

Free Executive Summary



Integrative Medicine and the Health of the Public: A Summary of the February 2009 Summit

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The last century witnessed dramatic changes in the practice of health care, and coming decades promise advances that were not imaginable even in the relatively recent past. Science and technology continue to offer new insights into disease pathways and treatments, as well as mechanisms of protecting health and preventing disease. Genomics and proteomics are bringing personalized risk assessment, prevention, and treatment options within reach; health information technology is expediting the collection and analysis of large amounts of data that can lead to improved care; and many disciplines are contributing to a broadening understanding of the complex interplay among biology, environment, behavior, and socioeconomic factors that shape health and wellness. On February 25 - 27, 2009, the Institute of Medicine (IOM) convened the Summit on Integrative Medicine and the Health of the Public in Washington, DC. The summit brought together more than 600 scientists, academic leaders, policy experts, health practitioners, advocates, and other participants from many disciplines to examine the practice of integrative medicine, its scientific basis, and its potential for improving health. This publication summarizes the background, presentations, and discussions that occurred during the summit.

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Summary

On February 25–27, 2009, the Institute of Medicine (IOM) convened the Summit on Integrative Medicine and the Health of the Public in Washington, DC. The summit brought together more than 600 scientists, academic leaders, policy experts, health practitioners, advocates, and other participants from many disciplines to examine the practice of integrative medicine, its scientific basis, and its potential for improving health. This publication summarizes the background, presentations, and discussions that occurred during the summit.

INTRODUCTION

The last century witnessed dramatic changes in the practice of health care, and coming decades promise advances that were not imaginable even in the relatively recent past. Science and technology continue to offer new insights into disease pathways and treatments, as well as mechanisms of protecting health and preventing disease. Genomics and proteomics are bringing personalized risk assessment, prevention, and treatment options within reach; health information technology is expediting the collection and analysis of large amounts of data that can lead to improved care; and many disciplines are contributing to a broadening understanding of the complex interplay among biology, environment, behavior, and socioeconomic factors that shape health and wellness.

Although medical advances have saved and improved the lives of millions, much of medicine and health care have primarily focused on addressing immediate events of disease and injury, generally neglecting underlying socioeconomic factors, including employment, education, and

income, and behavioral risk factors. These factors, and others, impact health status, accentuate disparities, and can lead to costly, preventable diseases (IOM, 2001b). Furthermore, the disease-driven approach to medicine and health care has resulted in a fragmented, specialized health system in which care is typically reactive and episodic, as well as often inefficient and impersonal (IOM, 2007b; Snyderman and Williams, 2003).

In health terms, the consequences of this fragmentation can be serious. Chronic conditions now represent the major challenge to the U.S. health care system. Five chronic conditions—diabetes, heart disease, asthma, high blood pressure, and depression—account for more than half of all U.S. health expenditures (Druss et al., 2001). Among Medicare recipients, 20 percent live with five or more chronic conditions and their care accounts for two-thirds of all Medicare expenditures (Anderson, 2005). Many of these conditions are preventable, but only about 55 percent of the most recommended clinical preventive services are actually delivered (McGlynn et al., 2003).

Care coordination that emphasizes wellness and prevention, a hallmark of integrative medicine, is a major and growing need for people both with and without chronic diseases. Those with chronic diseases rarely receive the full support they need to achieve maximum benefit. A patient's course of care may require contact with clinicians and caregivers and may require many transitions, for example from hospital to home care. However, these transitions often are poorly handled, leading to adverse events that result in rehospitalizations 20 percent of the time (Forster et al., 2003). The IOM report *To Err is Human* concluded that half of all adverse events are caused by preventable medical errors. Indeed, it estimated that medical errors are responsible for some 44,000 to 98,000 deaths per year, ranking errors among the nation's leading causes of death (IOM, 1999).

Disconnected and uncoordinated care amplifies the economic burden of the health care system. The costs of U.S. health care are driven in large part by the inefficiencies, redundancies, and excesses of the current fragmented system and are considered by many economists and policy makers to be unsustainable, either for individuals or for the nation. In 2009, nearly \$2.5 trillion will be spent in the United States in a health care system that is underperforming on many dimensions. The current trend will drive expenditures to \$4.3 trillion by 2017 (Keehan et al., 2008) unless changes are made. Despite per capita expenditures that are at least twice as high as the average for other Western nations, the United

States ranks far down the global list in the health of its citizens (Schoen et al., 2006). Estimates by various experts suggest that one-third to one-half of U.S. health expenditures do little to improve health (U.S. Congress, 2004; U.S. Congress, 2006).

Combined, economic challenges and dissatisfaction with the current system drive interest in health reforms that would offer lower-cost, more effective, holistic, evidence-based approaches. This interest is growing concurrent with, and fueled by, growth in the science base about the relationships among health, the pace of healing, and more intangible elements of the caring process, including empowerment of patients to play a central role in their care. Evidence is accumulating about the variety of factors that have important effects on health care outcomes: the interaction between an individual's social, economic, psychological, and physical environments, and his or her biological susceptibility to illness and responsiveness to treatment; the nature of the care *process*, as well as its *content*; and the often greater health benefit to be had from certain "lower tech" interventions, rather than more costly approaches.

In addition, the interest in unconventional approaches to prevention and treatment has grown. In 2007, nearly two of every five Americans over the age of 18 reported use of therapies such as yoga, massage, meditation, and natural products and supplements (Barnes et al., 2008). In total, such approaches accounted for \$34 billion in out-of-pocket expenditures in 2007 (Nahin et al., 2009). And, more than half of all Americans over the age of 18 report regular use of dietary supplements, supporting a \$23 billion industry (National Institutes of Health, 2006). Some of these practices are based on the experience of cultures over time, some are based on evolving scientific theories, and some are based on little more than belief. Each compels an assessment of what is lacking in conventional health care that causes so many people to turn elsewhere for help. Stakeholders must determine which models and approaches to health care, conventional or otherwise, might best integrate the science, caring, efficiency, and results that patients desire and that improve optimal health and well-being throughout the life span.

This is the background to the IOM's Summit on Integrative Medicine and the Health of the Public. Integrative medicine may be described as orienting the health care process to create a seamless engagement by patients and caregivers of the full range of physical, psychological, social, preventive, and therapeutic factors known to be effective and necessary for the achievement of optimal health throughout the life span. The aim of the meeting was to explore opportunities, challenges, and models

for a more integrative approach to health and medicine. This approach could shift the focus of the health care system toward efficient, evidence-based practice, prevention, wellness, and patient-centered care, creating a more personalized, predictive, and participatory health care experience.

THE SUMMIT ON INTEGRATIVE MEDICINE AND THE HEALTH OF THE PUBLIC

The IOM Summit on Integrative Medicine and the Health of the Public was sponsored by the Bravewell Collaborative, and was planned by a 14-member committee, chaired by Dr. Ralph Snyderman.¹ The summit was designed to consider how integrative concepts can fit within a number of initiatives for transforming the health care system, including patient-centered care; personalized, predictive, preventive, participatory medicine; mind-body relationships; the expanding science base in genomics, proteomics, and other fields; health care financing reform; shared decision making; value-driven health care; and team-based care processes.

The agenda was divided into five half-day sessions, each with a keynote speaker, a panel of expert presenters, and audience discussion. The plenary sessions covered overarching visions for integrative medicine, models of care, workforce and education needs, and economic and policy implications. One of the planning committee's goals was to afford abundant opportunity to hear from summit participants. Ample time was allowed for questions and answers during plenary sessions; luncheon discussion groups allowed participants to continue plenary discussions; and five small assessment groups discussed priorities in assigned topic areas and reported to the plenary on their discussions.

SUMMIT THEMES

The summit provided the opportunity for all attendees to hear from and provide a rich array of experiences, diverse perspectives, and a variety of fresh ideas. Certain refrains were often repeated in different ways throughout the course of the summit (see Box S-1).

¹The role of the planning committee was limited to planning and preparation of the summit. This document was prepared by rapporteurs as a factual summary of what was presented and discussed at the summit.

BOX S-1

Recurring Summit Perspectives on Integrative Medicine

- **Vision of optimal health:** *alignment of individuals and their health care for optimal health and healing across a full life span*
- **Conceptually inclusive:** *seamless engagement of the full range of established health factors—physical, psychological, social, preventive, and therapeutic*
- **Lifespan horizon:** *integration across the lifespan to include personal, predictive, preventive, and participatory care*
- **Person-centered:** *integration around, and within, each person*
- **Prevention-oriented:** *prevention and disease minimization as the foundation of integrative health care*
- **Team-based:** *care as a team activity, with the patient as a central team member*
- **Care integration:** *seamless integration of the care processes, across caregivers and institutions*
- **Caring integration:** *person- and relationship-centered care*
- **Science integration:** *integration across scientific disciplines, and scientific processes that cross domains*
- **Integration of approach:** *integration across approaches to care—e.g., conventional, traditional, alternative, complementary—as the evidence supports*
- **Policy opportunities:** *emphasis on outcomes, elevation of patient insights, consideration of family and social factors, inclusion of team care and supportive follow-up, and contributions to the learning process*

These themes represent some of the characteristics and priorities coursing throughout summit presentations and participant discussions:

- **Vision of optimal health.** Integrative medicine, or integrative health care, seeks the *alignment of individuals and their health care for optimal health and healing across the life span*.
- **Conceptually inclusive.** Integrative health care means different things to different people, but common elements describe a care process in which patients and caregivers work together to foster *seamless engagement of the full range of health factors—physical, psychological, social, preventive, and therapeutic—*known to be effective and necessary to achieve optimal lifelong health.
- **Lifespan horizon.** The perspective of integrative *health care extends across the life span*. Fundamental to its philosophy is the

notion of starting as early as possible—even before birth—to plan and shape a person’s health future. It is *personal, predictive, preventive, and participatory*.

- **Person-centered.** The orientation of *health care is integrated around, and within, each person*. That is, care not only accounts for differences in individual conditions, needs, and circumstances, but it also engages patients as partners in addressing the different biological, psychological, spiritual, and social and economic reference points that shape patients’ wellness, illness, and healing. The intensity of care and the support mobilized are tailored to the intensity of the person’s need and risk, as moderated by personal preferences.
- **Prevention-oriented.** With its focus on optimal health, *prevention and disease minimization represent the foundation of integrative health care*. The first priority for a health care system that uses an integrative approach is, therefore, to ensure that the full spectrum of prevention opportunities—clinical, behavioral, social, and environmental—are included in the care delivery process.
- **Team-based.** Integrative health care envisions *a care process that is a team activity, with the patient as a central team member*. This differs from prevailing patterns of care that are often compartmentalized, fragmented, and delayed. An integrated health team would employ professionals with a wide spectrum of expertise and skills and diverse, interdisciplinary education and training in a set of core competencies.
- **Care integration.** In integrative health care, the *seamless integration of the care processes, across caregivers and across institutions*, is the most fundamental organizational principle. Whether through the use of patient navigators or health coaches, whether through care support tools and electronic health records that support the patient focus, or whether through payment systems pegged to patient outcomes, every aspect of system design should further the goal of integration.
- **Caring integration.** *Person-centered care is also relationship-centered care*. In integrative health care, care is integrated not only across organized caregiver sites, but across the relevant life dimensions—embracing and including home, family, loved ones, and the community. Care also considers the social and economic

factors that affect health, including employment status, education, income, social networks, and family support.

- **Science integration.** Integrative health care is *derived from lessons integrated across scientific disciplines, and it requires scientific processes that cross domains*. The most important influences on health, for individuals and society, are not the factors at play within any single domain—genetics, behavior, social or economic circumstances, physical environment, health care—but the dynamics and synergies across domains. Research tends to examine these influences in isolation, which can distort interpretation of the results and hinder application of results. The most value will come from broader, systems-level approaches and redesign of research strategies and methodologies.
- **Integration of approaches.** Integrative health care is *integrated across approaches to care—e.g., conventional, traditional, alternative, complementary—as the evidence supports*. In addition to the best application of conventional allopathic approaches, it may use evidence-based interventions or practices derived from ancient folk practices, cultural-specific sources, contemporary product development, or crafted from a blend of these. Sound practice requires that the standards of evidence be appropriate to the modality assessed, consistent across the range of options, and structured to assess broad outcomes over time.
- **Policy opportunities.** Policies that encourage integrative health care would define value in terms that *emphasize outcomes, elevate patient insights, account for family and social factors, encourage team care, provide supportive follow-up, and contribute to the learning process*.

In addition to these recurring themes, participants offered a number of suggestions throughout the course of the presentations, discussions, and breakout sessions on ways in which the science, practice, application, and effectiveness of integrative health and medicine might be enhanced. Specific participant suggestions and proposals included those related to:

- *Research*, such as clarification of the nature and pathways by which biological predispositions and responses interact with social and environmental influences, redesign of study protocols to better accommodate multifaceted and interacting factors, and

demonstration projects to identify effective integrated approaches that demonstrate value, sustainability, and scalability;

- *Practice*, such as team approaches that improve outcomes, tools that facilitate life span approaches to the care process, reorganization of provider profiles at care entry points to improve patient engagement and support;
- *Education*, such as redefining core competencies, exploration of new care categories, and reorienting health professions training to emphasize prevention, well-being, and team approaches; and
- *Policy*, such as clarity on the standards of evidence that shape practice and payment, development of incentives that support the necessary developments in research, education, and practice, in particular those that encourage care coordination, team care, patient engagement, and an orientation to prevention and well-being.

A number of these suggestions are highlighted in greater detail in later sections of this summary as reflections of the discussion but not as consensus or recommendations, which was not the purpose of the summit nor the intent of this summary.

SUMMIT IN BRIEF

Summit Overview and Background (Chapter 1)

Setting the stage for the summit discussions, Dr. Harvey Fineberg, president of IOM, said that in speaking to people about integrative medicine before the summit, he felt as if he were showing them a Rorschach blot and asking, “What do you see?” Integrative medicine, he said, means many different things to many different people and has at least five critical dimensions:

- *Broad definition of health*: Integrative medicine offers the possibility to fulfill the longstanding World Health Organization definition of *health* as more than the absence of disease. It should include physical, mental, emotional, and spiritual factors, enabling a comprehensive understanding of what makes a person healthy.

- *Wide range of interventions:* Integrative medicine encompasses the whole spectrum of health interventions, from prevention to treatment to rehabilitation and recovery.
- *Coordination of care:* Integrative medicine emphasizes coordination of care across an array of caregivers and institutions.
- *Patient-centered care:* Integrative medicine integrates services around and within the individual patient, which is perhaps the most fundamental and the most neglected aspect of high-quality care.
- *Variety of modalities:* Integrative medicine is open to multiple modalities of care, not just usual care, but also unconventional care that helps patients manage, maintain, and restore health.

Snyderman talked about the great difference between health and well-being and the care Americans currently experience. He acknowledged that many of the ways to improve health must be actively promoted by individuals themselves, and cannot be accomplished through the health care system. “Even the best health care system, acting alone, cannot assure good health. It needs the individual’s engagement and commitment to health,” he said. He described the first transformation in medical care, which occurred almost exactly 100 years ago, when advances in science resulted in the identification of microbial factors of disease and provided a new way to practice medicine. An unintended consequence of this transformation was development of the find-it-and-fix-it approach to medical treatment that focuses on identification and treatment of disease. Now, he suggested, is the time for a second transformation—one that again would be propelled by new advances in science, which for the first time are providing capabilities for quantifying health risks and the benefits of individualized therapies. This revolution could transform care into personalized, predictive, preventive, and participatory health care that would promote health and well-being.

The Vision for Integrative Health and Medicine (Chapter 2)

The panel discussion on vision underscored the notion that the current health care system is fragmented and not oriented to health promotion or disease prevention. Panel moderator, Dr. Michael Johns, for example, noted that much of today’s health care system focuses on treating major, often fatal, diseases, but these efforts are not sufficient to

achieve a healthy population. Bill Novelli described the large contribution that Americans' individual behavior choices make in preserving health or causing diseases. Yet, the health system is not currently geared toward supporting individuals through the long and difficult behavior change process. The health system might be more successful in eliciting behavior change if it were supported by policy changes, coordinated action across social sectors, community-based efforts, and more robust and diverse patient-education efforts, as described by Dr. Mehmet Oz. As he described his vision, Dr. Victor Sierpina noted that clinicians will need a different kind of education to work in a more integrative and community-based way.

Panelists discussed options for more integrative care efforts, including expansion of the pool of primary care providers suggested by Sierpina and use of multidisciplinary care teams. Such efforts can be greatly enhanced by electronic data systems that provide comprehensive patient-centered information to caregivers in a timely way, George Halvorson said. These systems could be the underpinning of a system for more patient-centered care. Ellen Stovall emphasized that clinicians must recognize that many of the skills patients need to actively participate in decision making about their care evaporate in the face of a serious illness, necessitating a greater need for patient-centered care that involves attention to patient preferences and integration of mind, body, and spirit.

Models of Care (Chapter 3)

In the session on models of care, speakers described various existing models of integrative care and highlighted principles that are vital to the success of future models. Speakers referred to almost a dozen different models that incorporate integrative approaches. These models have been implemented in a variety of settings and address acute care, chronic disease management, and home-based care. Throughout the session, patient-centeredness was the key theme.

In his keynote address for the session, Dr. Donald Berwick suggested that true patient-centeredness would attempt to explore patients' deep feelings about their health goals, so that care decisions would most effectively serve them and enhance prospects for successful treatments. He remarked on the notably generous spirit and common purpose reflected among summit participants, despite remarkably diverse perspectives. He underscored the importance of that sense of unity, given that the natural

inclination of professional groups is to make a case for their treatment specialty, often at the expense of the patient. To avoid this fragmentation, he said, the first challenge for integrative care will be for the field to define what is being integrated, why, and then ultimately to integrate *itself*.

Drawing in part on his previous IOM committee work, Berwick proposed the following eight principles for integrative medicine:

1. Place the patient at the center.
2. Individualize care.
3. Welcome family and loved ones.
4. Maximize healing influences within care.
5. Maximize healing influences outside care.
6. Rely on sophisticated, disciplined evidence.
7. Use all relevant capacities—waste nothing.
8. Connect helping influences with each other.

Emphasizing these notions, he concluded by noting that “the sources of suffering are in separateness, and the remedy is in remembering that we are in this together.”

The panel discussion was moderated by Dr. Erminia Guarneri, who opened by noting that her entire medical training was oriented to the find-it-and-fix-it mentality. Yet as she gained experience, she learned from her patients that, when it comes to cardiovascular health, the illnesses of loneliness, depression, anger, and hostility are every bit as devastating as hypertension and diabetes. She said a different model of care is needed, one that puts as much stock in the importance of social and behavioral perspectives as in lab values.

Dr. Edward Wagner agreed, noting that constructive patient–provider relationships are essential to effectively providing preventive services to individuals with established chronic illnesses, as well as those without. Wagner and others suggested that the mindset and principles of primary care may provide a sound foundation for integrative health care, but to effectively move to an integrative approach, primary care will also need to change. An important element of the transformation is to recognize that, for the 40 to 50 percent of the population suffering from chronic conditions, the distinctions between prevention and treatment begin to break down since the interventions are much the same. To foster high-quality and high-efficiency primary care, the system must include high-functioning practice teams, operate according to clear protocols, use enhanced information technology, and include structured patient involve-

ment, said Wagner. These factors would help address the most prominent care management challenges in chronic illness care and advance toward integrative medicine.

Dr. Arnold Milstein illustrated how such approaches can be effective even in, and perhaps especially in, those settings in which the patients are sickest and poorest. He analyzed components of small medical practices (with one to two physicians, which is the type where most physicians work) and medium-sized ones (with about 60 physicians) that have effectively managed chronic diseases and controlled costs. He found that the most successful practices had certain characteristics: they worked as teams; they established close relationships with patients and provided what patients themselves perceived as personalized care; they offered some unusual services in order to address the behavioral and social elements of health care; they focused on the sickest patients in the practice and went to extraordinary effort to keep these patients out of the hospital; and they developed relationships with one or two local physicians in each specialty who practiced similarly, so that when they had to make referrals, continuity of care was maintained. He noted that each of the practices he studied could not have survived on existing fee-for-service terms and had to negotiate capitation agreements with their payers. But the result was efficient, caring experiences, delivering better outcomes at lower costs.

Dr. David Katz, Dr. Tracy Gaudet, and Dr. Mike Magee each noted that the disease-oriented approach of conventional allopathic medicine neither naturally leads to the type of clinician-patient understanding Berwick and other participants envision nor does it yield the health outcomes patients should expect. Katz noted that patients often have concerns that are in a gray zone, and the only way to effectively address them is by understanding more about the individual context of their concerns. Gaudet concurred, noting that when so much of the disease and disability among Americans is a function of personal health behavior, that the changes health professionals are asking their patients to make cannot be successful until they have deep personal significance—something she feels the current system is entirely unable to address. She said that overhauling the current health care mindset would require a physician-patient partnership, including working together to fashion a whole person medical record that embeds the key elements for planning a patient's health future, the use of teams to manage the care process, and reoriented training to make these changes possible.

In carrying this theme forward, Magee called for the notion of a home-centered health care model—one that does not have the hospital or doctor's office at the epicenter—as necessary to helping people achieve their full potential. He viewed the notion of home as both a geographic and a virtual place, and one in which complexity, connectivity, and consumerism become advantages. He pointed out the appeal of this notion by observing that “Americans abhor homelessness, yet have learned to accept healthlessness.” Each of the panelists emphasized the importance of a sustained program of demonstration studies for new models, especially those that include mechanisms of payment, in moving integrative medicine forward and helping overcome the current reimbursement and cultural challenges.

Science (Chapter 4)

The session on the science base highlighted the complex interplay of biology, behavior, psychosocial factors, and how the environment shapes health and disease. The keynote address for the session was delivered by Dr. Dean Ornish, who pointed out that these interactions can produce synergistic results—for good or ill—and this complexity requires a systems approach in both health care and in health sciences research that accounts for multiple variables interacting in dynamic ways. In his presentation, Ornish described examples of various food components that seem in epidemiologic studies to either protect or promote certain disease processes. However, when studied as independent factors or administered separately, they act differently, which demonstrates that these factors do not generally act independently but in complex interdependence with other dietary components.

Ornish went on to note that various studies that examine the influence of supportive relationships and comprehensive lifestyle change suggest that not only could social and behavioral interventions change the course of a disease process, but in some circumstances could stimulate regeneration and reverse disease processes, in a dose-response fashion. Stating that nurture sometimes trumps nature, Ornish discussed some relatively new findings in genomic sciences showing the potential for lifestyle changes to affect telomere length (related to aging and longevity) and gene expression.

In the panel discussion, Dr. Nancy Adler, who reviewed the social determinants of health, picked up this theme by noting that English

workers in manual occupations showed a significant decrease in telomere length relative to same-age workers in non-manual fields, indicating premature aging at the cellular level. She went on to review the powerful overall impact of income and education on health status and life expectancy, including its cross-generational influence.

A specific focus on advances in genomic sciences was provided by panelist Dr. Richard Lifton, who noted that, increasingly, new, more effective treatments that are tailored to a person's genetic profile will be available. This will greatly facilitate personalized medicine and person-centered care. Lifton noted the progress made in the 150 years since 1865 when Gregor Mendel recognized genetic factors. He offered examples of diseases such as breast cancer, Alzheimer's, hypercholesterolemia, obesity, and many others for which contributing genetic loci have been identified in the past decade. While identification of genetic variation may fragment care in the sense that it will lead to a certain level of stratification or targeting, he said it will foster an integration of approaches to the care dynamics that are important to a given individual.

Extending the notion that it is the interactions of genes with other factors (epigenetic influences) that shape health and illness, Dr. Mitchell Gaynor reported on numerous studies indicating the influence of diet and other environmental factors on the expression of genes.

The interplay of external stressors and physiologic responses was also an issue discussed by several panelists. In his introduction to the panel discussion, moderator Dr. Bruce McEwen offered an overview of how changes in levels of physiologic mediators released in the brain, such as adrenaline and cortisol, in response to stress can produce cumulative effects over time—what he termed allostatic load. McEwen noted that psychosocial factors including stress, loneliness, and depression, trigger brain-mediated responses in neural, endocrine, and immune systems, and, in time, have adverse effects on various organ systems and disease states. People with high levels of stress can be found throughout society, observed Adler, who noted that those in lower socioeconomic strata are particularly vulnerable. McEwen and Adler also described the long-term effects of stress, adverse events, and low socioeconomic status on the health of children.

Dr. Esther Sternberg noted that as the brain responds to stress, hormones are released that can interfere with the immune response and metabolic processes and damage the cardiovascular system. On the other hand, Sternberg said, something as simple as having a support group, a wide social network, or a nurturing belief system can help people man-

age stress and recover from illness. She said that the road to healing also is mediated by the brain. Health-promoting activities, such as meditation, yoga, tai chi, and exercise, have biologic effects on the neuroendocrine systems. When people engage in these types of activities, the vagus nerve functions as a brake on the sympathetic nervous system, thereby increasing the power of the immune system. Also, such activities prompt release of the powerful neuroendocrine system hormones—endorphins and dopamine.

Each of the panelists emphasized the potential from scientific advances and the need for studies to accelerate progress. Yet many, including Dr. Lawrence Green who was charged with reviewing research challenges, noted the complexity of studying the involved factors. In particular, this complexity presents a significant limitation to the use of randomized clinical trials, which test one variable at a time and are not designed to evaluate multifaceted preventive approaches, such as lifestyle interventions. New, more appropriate assessment methods are under development. They range from improved effectiveness trials at the community level to studies of immune system biomarkers at the molecular level, to an array of study methods being used at the National Center for Complementary and Alternative Medicine (NCCAM)—approaches that were described by the center's Director, Dr. Josephine Briggs. Briggs highlighted the four spheres of research conducted at NCCAM: basic sciences, translational research, efficacy studies, and effectiveness research, noting that approximately half of NCCAM's resources are devoted to basic research, such as studies of the neuroscience of meditation and the biology of the placebo effect.

Workforce and Education (Chapter 5)

In the summit discussion on workforce and education, speakers described the implications of advances in integrative medicine for the education and training of the nation's health professionals and researchers. They discussed strategies for changing curricula, including interdisciplinary approaches, team-based training, and expansion of core competencies in healthy living and wellness.

An often-mentioned point in this session, described by Dame Carol Black in her keynote address, is the need to expand interdisciplinary and multidisciplinary education to promote effective teamwork. Black pointed out that the only way to provide truly person-centered care is to

take into account the social and economic determinants of health, which requires a very different set of provider profiles, competencies, and training. She gave, as a particular example, the importance of the relationship between work and health. Black noted that while health care providers often discuss many health behavior and environmental factors with their patients, they rarely discuss patients' employment in a meaningful way. Yet people spend more time at work than almost any other place, and it has to represent the dominant social influence on health prospects. Even more dramatic is the condition of "worklessness," which over the long term is a greater risk to health than many diseases. Overall, she emphasized, a rational approach to health care requires a team approach, in order to address both the growing complexity in diagnosis and treatment interventions and the similarly complex social and behavioral factors affecting health.

Dr. Elizabeth Goldblatt echoed this theme, noting that people and patients desire collaboration among their health care providers, which presumes innovative multidisciplinary educational experiences, training, and guidelines for all licensed health professionals. Yet, health practitioners typically are educated and trained in professional silos, hindering their ability to quickly transition and adapt to a team environment. Interprofessional education should begin early, particularly for physicians, to reinforce shared values and overcome the culture that rewards individual accomplishment, said Dr. Adam Perlman, who detailed the related approaches, barriers, and opportunities.

To inform the change process, demonstration projects were noted as useful in developing more effective educational models for integrative health practitioners. Dr. Mary Jo Kreitzer, who sees the necessity for disruptive innovation in both health professions education and health care delivery, suggested that community health centers be incorporated into interdisciplinary education experiences. Another approach would involve training nonphysicians to be primary care providers. Dr. Richard Cooper viewed this prospect as inevitable and critical, because of the looming shortage of primary care physicians. Expanded primary care capacity might be achieved by developing new competencies for nurse practitioners and others. Dr. Victoria Maizes suggested training programs built around core competencies in integrative health. Maizes discussed several related approaches but noted that much work is to be done in forging and getting agreement on a competency-based curriculum of the sort needed.

Underscoring the need for a new look at competencies and curriculum was the fact that, regardless of professional and specialty mix, health

care practitioners today are not able to overcome some of the most important factors in health and disease, including the socioeconomic factors raised by Black. In many respects, Cooper said, poverty constitutes the greatest of all the challenges facing the health care system. In fact, approximately 17 percent of all Americans and 21 percent of their children live in poverty, ranking the United States with the third highest rates of poverty overall and fourth highest rates of poverty for children among OECD² nations (OECD, 2009).

Sir Cyril Chantler addressed the question of legal and regulatory implications inherent in a move toward integrative medicine. Chantler noted the need to ensure an adequate evidence base as a precondition for the integrative practice and its oversight. But he also noted the need for standards appropriately tailored to the individual issue at hand, with patient safety the top priority. However, evaluation needs to go beyond this to address questions of benefit and cost-effectiveness. One of the challenges is to ensure that the consideration of benefit includes individual patient values. In the matter of credentialing, Chantler noted that standards for professional competence should be clear and consistent, that outcomes should be carefully recorded and audited, and that teamwork capacity should be an essential element.

In a comment that reflected the overall spirit of the discussion and the need for action, Chantler acknowledged the importance of the axiom *primum non nocere*, “first do no harm,” but also added another, *deinde adjuvare*, “next do some good.”

Economics and Policy (Chapter 6)

The keynote address for the session on economic and policy issues was delivered by Senator Tom Harkin who shared his optimism about meaningful health reform by referring to President Obama’s recent remarks before a joint session of Congress, in which he predicted that Congress would pass a comprehensive health reform measure in 2009 and that the centerpiece of the reform would be a new emphasis on prevention and wellness. Harkin noted that, unlike previous occasions, public sentiment is now clearly that the health care system is substantially dysfunctional and in need of dramatic change. He called for a system that emphasizes care coordination and continuity, patient-centeredness, holis-

²Organisation for Economic and Co-operation and Development.

tic approaches, and wellness. Such an integrative approach, he said, would take advantage of the very best scientifically based practices, whether conventional or alternative. It would focus on the twin goals of improving outcomes and reducing costs.

In the following panel discussion, Dr. Kenneth Thorpe reiterated that changes outside the health system (e.g., environmental and food policy) can have a profound effect on health, and that there is an opportunity for reforms in these areas to be included in an administration-wide discussion of health reform. For every dollar spent on medical costs for treating chronic diseases, many of which are preventable, he suggested, another \$4 is lost through decreased productivity. He acknowledged the difficulty that small physician practices have in providing services such as care coordination, primary prevention, and community outreach, and supported development of community health teams that would include nurse practitioners, social workers, and behavioral health workers to collaborate with these practices to make these services available.

Dr. Janet Kahn also suggested greater coordination of health-promoting activities across government agencies, including agencies outside of the Department of Health and Human Services, as part of the reform process. In discussing the political and policy realities, panelists cautioned that health reform, especially reform emphasizing integrative concepts, is far from a certainty. As a tactical matter, Tom Donohue warned against pointing fingers at other sectors and advised that advocates unite around commonly held values.

Dr. Reed Tuckson emphasized that health insurance companies have agendas and missions that are well aligned with the summit's goals, and noted that his own company, UnitedHealth Group, views itself as "a health and well-being company." His emphasis was on the need for evidence on workable models that could be used to support changes in financing. When thinking about integrative medicine, he asked for clarity in how different members of the comprehensive care team are to be trained, credentialed, evaluated, coordinated, coded, and reimbursed, and how redundancy would be minimized and efficiency improved.

Donohue said that businesses today are supportive of health system change. For insurers and the business community alike, the dominant concern is rising health care costs. Donohue and William George both viewed the business community as strong participants in reforming the health system, not only because of their traditional insurance role, but also because of their successes with employee wellness programs. George noted that the goal for employers that emphasize wellness is not

achieving the lowest cost for employee health benefits; it is to have 100 percent of employees fully present on the job every day—in other words, improved productivity. The starting point for that productivity is a corporate culture where health is honored and enjoyed.

Examples of the ways successful programs have not only improved employee health but also demonstrated return on investment to employers were described by Dr. Kenneth Pelletier. He reported on research that identified 153 clinical and cost outcome studies of worksite integrative health approaches, all of which demonstrated net benefits with respect to short- and long-term disability, absenteeism, personnel retention, presenteeism, and performance. Pelletier noted that the studies he reviewed reflected returns on investment ranging from 3.5 to 4.9:1. He suggested approaches that might be used to further evaluate the potential economic returns from integrative programs.

Concluding Comments (Chapter 7)

The final session of the summit was devoted to an open review of key points of the summit discussions, including a panel conversation among the moderators of the five previous summit sessions, followed by closing comments from Fineberg and Snyderman. In the panel discussion, participants noted the clear emphasis throughout the summit on re-orientation of care to perspectives that emphasized prevention, were person centered and life span long, accommodated multidisciplinary team engagement, and tended to the social, home, and relationship environments so important in influencing individual and population health.

Participants also identified considerations of particular importance moving forward. Johns, for example, noted that a challenge was to avoid piling an entirely new set of practitioner tools onto existing practice patterns. Rather, in integrative *health* an entirely new orientation is needed, including the involvement of an “optimizer”—human and/or electronic—devoted to ensuring that the right intervention is provided at the right time and the most appropriate place. Guarneri commented that the practitioner’s toolbox has to be equipped with much more than drugs and devices. Instead, it needs to be designed as a community kit for use in a care model drawing on multidisciplinary teams. However, considerable work would need to be done to bring credentialing and financial incentives into alignment with the vision.

In addressing the issue of involving multiple disciplines, McEwen remarked on the impressive promise of advancing science, if it can break free from the tendency toward specialization and reductionism, but he cautioned that engaging truly interdisciplinary perspectives and activities is very challenging. The signals must be strong from field leaders, in training programs, and from funding sources. Goldblatt again stated the importance of beginning very early in the professional training process with priorities, emphases, and skills directed to wellness and to understanding the range of factors in play for the whole patient, not just the physiologic correlates of the presenting symptom. She noted that if people are educated in silos, they will practice in silos, and that style of practice is increasingly untenable.

Tunis reminded participants that the United States is faced with a once-in-a-generation opportunity for major political and social change on behalf of better health care. He noted that the economic challenges may in fact be working to counter a culture of greed and shift to greater resonance with the values of integrative medicine—internal reflection, connectedness, and community support. He also cautioned that sustaining the “shared sympathy” of the discussions would be a challenge, but it was very important, given the natural inclination in resource-related discussions to point fingers and place blame across sectors. Finally, he predicted that integrative medicine may turn out to be the most successful approach to reforming the nation’s health system.

In their concluding remarks, Snyderman, chair of the summit planning committee, and Fineberg, president of the IOM, both thanked all of the participants for their time, their active engagement, and their energy and enthusiasm throughout the summit. Snyderman and Fineberg said the event was far bigger and far more important than the organizers could have anticipated when they began the initiative more than a year earlier.

Returning to the Rorschach blot that Fineberg discussed in his opening remarks, Snyderman reiterated that everyone had arrived at the meeting with some image of integrative medicine. Those images were probably different in virtually every mind, and while the summit had not led to a precise and universally accepted view of integrative health care—nor was that the intention—it had clearly led to much greater understanding, to identification of common elements, and to appreciation that at its center is an individual with unique requirements for maintaining health, preventing disease, and health care services. Snyderman said that the unique individual is each of us over the course of our lifetimes; it is our friends and family members; and it is every one of the nation’s

children, with their different socioeconomic backgrounds and opportunities, their different racial and ethnic identities, their different family dynamics, and their different futures.

Snyderman also noted that Fineberg was wise to ask people, near the end of the plenary, what they had learned, what for them was different. He concluded by saying that “to some degree all of our minds have been changed, unalterably. We are different people, capable of taking different actions. Much of what comes out of the summit will depend on the spontaneous actions and the creativity of every person in the audience. We all can play a role in keeping this movement going forward.”

INTEGRATIVE MEDICINE AND THE HEALTH OF THE PUBLIC

A SUMMARY OF THE FEBRUARY 2009 SUMMIT

Andrea M. Schultz, Samantha M. Chao,
and J. Michael McGinnis, *Rapporteurs*

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museen in Berlin.

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*“Knowing is not enough; we must apply.
Willing is not enough; we must do.”*
—Goethe



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¹The role of the planning committee was limited to planning and preparation of the summit. This document was prepared by rapporteurs as a factual summary of what was presented and discussed at the summit.

Reviewers

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 Research Council's 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 process. We wish to thank the following individuals for their review of this report:

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Although the reviewers listed above have 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. The review of this report was overseen by **Ada Sue Hinshaw**, Uniformed Services University of the Health. Appointed by the National Research Council and Institute of Medicine, she was responsible for making certain that an independent examination of this report was carried out 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 committee and the institution.

Foreword

Health is a personal matter, as is the way each of us chooses to integrate concerns about health into our lives. Like a Rorschach blot, the notion of integrative medicine, or integrative health, means different things to different people. As an approach to enhancing health, integrative health seeks to combine the best scientific and evidence-based approaches to care with a focus on the full range of needs of the individual. Integrative medicine seeks to enable everyone to maintain their health insofar as possible, and to be empowered in partnering with health care providers when illness occurs. With this approach, patients can be more effective stewards of their own health and wellness.

This publication, *Integrative Medicine and the Health of the Public: A Summary of the 2009 Summit*, provides an account of the discussion and presentations of the two-and-a-half day summit in Washington, DC, held February 25–27, 2009. While this summary captures the discussion, it cannot adequately convey the energy and enthusiasm of the participants who filled the auditorium throughout the event. The Institute of Medicine (IOM) was honored to host such a large and diverse group to discuss such a timely topic, especially at such a critical time in American health care policy making.

Under the direction of Ralph Snyderman, the summit planning committee assembled an outstanding group of speakers and discussants who provided valuable insights on the potential and limitations of integrative health care, models that might be most conducive to its delivery, the multiple dimensions of scientific endeavor that intersect as its support base, and possible economic implications and incentives. Participants had an exceptional opportunity to examine the role and value of integrative

medicine in meeting health needs and overcoming fragmentation in the health care delivery system.

The summit discussions were fruitful and collaborative, and I believe that every participant came away from the meeting having learned something each did not know before. It is my hope that this publication will advance thoughtful consideration of integrative medicine and extend the enthusiasm that was ignited at the summit.

I would like to thank the Bravewell Collaborative for their spirit of partnership and support of this activity, Ralph Snyderman for his leadership and guidance, the planning committee for their commitment and wisdom, and the IOM staff for their hard work and dedication.

Harvey V. Fineberg, M.D., Ph.D.
President, Institute of Medicine

Preface

“Life, liberty, and the pursuit of happiness,” a phrase taken directly from the Declaration of Independence, indicates *the* basic values identified by the founders of our nation. Of the three, life is the most fundamental as without it, liberty and the pursuit of happiness are meaningless. Health, of course, is the underpinning of life and therefore, it is puzzling that there is so little general demand for an explicit public emphasis on nourishing health as a personal and social resource. Indeed, despite spending enough on “health care” to threaten our economy, our country is rife with chronic disease, is facing a growing epidemic of obesity and ill health, has a system of care that focuses on the treatment of episodes of disease rather than promoting health or coherently treating disease when it occurs, and there are 47 million Americans without health insurance.

It is well recognized that our approach to health care is reactive, sporadic, uncoordinated, and very expensive. Clearly, we are capable of far better health care delivery and more innovative approaches toward improving the health and well-being of our citizens. The concept of the Summit on Integrative Medicine and the Health of the Public arose from these basic premises that health and well-being represent our most valued assets and that our current delivery system is deeply flawed in its capacity to safeguard those assets. To improve health, we must address not only health care delivery but also how to engage and inform the patient (person), so they effectively achieve better health. Indeed, there are models and examples of more coherent approaches to enhancing health and well-being and preventing and caring for chronic disease. Critical to such approaches is the integration of the best of conventional care with the full engagement of an informed patient along with coordination of those

therapies and services shown to improve outcomes. Thus, integration of health care to include a full range of capabilities for enhancement of health and wellness, prediction and prevention of chronic disease, as well as participation by the patient form a common theme for ways to address our current health dilemma.

These are concepts well recognized and supported by the members of the Bravewell Collaborative, a philanthropic organization committed to improving health through integrative approaches. Through a long-standing friendship with the leadership of this organization, particularly Christy Mack and Diane Neimann, we discussed how their organization could best further their agenda to improve health and well-being through integrative care. I suggested they contact the Institute of Medicine (IOM), our nation's most respected organization regarding the evaluation of health care issues. As a result of their deliberations with IOM President Dr. Harvey Fineberg and the IOM leadership, the IOM agreed to sponsor a major national summit bringing together broad program, scientific, and policy experts to review the issues and state of the science for integrative health and health care, and to discuss the feasibility of various existing models or new models as potential solutions to our current problems. The intent of summit organizers was to organize an event that offered a venue for a diverse group of stakeholders to come together for candid discussion of topics related to integrative medicine and the advancement of the field; the summit was not designed to elicit a consensus or a set of recommendations from the participants or the planning committee.

The IOM assembled a highly experienced and knowledgeable planning committee, which I was privileged to chair, and we launched a year of intensive work. None of us likely anticipated fully the time commitment involved, but for each of us the effort was a work of love. Along with support from the superb staff of the Institute of Medicine, particularly Dr. Michael McGinnis, Samantha Chao, and Andrea Schultz, we were able to assemble the program for the February 25–27 meeting described in this summary. We hoped for an audience of up to 500, but once the summit was announced, over 700 people registered, and we were able to accommodate about 600. The speakers and participants included a broad array of leaders in multiple fields. The audience, likewise, was outstanding and participated fully and effectively.

The summit not only far exceeded our highest expectations, it was an event that led to the bonding of attendees, informed our outlook, and enhanced our commitment to work for positive change. During multiple

discussion venues, many facets of integrative care were explored. Of course, no single approach could be identified as *the* solution, but it was broadly agreed that health and health care must be centered on the needs of the individual throughout his or her life, supporting the individual's capability to improve health and well-being, to predict and prevent chronic disease, and to treat it effectively and coherently when it occurs. Approaches to care must be evidence based, yet caring and compassionate. Fortunately, many such integrative approaches already exist on which demonstration projects might be built to identify and validate the best integrative solutions to the various health care delivery needs.

This publication captures many of the deliberations and suggestions offered by participants as to possible next steps. As such it can be used as a touchstone not only for the meeting participants energized by their experience, but by others far beyond the meeting who are likewise committed to transformative change on behalf of better health. What better purpose to drive the focus of our attention on the path for rational attention to health care reform that cultivates health as a value for each of us and for society?

Ralph Snyderman, M.D.
Chair, Planning Committee
for the Summit On Integrative Medicine
and the Health of the Public
July 10, 2009

Acknowledgments

This publication is the product of the efforts of many individuals, and the Institute of Medicine (IOM) is grateful to all who contributed to the success of the summit.

Recognition must first go to the Bravewell Collaborative, which made the summit possible through its generous funding and its vision to integrate health and healing into the practice of medicine.

The commitment and wisdom of the members of the summit planning committee must be acknowledged. With Ralph Snyderman's leadership as chair, the planning committee assembled an agenda of distinguished speakers, whose presentations informed and inspired everyone. Thanks are also owed to the authors of the papers commissioned by the IOM, which provided background for the discussions, and to Neil and Vicki Weisfeld, who captured and organized the summit discussions into this text.

Throughout the course of the project, several dedicated staff members supported the planning and execution of the summit. Andrea Schultz and Samantha Chao provided steadfast support to the planning committee and project, while Michael McGinnis and Judith Salerno offered their guidance and leadership. Thanks go to Katharine Bothner for her research assistance; to Joi Washington, Judy Estep, and Catherine Zweig for their administrative support; and to Cindy Mitchell for her incredible support to the contributions of the summit chair. Considerable appreciation is also given to Donna Duncan, Michael Hamilton, and Zimika Stewart for skillfully managing the summit logistics.

Additional thanks go to the numerous IOM staff members who contributed to the execution of the summit and to the production and dissemination of this publication: Clyde Behney, Christie Bell, Savannah

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Finally, the insight and enthusiasm contributed by each individual who attended the three-day summit also must be recognized. The success of the summit would not have been so great without each attendee's active participation.

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