts to achieve established national health objectives that are directed at the specific disadvantages documented in this report and that use strategies and approaches that reputable review bodies have identified as effective.

**RECOMMENDATION 5** The philanthropy and advocacy communities should organize a comprehensive media and outreach campaign to inform the general public about the U.S. health disadvantage and to stimulate a national discussion about its implications for the nation.

**RECOMMENDATION 6** The National Institutes of Health or another appropriate entity should commission an analytic review of the available evidence on (1) the effects of policies (including social, economic, educational, urban and rural development and transportation, health care financing and delivery) on the areas in which the United States has an established health disadvantage, (2) how these policies have varied over time across high-income countries, and (3) the extent to which these policy differences may explain cross-national health differences in one or more health domains. This report should be followed by a series of issue-focused investigative studies to explore why the United States experiences poorer outcomes than other countries in the specific areas documented in this report.

the public, and exploring innovative policy options. More specifically, the panel recommends

- **Pursuing National Health Objectives** The panel urges a strengthened national commitment to existing public health objectives that address the specific health disadvantages documented in this report. That commitment should include the application of effective strategies and policies, as identified by reputable review bodies, to reform the health system, promote healthy behaviors, and improve health-related social conditions and community environments.
- **Alerting the Public** The panel envisions a robust outreach effort to inform the public about the growing U.S. health disadvantage relative to other high-income countries and to stimulate a national discussion about the implications of this for future policy, practice, and research.

- **Identifying Innovative Policies** The panel believes that there is much to learn from a thorough examination of the policies and approaches that countries with better health outcomes have found useful and that may have application, with adaptations, in the United States. Also of value would be a series of issue-focused investigative studies to seek explanations for the specific health disadvantages documented in this report.

The life-course perspective adopted by the panel underscores the importance of early life, not only because children and youth are often the victims of the U.S. health disadvantage, as in the case of infant mortality and adolescent homicides, but also because early life is a critical developmental period that can shape health development trajectories throughout life. The seeds of illnesses that strike older adults are often planted before age 25, a period when adverse social and environmental exposures and the establishment of unhealthy behaviors and risk factors can lead to life-long consequences. The striking health and social disadvantages documented among U.S. infants, children, and adolescents emphasize the importance of child and family services, support for education, especially in early childhood, and social services that safeguard young people. At the same time, public health and social policy solutions that target middle-aged and older adults can produce important improvements in life expectancy and health, particularly because of the high prevalence of chronic diseases that afflict Americans at older ages.

### COSTS OF INACTION

The consequences of not attending to the growing U.S. health disadvantage and reversing current trends are predictable: the United States will probably continue to fall further behind comparable countries on health outcomes and mortality. In addition to the personal toll this will take, the drain on life and health may ultimately affect the economy and the prosperity of the United States as other countries reap the benefits of healthier populations and more productive workforces. With so much at stake, especially for America's youth, the United States cannot afford to ignore its growing health disadvantage.



# U.S. HEALTH — IN — INTERNATIONAL PERSPECTIVE

## Shorter Lives, Poorer Health

Panel on Understanding Cross-National Health Differences  
Among High-Income Countries

Steven H. Woolf and Laudan Aron, *Editors*

Committee on Population  
Division of Behavioral and Social Sciences and Education

Board on Population Health and Public Health Practice  
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This study was supported by the Office of Behavioral and Social Sciences Research, the National Institute on Aging, the John E. Fogarty International Center, and the National Center for Complementary and Alternative Medicine, all within the National Institutes of Health, and the Office of Women's Health within the U.S. Department of Health and Human Services through Contract No. N01-OD-4-2139 Task Orders # 237 and 271 and Contract No. HHSN26300011 between the National Academy of Sciences and the U.S. Department of Health and Human Services. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the organizations or agencies that provided support for the project.

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PANEL ON UNDERSTANDING CROSS-NATIONAL HEALTH  
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## Foreword

The United States spends much more money on health care than any other country. Yet Americans die sooner and experience more illness than residents in many other countries. While the length of life has improved in the United States, other countries have gained life years even faster, and our relative standing in the world has fallen over the past half century.

What accounts for the paradoxical combination in the United States of relatively great wealth and high spending on health care with relatively poor health status and lower life expectancy? That is the question posed to the panel that produced this report, *U.S. Health in International Perspective: Shorter Lives, Poorer Health*. The group included experts in medicine, epidemiology, and demography and other fields in the social sciences. They scrutinized the relevant data and studies to discern the nature and scope of the U.S. disadvantage, to explore potential explanations, and to point the way toward improving the nation's health performance.

The report identifies a number of misconceptions about the causes of the nation's relatively poor performance. The problem is not simply a matter of a large uninsured population or even of social and economic disadvantage. It cannot be explained away by the racial and ethnic diversity of the U.S. population. The report shows that even relatively well-off Americans who do not smoke and are not overweight may experience inferior health in comparison with their counterparts in other wealthy countries. The U.S. health disadvantage is expressed in higher rates of chronic disease and mortality among adults and in higher rates of untimely death and injuries among adolescents and small children. The American health-wealth

paradox is a pervasive disadvantage that affects everyone, and it has not been improving.

The report describes multiple, plausible explanations for the U.S. health disadvantage, from deficiencies in the health system to high rates of unhealthy behaviors and from adverse social conditions to unhealthy environments. The panel painstakingly reviews the quality and limitations of evidence about all of the factors that may contribute to poor U.S. health outcomes. In this, and in earlier work the panel cites, many remediable shortcomings have been identified. Thus, the report advances an agenda for both research and action.

The report was made possible by the dedicated work of the panel and staff who conducted this study and by the generous support of the Office of Behavioral and Social Sciences Research and other units of the National Institutes of Health. The National Research Council and the Institute of Medicine are very much indebted to all who contributed.

The nation's current health trajectory is lower in success and higher in cost than it should be. The cost of inaction is high. We hope this report deepens understanding and resolve to put America on an economically sustainable path to better health.

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## Preface

In 2011 the Office of Behavioral and Social Sciences Research (OBSSR) of the National Institutes of Health (NIH) asked the National Research Council (NRC) and the Institute of Medicine (IOM) to undertake a study on understanding cross-national health differences among high-income countries. The NRC's Committee on Population and the IOM's Board on Population Health and Public Health Practice established our panel for this task.

The impetus for this project came from a recently released NRC report that documented that life expectancy at age 50 had been increasing at a slower pace in the United States than in other high-income countries. The charge to our panel was to probe further and to determine whether the same worrying pattern existed among younger Americans, to explore potential causes, and to recommend future research priorities.

As readers who know this issue can appreciate, this is a daunting and complex charge. The questions put to the panel involve many fields, including medicine and public health, demography, social science, political science, economics, behavioral science, and epidemiology. They require the examination of data from many countries, drawn from disparate sources. The panel was given 18 months for the task, enough time to pull back the curtain on this issue but not to conduct a systematic review of every contributory factor and every relevant study or database. This report serves only to open the inquiry, with the invitation to others to probe deeper and with the disclaimer that the evidence cited here can only skim the surface of highly complex issues.

The report that follows could not have been produced without the help of many dedicated individuals. We begin by thanking the report's sponsor, OBSSR, and also the National Institute on Aging (NIA), which contributed financing for our work and was the primary sponsor of the prior NRC report that led to this study. We are especially grateful for guidance and contributions from Robert H. Kaplan, director, and Deborah M. Olster, deputy director of OBSSR, and Richard M. Suzman, director of the Division of Behavioral and Social Research at NIA. Ronald Abeles and Ravi Sawhney, both formerly with NIH, were also instrumental in conceiving of this project and seeing it get off the ground.

In fulfilling its charge, the panel also relied heavily on presentations and background papers and analyses from many of the world's leading experts on the social and health sciences that relate to cross-national health disparities. Specifically, the panel benefited greatly from presentations by Michele Cecchini, OECD; Neal Halfon, University of California, Los Angeles; Ronald Kessler, Harvard University; Sir Michael Marmot, University College London; Ellen Nolte, RAND Europe; Robert Phillips, Robert Graham Center; Cathy Schoen, Commonwealth Fund; and David Stuckler, Cambridge University. Also critical to the panel's deliberations and thinking were presentations and commissioned background papers from Clare Bamba, University of Durham; Jason Beckfield, Harvard University; and Russell Viner, University College London.

Several postdoctoral and graduate students worked intensively with a number of panel members to produce unique and compelling data analyses that appear throughout this report. We thank these contributors: Jessica Ho, University of Pennsylvania, who collaborated with Samuel Preston on developing much of the evidence presented in Chapter 1; Stéphane Verguet, University of Washington, who collaborated with Dean Jamison on a "years-behind" analysis presented in Chapter 1; James Yonker, University of Wisconsin, who collaborated with Alberto Palloni on an extensive analysis of health indicators across the life course presented in Chapter 2; and Aida Solé Auró, University of Southern California, who collaborated with Eileen Crimmins on evaluating the health of adults at age 50.

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This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Academies' Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

We thank the following individuals for their review of this report: James Banks, Department of Economics, Institute for Fiscal Studies, University College London; Daniel G. Blazer, Duke University Medical Center;

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<sup>1</sup>All background papers and analyses are available directly from the authors.

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Although the reviewers listed above provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations, nor did they see the final draft of the report before its release. Robert Wallace, College of Public Health, University of Iowa, and Patricia Danzon, Health Care Management Department, The Wharton School, University of Pennsylvania, oversaw the review of this report. Appointed by the National Research Council and the Institute of Medicine, they were responsible for ensuring that this report underwent an independent examination in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring panel and the institution.

Finally, I would like to thank my fellow panel members for their wisdom, collegiality, and energy in producing this important report. Every member was immensely helpful, but I wish to specifically acknowledge Samuel Preston, Alberto Palloni, Paula Braveman, and Ana Diez Roux for their first drafts of Chapters 1, 2, 6, and 7, respectively. This report is truly an ensemble effort. I hope that readers will notice the interdisciplinary collaboration reflected in the pages of this document. The panel members, all highly regarded experts in their fields, contributed wonderful insights and the literatures of their disciplines to give our discussions and data analysis the holistic perspective this topic deserves. I am indebted to these colleagues, who despite many demanding responsibilities, gave generously of themselves and operated under a very demanding timeline. I am sure I speak for the panel and staff in collectively thanking our spouses and families for the disruption in lives this undertaking required.

Our panel was unprepared for the gravity of the findings we uncovered. We hope that others will take notice. Our charge was to give advice to the scientific community, and this report fulfills that charge by outlining ways that the National Institutes of Health, other research agencies, and investigators can collect new data and advance understanding of the causes

of cross-national health disparities. But the gravity of our findings also deserves attention outside the scientific community. A broader audience—most importantly the American public—should know what this report says. Concerted action is required on many levels of society if the nation is to change the conditions described here and to give the people of the United States—particularly the nation’s children—the superior health and life expectancy that exist elsewhere in the world.

Steven H. Woolf, *Chair*  
Panel on Understanding Cross-National  
Health Differences Among High-Income Countries



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