

A TRUE TALE

Throughout her years at medical school, JoAnn Manson, MD, DrPH, expected to become an academic endocrinologist. During her endocrinology fellowship, however, she grew increasingly distressed by the advanced state of disease she saw in her diabetic patients, including the high prevalence of cardiovascular risk factors and late stage complications. Dr. Manson became convinced that many of the lifestyle risk factors for diabetes and its cardiovascular complications were preventable.

As a result of that clinical fellowship, and deeply motivated by her mother's death from ovarian cancer, Dr. Manson became passionately interested in women's health and disease prevention. She felt that by pursuing medicine from a public health vantage point, she could make a difference in the lives of many people. She returned to school to develop her background and training in prevention and etiologic research, earning a doctorate in epidemiology from the Harvard School of Public Health.

Dr. Manson entered the field of public health by way of a National Research Service Award Training Grant, and then an Andrew Mellon Fellowship, which enabled her to conduct epidemiology research at the Brigham and Women's Hospital, a nonprofit teaching affiliate of Harvard Medical School. There she developed a research agenda, meeting her public health goals through research grants. At this point, her career in preventive medicine shifted into

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JoAnn E. Manson, MD, DrPH

high gear. She remained at Brigham and Women's Hospital, where she is currently the Chief of the Division of Preventive Medicine, the first woman to be named to that position. She is also a full professor of medicine at Harvard Medical School, and a board-certified



Research Epidemiologist Checkpoint

Are you willing to spend a great deal of time, perhaps years, working toward a single goal?

Does doing data analysis and interpreting study results appeal to you?

Do you enjoy writing papers and are you willing to write grants?

If so, read on



Did you know?

A weight loss of 5 to 10 pounds can lower the risk of developing type 2 diabetes.¹

internist and endocrinologist. Her work advances management of disease through individual research and scholarly pursuits, and in her academic roles she trains future public health practitioners to meet the complex challenges of the 21st Century.

Profiling the job

While once focused almost entirely on infectious diseases, most epidemiologic research focuses more recently on preventing chronic diseases. Improved prevention and treatment strategies are made possible as a particular disease's risk factors and determinants are better understood. For Dr. Manson, the intellectual and scientific challenge of public health epidemiology coupled with public service makes the field "extremely gratifying." Because her research subjects are human, results are directly applicable to human populations and immediately relevant to the field of public health.

Epidemiologic research tends to appeal to people with a strong background in mathematics and biology or medicine. Although a medical degree is not required, a background in biology is very helpful. A successful career generally requires training beyond the formal medical curriculum, although some physicians, pharmacists and nurses can do epidemiologic research without additional training. "I also have a doctorate in public health," Dr. Manson says, "and that has provided me with a stronger background in research methodology and biostatistics. Both medical and public health specialties are integral to sound epidemiologic research. They also provide an important perspective on the links between patient care and population-based public health." The field appeals to highly motivated individuals with an interest in public service, she adds.

The focus of Dr. Manson's research has been in the important and understudied area of women's health, particularly the roles of lifestyle factors, diet and hormone replacement therapy in the development of cardiovascular disease in women. "In the past, most clinical research — especially most randomized clinical trials — had been conducted among men," she notes. That is all changing now. Until the early '80s, few researchers were looking at the role of prevention, intervention, medications and the treatment of chronic diseases with an eye toward the particular physiologic and sociologic context of women in today's world. When attention was paid to women's health early on, Dr. Manson says, "it was nearly exclusively related to reproductive health."

Recognizing the strong need to provide population-based approaches to the care of women and to overcome the research gap that was compromising women's health care, Dr. Manson decided to dedicate her career to helping remedy this disparity. Fortunately, her timing for this work was just right. Dr. Manson found her feelings echoed by the NIH and elsewhere. Starting in 1986, the NIH began to steadfastly promote more woman-specific research, encouraging investigators to examine both genders whenever possible and analyze results separately by gender. In the few years since then, great strides

have been made in meeting the call for such specialized work and in developing strategies to better care for women's health needs throughout their lives.



In her quest for new data on women's health, often as a Principal Investigator, Dr. Manson has initiated and worked on several landmark studies that continue to influence the daily lives of millions of women throughout the world. Principal

Investigators (PIs) develop research proposals/protocols and bear primary responsibility for technical compliance, completion of programmatic work, fiscal stewardship of sponsor funds, data analyses and preparation of publications, and compliance with administrative requirements of a given project.

One of Dr. Manson's significant research efforts was her participation as a co-investigator on the Nurses' Health Study, an ongoing study since 1976. Widely considered the "grandmother of women's health studies," the Nurses' Health Study — so named because registered nurses were the participants selected for study — assesses the roles of dietary and lifestyle factors in the prevention of heart disease, stroke, breast cancer, diabetes and other major illnesses among 120,000 women currently aged 50 to 75. Dr. Manson is the Principal Investigator for the cardiovascular and diabetes components of the study. Her research concentrates not only on lifestyle factors but also on genetic and biochemical predictors of both heart disease and diabetes — predictors such as the inflammatory markers known as C-reactive protein,

and gene-environment interactions. She has discovered through her lifestyle-related research that brisk walking is as effective as vigorous exercise in lowering a woman's risk of heart attack.² This study drives innumerable public health and clinical approaches to the prevention of disease and care for women worldwide.

Dr. Manson is also a lead investigator of several randomized clinical trials, including the Women's Health Initiative, the largest study of women's health ever undertaken in the United States.

The initiative conducts ongoing work at 40 clinical centers around the country; Dr. Manson is Principal Investigator at Brigham and Women's Hospital's Vanguard Clinical Center, in Boston. This study addresses the balance of benefits and risks of hormone replacement therapy. Of the total of 164,000 postmenopausal U.S. women enrolled in the study, nearly 50,000 are asked either to adhere to a diet of no more than 20 percent of calories from fat daily or to continue their usual diet. Another goal is to assess hormone replacement therapy's potential for helping to prevent cardiovascular disease, colon cancer, osteoporosis and cognitive decline.



Dr. Manson also originated a third study. The Women's Antioxidant Cardiovascular Study (WACS) examines important antioxidants (vitamin E, vitamin C, beta-carotene) and the B-complex vitamins (folic acid, B6, B12) to determine their efficacy in preventing cardiovascular events in high-risk women with cardiovascular disease (CVD) or multiple CVD risk factors. As PI, Dr. Manson designed the study, secured funding, and recruited the study population. She then assembled a multidisciplinary team of cardiologists, nutritionists, epidemiologists and biostatisticians, conducted follow-up, obtained medical records for disease endpoints and maintained high levels of compliance by studying subjects undergoing the antioxidant treatment regimens. These studies all flowed from the early experiences of a young physician-fellow who viewed clinical conditions daily from the perspective of population-based epidemiology and public health.

Studies looking into genetic determinants have emerged as an important subspecialty within the field of epidemiological research. These studies have substantial clinical applications, including methods to identify those at increased risk and to replace defective genes. Such work requires a nearly continuous process of education. Dr. Manson says, “Newly trained epidemiologists are really just beginning their education. The nature of epidemiology is such that one’s entire professional life is a life of learning.”

A day in the life

While Dr. Manson is first and foremost a researcher, she also maintains a clinical practice, spending one day a week seeing endocrinology and primary care clinic patients — mostly female patients with health problems specific to women. It makes for a long day and a challenging schedule, she admits. But the direct contact with patients helps her stay current with the latest developments in clinical medicine and close to the roots of her career path. As a hospital division chief, she also handles administrative duties and teaching. “It can sometimes be difficult to set aside half my time for research, much as I’d like to,” she says.

Given the amount of juggling she does, it’s not surprising that Dr. Manson’s days are tremendously varied. She might start with an early-morning grant-planning meeting, and then join some of her team members, including epidemiologist colleagues, to analyze a database of biomarker predictors of a disease state under investigation. “As a researcher, I put in a lot of time doing data analysis and interpreting study results and planning out the next steps in framing research questions,” she says. She tries to save her afternoons for writing papers and grant proposals.

What Dr. Manson enjoys most, however, are teaching and mentoring — “meeting with students and junior faculty to discuss their research projects and trying, if possible, to guide some of their decision-making as they discover their own interests and passions and plan their futures.” The flip side of teaching is learning, and Dr. Manson attends seminars whenever possible to expand her knowledge and hone her skills in new areas. Recently, she has been especially interested in molecular genetics.

Dr. Manson is passionate about the subject of public health and continues to make time to teach at both the school of public health and the medical school. She also lectures as a guest in many courses and to community and women’s groups around the country.



“Epidemiology is rarely done by an individual alone. It is nearly always a collaborative effort.”

JoAnn Manson,
MD, DrPH

“Because much of our research impacts women’s health in general, I feel it’s important to speak to lay audiences as well as to fellow professionals,” she says. The audience feedback she receives after these sessions is almost uniformly positive. “As an epidemiologist, I feel I have an opportunity to expand women’s understanding of the key health issues affecting them, and this energizes me to stay the course.”

It’s a mission she takes as seriously as her teaching, research and clinical work. “I’ve been in speaking situations that went on for four to five hours and left me hoarse for a week,” she says. “But if I can make an impact on the health of one woman in the audience — if one case of breast cancer is diagnosed early, or one woman quits smoking or begins exercising — it’s time well spent.”

>>> career at a glance

JoAnn E. Manson, MD, DrPH

2001–Present	Professor Department of Epidemiology, Harvard School of Public Health
1999–Present	Chief Division of Preventive Medicine, Brigham and Women’s Hospital
1999–Present	Professor of Medicine Harvard Medical School
1996–Present	Physician Brigham and Women’s Hospital
1992–Present	Director Endocrinology, Co-Director of Women’s Health, Division of Preventive Medicine, Brigham and Women’s Hospital
1996–2001	Associate Professor of Epidemiology , Harvard School of Public Health
1994–1999	Associate Professor of Medicine Harvard Medical School
1989–1996	Associate Physician Brigham and Women’s Hospital
1991–1994	Assistant Professor of Medicine Harvard Medical School
1987–1989	Instructor in Preventive Medicine and Clinical Epidemiology Harvard Medical School

1 Personal Communication, Dr. JoAnn Manson, 6/20/02

2 <http://www.channing.harvard.edu/nhs/vol7.html#page1>