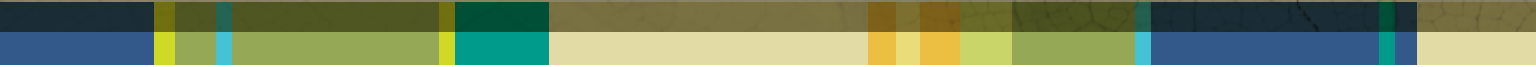


National Center for
**COMPLEMENTARY
AND ALTERNATIVE
MEDICINE**



NCCAM
SPECIAL REPORT





MESSAGE FROM THE NCCAM DIRECTOR

JOSEPHINE P. BRIGGS, M.D.

Today in the United States, millions of people are turning to complementary and alternative medicine (CAM) to improve their health and well-being or to cope with the symptoms of chronic illness. And many conventional health care providers are incorporating CAM into the care of their patients. Use of CAM is widespread among all demographic groups and makes up about 10 percent of out-of-pocket health care expenses. But are these practices safe and effective? At the National Institutes of Health's National Center for Complementary and Alternative Medicine, that is what we are trying to learn.

We are using rigorous basic and

clinical science to investigate whether CAM modalities may contribute to disease prevention, promotion of healthy behaviors, maintenance of well-being, and symptom management. We are also conducting studies to better understand who uses CAM and for what reasons.

As you complete your medical education, I hope that you will consider carefully the role that CAM may play in your patients' lives and look to the growing evidence base of CAM research to help you and your patients make informed care decisions. Perhaps you will share our curiosity for understanding how these practices might work and take

advantage of our research training opportunities. Finally, remember that many patients will not remember to tell you if they are using CAM practices, though it is important that you have that information to better coordinate their care. So don't forget to ask. Our Time To Talk educational campaign offers free materials to help enable this dialogue.

Medicine must be informed by science, practiced as an art, and tempered by humility and compassion. Integrative medicine—combining conventional medicine with CAM approaches that offer benefit—can contribute to better care for our patients.



The National Center for Complementary and Alternative Medicine (NCCAM) is the Federal Government’s lead agency for scientific research on complementary and alternative medicine (CAM). NCCAM is 1 of the 27 institutes and centers that make up the National Institutes of Health (NIH) within the U.S. Department of Health and Human Services.

OUR MISSION

- » **Explore** complementary and alternative healing practices in the context of rigorous science
- » **Train** complementary and alternative medicine researchers
- » **Disseminate** authoritative information to the public and professionals.

WHAT IS CAM?

CAM is a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine.

Complementary medicine is used together with conventional medicine. **Alternative medicine** is used in place of conventional medicine. **Integrative medicine** combines conventional medicine with proven CAM therapies.

CAM therapies are often grouped into broad categories. Major areas of ongoing research include natural products, manipulative practices, and body-based practices.

- » **Natural products and dietary practices** include taking dietary supplements, such as vitamins, minerals, and herbs as well as the use of probiotics, special diets, and functional foods.
- » **Manipulative and body-based prac-**

tices involve manipulating or moving one or more body parts. Examples include massage, chiropractic care, osteopathic manipulation, and reflexology.

- » **Mind-body medicine** focuses on ways to harness and manipulate emotional, mental, social, spiritual, and behavioral factors to affect a person’s health. Examples include meditation, hypnosis, and yoga.

WHAT NCCAM DOES

NCCAM sponsors and conducts research using scientific methods and advanced technologies to study CAM. NCCAM has four primary areas of focus:

Advancing scientific research—NCCAM has funded more than 3,300 research projects at scientific institutions across the United States and around the world.

Training CAM researchers—NCCAM

supports training for new researchers as well as encourages experienced researchers to study CAM.

Sharing news and information—NCCAM provides timely and accurate information about CAM research in many ways, such as through its Web site, its information clearinghouse, fact sheets, Distinguished Lecture Series, continuing medical education programs, and publication databases.

Supporting integration of proven CAM therapies—NCCAM’s research helps the public and health professionals understand which CAM therapies have been proven to be safe and effective.

CAM USE

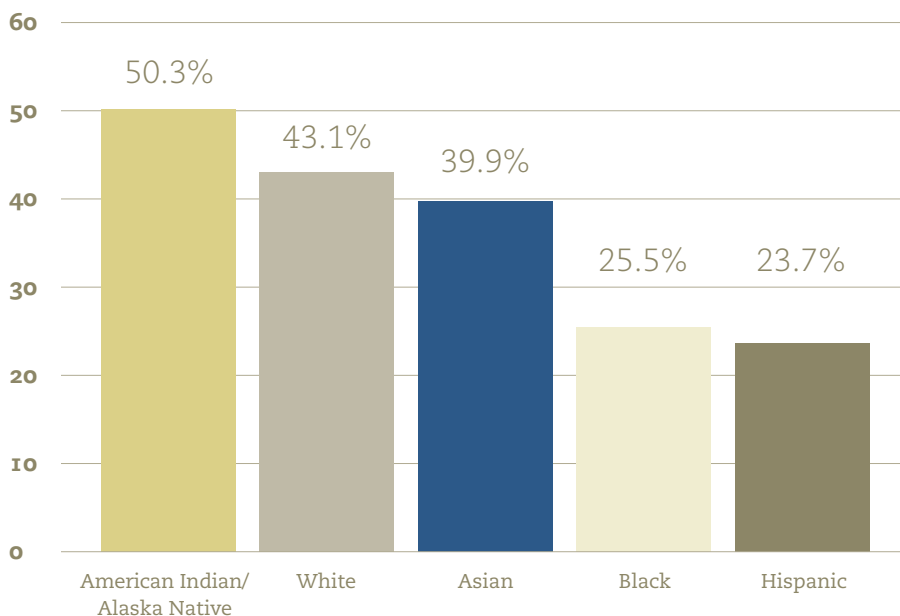
Each year, millions of Americans use some form of CAM. In fact, 38 percent of American adults and approximately 12 percent of U.S. children use CAM, according to the 2007 National Health Interview Survey.

“Millions of Americans every year are turning to complementary and alternative medicine,” says Richard L. Nahin, Ph.D., M.P.H., NCCAM’s Senior Advisor for Scientific Coordination and Outreach, who helped design the survey. The most common reasons people use CAM are to treat back, neck, and joint pain, arthritis, and anxiety. CAM use is greater among American Indians/Alaska Natives, whites, and Asians than among blacks and Hispanics.

THERAPIES WITH SIGNIFICANT INCREASES BETWEEN 2002-07

	2002	2007
Deep Breathing	11.6%	12.7%
Meditation	7.6%	9.4%
Massage	5.0%	8.3%
Yoga	5.1%	6.1%

CAM USE BY RACE/ETHNICITY AMONG ADULTS, 2007



Source: Barnes PM, Bloom B, Nahin R. CDC National Health Statistics Report #12. Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007. December 2008.

10 MOST COMMON CAM THERAPIES AMONG ADULTS, 2007



Source: Barnes PM, Bloom B, Nahin R. CDC National Health Statistics Report #12. Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007. December 2008.



TIME TO TALK

Due to the high use of CAM practices, it is important for patients and their health care providers to talk about CAM use. Doing so helps to ensure coordinated, safe care. NCCAM's Time to Talk program helps enable this dialogue.

"It's very important that health care providers know about their patients' CAM use so they can truly be partners in their health care," emphasizes NCCAM director Josephine Briggs, M.D. "Health care providers need to ask and patients need to tell."

Tips for Speaking to Patients About CAM Use

- » Include a question about CAM use on medical history forms.
- » Ask patients to bring a list of all the therapies they use, including prescription, over-the-counter, and herbal supplements and other CAM practices.
- » Actively distribute Time to Talk materials to patients.

For more information about Time to Talk, please visit:
<http://nccam.nih.gov/timetotalk>.

RESOURCES FOR HEALTH CARE PROVIDERS

NCCAM's Health Care Provider Portal

A newly created section of the NCCAM Web site with resources geared to health care professionals. These CAM resources include evidence-based research, clinical practice guidelines, educational resources, and information on clinical trials.

<http://nccam.nih.gov/health/providers/>

CAM on PubMed®

Journal citations specific to CAM.

<http://nccam.nih.gov/camonpubmed/>

Online Continuing Education Series

Video lectures available for CME/CEU credits.

<http://nccam.nih.gov/videlectures>

RESOURCES FOR PATIENTS

National Center for Complementary and Alternative Medicine

Toll-free in the U.S.: 1.888.644.6226

<http://nccam.nih.gov/>

Medline Plus

<http://medlineplus.gov>

Herbs at a Glance: A Quick Guide to Herbal Supplements

An easy-to-read booklet with profiles on more than 40 herbs—basic scientific information, some potential side effects, and additional sources of information.

<http://nccam.nih.gov/health/herbsataglance.htm>



Sheila A. Caldwell, Ph.D.

Program Director, Office of Special Populations,
Division of Extramural Research, NCCAM

BY ANITA GREENE

Dr. Sheila A. Caldwell is Program Director for Special Populations within the Division of Extramural Research at the National Center for Complementary and Alternative Medicine (NCCAM). She oversees research in the areas of health disparities, women's health, and HIV/AIDS. Dr. Caldwell joined the National Institutes of Health (NIH) in 2001 as a postdoctoral scientist at the National Cancer Institute (NCI). Later, she became a scientific recruiter and training specialist at NIH's National Institute of Allergy and Infectious Diseases (NIAID) before coming to NCCAM.

Dr. Caldwell has placed an emphasis on creating a balance between work and family life: "Finding a balance between the two is an issue of importance to many women, men, and employers. I firmly believe that the scientific community must foster more understanding and support for women in science and their desire to have both a family and career. This philosophy is strongly supported and embraced at NCCAM, as there are many examples of professional colleagues successfully attaining this balance every day." Caldwell and her partner of 14 years have four children, including 1½-year-old twin boys.

What prompted your interest to pursue a career in science?

Caldwell: I became interested in science at a very early age—probably at age 10. I remember thinking and asking my elementary school teacher how tumors grew, why they grew back even if you cut them out, and how tumors found their way into different parts of

the body. She didn't have an answer. I don't believe her inability to answer or any other specific events directly influenced my decision to become a scientist. Rather, the major influences on my career path have been the "messages" I received throughout my childhood and from mentors through my life. I remember being told by my parents that there was nothing I could not accomplish through dedication and hard work. My parents believed that determination (sometimes referred to as stubbornness), perseverance, and passion were key elements in building character. They told me to always do what I believed to be right, to treat people with respect and to help others—especially those who were unable to help themselves.

After college, I realized I wanted to be more involved in science, but wasn't sure of the path. I was fortunate to have a great mentor, my genetics professor, who encouraged me to pursue graduate training because of my interest in the mechanisms of disease. I applied to George Washington University (GWU) and received my master's and Ph.D. in molecular and cellular oncology. My thesis research was on neuroblastomas and medulloblastomas, two pediatric cancers. The word pediatrics and its cognates mean "healer of children." Pursuing research



in pediatrics was my way of helping a subset of people who were reliant on others and could not generally help themselves.

After doing a postdoctoral training fellowship at NCI, I welcomed the opportunity to explore a career outside of bench science. Once again, I had a great mentor who was able to guide me through career opportunities available outside of the bench, while still allowing for an involvement in science. Joining NCCAM as the Program Director for Special Populations has been an illuminating and worthwhile experience. I have been extremely fortunate to be exposed to very astute, knowledgeable, and wise NCCAM mentors who have encouraged my learning and growth. I have felt truly supported as a woman scientist at NCCAM, where a clear message has resonated that women can be strong, taken seriously,

"I firmly believe that the scientific community must foster more understanding and support for women in science and their desire to have both a family and career."

and hold positions of leadership in science. My current position provides ample opportunity to be involved in the science and understanding of diseases even though I no longer work in a laboratory.

Why did you choose to pursue a Ph.D. instead of an M.D.? After choosing to pursue a research career, how did you know what particular research area to pursue?

Caldwell: The program I attended at GWU was a joint Ph.D./M.D. program. I knew that the Ph.D. program was well suited for me since I was interested in the cellular mechanisms behind health conditions. I think there are two different mindsets behind obtaining a Ph.D. or an M.D. For me, pursuing an M.D. means a desire to figure out what disease or condition a person may have and to determine what the best treatment course is for that disease. I was more interested in what caused the person to have the disease in the first place: What cellular factors contribute to illness and why—and what factors contribute to someone being at higher risk for disease?

How important have mentors been to your career progression?

Caldwell: Mentors have been very important in my life and influenced my career choices. Mentors have provided me with the knowledge to see my path more clearly as well as to show me how to take the knowledge in. There are many different types of mentors that one should have in their lives and career. Some mentors will help guide your career path and help you along the way. You also need mentors that will help guide you through the actual science. Sometimes, this isn't the same person. In my life it wasn't. I had mentors who really knew and understood the different career paths and were able to help guide me in picking the path best for my goals. I also had mentors who helped me better understand the science and where it was going. Different

types of mentors can provide you with different perspectives. Overall though, mentors should have a few important characteristics:

- » Openness and willingness to listen, and wisdom and candor to not always agree with you, yet challenge you to reach further
- » Dedicated time to devote to being a mentor
- » Vested interest in helping you move forward in your career.

You have been Program Director for Special Populations for 2 years. What is the mission of the Special Populations Program?

Caldwell: The Special Populations Program within the Division of Extramural Research is the focal point of NCCAM's activities to contribute to the elimination of health disparities. The program oversees NCCAM's activities related to the NIH Strategic Research Plan and Budget to Reduce and Ultimately Eliminate Health Disparities.

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eases that disproportionately affect racial and ethnic minorities as well as medically underserved populations. Specifically, NCCAM supports research on several different approaches to prevent or ease the symptoms of diabetes, a chronic disease that disproportionately affects Native Americans, Hispanics, and African Americans, compared with the Caucasian population. The research could contribute to simple, cost-effective, or culturally appropriate approaches to prevent a shift from pre-diabetes to diabetes or prolong the onset of diabetic neuropathy.

A third area of interest to NCCAM has been to provide support for individuals from underrepresented groups in science throughout their careers. NCCAM not only supports investigators from these underrepresented groups in research grants, but also provides support to those in various training and career developmental stages. NCCAM participates in several different types of training and career development funding opportunities available at NIH.

“Mentors have been very important in my life and influenced my career choices. Mentors have provided me with the knowledge to see my path more clearly as well as to show me how to take the knowledge in.”

What are health disparities? Define what health disparities mean for our audience.

Caldwell: Health disparities are health conditions or diseases that disproportionately affect a particular subpopulation in comparison with the majority population. The population may be disproportionately affected by rates of incidence or rates of mortality, for example. The White House has a list of particular diseases and health conditions that they define as health disparities. Some of the diseases or health conditions on the list are asthma, cancer, cardiovascular disease, and HIV/AIDS. Health disparities affect different groups within the United States defined by race and

ethnicity, geographic location, disability, sexual orientation, income, and education.

NCCAM understands not only the significance of supporting the research that investigates the actual health disparity conditions, but also understands the importance of supporting and encouraging scientists from these communities to address the health conditions so profoundly dominant in their communities. Who better to understand some of the factors that may contribute to the disproportionate effects of the health conditions than someone from that community?

Do you have a professional and/or personal interest in this area?

Caldwell: Yes. My parents always emphasized the importance of treating everyone fairly. They told me that if I saw a wrong being done and ignored that wrong, then I was just as responsible as the person who had actually committed it. This was instilled early by my father and is something that has really stuck with me. I believe this message, along with my passion for science, guided my career path in science. I have strived throughout my career to pursue interests that benefit populations that are disproportionately burdened with disease—from my graduate work in pediatrics to my current position as Program Director for Special Populations. I believe that we all have many interests in life and sometimes we are fortunate enough to be able to combine our passions and interests to do something we truly love. I am very fortunate to have had this opportunity to do both.

I believe there is a need not only to address the issues of health disparities in the context of equal access to health care and equal treatment in health care, but it is also important to address equality in research. I would like to see more research in the laboratory on potential genetic and cellular differences associated with health conditions that disproportionately affect medically underserved and racial and ethnic populations. Why do the African

American women with breast cancer have a higher mortality rate? Does it have anything to do with differences in their tumor cells compared with Caucasian women? Will the standard breast cancer treatments used to treat Caucasian women work just as well on African American women? We will only know the answers if clinical trials include diverse populations. Therefore, I would also like to see increased representation of the medically underserved and racial and ethnic minority populations in clinical trials. NCCAM and NIH continue to make efforts to address these very issues. Research has been supported to look at differences in populations for various health conditions at the genetic and cellular

levels. Similarly, efforts have been made to increase representation in clinical trials.

Do minorities use CAM in large numbers?

Caldwell: Surveys have been conducted to better understand the use of CAM by the various populations in the United States, including the National Health Information Survey. It was important to increase the number of racial and ethnic minorities interviewed so as to get a better understanding of the health practices within these populations. The data gained from this study demonstrated that the Caucasian population has a higher use of CAM, especially provider-



“I believe that we all have many interests in life and sometimes we are fortunate enough to be able to combine our passions and interests to do something we truly love.”

based modalities. However, Hispanics and non-Hispanic blacks do use CAM. These populations tend to use more nonvitamin, nonmineral dietary supplements (NVNMDs). Analysis of data to more clearly examine the sub-populations and what is being used is currently under way. There are issues with the survey data in the sense of how the respondents might interpret CAM use, as well as the completeness of examples of NVNMDs used in the survey. What we are seeing more and more, however, is better knowledge of patients' CAM use. NCCAM's Office of Communication has developed an informational program called Time To Talk. It not only assists the patient, but also the physician, in discussing CAM use. This really has been a wonderful program and is available in Spanish as well.

Is there a role for NCCAM in reducing or eliminating health disparities?

Caldwell: Yes, there is a role for NCCAM in reducing health disparities. By supporting research directed at treating, preventing, or understanding diseases and health conditions that disproportionately effect certain populations, NCCAM can contribute knowledge and approaches to combat the health disparity.

Additionally, NCCAM hopes that information gained by supporting research in health disparities and research on ethnic and racial minority populations will increase our knowledge about safe and effective practices that can improve health outcomes and contribute to overall wellness, healthy behaviors, and preventive care.

What efforts are under way at NCCAM to reduce or eliminate health disparities?

Caldwell: NCCAM is currently supporting several studies that are assessing strategies and approaches to reduce health disparities. For example, as I mentioned earlier, NCCAM is supporting several studies on diabetes. One such study is examining whether a mindfulness-based intervention



reduces the risk of diabetes conversion from a pre-diabetic state in an African American population. If successful, this protocol could be taught and performed at home. It would be a simple, cost-effective method to hopefully delay or prevent the conversion into a diabetic state.

NCCAM is interested in supporting research on CAM modalities that can contribute to preventive care, healthy behaviors, and wellness as well.

NCCAM recognizes that an estimated 40 percent of preventable deaths in the United States can be attributed to behavioral causes. By gaining knowledge of cultural health practices and CAM use within medically underserved and racial and ethnic minority populations, NCCAM-supported research can help to provide culturally appropriate information and tools to facilitate optimal behaviors and health care practices.

NCCAM'S RESEARCH TRAINING PROGRAMS

NCCAM has a substantial investment in research training and capacity building. A number of programs focus on high-quality research training and career development opportunities to increase the number, quality, and diversity of CAM researchers. NCCAM provides research training and career development opportunities to predoctoral and postdoctoral students, CAM practitioners, conventional medicine researchers and practitioners, and members of populations who are underrepresented in scientific research. For example, the NCCAM-funded "Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellowships to Promote Diversity in Health-Related Research" support outstanding predoctoral students, including individuals from diverse racial and ethnic groups and from disadvantaged backgrounds and those with disabilities, who are engaged in rigorous research to carry out the Nation's biomedical, behavioral, and clinical research agendas in CAM. In addition, the NCCAM-funded "Research Supplements to Promote Diversity in Health-Related Research" awards support minorities and minority-serving institutions to improve the diversity of the research workforce.

The Special Populations Program within NCCAM's Division of Extramural Research is specifically dedicated to overseeing activities that contribute to the elimination of racial and ethnic health disparities. This program supports research on the use and effectiveness of CAM in racial and ethnic minority populations, helps build CAM research infrastructure, and increases communications and outreach activities

to target minority populations and health professionals with information about CAM research opportunities and research findings.

NCCAM's Division of Intramural Research supports a variety of training programs to promote the research development of diverse health care professionals in the design, implementation, interpretation, and publication of CAM-related research. The Division's objectives are to stimulate collaboration between CAM practitioners and conventional investigators, support doctoral and postdoctoral training in CAM research, and sponsor career development and mentorship. Several NCCAM programs integrate with established clinical and preclinical training programs at NIH. Examples include the NIH Inter-Institute Endocrine Training Program, domestic and international postdoctoral fellowship programs, the Howard Hughes Medical Student Program, postbaccalaureate and summer student research programs, and the NIH-Duke Training Program in Clinical Research.

Research training opportunities are also available through NCCAM's Research Centers Program, where basic, clinical, translational, and developmental research is conducted on a variety of CAM modalities—such as botanicals and traditional Chinese medicine—for a range of conditions that affect minority populations. For example, NCCAM-funded scientists at the Pennington Biomedical Research Center in Baton Rouge, Louisiana, conduct basic and clinical studies to determine how selected botanicals, such as Russian tarragon (*Artemisia dracunculoides*), Shilianhua (*Sinocrassula indica*), and grape anthocyanins, may



influence molecular, cellular, and physiological mechanisms and may prevent or reverse the development of insulin resistance, the key pathophysiological feature of metabolic syndrome. Metabolic syndrome, which consists of obesity, insulin resistance, type 2 diabetes, and accelerated cardiovascular disease, has reached epidemic proportions worldwide, with a particularly high incidence in the U.S. Hispanic population. Researchers at the Center for Herbal Research on Colorectal Cancer at the University of Chicago are examining the anti-tumor effects of American ginseng (*Panax quinquefolius*) and notoginseng (*Panax notoginseng*) on colorectal cancer, a leading cause of death among African Americans. The UCLA Center for Excellence in Pancreatic Diseases is studying plant-derived compounds found in a variety of dietary and herbal supplements and

traditional herbal medicines, including antioxidants such as curcumin and lycopene, and preparations of green tea and *Scutellaria baicalensis* (a plant used in traditional Chinese medicine). NCCAM-funded researchers at this center are investigating the mechanisms and effects of these plant compounds on the prevention and/or treatment of pancreatitis and pancreatic cancer, a disease with an incidence higher in African Americans than in any other racial group in the United States.

OTHER NCCAM RESEARCH TRAINING EFFORTS

Center for Pediatric Integrative Medical Education—NCCAM funded the Center for Pediatric Integrative Medical Education as part of the CAM Education Project Grant program to focus on incorporating CAM education into the training of medical students and pediatric residents, fellows, and faculty. Located at Boston's Children's Hospital, the center expanded evidence-based knowledge of the risks and benefits of CAM in childhood diseases, such as otitis media, which has a high prevalence in Native Americans, particularly Navajo and Eskimo peoples.

The International Center for Indigenous Phytotherapy Studies: HIV/AIDS, Secondary Infections, and Immune Modulation—Funded by NCCAM, the International Center for Indigenous Phytotherapy Studies targets HIV/AIDS, secondary infections, and immune modulation and supports several innovative and inter-related research projects focusing on potentially useful indigenous herbal medicines. Goals of the center include supporting scientifically rigorous and ethical studies of African phytotherapies and health care systems, training scientists to conduct the highest caliber research in complementary and alternative medical practices, and advancing the health and well-being of the African and American peoples.

RESEARCH TRAINING RESOURCES

Online Continuing Education—NCCAM's Online Continuing Education Series offers 10 free courses on a range of CAM topics, including CAM and aging, mind-body medicine, and health and spirituality. Each course includes a video lecture by an author as well as a written transcript, a question-and-answer transcript, an optional online test, and additional resource links. To access the free online series, go to: <http://nccam.nih.gov/training/videlectures/>.

NCCAM's 10th Anniversary Research Symposium: Exploring the Science of Complementary and Alternative Medicine is also available online

for continuing education at: <http://nccam.nih.gov/news/events/anniversary/accreditation.htm>.

The Stephen E. Straus Distinguished Lecture in the Science of Complementary and Alternative Medicine—The lectures in NCCAM's Distinguished Lecture Series provide a unique perspective on the evolution of CAM practice and research, as well as current use of CAM by the public. Past lectures include "The Global Transformation of Health Care: Cultural and Ethical Challenges to Medicine" and "Is Spirituality Good for Your Health? Historical Reflections on an Emerging Research Enterprise." The online series is accessible at: <http://nccam.nih.gov/news/events/lectures/>.



Emmeline Edwards, Ph.D.

Director, Division of Extramural Research, NCCAM

BY ANITA GREENE

Dr. Emmeline Edwards is a wonderful example of a minority woman who pursued a very successful career in science, moving carefully and swiftly up the ranks, while managing to have a fulfilling personal life. She has been married to Ross Edwards for 36 years; they even managed to raise twins—a boy and girl (Earl and Sunny)—who are both married with families of their own.

In January 2010, Emmeline Edwards, Ph.D., became Director of the Division of Extramural Research of the National Center for Complementary and Alternative Medicine (NCCAM), one of 27 components of the National Institutes of Health (NIH). She is a specialist in neural mechanisms of complex behaviors.

Prior to joining NCCAM, Dr. Edwards was Deputy Director of the Extramural Program at the National Institute of Neurological Disorders and Stroke (NINDS), where she provided oversight to all scientific and administrative aspects of NINDS-funded research programs. Before becoming the Deputy Director for Extramural Research at NINDS, Dr. Edwards was Program Director for Systems and Cognitive Neuroscience at NINDS. Prior to working at NIH, Dr. Edwards was program director for behavioral neuroscience at the National Science Foundation (NSF) and the NSF representative to the Human Brain Project. Dr. Edwards was also a faculty member in the pharmacology and neuroscience programs at the University of Maryland.

Dr. Edwards earned her B.A. from The College of New Rochelle and her

M.S. from Fordham University. She also received her doctorate in neurochemistry from Fordham University and completed her postdoctoral training in behavioral pharmacology and neuroscience in the department of psychiatry and behavioral sciences at the State University of New York (SUNY), Stony Brook. Much of Dr. Edwards' research at SUNY and later at the University of Maryland has concentrated on the neurobiological mechanisms of maladaptive behaviors and behavioral genetics.

Growing up in Haiti, Dr. Edwards had no direct contact with science or medicine. "My grandfather was a nationally known historian and both my parents were professionals who

"I have looked at my professional life as a work in progress...always stretching to the next goal...always preparing for the next challenge."

fostered an appreciation for higher education. I knew about medicine but had no idea what a career in science would entail or the necessary steps to go about pursuing this kind of career."

When Edwards came to the United States in 1970, she was impressed with the courses she took at The College of New Rochelle in New York in the science and mathematics areas. "I was attracted to the logic of these courses and found organic chemistry especially enjoyable and challenging."

Edwards earned her doctorate degree in neurochemistry from Ford-



ham University in New York City in 1983. She applied her knowledge to research on mental health at the Long Island Research Institute in Stony Brook, New York. When that independent institute closed in 1986, Edwards received an appointment to the department of psychiatry at

SUNY, Stony Brook.

At SUNY, Edwards applied for and received a minority research initiation grant to study the role that neurochemicals play in coping with stress. "This award permitted me to explore and extend my research interests. I was able to accomplish much work because I could hire technicians to help me. My work produced publications, which eventually launched me into the mainstream of science."

As a minority and as a woman, which was a double-edged sword in the years Edwards rose up the ranks in science, the road to success was not

easy. “The solution for this is to proceed with your career plan, do careful and meaningful work, and publish in reputable journals. If you do this right, recognition and acceptance will follow,” she said.

After choosing to pursue a research career, did you know what particular research area to pursue? How did you become interested in the specialty of neurology?

Edwards: While pursuing my graduate studies at Fordham University, I was fortunate to have a neuroscientist as my primary graduate advisor. The research project I started working on tried to determine the central nervous system mechanisms involved in hypertension. This opened up a new level of interest into understanding brain mechanisms that are involved in a variety of health conditions. Throughout my graduate training and later on as junior faculty, I studied a number of animal models of hypertension, depression, and anxiety—with the primary interest of understanding brain circuits that are involved in a variety of health conditions.

I became interested in neurology when I did a sabbatical at NSF where I was the program director for the behavioral neuroscience program. During this time, I represented NSF on a trans-Federal agency project called the Human Brain Project. This is where I met many of my NIH colleagues who encouraged me to come to NIH to continue doing research in behavioral neuroscience. So, NINDS at NIH was a natural fit for me.

What are some challenges you have faced as a minority scientist and leader and how did you overcome those challenges?

Edwards: During the time that I entered and moved up the ranks of my career in science, the challenges I faced were inherent with both being a female and a minority pursuing a research career. Being new to the field, there’s the issue of gaining cred-

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ibility in the scientific community. To do this, you must demonstrate a level of excellence in your work, as well the confidence and commitment to pursue your dream. Also parallel to this is obtaining good mentors with a proven track record of success to help guide you along the way. Lastly, publishing your work in credible journals is a good way to establish a track record and credibility and earn the respect of your colleagues.

Why did you leave your Deputy Director job of 4 years in extramural research at NINDS to pursue the same type of role at NCCAM?

Edwards: At NINDS, the structure of the extramural program was essentially quite different than any other institute at NIH. At NINDS we had what can be referred to as a flat structure, meaning that there were no divisions or branches. As Deputy Director of the Extramural Program, my position was very much a partnership with the director of the program. I had the opportunity to co-supervise the division program directors and program staff and to oversee administrative and scientific matters. My move to NCCAM was primarily because I really wanted to utilize my neuroscience background and apply it to a number of complementary and alternative medical (CAM) approaches that have good foundation in brain mechanisms. To me, this presented a challenge... to bring neuroscience expertise to NCCAM. The timing of this position was great because NIH had a new director (Francis Collins, M.D., Ph.D.) and also a fairly new NCCAM Director (Josephine Briggs, M.D.). I felt that my scientific expertise and managerial skills would be complimentary

to hers and of benefit to NCCAM. So, coming to NCCAM was an opportunity to develop a good neuroscience foundation there and continue applying my skills as a leader and research administrator.

If you were at a cocktail party or family reunion, how would you explain in a nutshell what you do at the NIH?

Edwards: My position is primarily focused on developing scientific programs or areas of science that fulfill the mission of NCCAM. Of course, the mission of NCCAM is to conduct rigorous research in CAM, train researchers to conduct CAM research, and provide information to the public to allow them to make informed decisions on medical care.

Do you think more diversity of scientists is needed in the research field?

Edwards: Absolutely! This has been an ongoing challenge for many years in both the science and medical fields. NIH and the Nation need more minority scientific investigators to succeed as one way of helping address health disparities of minorities within the United States, which is a greater problem here than in Canada and several European countries.

While I was at NSF, increasing the pipeline of underrepresented minorities in science was a priority. One way they addressed this was through active and targeted fellowship programs. At NIH, there are many programs at various stages of career growth to increase the number of underrepresented scientists.

There are a number of NIH programs on diversity; however, they are not consistent across all institutes and centers. However, NIH as a whole

recognizes a unique and compelling need to promote diversity in the biomedical, behavioral, clinical, and social sciences research workforce. A dedicated focus to recruitment, training, and retention efforts in this direction has several benefits. The bang-for-the-buck is to diversify the workforce by recruiting the most talented researchers from all groups, which will improve the quality of the educational and training environment; balance and broaden perspectives in setting research priorities; improve the ability to recruit subjects from diverse backgrounds into clinical research protocols; and ultimately improve the Nation's capacity to address and eliminate health disparities. NCCAM has a diversity supplement program; the program directors are very much aware of the principal investigators who have a good track record as mentors, and we try to establish those connections for minority applicants.

NCCAM is vested in continuing to encourage institutions to diversify their student and faculty populations and thus to increase the participation of individuals currently underrepresented in the biomedical, clinical, behavioral, and social sciences, such as individuals from underrepresented racial and ethnic groups, individuals with disabilities, and individuals from socially, culturally, economically, or educationally disadvantaged backgrounds that have inhibited their ability to pursue a career in health-related research. NCCAM consistently encourages institutions to identify candidates who will increase diversity on a national or institutional basis.

Additional information about diversity programs NCCAM supports can be found on NCCAM's web page at: <http://www.nccam.nih.gov>.

What advice do you have for minority medical students considering a career in research?

Edwards: I would encourage medical students to gain some research experience prior to joining a graduate program. A research career is a very

demanding career, one that requires complete dedication, not only in the science but also in the pursuit of rigor. So, prior exposure in research is very important, in addition to identifying a good mentor to help guide their career.

There are positive and far-reaching effects for expanding the minority population among scientific investigators and having that population be more reflective of the U.S. population. The pipeline approach to attracting minority investigators has been very effective; however, many young investigators leave the field after getting rejected on their first grant application. This is the point where good mentors become increasingly important. Not only are having good mentors important in advancing one's scientific career but also carrying out some important and well-thought-out research projects.

How important have mentors been in your career?

Edwards: Mentors have been integral to helping set the direction and providing ongoing support throughout my career. From my graduate studies to junior faculty, I am grateful to have had good mentors. Mentors can help identify opportunities, make suggestions as to what skill sets are needed to accomplish goals,

and be a sounding board and friend to discuss your research ideas and any other issues you may encounter as a scientist.

When I joined the Federal workforce I was lucky to obtain two mentors who have actively helped me advance my career in research administration by identifying areas that would be fruitful for me to develop and encouraging me to avail myself of good opportunities as they came along.

I think it is important to continue having mentors at each stage of your career. For example, I was selected and am currently in the first cohort of the NIH Executive Leadership Program and am actively recruiting a mentor at the deputy or institute director level at NIH. This is important even at this stage of my career because I feel that at all levels you can always learn from your peers and people who have gained more experience than you.

Do you feel your career path has fulfilled your initial inspiration that led you to pursue a career in research?

Edwards: Absolutely! In fact my expectations have been exceeded. In my current position I have the opportunity to have a broader vision—a bigger picture of the impact of research on public health.



NCCAM RESEARCHER PROFILE

Jesus Lovera, M.D., Ms.P.H.

Neurologist, Louisiana State University (LSU),
Neurology Department, Health Science
Center, New Orleans, LA

Dr. Jesus Lovera is a board-certified neurologist. He completed his neurology residency at Tulane Medical Center in 1998. During his residency, Dr. Lovera also pursued a master's of science in biostatistics at the Tulane School of Public Health, earning his degree in 2003. He completed a 3-year clinical and research fellowship in multiple sclerosis (MS) and neuroimmunology at Oregon Health and Science University (OHSU) in 2007 and recently moved back to New Orleans to join the LSU department of neurology.

Dr. Lovera devotes his clinical practice and research efforts to the diagnosis and treatment of MS. His past research has focused on evaluating new therapies for cognitive impairment in MS. His current research focuses on evaluating neuroprotective therapies in MS using advanced MRI techniques.

You're an MD. How did you get involved in CAM research?

Lovera: I went to medical school in Colombia, and then I came to the United States to do my specialty in neurology at Tulane University in New Orleans. After doing some additional training in research and getting my master's in public health, I was really interested in immunology. I went to Portland, Oregon, and I did a fellowship at OHSU with Dr. Dennis Bourdette, whose lab is focused on understanding the pathogenesis of MS and the development of new treatment approaches for this disease. One of the things we were looking at was green tea extracts,

and that led to my applying for a K23 career development award.

And how is that research progressing?

Lovera: The idea was that we would look at green tea extracts, which had been studied in animal models, to see how that research would translate to humans. The studies were really encouraging; it looked like green tea extracts were able to protect the axons and neurons of the spinal cord from dying in animals but was not having an effect directly on the inflammation, so it was merely a purely neuroprotective effect. That was really interest-



ing because we don't have such a treatment available for people with MS. All we have so far are things that, in one way or the other, either regulate or suppress the immune system. So we've gotten good at suppressing the immune system, but we really need to have things that can directly protect the cells and keep them healthy while the inflammation is ongoing. It would also be applicable to the secondary, progressive phase of the disease, which is the one that causes the most disability. Right now, we don't have really good treatments for that phase.

Is anyone else researching green tea extract?

Lovera: In the United States, there's nobody else looking at this for MS. But since it has a lot of really interesting properties, it's being looked

at for all the cancers—from prostate cancer to lung cancer—and for the prevention of cancer. All those studies are in the early phases; it just takes a lot of time to develop something to the point that you can convince enough people that it's worthwhile testing in a big clinical trial.

You're at LSU now; do you still work with the Portland lab?

Lovera: Yes, I was lucky enough that I was able to find another mentor here and keep my mentoring relationship with Dr. Bourdette in Oregon; he's been my mentor throughout this whole process.

Did you ever expect you'd be doing this type of botanical or CAM research?

Lovera: No, I didn't think that this was what I was going to be doing. But I got really interested because the animal results were so promising. And if it works out, it's a really good option for people, in theory, because it probably is going to be less expensive than any of the other treatments—and probably less toxic. Green tea is something that people have been taking for centuries. We're using an extract of it, but if you look at people in Asia, it's not uncommon for somebody to drink 10 or 12 cups of green tea a day, which is about the same dose that we're using. So we know that people tolerate this relatively well.

Do you feel like people who are involved in traditional Western medicine are more open to CAM research now than they were before?

Lovera: It varies; some people are very interested in it, and some people don't really believe in it. But if you look in the history of medicine, there are many drugs that were developed this way. Even older drugs like digoxin and aspirin at some point were botanical com-

"I really like this research. Once you start working with these compounds, you meet other people that are interested in it. So you start hearing of other things that could be interesting to try, and gradually you end up doing more and more."



Green tea leaves growing in Malaysia

pounds. Even more modern drugs like Taxol and some of the other chemotherapy agents came from plant compounds. It turns out that plants are really good at chemistry. They can make all these very interesting molecules that sometimes we wouldn't think about synthesizing, or we wouldn't know how to synthesize.

What does a typical day look like for you?

Lovera: I still see patients, so about 20 percent of my time is clinical. The research I do is clinical research; we have to see patients in the study and examine them periodically and put them through the scanners and all that. I do a little bit of teaching with the residents, but between the study and the clinic, I don't have much time for that right now.

If you look a few years down the road, do you hope to stay working in this field, or do you look to go to more traditional pharmaceutical research?

Lovera: I really like this research. Once you start working with these compounds, you meet other people that are interested in it. So you start hearing of other things that could be interesting to try, and gradually you end up doing more and more. Depending on the results from this initial study, I'd be very interested in doing further studies with this compound.

NCCAM RESEARCHER PROFILE

Lisa Price, N.D.

Postdoctoral Fellow, Bastyr University, Seattle, WA

Dr. Lisa Price received her doctor of naturopathic medicine degree, N.D., from Bastyr University. After working in community clinics for several years, she came back to Bastyr as a research instructor. Currently, she's in a mentored position at Bastyr getting extended training in basic and clinical sciences, as well as doing research into medicinal mushrooms and their effects on both the translational protein PI 3-kinase and on Merkel cell carcinoma.

What got you interested in medicine?

Price: Like a lot of kids, I wanted to grow up to be a veterinarian, and so I always knew I had to do science to do that. When I got to college, I became interested in biochemistry and microbiology with an environmental slant. In grad school, I studied environmental microbiology and biochemistry.

How did you get interested in naturopathic medicine?

Price: After grad school, I spent some time in the Peace Corps and then came back to Seattle to settle down. I had never even heard of naturopathic medicine before, but when I got here I had a urinary tract infection that needed treatment so I went to see a naturopath and was completely intrigued with the field. Even though I grew up in New York, my family is Creole (originally from New Orleans), so there was a strong history of using botanical medicines

and foods for healing. When I discovered Bastyr University, I thought, wow! I never knew about this, but this is home. I mean "home" because of my interest in environmentalism and sustainable health practices.

But I still didn't want to be a clinician and see patients. My heart was set on validating the effectiveness of these botanicals that I had seen work in my own family. I decided to go to school at Bastyr to get my naturopathic medicine degree and do some practice, but with a goal of getting funded to do research.

And how did that plan work out?

Price: It was tough! It took me almost 7 years to actually find a place for myself to do research here at Bastyr. When I started, NCCAM hadn't been established yet, so there just wasn't the opportunity to get funding; there was still a stigma associated with naturopathic doctors. But that's changed a lot over the years as more people do research on natural products (with a lot of influence



coming from Norman Farnsworth's group at the University of Illinois at Chicago). We do things a little differently at Bastyr; because we have that patient population that we can observe, we gear our research toward what we're seeing in them.

What research are you working on right now?

Price: Our project is focused on studying the immune-modulating effects of medicinal mushrooms. In particular, we're looking at a mushroom called *Trametes versicolor*, or turkey tail. There's been an immense amount of research on it since the 1970s showing its immune effects, and specifically anticancer immune effects. In fact, there's been so much research that the Japanese government has sanctioned it as a pharmaceutical and a supplement that's used in gastric cancer treatment.

So with this NCCAM grant, we're

looking at the effects of the mushroom on breast cancer in two ways. We have a clinical research study using healthy human participants, and then we have a companion study where we're looking at the effects of the mushroom in women with breast cancer. I've been involved in looking at the immunological effects on healthy participants, and I specifically look at T-helper 1 and T-helper 2 shifts.

In addition to that, we're in the process of setting up a pilot study with the Fred Hutchinson Cancer Research Center using "our" mushroom and another one, *Hericium erinaceus*, also known as lion's mane, in people with Merkel cell carcinoma. We've seen some case studies that showed very promising results. Actually, I'm going to be submitting an NCI K-08 award with a mentor from the Hutchinson Center. If it's funded, we'll be looking at the specific chemical constituents of the two mushrooms and the cytotoxic and the immune-modulating effects of these mushrooms. If I get this award, it means I'll be transitioning from being a participant to being a major player in CAM research, which would be really exciting!

How does doing research on the mushrooms differ from doing "traditional" research on pharmaceuticals or chemicals?

Price: Natural products, which include the mushrooms and other botanicals, are very complex systems; they have many, many different constituents or components in them. Western science is done essentially by compartmentalization: let's take one component or one constituent and see what it does to the cell or to the receptor. With natural products research, you're looking at hundreds of constituents and their effects, and you can't control things as well as with Western science; you have to run a lot of additional controls. So another career goal for me is to work on improving the scientific models for looking at natural



Trametes versicolor, or turkey tail mushroom

"I think the health care consumer will drive medicine to be redefined in the next few decades to be more inclusive of these practices in this country."

products' effects because right now, I don't think the Western models fit our natural products research.

How has it been to merge these two worlds—Western science and natural products research?

Price: It's really opened my eyes to how much we need to understand each other. Like me, lots of practitioners, including many M.D.s and N.D.s—acupuncturists, nutritionists—believe that when you combine these effective therapies, you get a better health outcome that's more cost-effective, that's sustainable, and that's also culturally relevant.

I think the health care consumer will drive medicine to be redefined in the next few decades to be more inclusive of these practices in this country. In fact right now, 8 out of 10 have used some kind of alternative medicine along with conventional medicine.

To help foster this, I recently created an online publication called Sound Integrated Health News (www.soundintegratedhealth.com), and the objective is to promote integrated medical practices. The publication is directed at the lay public; we're trying to get health care consumers to be more literate

about integrated medicine. Its goal is to open doors by educating people.

Do you think NCCAM has also helped open these doors to bring this type of research more into the mainstream of NIH activities?

Price: Absolutely! When NCCAM was established, it gave immediate validity to CAM research. It removed the stigma from it, and more people started moving into CAM research. So the establishment of NCCAM allowed people and institutions to restructure, and I think we're going to continue to see really wonderful things come out of it.

What place do you see for M.D.s in CAM research?

Price: There's a great need for M.D.s and traditional researchers in CAM. In fact, our research department is made up of about 60 percent Ph.D.s, and the head of our pilot study with the Hutchinson Center is an M.D./Ph.D.

And if the goal is to provide the best outcome for your patients, I think it makes sense to consider looking at natural products. There's so much out there to explore.

NCCAM RESEARCHER PROFILE

Sharla Powell White, Ph.D.

Postdoctoral Research Fellow, Stanford University, Palo Alto, CA

Dr. White received her Ph.D. in pharmacognosy from the University of Illinois at Chicago. She's currently a postdoctoral fellow/scholar in the vascular surgery section of the Palo Alto Institute for Research and Education at Stanford University. She's studying the effects of ginseng and homocysteine regarding vascular dysfunction and restenosis through the eNOS system. She's also currently evaluating the molecular mechanisms of eNOS expression using protein and mRNA levels of eNOS.

Did you always want to go into research or did you ever consider clinical medicine or some combination of the two?

White: Research wasn't even on my radar originally; as an undergrad I was pretty sure I was going to do pre-med. But once there, I got into chemical engineering. When I finished, I thought there was no way in the world I'm going to grad school—but I really felt strongly about wanting to go into pharmaceuticals at that point. So I realized I needed to go back to grad school and ended up getting a Ph.D. I love science. I love math. I love problem solving. So research has been the best fit for me—until I have a problem I can't solve!

That happens a lot in research, doesn't it?

White: It does. But when you finally get those questions answered, it's the best feeling ever.

How did you first get interested in CAM research?

White: About the time I started looking to get into the pharmaceutical field, advertising for synthetic drugs exploded. It seemed like every other commercial on TV was selling some type of drug. I wanted to get into the pharmaceutical field, but I didn't want to necessarily contribute to that, so I started looking into the idea that plants could resolve issues, as opposed to creating and synthesizing these compounds that usually end up with multiple side effects that aren't beneficial to people. Black cohosh, for example, has been used for centuries by Native Americans to treat various female complaints, and I thought it was really interesting. I hadn't really given the homeopathic lifestyle much thought before this, but being part of the community that gives scientific support to



these types of treatments really appealed to me.

How did you pursue the path of CAM research?

White: I ended up going to University of Illinois at Chicago, and I joined their pharmacognosy program. My advisor, Dr. Judy L. Bolton, was a part of the UIC/NIH Center for Botanical Dietary Supplements Research, and I started working with her, looking at black cohosh and menopause. After I defended and completed my Ph.D., I knew I wanted to try to stay in the natural products area as much as possible, so I applied to NCCAM (a funder of the UIC Center I was working in) for a postdoctoral fellowship and was lucky enough to receive funding. Right now, I have a joint appointment: I'm a postdoc at Stanford University and work with my boss, Dr. Wei Zhou, at the V.A.

Hospital in Palo Alto. We're doing research on the molecular mechanisms and clinical applications of ginseng root for cardiovascular disease. More specifically, we're looking at how ginseng can help stop veins from re-narrowing after a stent has been put in.

Since you came from a more traditional Western science background, how did it feel to transition into the world of CAM research?

White: It felt like a natural fit. When you start talking to people who work in CAM, you find that most of them have the same type of pull to it. For some, it's because of the culture they were raised in, and it's nothing new, but for others who were doing chemistry or biology, something about CAM research makes sense with them on a subconscious level. You think, yeah, this is exactly what I can get behind.

What's the difference in doing research on things like ginseng or black cohosh, versus doing research on a traditional chemical-based pharmaceutical?

White: The methods are the same, but when you're looking at natural products, you usually are starting with the whole plant, not a specific compound. In that initial stage, you're trying to figure out which class of the compounds is actually active for this plant. When you have a chemical drug, you know what you're starting with and you're just looking at what it does, so it's usually a little bit quicker.

What does your ideal career look like?

White: I'd like to keep working in natural products research and playing a part in educating people about what complementary and alternative medicine actually is. Women's health research is really the best fit for me. I can relate to it; it's not some abstract field that I think, oh, I hope to make a difference. And though I don't teach, I do like working one-on-one with students. I'm doing that right now with a group called College Track in East Palo Alto. Their goal is to help Latino and African American stu-

dents get to college. I tutor in math and science, and I hope to continue doing things like that.

How much do you think NCCAM and its growth and evolution have helped to broaden the field of CAM research?

White: I think they have been very important. As a Federal Government agency, their funding and support lends validity to CAM research. And as time goes on, I can definitely see them having an increasing amount of influence in the field.

"I'd like to keep working in natural products research and playing a part in educating people about what complementary and alternative medicine actually is. Women's health research is really the best fit for me."



Ginseng root

A TRIBUTE TO NCCAM'S FOUNDING DIRECTOR, DR. STEPHEN E. STRAUS



Portrait of Dr. Stephen E. Straus (1947-2007)
by Andrew Lattimore, Artist

Dr. Straus built a comprehensive research enterprise, championing the efforts to establish the efficacy and safety of CAM practices while upholding the rigorous standards of science for which the NIH is known.

Dr. Stephen E. Straus served as the first Director of the National Center for Complementary and Alternative Medicine (NCCAM) at the National Institutes of Health (NIH) from 1999 to 2006. Dr. Straus was founding director of the National Center for Complementary and Alternative Medicine (NCCAM), where he dedicated himself to building a research enterprise focused on bringing scientific rigor to the study of complementary and alternative medical (CAM) practices. Under his leadership, CAM research at NIH grew threefold, facilitating his vision of an evidence-based integrative approach to health care for the benefit of the public. An internationally recognized scientist, Dr. Straus also held the position of senior investigator in the Laboratory of Clinical Investigation at the National Institute of Allergy and Infectious Diseases (NIAID). His bench-to-bedside research yielded original insights into the pathogenesis and management of several viral and immunological diseases.

We asked NIH colleagues of Dr. Straus to tell us the most notable accomplishment they feel his leadership brought to the NIH.



“Dr. Straus’ brilliance was matched only by his compassion. He personified the ideal physician-scientist; never losing sight of his patients, while searching unceasingly for answers. Steve inspired everyone who knew him. His contributions to biomedical research are legendary. Equally memorable, however, was his warmth, integrity, and wonderful sense of humor. Steve’s life was a gift that continues to enrich us all.”

**FRANCIS S. COLLINS, M.D., PH.D., DIRECTOR,
NATIONAL INSTITUTES OF HEALTH (NIH)**



“In addition to being an outstanding scientist and physician, Steve was one of the kindest and most compassionate clinicians I have known and served as a mentor for many young investigators who have become extraordinary physician scientists in their own right.”

ANTHONY S. FAUCI, M.D., DIRECTOR, NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES, NIH



“Steve was a visionary leader and first class scientist who championed efforts to establish the efficacy and safety of CAM practices, while upholding the rigorous standards of science for which the NIH is well known. He is dearly missed.”

JOHN RUFFIN, PH.D., DIRECTOR, NATIONAL INSTITUTE ON MINORITY HEALTH AND HEALTH DISPARITIES, NIH



“Steve Straus was a very energetic and innovative leader of the NCCAM. He was committed to assessing various forms of complementary and alternative treatments in a rigorous manner. His outstanding ability to interact with other NIH Directors and Institutes served him and the NCCAM community very well during the early years of NCCAM. We all miss him very much.”

STEPHEN I. KATZ, M.D., PH.D., DIRECTOR, NATIONAL INSTITUTE OF ARTHRITIS AND MUSCULOSKELETAL AND SKIN DISEASES, NIH



“Steve Straus brought an admirable dedicated leadership and clear vision to the study of complementary and alternative therapies. His dynamic and informed stewardship of NCCAM, based on his own career as a noteworthy physician and scientist, brought a new dimension of respect to the field. His personal bravery and sense of humor in confronting challenges made him a very special colleague.”

VIVIAN W. PINN, M.D., ASSOCIATE DIRECTOR, OFFICE OF RESEARCH ON WOMEN’S HEALTH, NIH



“Steve Straus had many outstanding qualities. He was remarkably bright, thoughtful, and generous with his time, always available to provide sage advice to student researchers and new investigators.”

YVONNE T. MADDOX, PH.D., DEPUTY DIRECTOR, NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT, NIH

The National Center for Complementary and Alternative Medicine’s mission is to explore complementary and alternative medical practices in the context of rigorous science, train CAM researchers, and disseminate authoritative information to the public and professionals. It is one of the 27 institutes and centers that make up the National Institutes of Health, a component of the U.S. Department of Health and Human Services. For additional information, call NCCAM’s Clearinghouse toll free at: 1.888.644.6226, or visit the NCCAM Web site at: <http://nccam.nih.gov>.





NATIONAL CENTER FOR COMPLEMENTARY
AND ALTERNATIVE MEDICINE

NATIONAL INSTITUTES OF HEALTH

U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES

**FROM THE JOURNAL FOR
MINORITY MEDICAL STUDENTS**