ALTARUM POLICY ROUNDTABLE

Determinants of U.S. Population Health: Translating Research into Future Policies

With Dr. David A. Kindig, Emeritus Vice-Chancellor for Health Sciences
The University of Wisconsin-Madison School of Medicine and Public Health

and

Dr. J. Michael McGinnis, Senior Scholar
Institute of Medicine of the National Academies

Washington, D.C.
November 28, 2007

ROUNDTABLE REPORT
1.0 Roundtable Purpose and Overview

Medical care is just one of the determinants that have been shown to shape our health prospects—and, for the population as a whole, it’s far from the major factor. What are the other determinants? What have researchers learned about their relative importance and about interventions that can affect them in ways that improve population health? How should this knowledge factor into the policy, programmatic, and funding choices we make as a nation?

On November 28, 2007, Altarum hosted Dr. David A. Kindig and Dr. J. Michael McGinnis at an Altarum Policy Roundtable to share their knowledge of the determinants of population health and the policy implications of this knowledge.

Dr. Kindig is Emeritus Professor of Population Health Sciences and Emeritus Vice-Chancellor for Health Sciences at the University of Wisconsin-Madison School of Medicine and Public Health. Dr. McGinnis is a Senior Scholar at the Institute of Medicine of the National Academies. Both speakers have written extensively on the topic of population health and its determinants. Some of their publications were made available for Roundtable attendees to read in preparation for the discussion (Kindig 2006, Kindig 2007, McGinnis et al. 2002, McGinnis 2006). Brief biographies for the two speakers appear in Appendix C.

Altarum invited a cross-section of health researchers and policy analysts to the Roundtable, including representatives from the U.S. government, research institutes, and the private sector. A complete list of attendees can be found in Appendix B.

Section 2.0 of this document provides summaries of the remarks by Drs. Kindig and McGinnis, and Section 3.0 summarizes the questions and answers that followed their presentations. These summaries do not constitute a full transcript of the Roundtable; a complete audio recording of the presentation is available from Altarum upon request.

2.0 Presentation Summary

2.1 Remarks by David A Kindig

Dr. Kindig began his discussion of determinants of population health with some definitions. A **determinant** can be defined as any factor, whether event, characteristic, or other definable entity, that brings about change in a health condition, or other defined characteristic. (Last 1988) Alternatively, a **determinant** is defined as a primary risk factor (causative factor) associated with the level of the health problem; i.e., the level of determinant influences the level of the health problem. (Turnock 2004) A **risk factor** is an aspect of personal behavior or lifestyle, an environmental exposure, or an inborn or inherited characteristic which, on the basis of epidemiologic evidence, is known to be associated with health-related conditions considered important to prevent. The term “risk factor” is rather loosely used. For population health purposes, he prefers use of the perhaps broader term “determinant”, which includes an established or hypothesized causal role. However, if risk factors are thought to be causal (the Turnock “primary” risk factor), the two terms are probably synonymous. (Kindig 2007)

The field model of Evans and Stoddart (Exhibit 1) is a useful framework for discussing determinants of population health (Evans and Stoddart 1990, Evans, Barer and Marmor 1994). The original “medical model” of health care is the primary intervention to prevent or treat
disease. Population health recognizes the broader outcomes of “health and function” as well as even “well being”, and also identifying additional categories of determinants. Historically individual behavior and lifestyle factors were emphasized by Lalonde (1974), with Evans and Stoddart discussing the role of genetics and the physical environment, but highlighting the critical and, at that time, unappreciated role of the social determinants. This framework therefore identifies five determinants of population health: medical care, individual behavior, the social environment, the physical environment, and genetics.

Exhibit 1: The Evans and Stoddart Field Model of Population Health

Discussion of these determinants requires a more precise answer to the question, “determinants of what?” (Exhibit 2) Broad population health outcomes can be characterized by both mortality and health-related quality of life. These two types of outcomes also can be described by both their mean values and by disparities that lead to deviations from the mean. Race and ethnicity play a major role in these disparities, but other causes – such as socioeconomic status (SES), geography, and gender – are also significant. If everything were equally important, each of the five determinants would contribute 20 percent to population health overall, and the impact on outcomes would be 25 percent mean mortality and 25 percent mean health-related quality of life, with the remaining 50 percent equally divided among the effects of disparities on both mean mortality and mean life quality. However, we will see that these effects are not, in fact, equal.
Fuchs (1974) raised the major policy question associated with population health: “How much, then, should go for medical care and how much for other programs affecting health, such as pollution control, fluoridation of water, accident prevention and the like?” SES could also be added to this list. Fuchs goes on to point out that “there is no simple answer, partly because the question has rarely been explicitly asked.” Unfortunately, this is still true. In fact, Stoddart (1995), refers to the Evans-Stoddart field model as the “fantasy equation”, noting that “at present we but vaguely understand the relative magnitude of the coefficients on the independent variables that would inform specific policies rather than broad directions, even if we are beginning to see the variables themselves more clearly.”

For example, there is some controversy regarding the role of medical care in population health. McGinnis et al. (2002) note that “40 percent of deaths are caused by behavior patterns that could be modified by preventive approaches…. It appears, in fact, that a much smaller proportion of preventable mortality in the United States, perhaps 10-15 percent, could be avoided by better availability or quality of medical care. Thus, one could question a funding scheme that places so much emphasis on medical care and not on prevention.” On the other hand, Cutler et al. (2006) examined life expectancy and medical care costs for the period between 1960 and 2000, assumed (with some justification) that medical care was responsible for 50 percent of the gains, and concluded that cost per life-year saved was $7,400 in the 1970s and $36,300 in the 1990’s. He also noted that, at age 65, costs rise more rapidly than life expectancy, observing a cost per life-year saved of $121,000 in the 1980s and $145,000 in the 1990s. He concluded that medical care has provided “reasonable value” since 1960, but that “current spending increases are associated with a high cost per year of life gained”, and that the current rise in spending should be balanced by attention to the health benefits gained.

Both of these views – that medical care has a relatively small impact on population health and that medical care has historically provided reasonable value – are probably too simplistic. The impact of medical care depends on many factors, including the outcome of interest, the

---

Exhibit 2: An Expanded Population Health Model

- **OUTCOMES**
  - Mean: Race/Ethnicity, SES, Geography, Gender
  - Disparity: Race/Ethnicity, SES, Geography, Gender

- **DETERMINANTS**
  - Medical Care
  - Individual Behavior
  - Social Environment
  - Physical Environment
  - Genetics
availability and type of insurance, the effects of the other determinants, etc. But these somewhat conflicting views illustrate the current lack of knowledge about the extent to which each of the five determinant categories affect population health.

Some research, such as that reported by Marmot and Wilkinson (2006), Lantz (2001), and Muenning and Wolff (2007), has begun to address the impact of risk factors such as SES on population health, but much remains to be done before we understand how to allocate resources among the determinants of population health. If Dr. Kindig were “czar” and were able to reallocate existing resources only within health care, he would take the 25 percent of health care expenditures that are alleged to be ineffective (roughly $500 billion) and reallocate $100 billion to covering the uninsured, $100 billion to prevention, and $300 billion to K-12 and early childhood education. But he admits that we do not have adequate evidence for this to be convincing to policymakers (Kindig et al. 2003, Fox 2006). In addition, there are certainly opportunities for more effective spending in the other determinant categories as well. As Evans and Stoddard (2003) point out, “redirecting resources means redirecting someone’s income…. Most students of population health cannot confidently answer the question, ‘Well, where would you put the money?’”

There are other questions that badly need answers:

- We need to move beyond determinants to prioritizing policies and interventions – what is the effectiveness and cost-effectiveness of each?
- What is the latency of different interventions? Some interventions have more immediate effects than others.
- What is the direction of causality between health and determinants? For example, does income influence health or vice versa? Note that some causality – as with income and health – can go in both directions.
- Are causal relationships discovered in the past likely to hold in the future?
- What is the role of genomics?

In addition, we need to understand how to develop incentives for improving population health, because “population health improvement will not be achieved until appropriate financial incentives are designed for this outcome.” (Kindig 1997) Perhaps the pay-for-performance concept in medical care can be expanded to develop a pay-for-population health performance system. (Kindig 2006) Demonstration projects are needed to explore financial incentives for health outcomes more generally rather than only for medical care outcomes.

Many determinants, such as education, the built environment, and preventive medical care, take generations to achieve their effects. A decision not to move forward is a decision to waste potential years of good health that are achievable. Can the next generation afford for the current generation not to start paying for population health performance?

In summary, the major population health issue is to establish the optimal balance of investments (e.g., dollars, time, policies) in the multiple determinants of health (e.g., behavior, environment, SES, medical care, genetics) over the life course that will maximize overall health outcomes and minimize health inequities at the population level. (Kindig 2007) That is our challenge. We need to meet the challenge through research and demonstrations that move us forward toward a better understanding of the determinants of population health and how to affect them.
2.2 Remarks by J. Michael McGinnis

Dr. McGinnis provided his reactions to a number of points addressed by Dr. Kindig. The edited comments below may be considered as direct quotes from Dr. McGinnis.

**Health** may be broadly defined as a measure of one’s overall status with respect to disease, injury, functional capacity, and sense of well-being. It has long been thought that much of disease was related to factors that surround us, but even as recently as the 1960s, the growing prevalence of chronic diseases was viewed by many in the medical profession as merely an inevitable consequence of the aging process and aging population. But we’ve learned a lot in a relatively short time. Now we not only know that much of the disease that results in death and disability among Americans is not necessarily inevitable, but the product of factors at play within and between five broad categories of health determinants—genetic predispositions, the social circumstances into which we are born and develop, the physical environments in which we live and work, our behavior patterns and choices, and the medical care we receive.

We are also learning more and more about a number of the elements within those categories. Those elements may be called risk factors, some of which are known and well characterized—like tobacco (behavior), asbestos (physical environment), poverty (social), and alpha-1-antitrypsin deficiency (genetic)—but many of which are not yet known or at least not well characterized. They are called risk factors because rather than acting alone, they generally work to increase risk for problems that are expressed in various degrees with the interplay among the factors and domains that determine health.

Approximate estimates of the relative contributions of each of these domains to deaths among Americans can be made by drawing from the multiple analyses that have published quantitative estimates of the impact of one factor or another. Although using different methodologies, there is a certain measure of consistency in the results that allows their general expression as a percentage of deaths each year attributable to the factors in each domain. From these various estimates, a reasonable consolidated approximation for the U.S. population as a whole looks something like (see McGinnis 2002):

- 40 percent attributable to behavior patterns (drawn from epidemiological literature on the roles of different behaviors in various diseases)
- 5 percent attributable to the physical environment (drawn largely from epidemiological literature on the contributions of different environmental exposures to certain diseases)
- 15 percent attributable to social circumstances (drawn from studies of the impact of neighborhoods, social class, and social change on mortality rates)
- 10 percent attributable to deficiencies in medical care access and delivery (drawn from a 1975 CDC assessment of field contributions, the 2002 IOM study To Err is Human, and other related assessments)
- 30 percent attributable to genetics (the residual)

A few things are important to point out about these estimates. First, they are useful only to give a general frame of reference, not to generalize to a particular population at risk. For example, those who are poor, who work in a hazardous environment, or who smoke will experience death and disease rates disproportionately determined, respectively, by social circumstances, environment, or behavior. Similarly, they are based on estimates for mortality; morbidity may have a different profile. And, except for a certain share of the genetic component, these are estimates for problems
that, by definition, occur *prematurely*, yet they are drawn from studies that include all ages. It would be interesting to know how the profile looked for only *early* deaths (say, before age 80).

Second, they identify *causes*, and, as such, indicate first line possibilities to improve health and avoid disability (i.e. prevention). They do not necessarily indicate *improvement prospects*, which will of course vary by what is known about our ability to intervene effectively. This is especially true in considering medical care’s role in health and disease—which, it should go without saying, is key. Some interest has been recently paid to the discrepancy between estimates of the role of medical care over the past quarter century as a determinant of health and its role as a factor in health improvement. The work Dr. Kindig referred to as an example in this respect is that of David Cutler and some others, who note that substantially more than 10% of reduced mortality in the recent period—both overall and specific to certain diseases—is attributable to better medical care. In fact, this is not surprising—for several reasons. Our population is aging, and medical care is going to mean more to older people. The sheer numbers of new and often innovative drugs and devices adds substantially to the tool chest of medical care. And, most importantly, with expenditures of more than $2 trillion annually in this country for medical treatment, we virtually never miss an opportunity to try to treat something. We certainly *ought* to expect a substantial return on an investment of this magnitude, although we ought to also be asking how this return stacks up against the health improvements we might get with comparably targeted efforts on the related behavior, environmental, and social dimensions.

Third, generally much more important than the contribution of any individual determinant domain or factor to health prospects is the nature of the *domain interactions*. For example, what is the impact of a behavioral pattern in the presence of a specific genetic predisposition, or how are behavioral patterns related to social circumstances. How do social circumstances impact on medical care or physical environments? The Robert Wood Johnson Foundation’s *Health and Society Scholars Program* and its program in population health is focused on just these sorts of questions, but it’s a substantially underdeveloped opportunity. Much additional analysis is needed to develop a better understanding of these interactions and of the relative contribution of each of the determinants in different situations.

This leads to a consideration of the important policy perspectives. When it comes to policy, we have a hierarchy of obligations:

- First, to improve understanding and insight on the possibilities;
- Second, to develop incentives based on those insights; and
- Third, to provide services necessary when incentives do not work.

We are currently failing in all three areas. With respect to insights, how do populations vary from one to another? How do the determinants interact with each other? How does stress contribute to health and why are some people more vulnerable to the effects of certain stressors than others? What is the impact of geographical differences in populations?

We need more incentives based on the insights we have. Incentives related to tobacco are working to some extent. We need to be more aggressive with respect to using incentives related to diabetes and obesity, and we need pilot programs that investigate the impact of such incentives.

With respect to services, what are the consequences of not choosing to invest in interventions that we know work? The U.S. Preventive Services Task Force and the Partnership for Prevention are making important contributions here with respect to preventive services.
If we had the information to make rational policy decisions, these decisions would be based on the magnitude of the problem being addressed, the ability to change the profile of the problem, and societal preferences. But we cannot use objective criteria without the analytical work that can provide this information.

There is now an opportunity for policy improvements in the context of the current interest in health care reform. But we need to ensure that discussions of health care reform include a population health focus. This is difficult, because the traditional focus of health care reform discussions is the financing of medical treatment services. We now have the opportunity provided by the ongoing health care reform discussion for a genuine shift in focus, standards, investment, and incentives toward the clinical and community-based preventive services that will yield healthier people.

3.0 Question and Answer Session

Q: Given our society’s focus on short-term benefits, how do we gain acceptance of public policy changes that require generations to realize a benefit?

A: (Dr. Kindig) This is a problem. It is why medical care receives so much attention – it provides short-term gains. But we might be able to learn how to foster longer-term policy changes by identifying lessons from places where such changes seem to be having some success, such as in the state of Vermont, which has improved its ranking steadily over time to become the healthiest state this year. Work such as that of the Wisconsin Population Health Institute (http://www.pophealth.wisc.edu/uwphi/research.htm) in ranking the counties of Wisconsin with respect to the determinants is helping to increase awareness among policy makers of the importance of the non-medical care determinants.

(Dr. McGinnis) We should use IT-based tracking of the impact of long-term interventions to help adjust the underlying strategies and accelerate progress. We should adopt pilot programs where we have some belief in the potential benefits of population-based interventions. We should identify and pursue interventions where we already know there can be short-term gains, such as worksite health promotion efforts. The generational challenge is most at play with respect to the impact of social factors such as education. It will take a long time and a sophisticated tracking system to help clarify the impact of these factors on health outcomes. But an improved understanding of these linkages through research coupled with pilot programs that focus more directly on the linkages can help.

Q: How do we know the direction of relationships between social factors that are correlated with health, such as education, and population health? Are these relationships clean cut?

A: (Dr. McGinnis) They are not clean cut at all. These are complicated, intersecting, multi-faceted issues, but they are real and they are powerful. Just because understanding these relationships is difficult does not mean we should not try via, for example, intervention trials at the community level. Whether health status affects education or education affects health, the relationship is important and, to some extent, testable.

Q: Of the determinants that can be addressed by medical prevention, diagnosis, and treatment, what two or three emerging technologies are likely to have the biggest impact?
A: (Dr. McGinnis) Based on the work of the Partnership for Prevention, the three currently underused medical preventive services that are proven cost savers are daily aspirin use by men over 40 and women over 50, childhood immunizations, and smoking cessation advice.

(Dr. Kindig) If the ability to translate what we now know into practice can be considered a technology, it would be the most important one. He applauds NIH’s increased emphasis on this type of translation. He also finds extremely relevant the work of Elliott Fisher and Jack Wennberg that is developing evidence of medical interventions that significantly increase costs in some locales with no difference in outcomes.

(Dr. McGinnis) The greatest improvement in costs and outcomes will come not from any individual technology but rather from improving the way the entire system operates.

Q: Although we know much more today than 40 years ago about preventive services and population health interventions that work, government investment in these interventions is decreasing. Why are our state and federal governments spending less on these activities and more on ones that do not work? Furthermore, why is the ongoing health reform debate focusing entirely on financing and not on health promotion and prevention? And what can be done about it?

A: (Dr. McGinnis) One of the sources of these problems is a highly decentralized system with many decision points (individual insurers, individual providers, etc.), making it difficult to introduce a rational approach. The solution is an overhaul of the linkage between more centralized, coordinated guidance to payers and the performance of the system. In the absence of universal health insurance, the only approach involves a better understanding of likely returns on investment and greater transparency in the way the system operates.

(Dr. Kindig) Everyone in the system responds rationally to the incentives inherent in the system. Accountability is gradually becoming more important – the environmental movement and accountability in education have had some successes here that might provide lessons. We need to link outcome measures to incentives, as the pay-for-performance movement is beginning to do. So the pay-for-population health performance concept is a possible solution. However, this is more difficult than pay-for-performance because it involves multiple funding sources from multiple sectors – education, Medicare, Medicaid, environmental protection, etc. We need to find a way to cross these barriers. Perhaps some demonstration pilot programs could help address this need.

(Dr. McGinnis) We need better pay-for-performance metrics that address outcome measures as well as process measures and that address population health improvement.

Q: The ongoing health care reform debate does, in fact, include some discussion of prevention. But this discussion suggests that we should pursue prevention because it will save money, thus helping us to afford universal coverage. In reality, upstream interventions that make good population health sense do not generally reduce costs in the short term, and demonstrations are unlikely to be supported for long enough to show long term savings.

A: (Dr. McGinnis) This is correct: We do not undertake prevention because it will save money. In a few cases it can actually be cost-saving, but in all cases, when we look at investment strategies, we should assess outcomes in terms of returns on investment for both treatment and prevention.
Q: The Healthy People 2020 initiative is developing the next generation of health objectives. They are beginning to take a risk factor/determinant approach to this process. But some stakeholders are threatened by an approach that might diminish the importance of their specific areas. How can we make this work?

A: (Dr. Kindig) Attention needs to be paid to disease specific risk factors or interventions, but they often guide us down a medical model path. I would advise national and state 2020 planning processes to group their objectives into determinant categories, and even try to indicate which might be more effective and cost-effective. Each of the 467 objectives in Healthy People 2010 can’t be equally important, even if it is difficult to specify an exact rank order. We have found our academic independence in Wisconsin to be an advantage in making controversial recommendations, in the same way the Institute of Medicine was important in establishing the Leading Indicators for Healthy People 2010.

4.0 Summary

While we do not yet have all the answers regarding how to address the determinants of health, Drs. Kindig and McGinnis used this opportunity to frame the relevant issues. They made it clear that we need policy changes that improve the balance between medical care and interventions that address the other determinants of population health. But such policy changes need to be both motivated and informed by research. Among the research needs identified by the speakers is development of an improved understanding of:

- The relative contributions of each of the determinants
- The ways in which the determinants interact to impact population health
- The causal relationships between the determinants and health, rather than simply knowledge of their correlation
- The effectiveness and cost effectiveness of alternative population health interventions
- The latency of alternative interventions
- The extent to which causal relationships discovered in the past are likely to hold in the future
- The role of genomics in population health

Addressing these issues provides a major set of challenges to the research community.

References


Appendix A. Altarum Institute – An Introduction

Who we are and what we do
Altarum is a nonprofit health systems research institute. We provide objective, rigorous research and practical solutions to clients ranging from the U.S. military health system to local communities seeking to provide better care to vulnerable populations.

Leading in the field of health systems research demands many things of us: a diverse staff with diverse perspectives; a comprehensive set of skills – from complex modeling tools, to hands-on technical assistance methodologies; and the ability to apply those skills across the continuum of health care programs, making complex decisions simpler.

Our work is helping the nation provide better care today and achieve better health tomorrow.

Our history
Altarum traces its history back to 1946 with the founding of the Willow run Laboratory in Ypsilanti, Michigan. In 1972, the Willow Run Laboratory was renamed the Environmental Research Institute of Michigan (ERIM). In 2001, ERIM acquired Vector Research, Inc., a leading provider of health care forecasting models and decision support tools for federal and state government clients. Later that year, ERIM became Altarum Institute. To advance its strategic growth in health care, Altarum acquired Health Systems Research, Inc. (HSR) in 2006.

For more information, please visit us at www.altarum.org.
### Appendix B. Roundtable Attendee List

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susan Blake</td>
<td>Associate Research Professor</td>
<td>Department of Prevention and Community Health, GWU SPHHS</td>
</tr>
<tr>
<td>Carter Blakey</td>
<td>Senior Advisor</td>
<td>Office of Disease Prevention &amp; Health Promotion, Office of Public Health Science, U.S. DHHS</td>
</tr>
<tr>
<td>Linda Bilheimer</td>
<td>Director, Office of Analysis and Epidemiology</td>
<td>National Center for Health Statistics, Centers for Disease Control and Prevention, U.S. DHHS</td>
</tr>
<tr>
<td>Theresa Boyd</td>
<td>Senior Analyst</td>
<td>Altarum</td>
</tr>
<tr>
<td>April Brooks</td>
<td>Associate</td>
<td>Altarum</td>
</tr>
<tr>
<td>Jenny Bryant</td>
<td>Deputy Vice President, Research</td>
<td>Pharmaceutical Research and Manufacturers of America</td>
</tr>
<tr>
<td>Amanda Cash</td>
<td>Fellow</td>
<td>Office of Women’s Health, HRSA</td>
</tr>
<tr>
<td>Andrew Cohen</td>
<td>Health Services Consultant</td>
<td>MHSA, FACHE, Health Services Consulting</td>
</tr>
<tr>
<td>Kate Flore</td>
<td>Senior Policy Associate</td>
<td>Altarum</td>
</tr>
<tr>
<td>Scott Green</td>
<td>Senior Associate</td>
<td>Altarum</td>
</tr>
<tr>
<td>Sharon Hegarty</td>
<td>Managing Director and Senior Vice President</td>
<td>Strat@comm</td>
</tr>
<tr>
<td>Sally Holthouse</td>
<td>Research Analyst</td>
<td>Altarum</td>
</tr>
<tr>
<td>Julie Hood</td>
<td>Policy Analyst</td>
<td>Altarum</td>
</tr>
<tr>
<td>Ed Kobrinski</td>
<td>Senior Policy Analyst</td>
<td>Altarum</td>
</tr>
<tr>
<td>Joan Lawrence</td>
<td>Senior Policy Analyst</td>
<td>Altarum Institute</td>
</tr>
<tr>
<td>Jim Lee</td>
<td>Vice President and Director, Medical Care Systems</td>
<td>Altarum</td>
</tr>
<tr>
<td>Ed Martin</td>
<td>Consultant</td>
<td>Former Assistant Secretary of Defense for Health Affairs</td>
</tr>
<tr>
<td>Sabrina Matoff-Stepp</td>
<td>Director</td>
<td>Office of Women’s Health, HRSA</td>
</tr>
<tr>
<td>George Miller</td>
<td>Senior Analyst</td>
<td>Altarum</td>
</tr>
<tr>
<td>Jeff Moore</td>
<td>Senior Vice President, Chief Development Officer</td>
<td>Altarum</td>
</tr>
<tr>
<td>Ray Paris</td>
<td>Director, Medical Resource Planning</td>
<td>Altarum</td>
</tr>
<tr>
<td>Charlie Roehrig</td>
<td>Vice President</td>
<td>Altarum</td>
</tr>
<tr>
<td>Marilyn Serafini</td>
<td>Health Care Policy Reporter</td>
<td>National Journal</td>
</tr>
<tr>
<td>Linc Smith</td>
<td>President and CEO</td>
<td>Altarum</td>
</tr>
<tr>
<td>Edward Sondik</td>
<td>Director</td>
<td>National Center for Health Statistics, Centers for Disease Control and Prevention, U.S. DHHS</td>
</tr>
<tr>
<td>Jason Spangler</td>
<td>Managing Senior Fellow &amp; Senior Program Officer</td>
<td>Partnership for Prevention</td>
</tr>
<tr>
<td>Naomi Tein</td>
<td>Senior Policy Associate</td>
<td>Altarum</td>
</tr>
<tr>
<td>Beth Zimmerman</td>
<td>Director, Integration and Change Initiatives</td>
<td>Altarum</td>
</tr>
</tbody>
</table>
Appendix C. Speaker Biographies

David A. Kindig, M.D., Ph.D.

Dr. Kindig is Emeritus Professor of Population Health Sciences and Emeritus Vice-Chancellor for Health Sciences at the University of Wisconsin-Madison School of Medicine and Public Health. Dr. Kindig also serves as Senior Advisor to the University of Wisconsin Population Health Institute. Dr. Kindig has written extensively on the health profession’s workforce, medical management, and other health policy issues. During 1995-1996, Dr. Kindig completed a one-year sabbatical in York, England and Vancouver, British Columbia, focusing on population health economics, which culminated in a book titled, “Purchasing Population Health, Paying for Results,” published by the University of Michigan Press. His current research interests include population health outcomes, equity in health, health literacy, and population health economics. A member of the Institute of Medicine, Dr. Kindig recently chaired the Institute of Medicine Committee on Health Literacy.

J. Michael McGinnis, M.D., M.P.P.

Dr. McGinnis is Senior Scholar at the Institute of Medicine at the National Academies, working with stakeholders to explore ways to strengthen assessment of the comparative effectiveness of clinical interventions. He also is Chair of the Health Professionals Roundtable, Partnership for Prevention. He previously served at the Robert Wood Johnson Foundation (RWJF) as Senior Vice President and founding Director of the Health Group, and as Counselor to the President. From 1995-1999 he was Scholar-in-Residence at the National Academy of Sciences (NAS). Dr. McGinnis has previously been appointed throughout the Carter, Reagan, Bush, and Clinton Administrations, as Deputy Assistant Secretary for Health and Assistant Surgeon General in the Department of Health and Human Services (HHS), coordinating policies in health promotion and disease prevention. Dr. McGinnis has had a career-long interest and involvement in international health – with service in 1995-1996 as chair of the World Bank/European Commission task force to rebuild the health sector in Bosnia, and in 1974-1975 as field epidemiologist and regional coordinator for the World Health Organization smallpox eradication program in India.