



INTEGRATIVE MEDICINE

*Improving Health Care for Patients
and Health Care Delivery for
Providers and Payors*

A Bravewell Collaborative Report

Health &
Health &
Wellbeing
Wellbeing



INTEGRATIVE MEDICINE

*Improving Health Care for Patients
and Health Care Delivery for Providers and Payors*



A Bravewell Collaborative Report

Copyright © 2010, The Bravewell Collaborative.
All rights reserved.

For permission to reprint, please contact:
The Bravewell Collaborative
1818 Oliver Avenue South
Minneapolis, Minnesota 55405
Telephone: 612-377-8400
Email: info@bravewell.org

CONTENTS

Integrative Medicine	5
Hallmarks of Transformative Change	6
The Summit on Integrative Medicine and the Health of the Public	8
Transformation Chart	10
Patient Story: <i>Josh Mailman</i>	11
What is Health?	13
Whole Person Care	15
The Connection Between Lifestyles and Health	21
Focusing on Prevention	23
Patient Story: <i>Rania Zimmerman</i>	24
Embracing Complexity and Connection	27
The Doctor-Patient Relationship	29
Patient Story: <i>Camille Di Girolamo</i>	31
The Patient's Central Role	34
Patient Story: <i>Roberta Cutbill</i>	36
In Summary	38
Getting Involved	41
Credits	41
Bibliography	42
Colophon	48

INTEGRATIVE MEDICINE

Integrative medicine is an approach to care that can be easily incorporated by all medical specialties and professional disciplines, and by all health care systems. Its use will not only improve health care for patients, it can also enhance the cost effectiveness of health care delivery for providers and payors.

A practical strategy, integrative medicine puts the patient at the center and addresses the full range of physical, emotional, mental, social, spiritual and environmental influences that affect a person's health. By treating the whole person, both the patient's immediate needs as well as the effects of the long-term and complex interplay between a range of biological, behavioral, psychosocial and environmental influences are addressed. This process enhances the ability of individuals to not only get well, but most importantly, to stay well.

Important elements of an integrative approach to health care include engaging the patient as an informed and empowered partner and personalizing the care to best address the individual's unique conditions, needs and circumstances. The integrative approach emphasizes prevention, health maintenance and early intervention, and utilizes all appropriate, evidenced-based and personalized therapeutic approaches to achieve optimal health and wellbeing across one's lifespan.

*Whole
Person Care*



HALLMARKS OF TRANSFORMATIVE CHANGE

Integrative medicine is a rational concept and a straightforward approach to health care. It is good, sound, whole person care that uses the most appropriate interventions from the array of scientific disciplines to heal illness and disease and help people regain and maintain optimum health. Many of its individual elements – such as the psychological or environmental influences on health – have been researched and utilized for many years. However, recent evidence demonstrating the success of integrative medicine in a variety of clinical settings has propelled it into the national conversation on health care reform. Important areas where an integrative approach has demonstrated clear benefits include obstetrics; pediatrics; primary care; acute and chronic care; primary, secondary and tertiary prevention; cancer care; cardiac care; and palliative care.

Reflecting its potential to provide transformative change to the health care system, integrative medicine is, in part, now taught, practiced and researched in nearly half the medical schools in the country. These include such leading universities as Duke, Harvard, University of California San Francisco, Yale, Johns Hopkins, and Columbia.

Prestigious health care organizations such as the Mayo Clinics in Minnesota, Arizona and Florida, and Scripps Health in Southern California operate integrative medicine centers that work in collaboration with the larger system, and major free clinics such as the Venice Family Clinic in Los Angeles provide integrative services to their underserved clientele. Leading hospital systems such as Allina Hospitals and Clinics in Minnesota and Beth Israel Medical Center in New York City are offering both their patients and employees integrative services, and integrative lifestyle change programs such as the Lifestyle Heart Program and the Cardiac Wellness Program are used

with both clinical success and cost effectiveness in hospitals and clinics across the country.

Additionally, research projects studying the clinical and cost effectiveness of an integrative approach for employee health programs are being conducted by the Corporate Health Improvement Program, (CHIP), a collaborative research program between the University of Arizona College of Medicine, the University of California San Francisco School of Medicine, and Fortune 500 corporations including Dow, Mercer, Thomson-Reuters, American Specialty Health, Ford, Prudential, IBM, Pfizer, Corning, Pepsi, Nestle, and NASA.

Evidenced-Based



THE SUMMIT ON INTEGRATIVE MEDICINE AND THE HEALTH OF THE PUBLIC

In recognition of the growing body of evidence, in February 2009, the Institute of Medicine, in partnership with The Bravewell Collaborative, convened The Summit on Integrative Medicine and the Health of the Public to examine the scientific basis of integrative medicine and its potential for improving the health of the nation.

More than 600 health practitioners, scientists, policy experts, academic leaders, and patient advocates from across the nation came together to share their research and experience, and suggest how the principles and practices of integrative medicine could help patients, providers and payors.

There was broad recognition that although medical advances have saved and improved the lives of millions, much of our nation's health care resources are focused on addressing the effects of specific incidents of disease and injury while neglecting coordinated approaches to health promotion, prevention and treatment as well as the underlying mental, emotional, social and environmental factors that have a significant influence on a person's health. The IOM Summit Summary states that, "This disease-driven approach to care has resulted in spiraling costs as well as a fragmented health system that is reactive and episodic as well as inefficient and impersonal."

In offering integrative medicine as a practical model that could solve many of our current health care challenges, Summit faculty urged that "the first priority for any health care system using an integrative approach is to ensure that the full spectrum of preventive opportunities – clinical, behavioral, social, spiritual and environmental – are included in the care and delivery process." They further advised that care

“should account for the differences in individual conditions, needs and circumstances, and engage the patient as a partner in addressing all the factors that shape wellness, illness and restoration of health. The care should be a team activity with the patient as the central member, and there should be seamless integration across caregivers and institutions for the achievement and maintenance of optimal health throughout the patient’s lifespan.”

In his opening remarks, IOM President, Harvey Fineberg, MD, explained the full depth and breath of integrative medicine, stating that, “Integrative medicine encompasses the whole spectrum of health care interventions from prevention to treatment to rehabilitation and recovery.”

Prevention

TRANSFORMATION CHART

CURRENT MEDICAL PRACTICE <i>Evolving to...</i>	INTEGRATIVE PRACTICE
Health is most often considered to be the absence of disease.	Health is seen as a vital state of physical, mental, emotional, social and spiritual wellbeing, which enables a person to be engaged in life.
The physician tends to act as the authority figure.	The physician acts as a partner in the patient's care.
The patient is encouraged to follow the physician's directions.	The empowered and informed patient is an integral part of the decision-making process.
The interventions are often directed only towards the treatment of a specific disease or trauma.	The interventions are designed to treat the illness as well as the whole person, addressing the physical, mental, emotional, social and spiritual factors that influence health and disease.
A patient's stress level is not always taken into consideration or treated.	Patients are taught how to recognize, manage and decrease stress.
A patient's dietary habits are largely ignored.	Patients are given nutritional counseling; food is understood to have a significant influence on health and disease.
Social determinants of health such as unemployment, abuse, neglect, and financial status are not always given full consideration.	Social determinants of health such as unemployment, abuse, neglect, and financial status are considered in the care.
Environmental influences are rarely addressed.	Environmental influences on health and healing are investigated, considered and addressed in the care process.
Care is not always coordinated across providers.	Care is coordinated across providers.
Health plans are rarely created.	Each patient is given an individualized health plan based on his or her unique needs and circumstances.
Many decisions are based on the needs of the health care system.	Decisions are based on the needs of the patient.
Prevention and health promotion are not always practiced.	Prevention and health promotion are emphasized.
Only conventional interventions are considered.	The care makes use of all appropriate therapeutic approaches.

PATIENT STORY

Josh Mailman | San Francisco, California

Hope and healing when there is no cure for the disease.

Two years ago, after being diagnosed with cancer, my oncologist referred me to the UCSF Osher Center for Integrative Medicine. I have a rare, slow-growing cancer called “neuroendocrine pancreatic carcinoma,” which has metastasized to the liver.

During my work with Donald Abrams, MD, I discovered that integrative oncology is less about your disease and more about understanding your body. I learned ways to visualize a place hostile to cancer — the weeds in your body that are growing and crowding out healthy cells — and at the same time create a place where the healthy cells in my immune system could flourish and do their best work. These actions supported my treatment. I also learned the value of community and the importance of making sure that I was not holding on to stress or feeling isolated and alone.

Dr. Abrams will be the first to tell you — eat what your grandmother or great-grandmother ate. Just a few generations ago, the incidence of cancer was much lower. In communities that don’t rely as heavily on processed foods, the cancer rates are still at pre-WWII levels.

For a lot of people, integrative oncology is difficult because it alters the way you do certain things, diet being one. I learned to look at food as fuel, either for the good cells or the bad cells, and I developed an understanding of



how certain spices, herbs, and foods can actually help the immune system. I started to add supplements to my diet, slowly at first. But pretty quickly I was able to see what worked for me. I ended up with a short list, mostly turmeric, medicinal mushrooms, omega 3, D3, and probiotics. I have also incorporated weekly acupuncture, yoga, and massage into my routine.

Going to an integrative oncologist won't change your diagnosis, but it will put your body in a better place to get healthy. I have been tumor-stable for nearly two years, and my oncologist is constantly wondering if the integrative oncology helps me stay that way. I had the longest period that didn't require Western intervention in my oncologist's experience. I went nearly 18 months before any standard therapy was used. Was it the integrative health? Perhaps.

There is a lot of talk about being at war or in battle with cancer. While the analogy works for many who are gearing up for a one-time or limited fight with cancer, the analogy does not work for those who need to treat cancer as a chronic disease. I cannot be cured of cancer (at least not in the foreseeable future), but that does not mean that I should live in a state of war with my body. That would be a stressful solution. Through integrative oncology I continue to learn how to work with my body, to be at peace with it, and to summon up energy for healing when I need it.

It is really important to recognize that this is not a cure for cancer. I did not give up on conventional medicine. Integrative oncology works together with my cancer care. It simply puts a person's body and mind in the best shape it can be to respond well to conventional medicine and to recover from the toxicity that cancer treatment brings onto the body.

The integrative approach isn't short term. It's about a path that will lead you to a healthier you that is better equipped to deal with the cancer. This approach is not treatment focused; it is a way of life.



WHAT IS HEALTH?

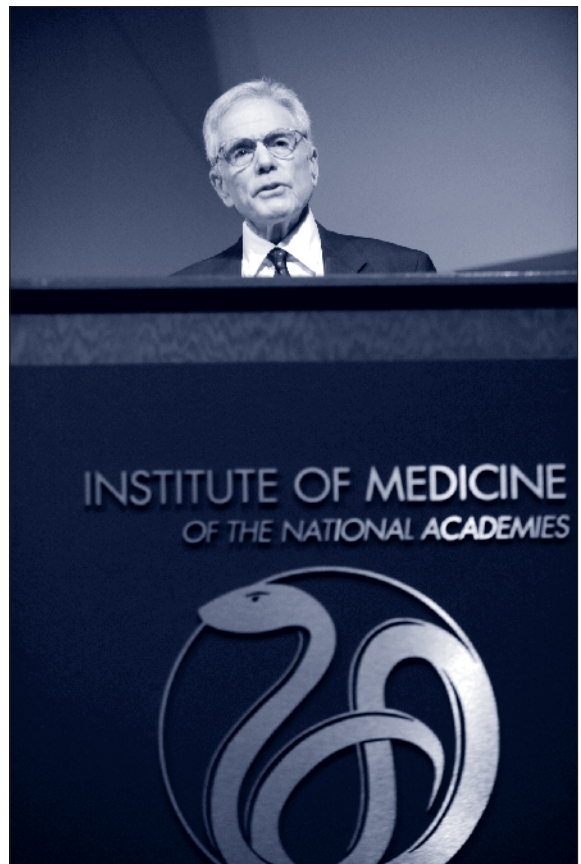
In his opening address, IOM President Harvey Fineberg, MD, stated that integrative medicine “offered the possibility to fulfill the long-standing World Health Organization’s definition of health as being more than simply the absence of disease.”

This is an important point. Integrative medicine is built on the recognition that health is a state of physical, mental, emotional and spiritual wellbeing that enables engagement with life in accordance with how an individual wants to live.

“Health is fundamental to virtually everything that people do and is perhaps a person’s most important resource,” said Ralph Snyderman, MD, Chancellor Emeritus, Duke University, in his keynote address.

He noted that our current health care system focuses on the episodic care of events of disease and largely ignores the broader definition of health and the coordination of care if diseases develop. When the ulcer is healed or the cancer treated, the care may be considered complete. But an ulcer patient whose depression and stress levels remain untreated and whose diet is exacerbating the problem will develop future ulcers and stress-related diseases. Care of a patient with cancer requires much more than an

Ralph Snyderman, MD



attempt to eradicate the tumor. The diagnosis of cancer is crushing to most patients and survivorship requires far more support than surgery, radiation, or chemotherapy alone. Similarly, putting a stent in a clogged artery, which allows for increased blood flow, may correct the immediate problem but does not address prevention of the process that led to the artery becoming clogged in the first place or becoming clogged again. Without understanding what is necessary for preventing illness, needless disease will develop and continue to progress despite the treatment of events related to it.

When health is understood as a state of physical, emotional, mental, social and spiritual wellness that enables an engaged relationship with life, and when health in its fullest sense is the goal of the health care system, then it naturally follows that all the influencing factors, not just the physical problems, need to be addressed in the care process. As Dr. Fineberg stated, “One of the most important reasons to have this Summit is to focus attention on health care for the whole person.”

Health and Wellbeing

WHOLE PERSON CARE

The Summit on Integrative Medicine provided a wealth of information on the science supporting the emotional, mental, social, environmental and spiritual connections to health and disease. However, while extensive knowledge about each individual influence exists, very little data has been accumulated about how these factors interact with each other and as a whole. Stressing this point in his keynote address, Dean Ornish, MD, Founder and President of the Preventive Medicine Research Institute, noted that the complex interplay between biology, behavior, psychosocial factors and the environment calls for “a systems approach to health care and in health science research that can evaluate multiple variables interacting in dynamic ways.”

Other medical disciplines are drawing the same conclusion. In speaking about the advances in genomic research that are enabling new insights into the human body, Richard Lifton, MD, PhD, Chairman of the Department of Genetics at Yale University, noted that it is not just the genes themselves but, “the epigenetic influences – the interactions of genes with other factors – that shape health and illness.”

Noting this need to also study the interplay, Summit faculty presented the science for each of the influencing factors.

Emotional and Mental Aspects of Health and Disease

In her Summit presentation, Esther Sternberg, MD, a researcher at the National Institute of Mental Health, described the biological pathways that mediate the body’s response to both mental and emotional influences. Noting that any stressor will initiate a cascade of neuroendocrine activity, Dr. Sternberg explained how neurotransmitters and hormones triggered by the brain regulate the immune response

at cellular and molecular levels throughout the body. “Health requires effective communication between the neuroendocrine and immune systems,” she said, “and an imbalance can cause disease.”

Dr. Ornish reiterated that health and disease are much more multidimensional than once thought – not everyone who is infected with a virus gets sick, in part because psychosocial factors significantly affect a person’s susceptibility. Citing the need to pay attention to the connection between mind and body, he explained that, “There is strong evidence that people who feel lonely and depressed are more likely to get sick and die prematurely than people who have a sense of love, connection and community.”

This effect is, in part, because lonely and depressed individuals are more likely to smoke, overeat, drink too much and work too hard, but “it also involves mechanisms that are not completely understood,” said Dr. Ornish. For example, in one study, within six months after a heart attack, patients who were depressed were six times more likely to die than patients who were not – a finding that is independent of traditional risk factors such as blood pressure and cholesterol.

Cardiologist Erminia Guarneri, MD, Founder and Medical Director for the Scripps Center for Integrative Medicine, related how she one day realized that placing 16-millimeter stents in clogged arteries was not going to wipe out heart disease because “it wasn’t addressing the cause of the disease.” The illnesses of loneliness, depression, anger and hostility can be devastating to a person’s health, she said.

Often referred to as mind-body medicine, this field has been the subject of rigorous research for more than forty years and there are numerous well-documented clinical interventions that address how to work with the mental and emotional aspects of a person’s health. As the Summit



Scripps Center for Integrative Medicine

faculty pointed out, basic science research shows that the digestive system is controlled by the mind, and anxiety, depression, and fear affect its functioning. Social and psychological stress can aggravate a wide variety of diseases, such as diabetes mellitus, high blood pressure, and migraine headache. Emotions affect heart rate, blood pressure, sleep patterns, stomach acid secretion, and elimination processes. At the same time, clinical research has demonstrated health-promoting activities such as meditation, yoga, tai chi, exercise and social support systems have positive biological effects on the neuroendocrine and immune systems.

“It is a misnomer to think that clinicians can just treat the physical body and call it medicine,” said Dr. Guarneri.

Social Aspects of Health and Disease

A person’s socioeconomic status (SES), which includes income, education and occupation, has a significant effect on his or her health and wellbeing. Nancy Adler, PhD, Professor at the University of California

San Francisco and Director of the Center for Health and Community, explained that the higher one is positioned on any of those three ladders, the better one's health status is likely to be. "SES shapes almost every aspect of people's lives," she said. "It affects where they work, where they live, the social norms that govern them, where they are educated, and their social and physical environments. In turn, these environments affect proximal causes of disease and health, such as health behavior, access to health care and exposure to toxins and pathogens as well as to social threats that generate stress responses."

Bruce McEwen, PhD, a professor at The Rockefeller University and head of the Harold and Margaret Milliken Hatch Laboratory of Neuroendocrinology, presented evidence showing how social stressors such as low socioeconomic conditions or abuse and neglect at home can cause obesity, blood pressure elevation, cardiovascular reactivity, inflammation, mental health problems, and ultimately a shorter life span.

Dame Carol Black, MD, National Director for Health and Work in the United Kingdom and author of *Working for a Healthier Tomorrow*, a report paralleling the Milken Institute's *The Economic Burden of Chronic Disease*, described the role that unemployment plays in the development of disease. "Employment is one of the leading modifiers of health and illness," she said, "yet it is a factor rarely recognized by the health care system."

Often known as health psychology, this aspect of integrative medicine looks at the array of social and psychological factors that influence health and illness-related behavior. Summit faculty surmised that true "patient-centered care must take into account and address these socioeconomic determinants of health," which include poverty or wealth, stress, early life experience, social support or exclusion, work and unemployment, addiction, nutrition, and oral health.

Environmental Aspects of Health and Disease

In his discussion of environmental epigenetics (changes in gene expression which are not caused by DNA but which get passed through multiple generations), oncologist Mitchell Gaynor, MD, from the Weill-Cornell Medical Center, explained that while the genes a person is born with cannot be controlled, how those genes are expressed can be modulated. For example, he noted that ingesting toxins can “turn on” tumor-promoting genes. Conversely, proper nutrients can increase the expression of tumor-suppressing genes.

Citing the importance of creating toxin-free environments and limiting exposure to endocrine disruptors such as those found in plastics, cosmetics and pesticides, Gaynor stressed that the environment outside our bodies rapidly becomes the environment inside of our bodies.

Also emphasizing the importance of environmental factors contributing to disease, Dr. Guarneri pointed out that children raised in homes where rats are present will have higher asthma rates. “Doctors can give them inhalers for the asthma but if no one addresses the rats,” she said, “the medical interventions will not be effective.”

Informed by the fields of environmental medicine, environmental science, genetics and chemistry, this aspect of integrative medicine addresses the interactions between a person’s health and his or her environment.

In the case of all of the individual aspects of whole person care, the full gamut of research studies supporting the science, many of which have been conducted under the purview of the National Institutes of Health, can be found in *Index Medicus*, the online, searchable database maintained by the National Library of Medicine.

THE CONNECTION BETWEEN LIFESTYLES AND HEALTH

Summit faculty presented evidence demonstrating that lifestyle change programs – which focus on nutritional interventions, stress reduction, moderate exercise, and the development of greater love, intimacy and emotional wellbeing – can mitigate and sometimes even reverse the progression of chronic diseases. These programs, which take a systems approach to improving patient health, have been proven effective in clinical trials for people suffering from obesity, diabetes, cardiac disease, and prostate cancer, among others. Additionally, they have been shown to improve brain function, down-regulate genes that promote disease, and increase the potential for longevity.

“Lifestyle choices offer many opportunities to improve health as these decisions are made multiple times throughout every day,” explained Dr. Ornish. What we choose to eat, how we relate to our families, whether or not we smoke, how much we exercise on a weekly basis, whether or not we practice stress reduction, the degree of support we feel from our community, the strength of our religious beliefs and affiliations – all of these things influence our health. Consequently, choosing behaviors that facilitate health can have a very strong and positive effect.

Dr. Ornish explained that, “Making comprehensive lifestyle changes often outperforms drugs in the secondary prevention of disease.” Citing recent research, he said that, “With diabetes, lifestyle modifications functioned better than metformin in preventing the adverse affects of the disease, including damage to eyes, nerves and kidneys.” Another benefit of lifestyle change programs is that improvements in health status are typically seen in a relatively short time frame, such as the patients in one heart disease study who experienced a 90 percent reduction in angina after one month.

Proper nutrition is a key element in lifestyle change programs. While recommendations vary patient to patient based on the individual's needs, integrative approaches generally recognize that a healthy diet is largely plant-based and rich in whole fruits, vegetables, whole grains (pasta, rice, breads and cereals), dried beans and legumes, and small amounts of lean poultry, fish, egg whites, meats and nonfat dairy.

Global utilization of lifestyle change programs will not only improve patients' lives, it can also drastically decrease health care costs. Data presented at the IOM Summit revealed that five chronic conditions – diabetes, heart disease, asthma, high blood pressure and depression – account for more than half of all US health care expenditures. Among Medicare recipients, 20% live with five or more chronic conditions and their care accounts for two-thirds of all Medicare expenditures. Because many of these conditions can be prevented in the first place, and for those already ill, mitigated or even reversed through the use of the comprehensive lifestyle change programs, Summit faculty pointed out that the financial savings to the overall health care system would be substantial.

Mind—
Body—
Spirit

FOCUSING ON PREVENTION

Summit faculty concluded that, “Prevention and disease minimization represent the foundation of integrative health care.” Currently, the majority of our health care dollars are spent after a person is in crisis, when it costs the most to intervene and when the possibilities for full recovery are the slimmest. In 2008, \$2.1 trillion dollars were spent on medical care to treat diseases after they had already occurred.

Mehmet Oz, MD, professor of Cardiac Surgery at Columbia University and host of the Dr. Oz Show, has pointed out that it is much easier to prevent a disease from developing than it is to cure it once the problem has reached a critical stage. The World Health Organization recently released a report revealing that global life expectancy could be increased by nearly five years and millions of lives could be saved annually by addressing 24 factors affecting health. On the list of behaviors that could prevent disease from occurring were a mixture of environmental, behavioral and physiological factors, such as reducing air pollution and tobacco use and correcting poor nutrition.

In his keynote, Dr. Snyderman noted that rational transformation of the current approach to health care “will require a seamless integration of resources to empower individuals to improve their health while providing the resources needed to prevent and treat disease coherently when it occurs.”

PATIENT STORY

Rania Zimmerman | Cincinnati, Ohio

Complex diagnosis and multiple interventions address different aspects of the whole person and work together to create healing.

My troubles began when I was in college at Vanderbilt University in 2000. After visiting my grandparents in Wales, I came down with a severe viral illness. Initially I developed painful nodules on my right ankle. Then a strange illness quickly spread through my body, and I was hospitalized for significant joint swelling and severe pain, and was treated for autoimmune disease. The doctor told me that at the rate my disease was progressing, I might only have two years to live.

Despite that diagnosis, I eventually made a partial recovery and managed to graduate from college. But when I wasn't able to find a job, I lost my health insurance. My medications cost over \$400 a month, which I could not afford, so I discontinued taking them even though I still had significant body pain.

During 2005, my life changed significantly — I got married, moved to Cincinnati, started law school, and suffered deep emotional traumas. It was all too much, and not long after that, my body collapsed.

In addition to the increasing pain, I started dealing with a growing depression. My family physician put me back on steroids as well as antidepressants and later, narcotic drugs. I became so ill that I had to withdraw from law school and I was in such pain that I could barely use my arms and legs. I ended up in the emergency room and was eventually diagnosed as having severe fibromyalgia.

After that came pain management treatments with months of Lidocaine shots, Lidoderm patches, and Lyrica. Lyrica, a medication used for fibromyalgia, did help but it also made me feel high and gain a lot of weight, and it caused strange suicidal thoughts.

Finally, in January of 2008, a trainer at my gym suggested I go to the Alliance Institute for Integrative Medicine. My doctor told me he had read about people having success with acupuncture for pain, so I decided to go.

The short story is that within two months of starting an integrative protocol with Steve Amoils, MD, I was thriving and off all my medications.

During my first office consult, Dr. Amoils acknowledged the severity of my condition, but he told me not to focus on the fibromyalgia pain as that was just one piece of the puzzle. He said that looking for a magic bullet was unlikely to help and that I needed a multi-dimensional approach, and he suggested using integrative and functional medicine. After running a number of tests, he diagnosed me with also having insulin resistance.

I was put on a lifestyle change program that included a low glycemic load diet, daily exercise, daily meditation and relaxation techniques, and a regimen of acupuncture treatments, massage and ACE treatments (acupuncture, chiropractic and energy healing completed in one session). Dr. Amoils also started me on several targeted supplements, including Vitamin D and fish oil. This multi-faceted approach alleviated my pain, helped me sleep better, improved my insulin resistance, and enabled me to reduce my medications and eventually stop taking them altogether.





The Alliance Institute for Integrative Medicine

As my life improved, my husband and I decided to have a baby, but insulin resistance can cause infertility. I worked with Claudia Harsh, MD, Director of Integrative Gynecology at the Alliance Institute for Integrative Medicine, who prescribed an acupuncture regimen to increase fertility. I was able to get pregnant within a month and a half. During the pregnancy I controlled gestational diabetes predominantly with diet and I am happy to report that I was able to deliver our son without complications.

I still believe in and use traditional medicine; however, in this case, I sincerely believe that the integrative approach and the acupuncture treatments helped me heal and also helped my body attain a state where it was able to handle the stress of pregnancy. My child is now five months old and I am very healthy. I am off all medications except glucosamine and postnatal vitamins. And I am counting my blessings.



EMBRACING COMPLEXITY AND CONNECTION

Human beings are complex entities and the interplay between biology, behavior, psychosocial factors and environment in shaping health and disease can produce synergistic effects for either good or ill. Summit faculty noted that, “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.”

Medical and basic science research tends to examine these influences in isolation, which can distort interpretation of the results. The most enhancement will come from broader, systems-level approaches and the redesign of research strategies and methodologies.

Along with other Summit faculty, Lawrence Green, DrPh, University of California San Francisco professor and previous Director of the Office of Science and Extramural Research for the Centers for Disease Control, called for new research methods that would facilitate the evaluation of multiple variables interacting in dynamic ways, therein enabling scientists to better understand how the connections can be harnessed to produce health and healing.

Empowerment

“Patient-centered medicine, which is the hallmark of integrative care, challenges the supremacy of randomized controlled trials in evidence-based medicine,” said Dr. Green. “Research in integrative medicine can shift the spotlight from mediating variables that focus on the mechanisms of change to the moderating variables that focus on the characteristics of individual people and the context in which they live.”

In his closing remarks, Dr. Snyderman called for a transformation in medicine that would embrace the complexity and dynamic nature of disease. He said that recent advancements in “genomics (the study of genes), proteomics (the study of proteins), metabolomics (the study of the chemical processes occurring within a living organism that enable life) and systems biology provide the ability to accumulate and analyze mass amounts of information. Microprocessing and nanoprocessing offer new analytic capacities that were impossible even a decade ago. “These advances in science and technology will allow clinicians to personalize prevention and treatment, identify an individual’s susceptibility to disease and develop a plan of care that is suited to the patient’s unique characteristics,” he said. Such integrative health plans would cover the patient’s entire span of life. Critical to such a transformation of medicine is personalized health planning, a process that links the individual and the care delivery system in a partnership designed to enhance health and minimize disease.

Personalized

THE DOCTOR-PATIENT RELATIONSHIP

Integrative medicine encourages health care providers to establish meaningful interactive relations with their patients, which calls for knowing about their disease or illness as well as understanding who they are as a person. “We should use the best medical technology in concert with the realization that human beings are complex and that factors such as emotions, who we live with, and one’s purpose in life can affect health,” said Dr. Guarneri.

A strong patient-provider relationship is helpful in many ways, including facilitating a correct diagnosis, choosing the right treatments that will most benefit the patient’s unique situation, increasing the patient’s sense of comfort and enlisting the patient’s full cooperation in the care regimen.

“No aspect of the current health care system is actually designed to address the personal needs of the individual,” explained Tracy Gaudet, MD, Director of Duke Integrative Medicine. “If clinicians understand this concept, they will recognize that they must start their relationship with their patient from an entirely new place.”

To aid this goal, Gaudet suggested the creation of new, standardized tools for clinical use. In the current medical model, physicians have tools that guide them in taking histories and performing physical exams, she said. “The problem-based tools currently in use start with the chief complaint. A new integrative tool that asks about and addresses all aspects of a patient’s health would reorient the physician-patient partnership from the outset.”

Instead of using a disease-based medical record, clinicians should utilize a whole person medical record that reflects the physical, mental,



Duke Integrative Medicine

spiritual and relationship-centered life of the patient. “Equally, instead of creating a problems list, clinicians should create a health plan for the person based on the patient’s goals,” she said.

In his research, Arnold Milstein, MD, MPH, Medical Director for Pacific Business Group on Health and Chief Physician at Mercer Health & Benefits, identified successful practices of clinics nationwide that had improved clinical outcomes as well as reduced costs. “In most cases, the successful practices incorporated many features of integrative health care by routinely assessing psychological, social and environmental health risks,” he said. “To enable this, the practices allow at least 30 minutes for each clinical encounter.” Providers must take time to understand their patients, he said.

PATIENT STORY

Camille Di Girolamo | La Jolla, California

The patient-provider relationship is central to diagnosis, partnering and empowerment.

Several years ago I found myself in an untenable health situation. My blood pressure was out of control, I was overweight, my cholesterol was too high, and I was rapidly developing full-blown diabetes. My primary care physician was unable to control my blood pressure and I had been seeing a bariatric specialist for over a year and a half without much success.

I was referred to a cardiologist and fortunately, by a fluke one day in the spring of 2008, I ended up at the Scripps Center for Integrative Medicine in the office of cardiologist Mimi Guarneri, MD, who as far as I am concerned, saved my life.

After a very detailed and careful intake conversation and examination, Dr. Guarneri prescribed three blood pressure medications. She explained that I was facing more medication to control my cholesterol and that I was a diabetic and a likely candidate for heart disease if I didn't get my weight under control. She strongly suggested that I needed to change my lifestyle. Reality hit me and I asked her to give me a little time before my next visit to absorb all the information. Meanwhile, I had developed gynecological pain and bleeding, and although my gynecologist was running test after test, there was no diagnosis.

In the follow up visit with Dr. Guarneri, she picked up on symptoms and indicators from my gynecological tests. Showing grave concern, she said that we had to address the gynecological problem before focusing on any of the lifestyle changes, and she immediately referred me to a gynecologist for

consultation. The gynecologist immediately referred me to an oncologist and a total hysterectomy was scheduled. Both of my parents died of cancer and had Dr. Guarneri not seen the early indicators, I might have faced a similar fate.

After my hysterectomy and the diagnosis of stage I cancer, I returned to Scripps Center for Integrative Medicine to begin work on improving the other aspects of my health and embarked on a serious lifestyle change program under the guidance of Dr. Guarneri, dietician Cathy Garvey,



and PA Brenda Rhodi. In addition to receiving nutritional counseling, I took a class called “Fighting Cancer with the Fork” at the University of San Diego Moors Cancer Center, and started following a strict Mediterranean diet that Dr. Guarneri suggested. I attended yoga classes, engaged in moderate exercise and began meditating on a regular basis. The weight just started to fall off.

Essentially, I learned not to feed my cancer cells by ingesting bad food or internalizing stress. My diet consists of fresh fruit and vegetables, whole and multi grains, legumes, nuts, fish and chicken. I stay away from flour, sucrose, sugars, corn syrup, and nitrates. With the guidance of Cathy Garvey, a registered dietitian, I was able to implement and enjoy my new way of eating.

I have now lost approximately 60 pounds (without surgery and without dieting) and am off most medications except for a mild dose of one blood pressure medication, a reduced dose of thyroid medication, and vitamins and minerals. My blood pressure is under control, my cholesterol and triglyceride counts are normal and diabetes is no longer a threat. One of the greatest results is that I have energy again. My stress level is low and I look and feel much younger than I did two years ago.

Attending to my mind, body and spirit in this fashion has become a way of life for me and it is the reason I remain healthy today. I went from being in a hopeless state to finding enjoyment in living a healthy life. And it all started with a physician who took the time to listen to my story, who wasn't in a rush to prescribe medications and get me out of her office, and who looked past the symptoms and found the causes of my health problems and took action. I cannot thank her enough for helping me save my life.





THE PATIENT'S CENTRAL ROLE

Integrative medicine is founded on the principle that health care works best when patients are informed, empowered and active participants in their own care. In addition to establishing strong patient-provider relationships, this means educating people about the important role their lifestyles and habits play in health status.

In his Summit keynote, Dr. Snyderman emphasized the need to engage with patients as part of their journey to better health and wellbeing. “Even the best health care system, acting alone, cannot assure good health,” he said. “It needs the individual’s engagement and commitment to health.”

With the direct connection between lifestyles and health and disease becoming more and more apparent, Dr. Snyderman suggested that to tackle the increasing epidemic of chronic disease, we need to increase patients’ understanding of their own personal role in preventing, preserving, enhancing and strengthening their health and wellbeing.

Education is a key factor in patient empowerment. Dr. Donald Berwick, MD, CEO of the Institute for Healthcare Improvement, noted that the term “patient-centered” refers to a partnership between the patient and the provider that includes dialogue and shared control or decision-making. “Patients should be given the necessary information and the opportunity to exercise the degree of control they choose over health care decisions that affect them,” he said. “The health system should be able to accommodate differences in patient preferences and encourage shared decision making,”

Dr. Berwick also described how models of patient-centered care are being translated into practice. These included:

- 🌐 Mayo Clinic's emphasis on "the needs of the patient come first."
- 🌐 The statement above the door of Boston's Parker Hill Hospital's CEO which says, "Every patient is our only patient."
- 🌐 The creation of healing environments by the Planetree model of care.
- 🌐 The Institute for Healthcare Improvement's Triple Aim, which calls for judging the experience through the eyes of the patient, addressing the health of the population served, and considering per capita costs as a measure of system quality.

George Halvorson, Chairman and CEO of Kaiser Foundation Health Plan and Kaiser Foundation Hospitals, noted that a patient-centered health care system will require patient-centered data systems and information. "Electronic data systems and health records should make patient information available to every relevant caregiver in real time," he said.

Patient- Centered

PATIENT STORY

Roberta Cutbill | Raleigh/Durham, North Carolina

The power of integrative health coaching.

Nearly four years ago, I was diagnosed with a rare autoimmune disease that left my joints ravaged and my blood vessels inflamed. To make matters worse, I suffered a drug side effect—hearing loss—while undergoing treatment. I was in chronic pain, feeling frustrated, and looking for answers.

I went to Duke Integrative Medicine initially to identify some vitamin supplements that would be helpful, learn how to modify my yoga practice to support my joints and have acupuncture treatments to help relieve my pain. As a result, I was able to suspend taking steroids, and began to feel that I was in charge of my health for the first time.

In 2008, I had another medical scare when I was told I needed to reduce my cholesterol or possibly end up a candidate for bypass surgery. Given my history with drug side effects, I balked at the idea of taking anti-cholesterol pills. Instead — and with the support of my cardiologist — I became a member of Duke Integrative Medicine. Integrative medicine specialists are not primary care providers. Rather, they work closely with the patients' other doctors — cardiologists, oncologists, rheumatologists, and internists — and they coordinate the patients' care. In my opinion, that is what makes all the difference.

My Duke Integrative Medicine team worked with me to develop a Personalized Health Plan that outlined specific suggestions to achieve my health goals over the course of a year. Whenever I needed support, my health coach was there to help me implement the plan.

I have switched to hearth-healthy olive oil; take omega-3 fatty acids and some other heart-targeting nutrients that my cardiologist agreed couldn't hurt; sneak fiber into my meals; and have learned that protein snacks level my blood sugar so I don't crave high-fat sweets. I continue to benefit from acupuncture and massage therapy, and talk regularly with my integrative health coach who keeps me on track to achieve my health care goals.

If I didn't have coaching, I would have given up. Without my coach's suggestions, I would have failed to make the changes I wanted to make. I get teary when I think of how it was before. I blamed myself for not being able to do what I needed to. Now I know that everything I need to enhance my healing exists at Duke Integrative Medicine.



At this point, my LDL cholesterol has dropped from 170 to 115 (on no medication!) If it turns out I need to take medication to control my cholesterol, then I'll do so knowing I am doing all I can to ensure it will be at the lowest dose possible. And I know there will be communication between all my doctors... I feel successful at last.



IN SUMMARY

Summit faculty concluded that our health care system must, as a matter of priority, focus on promoting and enhancing health and wellbeing, on identifying individual susceptibility, and on reducing risks for chronic disease. Dr. Snyderman said that when health problems arise, “the system should intervene early, provide the best possible care for acute events, deal effectively and holistically with chronic conditions, and ensure compassionate support for the end of life.”

Fundamentally, “integrative medicine brings individuals to the center of their own care over the course of their lives,” he said. “Health risks and strengths are unique to each person. Even though, as humans, we have 99 percent of our genes in common, we differ in terms of our susceptibility to chronic disease, in our exposure to environmental conditions and in our access to and use of health-related services.”

Dr. Berwick articulated the following eight principles as being central to integrative medicine:

- 👤 Place the patient at the center
- 👤 Individualize care
- 👤 Welcome family and loved ones
- 👤 Maximize healing influences within care
- 👤 Maximize healing influences outside care
- 👤 Rely on sophisticated, disciplined evidence
- 👤 Use all relevant capacities – waste nothing
- 👤 Connect helping influences with each other

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

It is clear that the adoption of the practices and principles of integrative medicine will transform health care, improve the health care system, reduce costs, and produce a much healthier nation better able to meet the challenges of the 21st Century.

Community



GETTING INVOLVED

Many opportunities exist to become engaged with The Bravewell Collaborative and its partners in the effort to create a healthy nation by transforming American health care through the advancement of integrative medicine.

To discuss your ideas, comments and questions, please call The Bravewell Collaborative offices at 612-377-8400.

CREDITS

This report is based on the content presented at the Institute of Medicine's Summit on Integrative Medicine and the Health of the Public. It was prepared for The Bravewell Collaborative by Simon Fielding, DO, trustee for the Prince's Foundation for Integrated Health in the United Kingdom and an Officer of the British Empire for services to health care, and Bonnie Horrigan, medical journalist and Director of Communications and Public Education for The Bravewell Collaborative.

BIBLIOGRAPHY

Quotes included in this report are from *A Summary of the February 2009 Summit: Integrative Medicine and the Health of the Public* published in November 2009 by the Institute of Medicine.

- Anderson, G. F. 2005. Medicare and chronic conditions. *New England Journal of Medicine* 353(3):305-309.
- Armaiz-Pena, G. N., S. K. Lutgendorf, S. W. Cole, and A. K. Sood. 2009. Neuroendocrine modulation of cancer progression. *Brain, Behavior, and Immunity* 23(1):10-15.
- Bernhard, J. D., J. Kristeller, and J. Kabat-Zinn. 1988. Effectiveness of relaxation and visualization techniques as an adjunct to phototherapy and photochemotherapy of psoriasis. *Journal of the American Academy of Dermatology* 19(3):572-574.
- Bland, J. 2008. Systems biology, functional medicine, and folates. *Alternative Therapies in Health and Medicine* 14(3):18-20.
- Boden, W. E., R. A. O'Rourke, K. K. Teo, P. M. Hartigan, D. J. Maron, W. J. Kostuk, M. Knudtson, M. Dada, P. Casperson, C. L. Harris, B. R. Chaitman, L. Shaw, G. Gosselin, S. Nawaz, L. M. Title, G. Gau, A. S. Blaustein, D. C. Booth, E. R. Bates, J. A. Spertus, D. S. Berman, G. B. Mancini, and W. S. Weintraub. 2007. Optimal medical therapy with or without PCI for stable coronary disease. *New England Journal of Medicine* 356(15):1503-1516.
- Burack, J. H., D. C. Barrett, R. D. Stall, M. A. Chesney, M. L. Ekstrand, and T. J. Coates. 1993. Depressive symptoms and cd4 lymphocyte decline among HIV-infected men. *Journal of the American Medical Association* 270(21):2568-2573.
- Campbell, S., M. Marriott, C. Nahmias, and G. M. MacQueen. 2004. Lower hippocampal volume in patients suffering from depression: A meta-analysis. *American Journal of Psychiatry* 161(4):598-607.
- Cherkas, L. F., A. Aviv, A. M. Valdes, J. L. Hunkin, J. P. Gardner, G. L. Surdulescu, M. Kimura, and T. D. Spector. 2006. The effects of social status on biological aging as measured by white-blood-cell telomere length. *Aging Cell* 5(5):361-365.
- Chou, R., and L. H. Huffman. 2007. Nonpharmacologic therapies for acute and chronic low back pain: A review of the evidence for an American Pain Society/American College of Physicians clinical practice guideline. *Annals of Internal Medicine* 147(7):492-504.
- Christensen, C. M., J. H. Grossman, and J. Hwang. 2009. *The innovator's prescription: A disruptive solution for health care*. New York: McGraw-Hill.
- Cizza, G., A. H. Marques, F. Eskandari, I. C. Christie, S. Torvik, M. N. Silverman, T. M. Phillips, and E. M. Sternberg. 2008. Elevated neuroimmune biomarkers in sweat patches and plasma of premenopausal women with major depressive disorder in remission: The power study. *Biological Psychiatry* 64(10):907-911.
- Cochrane, A. L. 1999. *Effectiveness and efficiency: Random reflections on health services*, 2nd ed. London, UK: Royal Society of Medicine Press.

- Cohen, S., W. J. Doyle, D. P. Skoner, B. S. Rabin, and J. M. Gwaltney, Jr. 1997. Social ties and susceptibility to the common cold. *Journal of the American Medical Association* 277(24):1940-1944.
- Cohen, S., D. Janicki-Deverts, and G. E. Miller. 2007. Psychological stress and disease. *Journal of the American Medical Association* 298(14):1685-1687.
- Conrad, C. D. 2006. What is the functional significance of chronic stress-induced ca3 dendritic retraction within the hippocampus? *Behavioral and Cognitive Neuroscience Reviews* 5(1):41-60.
- Cooper, R. A., T. E. Getzen, H. J. McKee, and P. Laud. 2002. Economic and demographic trends signal an impending physician shortage. *Health Affairs* 21(1):140-154.
- de Lange, F. P., A. Koers, J. S. Kalkman, G. Bleijenberg, P. Hagoort, J. W. van der Meer, and I. Toni. 2008. Increase in prefrontal cortical volume following cognitive behavioural therapy in patients with chronic fatigue syndrome. *Brain* 131(Pt 8):2172-2180.
- Dolinoy, D. C., J. R. Weidman, R. A. Waterland, and R. L. Jirtle. 2006. Maternal genistein alters coat color and protects Avy mouse offspring from obesity by modifying the fetal epigenome. *Environmental Health Perspectives* 114(4):567-572.
- Dolinoy, D. C., D. Huang, and R. L. Jirtle. 2007. Maternal nutrient supplementation counteracts bisphenol A-induced DNA hypomethylation in early development. *Proceedings of the National Academy of Sciences of the United States of America* 104(32):13056-13061.
- Druss, B. G., S. C. Marcus, M. Olsson, T. Tanielian, L. Elinson, and H. A. Pincus. 2001. Comparing the national economic burden of five chronic conditions. *Health Affairs* 20(6):233-241.
- Dusek, J. A., P. L. Hibberd, B. Buczynski, B. H. Chang, K. C. Dusek, J. M. Johnston, A. L. Wohlhueter, H. Benson, and R. M. Zusman. 2008. Stress management versus lifestyle modification on systolic hypertension and medication elimination: A randomized trial. *Journal of Alternative and Complementary Medicine* 14(2):129-138.
- Epel, E. S., E. H. Blackburn, J. Lin, F. S. Dhabhar, N. E. Adler, J. D. Morrow, and R. M. Cawthon. 2004. Accelerated telomere shortening in response to life stress. *Proceedings of the National Academy of Sciences of the United States of America* 101(49):17312-17315.
- Erickson, K. I., and A. F. Kramer. 2009. Aerobic exercise effects on cognitive and neural plasticity in older adults. *British Journal of Sports Medicine* 43(1):22-24.
- Forster, A. J., H. J. Murff, J. F. Peterson, T. K. Gandhi, and D. W. Bates. 2003. The incidence and severity of adverse events affecting patients after discharge from the hospital. *Annals of Internal Medicine* 138(3):161-167.
- Frasure-Smith, N., F. Lesperance, and M. Talajic. 1993. Depression following myocardial infarction. Impact on 6-month survival. *Journal of the American Medical Association* 270(15):1819-1825.
- GAO (Government Accountability Office). 2008. *Primary care professionals: Recent trends, projections, and valuation of services*. Washington, DC: GAO.
- Gould, K. L., D. Ornish, L. Scherwitz, S. Brown, R. P. Edens, M. J. Hess, N. Mullani, L. Bolomey, F. Dobbs, W. T. Armstrong, T. Merritt, T. Ports, S. Sparler, and J. Billings. 1995. Changes in myocardial perfusion abnormalities by positron emission tomography after long-term, intense risk factor modification. *Journal of the American Medical Association* 274(11):894-901.

- Haake, M., H. H. Muller, C. Schade-Brittinger, H. D. Basler, H. Schafer, C. Maier, H. G. Endres, H. J. Trampisch, and A. Molsberger. 2007. German acupuncture trials (GERAC) for chronic low back pain: Randomized, multicenter, blinded, parallel-group trial with 3 groups. *Archives of Internal Medicine* 167(17):1892-1898.
- Hope, T. 1997. Evidence-based patient choice and the doctor-patient relationship. In *But will it work, doctor?* London: Kings Fund.
- Hyman, M. 2007. Systems biology, toxins, obesity, and functional medicine. *Alternative Therapies in Health and Medicine* 13(2):S134-S139.
- IOM (Institute of Medicine). 1999. *To err is human: Building a safer health system*. Washington, DC: National Academy Press.
- IOM. 2001a. *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academy Press.
- IOM. 2001b. *Health and Behavior: The Interplay of Biological, Behavioral, and Societal Influences*. Washington, DC: National Academy Press.
- IOM. 2005. *From Cancer Patient to Cancer Survivor: Lost in Transition*. Washington, DC: The National Academies Press.
- IOM. 2007a. *Ending the Tobacco Problem: A Blueprint for the Nation*. Washington, DC: The National Academies Press.
- IOM. 2007b. *Rewarding provider performance: Aligning incentives in Medicare*. Washington, DC: The National Academies Press.
- IOM. 2008. *Cancer Care for the Whole Patient: Meeting Psychosocial Health Needs*. Washington, DC: The National Academies Press.
- Jonsen, A. R. 1990. *The new medicine and the old ethics*. Boston, MA: Harvard University Press.
- Keehan, S., A. Sisko, C. Truffer, S. Smith, C. Cowan, J. Poisal, M. K. Clemens, and the National Health Expenditure Accounts Projections Team. 2008. Health spending projections through 2017: The baby-boom generation is coming to Medicare. *Health Affairs* 27(2):w145-w155.
- Kiecolt-Glaser, J. K., P. T. Marucha, W. B. Malarkey, A. M. Mercado, and R. Glaser. 1995. Slowing of wound healing by psychological stress. *Lancet* 346(8984):1194-1196.
- King, M. C., J. H. Marks, and J. B. Mandell. 2003. Breast and ovarian cancer risks due to inherited mutations in BRCA1 and BRCA2. *Science* 302(5645):643-646.
- Knowler, W. C., E. Barrett-Connor, S. E. Fowler, R. F. Hamman, J. M. Lachin, E. A. Walker, and D. M. Nathan. 2002. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *New England Journal of Medicine* 346(6):393-403.
- Lantz, P. M., J. S. House, J. M. Lepkowski, D. R. Williams, R. P. Mero, and J. Chen. 1998. Socioeconomic factors, health behaviors, and mortality: Results from a nationally representative prospective study of us adults. *Journal of the American Medical Association* 279(21):1703-1708.
- Mare, R. D. 1990. Socio-economic careers and differential mortality among older men in the U.S. In *Measurement and analysis of mortality—new approaches*, edited by J. Vallin, S. D'Souza and A. Palloni. Clarendon, UK: Oxford. Pp. 362-387.
- Marmot, M. 2004. *The status syndrome: How social status affects our health and longevity*. New York: Times Books.

- Mayne, T. J., E. Vittinghoff, M. A. Chesney, D. C. Barrett, and T. J. Coates. 1996. Depressive affect and survival among gay and bisexual men infected with HIV. *Archives of Internal Medicine* 156(19):2233-2238.
- McEwen, B. S. 1998. Protective and damaging effects of stress mediators. *New England Journal of Medicine* 338(3):171-179.
- McGlynn, E. A., S. M. Asch, J. Adams, J. Keesey, J. Hicks, A. DeCristofaro, and E. A. Kerr. 2003. The quality of health care delivered to adults in the United States. *New England Journal of Medicine* 348(26):2635-2645.
- Mechanic, D., L. B. Rogut, D. Colby, and J. R. Knickman, eds. 2005. *Policy challenges in modern health care*. New Brunswick, NJ: Rutgers University Press.
- National Business Group on Health. 2007. *A purchaser's guide to clinical preventive services: Moving science into coverage*. Washington, DC: National Business Group on Health.
- National Health Service Institute for Innovation and Improvement. 2009. *Working with others*. http://www.institute.nhs.uk/assessment_tool/general/working_with_others.html (accessed May 19, 2009).
- National Institutes of Health. 2006. State-of-the-science conference statement: Multivitamin/mineral supplements and chronic disease prevention. *Annals of Internal Medicine* 145(5):364-371.
- Nerem, R. M., M. J. Levesque, and J. F. Cornhill. 1980. Social environment as a factor in diet-induced atherosclerosis. *Science* 208 (4451):1475-1476.
- Newton, B. W., L. Barber, J. Clardy, E. Cleveland, and P. O'Sullivan. 2008. Is there hardening of the heart during medical school? *Academic Medicine* 83(3):244-249.
- OECD (Organisation for Economic Co-operation and Development). 2009. *Society at a glance 2009—OECD social indicators*. Paris, France: OECD.
- Ornish, D. 2009. *Persistence with statin therapy (source: National Drug Code Health Information Services, 1998), in the Science of Integrative Medicine*. Speech at IOM Summit on Integrative Medicine and the Health of the Public, Washington, DC, February 26.
- Ornish, D., A. M. Gotto, and R. R. Miller, et al. 1979. Effects of a vegetarian diet and selected yoga techniques in the treatment of coronary heart disease. *Clinical Research* 27:720A.
- Ornish, D., L. W. Scherwitz, R. S. Doody, D. Kesten, S. M. McLanahan, S. E. Brown, E. DePuey, R. Sonnemaker, C. Haynes, J. Lester, G. K. McAllister, R. J. Hall, J. A. Burdine, and A. M. Gotto, Jr. 1983. Effects of stress management training and dietary changes in treating ischemic heart disease. *Journal of the American Medical Association* 249(1):54-59.
- Ornish, D., S. E. Brown, L. W. Scherwitz, J. H. Billings, W. T. Armstrong, T. A. Ports, S. M. McLanahan, R. L. Kirkeeide, R. J. Brand, and K. L. Gould. 1990. Can lifestyle changes reverse coronary heart disease? The lifestyle heart trial. *Lancet* 336(8708):129-133.
- Ornish, D., L. W. Scherwitz, J. H. Billings, S. E. Brown, K. L. Gould, T. A. Merritt, S. Sparler, W. T. Armstrong, T. A. Ports, R. L. Kirkeeide, C. Hogeboom, and R. J. Brand. 1998. Intensive lifestyle changes for reversal of coronary heart disease. *Journal of the American Medical Association* 280(23):2001-2007.

- Ornish, D., G. Weidner, W. R. Fair, R. Marlin, E. B. Pettengill, C. J. Raisin, S. Dunn Emke, L. Crutchfield, F. N. Jacobs, R. J. Barnard, W. J. Aronson, P. McCormac, D. J. McKnight, J. D. Fein, A. M. Dnistrian, J. Weinstein, T. H. Ngo, N. R. Mendell, and P. R. Carroll. 2005. Intensive lifestyle changes may affect the progression of prostate cancer. *Journal of Urology* 174(3):1065-1069; discussion 1069-1070.
- Ornish, D., M. J. Magbanua, G. Weidner, V. Weinberg, C. Kemp, C. Green, M. D. Mattie, R. Marlin, J. Simko, K. Shinohara, C. M. Haqq, and P. R. Carroll. 2008a. Changes in prostate gene expression in men undergoing an intensive nutrition and lifestyle intervention. *Proceedings of the National Academy of Sciences of the United States of America* 105(24):8369-8374.
- Ornish, D., J. Lin, J. Daubenmier, G. Weidner, E. Epel, C. Kemp, M. J. Magbanua, R. Marlin, L. Yglecias, P. R. Carroll, and E. H. Blackburn. 2008b. Increased telomerase activity and comprehensive lifestyle changes: A pilot study. *Lancet Oncology* 9(11):1048-1057.
- Page, S. J., P. Levine, and A. Leonard. 2007. Mental practice in chronic stroke: Results of a randomized, placebo-controlled trial. *Stroke* 38(4):1293-1297.
- Pamuk, E., D. Makuc, K. Heck, C. Reuben, and K. Lochner. 1998. Health, United States, 1998. In *Socioeconomic status and health chartbook*. Hyattsville, MD: National Center for Health Statistics. Pp. 145-159.
- Pappas, G., S. Queen, W. Hadden, and G. Fisher. 1993. The increasing disparity in mortality between socioeconomic groups in the United States, 1960 and 1986. *New England Journal of Medicine* 329(2):103-109.
- Pelletier, K. R. 2009 (in press). A review and assessment of clinical and cost outcomes of comprehensive health promotion and disease management programs in the worksite: Update vii: 2004-2008. *Journal of Occupational and Environmental Medicine*.
- Pelletier, K. R., P. M. Herman, R. D. Metz, and C. F. Nelson. Unpublished. *Health and medical economics: Applications to integrative medicine*. Walnut Creek, CA: University of Arizona and University of California (UCSF) Schools of Medicine.
- Prochaska, J. O., and C. C. DiClemente. 1983. Stages and processes of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology* 51(3):390-395.
- Reeves, S., M. Zwarenstein, J. Goldman, H. Barr, D. Freeth, M. Hammick, and I. Koppel. 2008. Interprofessional education: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 2008(1):CD002213. DOI: 002210.001002/14651858.CD14002213.pub14651852.
- Reik, W., W. Dean, and J. Walter. 2001. Epigenetic reprogramming in mammalian development. *Science* 293(5532):1089-1093.
- Repetti, R. L., S. E. Taylor, and T. E. Seeman. 2002. Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin* 128(2):330-366.
- Robert Wood Johnson Foundation. 2008. *Overcoming obstacles to health*. Princeton, NJ: Robert Wood Johnson Foundation.
- Schoen, C., K. Davis, S. K. H. How, and S. C. Schoenbaum. 2006. U.S. Health system performance: A national scorecard. *Health Affairs* 25(6):w457-w475.
- Sheline, Y. I., M. H. Gado, and H. C. Kraemer. 2003. Untreated depression and hippocampal volume loss. *American Journal of Psychiatry* 160(8):1516-1518.

- Sherman, K. J., D. C. Cherkin, J. Erro, D. L. Miglioretti, and R. A. Deyo. 2005. Comparing yoga, exercise, and a self-care book for chronic low back pain: A randomized, controlled trial. *Annals of Internal Medicine* 143(12):849-856.
- Shoba, G., D. Joy, T. Joseph, M. Majeed, R. Rajendran, and P. S. Srinivas. 1998. Influence of piperine on the pharmacokinetics of curcumin in animals and human volunteers. *Planta Medica* 64(4):353-356.
- Slade, S. C., and J. L. Keating. 2007. Unloaded movement facilitation exercise compared to no exercise or alternative therapy on outcomes for people with nonspecific chronic low back pain: A systematic review. *Journal of Manipulative and Physiological Therapeutics* 30(4):301-311.
- Snyderman, R., and R. S. Williams. 2003. Prospective medicine: The next health care transformation. *Academic Medicine* 78(11):1079-1084.
- Spiegel, D., J. R. Bloom, H. C. Kraemer, and E. Gottheil. 1989. Effect of psychosocial treatment on survival of patients with metastatic breast cancer. *Lancet* 2(8668):888-891.
- Spiegel, D., L. D. Butler, J. Giese-Davis, C. Koopman, E. Miller, S. DiMiceli, C. C. Classen, P. Fobair, R. W. Carlson, and H. C. Kraemer. 2007. Effects of supportive-expressive group therapy on survival of patients with metastatic breast cancer: A randomized prospective trial. *Cancer* 110(5):1130-1138.
- U.S. Congress, Senate Committee on Finance. 2006. *Testimony of Paul H. O'Neill*. 109th Congress, 2nd Session. March 8.
- U.S. Congress, Senate Health, Education, Labor, and Pension Committee. 2004. *Testimony of Arnold Milstein*. 108th Congress, 2nd Session. January 28, van Helden, Y. G., J. Keijer, A. M. Knaapen, S. G. Heil, J. J. Briede, F. J. van Schooten, and R. W. Godschalk. 2009. Beta-carotene metabolites enhance inflammation-induced oxidative DNA damage in lung epithelial cells. *Free Radical Biology and Medicine* 46(2):299-304.
- Waddell, G., and A. K. Burton. 2006. *Is work good for your health and well being?* London: The Stationery Office.
- Waterland, R. A., and R. L. Jirtle. 2003. Transposable elements: Targets for early nutritional effects on epigenetic gene regulation. *Molecular and Cellular Biology* 23(15):5293-5300.
- Weston, A. D., and L. Hood. 2004. Systems biology, proteomics, and the future of health care: Toward predictive, preventative, and personalized medicine. *Journal of Proteome Research* 3(2):179-196.
- Yusuf, S., S. Hawken, S. Ounpuu, T. Dans, A. Avezum, F. Lanas, M. McQueen, A. Budaj, P. Pais, J. Varigos, and L. Lisheng. 2004. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): Case-control study. *Lancet* 364(9438):937-952.

COLOPHON

This report was designed by Anne C. Kerns of Anne Likes Red, Inc.

The typefaces are Neutraface No. 2 designed by Christian Shwartz for House Industries – a warm geometric sans serif; Arno Pro designed by Robert Slimbach for Adobe – a readable humanist oldstyle; and ITC Esprit designed by Jovica Veljovic for International Typeface Corporation – a galarde oldstyle with calligraphic flair, used here as an italic display type.

This report was printed in the USA by Bolger, Vision Beyond Print, of Minneapolis, Minnesota. The inks are Pantone® 661U and black. The paper is Finch Fine, bright white, ultra smooth finish 100 lb. cover and 80 lb. text, which is made from 10% post-consumer recycled fiber.



bravewell.org