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Every Woman's Health in the New Millennium

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EDITORIAL

S. J. Giorgianni, PharmD
Editor-in-Chief

Women's Health: A New Perspective for the Future

This issue of *The Pfizer Journal*® is the third in our series on population-based medicine. In previous issues, the Journal has delved into the topics of health of elder-boomers ("Biomedical Innovation, Baby Boomers, and Aging," 1999) and men's health ("Men and Health," 1998). A future issue will be devoted to the health of adolescents.

A population-based approach to patient care is a relatively new concept, but one that makes a lot of sense. As with all new ideas in science, some of the hypotheses, data, perspectives and biases likely will not stand the test of time; others will endure. The population-based approach follows a natural evolution in health care models in the same way, for example, that the concept of disease management in the 1980s flowed from models of symptom/syndrome-specific care. Certainly, other models of care will evolve from the population-based approach. What is important is that care models are being created that help people—patients and potential patients, caregivers, and policy makers—focus on ways to provide patient-specific, contextually appropriate, compassionate care in scientifically accurate milieus. In a sense, then, what is new about population-based patient care has roots in what is old about all patient care—focusing on how to treat people based upon their unique personal needs.

Many important strides have been made since the early 1970s, when the concept of women's health care as a distinct approach to medicine began to be supported in the literature. While there is still a lot of work to be done, awareness of important issues in women's health and wellness are starting to achieve the attention they deserve. Lives have been saved and the quality of life for many women has improved because of the greater awareness among both the general public and practitioners about population-based studies and the need for early intervention in a way that is scientifically sound and meaningful to women. Still, much more learning and much more work need to be done.

In its April 2001 report, *Exploring the Biological Contributions to Human Health: Does Sex Matter?* the Institute of Medicine of the National Academy of Sciences concluded that sex—that is, a person's maleness or femaleness as determined by chromosomal makeup—is an important basic human variable that affects health and illness throughout the life span.

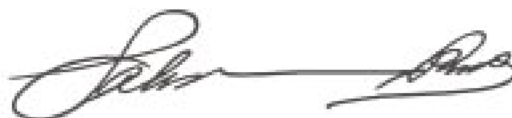
Mary-Lou Pardue, PhD, a professor of biology at the Massachusetts Institute of Technology, and the Chairman of the Institute of Medicine panel that issued the report, concludes that sex does indeed matter, in ways the panel did not expect. "Undoubtedly, it also matters in ways we have not yet begun to imagine," Dr Pardue said.

The report states that the study of sex differences is evolving into a mature science and that there is now sufficient knowledge of the biological basis of sex differences to validate the scientific study of these differences and to generate hypotheses. It goes on to say that the next step is to move from the descriptive to the experimental, and establish the conditions that must be in place to facilitate and encourage the scientific study of the mechanisms and origins of sex differences.

The learnings that have been successfully applied to managing diseases such as breast and ovarian cancer, and to social issues such as violence against women, now need to be extrapolated to other diseases and conditions that affect women's health and welfare.

Pfizer has been paying attention to women's health for a long time. Indeed, when Pfizer created its women's health division—Pfizer Women's Health—we became one of the first major broad-based pharmaceutical companies to take such a step. Pfizer Women's Health is committed to providing health care professionals and consumers with information and resources on how serious diseases and health issues affect women. The goal of Pfizer Women's Health is to partner with women and their health care professionals to improve diagnosis and treatment of serious conditions of women.

Raising awareness of the importance of viewing women's health through a population-specific lens is crucial if barriers to progress in everyone's health are to be overcome. This issue of *The Pfizer Journal*®, "Every Woman's Health in the New Millennium," represents our effort to increase knowledge in this vital subject.



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Every Woman's Health in the New Millennium

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Introduction

The Issues in Women's Health

At the dawn of the 21st century, a new way of thinking acknowledges that being male or being female has a unique, direct effect on an individual's health and well-being. The trend is one that recognizes that women's health is affected not only by women's reproductive capabilities but by other biological systems that may operate differently in women than in men. There is also a growing awareness that women's health needs to be viewed within the social, economic, and cultural contexts of women's lives.

"Research on women's health has grown, and there is a general appreciation within the scientific community funded by The National Institutes of Health about the importance of including women in clinical research and the importance of research to address gaps in knowledge about women's health," said Vivian W. Pinn, MD, Director, The Office of Research on Women's Health, NIH.

To discuss the evolution of women's health, *The Pfizer Journal*® brought together a group of experts and stakeholders—clinicians, research scientists, a physician overseeing content for Internet health sites, a political leader, a public health academician, and other experts—for a roundtable discussion, "Every Woman's Health in the New Millennium." The panelists examined issues relevant to women's health in the United States today and outlined approaches that may be effective in confronting those issues. They offered advice about ways to integrate what is known about women's biological systems with improved social systems as a means of achieving better health for women.

For Carol S. Weisman, PhD, Professor of Health Management and Policy, University of Michigan School of Public Health, access to quality health care for women is a crucial challenge facing our society. "It is naive to believe that new scientific discoveries easily get translated into services," she said. "We need to be thinking about ways to make appropriate services more accessible to women and to deliver those services in a way that works for women. We have to be asking questions like, 'What is the impact of different models of managed care for women in this country?' and 'What are new and innovative models for delivering high-quality services to women, such as primary care women's health centers?' We need to evaluate different models for health care delivery.' "

The connection between economic status and health is one with particular resonance for women, stated Nancy Fugate Woods, RN, PhD, Dean of the School of Nursing at the University of Washington, Seattle. "Typically in the United States, we avoid discussion of how class affects health and instead tend to focus on other risk factors for disease," she said. "In fact, many of the health problems that women experience can be directly tracked to lifestyles that are consequences of poverty."

Andrea Pennington, MD, Medical Director, Discovery Health.com and Discovery Health Channel, pointed out that the information revolution has helped educate women to take more control over their own health, but that it is now time to move beyond the education phase. "We are currently in a 'need to know' era in terms of health information, as more and more women—who are usually the ones charged with caring not only for their own health but also for their children's, their spouse's, and very often their parents'—seek out health information in ever-greater numbers. But tomorrow will bring the start of the 'need to act' era," she said. "Women need actionable instructions, whether in the form of community-based classes, easy-to-understand 'how-to' booklets, informative television programs, or health management modules on the Internet. While we provide them with

"Many of the health problems that women experience can be directly tracked to lifestyles that are consequences of poverty."

Dr Woods

health education, we must now further empower women to use that information to become active partners in their health maintenance and disease prevention. I personally look to do that as a physician through the media."

HEALTH CARE CHANGES AFFECT WOMEN'S HEALTH

Medicine in the U.S. is now undergoing three critical paradigm shifts, all of which are creating confusion for those who are engaged in both giving and receiving medical care. That's the opinion of Robert W. Rebar, MD, Associate Executive Director of the American Society for Reproductive Medicine. "First, we are attempting to shift from a system of medicine that is based on disease treatment to one based on prevention. We now recognize that health is not merely the absence of disease, it is really about well-being. We are also attempting to shift from a system of health care that is organ-based and disease-based to one that is more gender- and sex-based in its research and delivery systems. Third, there is an ongoing, dramatic shift in health insurance coverage. From a physician's point of view, initiatives in the future will have to address each of those three important shifts in the way that health care is provided in this country. I would also suggest that we need to educate both practicing physicians and those in training about these shifts, particularly emphasizing gender- and sex-based differences in disease processes."

Health care providers and policy-makers in both the corporate world and the private sector must take a closer look at the social and economic realities of working women, older women, and poor women today, noted Evelyn Murphy, PhD, Resident Scholar, Women's Studies Department, Brandeis University. "Women are working. We are also taking care of our families, taking care of our children and our elders. Time is a woman's most limited resource. To the extent that we want a woman to use wisely and well information and advice about taking care of her health and preventing illness, we have to be sensitive to her time constraints," she said. "In addition, the vast majority of working women do not feel that they can afford health care. In fact, that is becoming more true for everybody except the most wealthy. We can offer the most sophisticated services and products, but if women cannot afford them we clearly are not going to be able to use them."

Ruth B. Merkatz, RN, PhD, FAAN, Director/Team Leader, Pfizer Women's Health said, "If I had to define our mission today, it would be to help raise awareness of the serious health conditions that affect women and to encourage women and their health care providers to work together to take action. There must be a greater push in the 21st century for both consumers and health care providers to understand how sex and gender issues affect women's health, how diseases manifest in women, and to develop a scientific agenda around that."

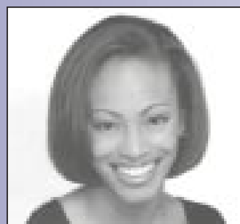
Dr Weisman

"We need to be thinking about ways to make appropriate services more accessible to women and to deliver those services in a way that works for women."

Vijaya L. Melnick, PhD, Professor and Senior Research Scholar, Department of Biological and Environmental Studies, University of the District of Columbia, spoke about the historical underrepresentation of women in clinical trials and how that has affected our understanding of how certain drugs work in men and women.

"Until the 1990s, the general assumption from a research perspective was that men and women were essentially the same, except for their reproductive biology," Dr Melnick said. "It was only after the NIH Revitalization Act of 1993—which required the NIH to ensure that women and minorities are fully represented in clinical trials, unless there were clear and convincing reasons not to include them—that changes began to take place. As a result of the Act, the budget at NIH for women's health programs increased and special initiatives were launched to study areas that are of special concern to women. But medicine is still in the early stages of learning about how gender differences affect health. I believe a great many new discoveries await us."

Donna J. Dean, PhD, Senior Advisor to the Acting


Dr Pennington

"We must now further empower women to become active partners in their health maintenance and disease prevention."

"Medicine is still in the early stages of learning about how gender differences affect health. I believe a great many new discoveries await us."

Dr Melnick

Director at the National Institutes of Health, spoke about the need to focus on early detection and prevention of disease. "A large part of our health sector is built around the medical model, as opposed to the prevention model," she said. "There is very little that any of us can do about our DNA and our protoplasm and our genes, but there is much we can do about our behavior. We have to get our colleagues in the health care and health policy fields enlisted in the prevention cause with rather a messianic zeal because over the next 20 years, as our population ages, our society is going to be faced with some very serious health challenges."

Elizabeth Ofili, MD, MPH, FACC, Chief of Cardiology and Professor of Medicine, Morehouse University School of Medicine, who practices in the inner city of Atlanta, stressed the importance of recognizing that a woman's race, ethnicity, and socioeconomic status can sometimes have a detrimental effect on the type of treatment she receives. "We in the health care professions must recognize that biases exist and must be overcome if women are to receive appropriate care."

An oft-repeated theme of the discussion was the health concerns of the growing population of aging women.

"We know that by the year 2030, there will be more than 90 million people older than age 65 in the United States, and most of them will be women," said Hugh R. K. Barber, MD, Emeritus Director, Obstetrics and Gynecology, Lenox Hill Hospital. "If women keep up the activism they have displayed over the past 50 years, then there are a lot of things that we as health care providers will need to have answers for. We must provide a way of giving them good health, but perhaps more important than just keeping them alive, we have to think of a quality of life for these older women."

Candace Pert, PhD, Research Professor, Department of Physiology and Biophysics, Georgetown University Medical Center, added that much of the new thinking she sees in medicine has to do with the growing awareness of the role that emotions play in human health. "We know that Western medicine has largely removed the spiritual aspect of human reality," she said. "In fact, the Western medical model may be the only model in the entire world where there is no place for spirituality. My passion is to integrate ancient wisdom with modern science. I like the term 'integrative medicine.' Maybe the physician in today's medical system spends only about eight minutes with a patient, but I envision a new system in which integrative health care professionals give patients a more global perspective. This is not a small matter. In 1997, $27 billion was spent on so-called 'alternative' medicine. That amount is growing, and it is probably an underestimate.

"We must provide a way of giving older women good health, but perhaps more important than just keeping them alive, we have to think of a quality of life for these women."

Dr Barber

Goal of Centers of Excellence: Improve Women's Health

In 1996, the U.S. Department of Health and Human Services created the National Centers of Excellence in Women's Health, which funds a wide array of projects at more than a dozen academic health centers around the country. The purpose of the Centers of Excellence is to establish and evaluate a new health care system that unites women's health research, medical training, clinical care, public health education, community outreach, and the promotion of women in academic medicine around a common mission—to improve the health status of diverse women across the life span. In addition to the funded centers, many other academic institutions are developing newer models of delivering care to women.

It's time we began to integrate the human dimension more widely into medicine."

For Denise Faustman, MD, PhD, Associate Professor of Medicine, Harvard Medical School, chronic disease is an aspect of women's health to which the medical community and society will have to start paying closer attention. "Rheumatoid arthritis alone carries a huge bill in the U.S. It is estimated that the direct and indirect costs of this disease add up to about $65 billion for half of all patients within five years of diagnosis," she pointed out. "Women in their prime don't die from arthritis, but they often become disabled. It is a huge problem, and 75% to 90% of those affected are women. We work a lot on developing different treatments, which are palliative and work only on inflammation, not at stopping the disease. It sometimes seems that we don't pay enough attention to arthritis and other autoimmune diseases. It may not be fashionable to talk about a woman who cannot walk without pain or who loses her job because of arthritis. Arthritis is a progressive, chronic disease, but since it does not kill, it is not a disease that often gets a lot of attention."

Dr Pert

"It's time we began to integrate the human dimension more widely into medicine."

In the next chapters, *The Pfizer Journal®* will explore some of the issues most relevant to women's health today. Included are discussions of the major diseases that affect women, what it is like to be a female patient, and how culture acts upon women's health. The panelists also offer their views on how changes can be made in the future to have a positive impact on women's health.

How Sex and Gender May Affect Women's Health

Many studies conducted in recent years suggest that men and women respond to certain substances differently. For example,

- Women wake up from anesthesia faster than men—an average of seven minutes for women versus 11 minutes for men.[1]
- Certain types of painkillers, kappa opiates, are more effective in providing postoperative pain relief in women than in men receiving the same treatment.[2]
- A higher percentage of women than men develop the life-threatening ventricular arrhythmia torsades de pointes after taking certain drugs.[3]
- A liver enzyme, CYP3A4, is responsible for metabolizing more than 50% of pharmaceutical drugs. This enzyme is more active in women than in men, which may lead to differences in effectiveness and/or adverse reactions.[4]
- Women have more difficulty quitting smoking than do men, and nicotine replacement therapy is less effective in women than in men. Women may be more responsive than men to nonnicotine stimuli associated with smoking, such as social and behavioral cues.[5]
- Women who smoke are more likely to develop chronic obstructive pulmonary disease (COPD) than men and are more likely to have symptoms of COPD at lower levels of tobacco smoke exposure.[6]
- When women smoke and drink alcohol, the nicotine appears to enhance the effects of alcohol. In men, the nicotine appears to dilute some of the sedating and intoxicating effects of alcohol.[7]
- The results of a study on the relationships among socioeconomic status, family history of alcohol disorders, and alcohol dependence show that socioeconomic status is a prominent predictor of alcohol dependence among men, while family history of alcohol disorders is a stronger predictor among women.[8]
- Women typically begin abusing substances later than men, are strongly influenced by peers to use substances, report different reasons for maintaining the use of substances, and enter treatment earlier in the course of their illnesses than do their male counterparts. Substance-abusing women also typically have a higher prevalence of psychiatric disorders such as depression and anxiety than do substance-abusing men.[9]

Chapter 1

The Goal: Well-Being, Not Absence of Disease

The National Academy on Women's Health Medical Education in 1994 defined women's health as an aspect of medicine devoted to facilitating the preservation of wellness and prevention of illness. It includes screening, diagnosis, and management of conditions that are unique to women, are more common or more serious in women, or have manifestations, risk factors, or interventions that are different in women.

To provide appropriate health services to women and to develop approaches for preventing or delaying the onset of diseases and disabilities, an awareness is needed of women's health across the life span.

RAISING AWARENESS OF THE IMPORTANCE OF WOMEN'S HEALTH ACROSS THE LIFE SPAN

Key Issues for Life Stages

Adolescence. Adolescent girls tend to have lower self-esteem and more negative assessments of their physical characteristics and intellectual abilities than do boys. A study conducted by Ann Kearney-Cooke, PhD, Director of the Cincinnati Psychotherapy Institute and a Distinguished Scholar for the Partnership for Women's Health at Columbia University, suggests that girls with low self-esteem engage more often in risky behaviors that could damage their health, such as unhealthy eating, drinking to excess, and smoking. These findings may explain in part why the incidence of suicide attempts, depression, and eating disorders is substantially higher in girls than in boys.[10]

Dr Cooke has found that girls with healthy self-esteem exhibit four types of behaviors:

- They set personal goals
- They are able to establish and maintain good relationships
- They can regulate their emotions
- They have a positive body image and can easily integrate the physiological changes of puberty.

In an online survey conducted by Dr Cooke in conjunction with *Seventeen* magazine,[11] half of the 4000 responders aged 14 to 18 seemed to have low self-esteem, for they said they would consider breast surgery (including breast augmentation), liposuction, and a tummy tuck. Fully half said that they were dissatisfied with their weight and shape. One in three girls reported that they overate, and that they couldn't control what they ate. The onset of binge-eating behaviors was around 12 years of age, a time when the girls described themselves as beginning to feel lonely, bored, depressed, and angry.

The survey also found that 65% of the girls were tired, stressed, and burned out from homework and parental pressure to achieve.

"Until the middle-school years, adolescent boys and girls are pretty similar when it comes to certain indicators like self-esteem and depression," Dr Cooke said. "But once they get out of middle school, girls' rates of depression and eating disorders are way up, their self-esteem is down, and they report a lot more dissatisfaction with their appearance. For example, many girls this age go on diets. (See Figure 1.) The question for those of us who work in the field is, 'What is going on during those years that causes these changes?' " Dr Cooke, together with Columbia's Partnership for Women's Health, has created an intervention program called Helping Girls Become Strong Women as a way of preventing some of these unhealthful behaviors from developing. The program is organized around the idea that self-esteem is built upon success. Girls are taught skills to successfully handle the developmental demands of

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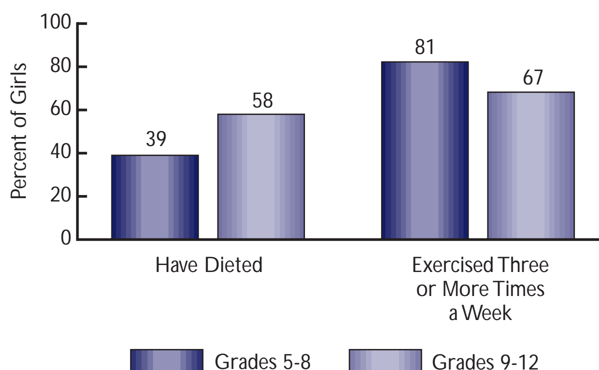
Two out of five women have experienced at least one type of abuse or violence in their lifetime.

adolescence. In addition, girls and their mothers participate in a one-day symposium where they learn how to develop a positive body image, to set goals in their lives, to develop healthy relationships and to regulate their emotions.

Figure 1. Girls Diet More and Exercise Less as They Mature



Source: *The Commonwealth Fund 1997 Survey of the Health of Adolescent Girls.*

Reproductive Years. Childbearing and infertility emerge as concerns in the 25- to 44-year-old group because of a trend toward later childbearing among women in the U.S.—more women now have their first babies after age 25. In 1996, 65% of women aged 20 to 24 had never given birth, compared with 44% of those aged 25 to 29 and 26% aged 30 to 34.[12]

"With more and more women in the workforce delaying marriage, the demographics of American families have changed," Dr Rebar said. "More women are having children later in life than ever before, so infertility resulting from advanced maternal age has become an increasing problem for a segment of our society as well."

Other health concerns or causes of death for women aged 25 to 44 include cancer, accidents, heart disease, HIV/AIDS, and violence.[12] Through 1996, the Centers for Disease Control and Prevention (CDC) reported that HIV infection was the third-leading killer of all women 25 to 44, the fifth leading cause of death for Caucasian women, and the leading cause of death for African American women in this age group.[13] Most women contract HIV through heterosexual contact rather than by injecting drugs, as is commonly believed.

"The reproductive years, particularly during periods of pregnancy planning, are an ideal time for women to make important changes that can promote better health," said Dr Merkatz.

The Middle Years. Today, there are about 30 million women in the U.S. between the ages of 45 and 64.[14] Based on current life expectancies, women will spend one-third of their lives in postreproductive menopausal years. During these years, women begin to encounter a number of serious health issues. For example, breast cancer risk increases with age, with women aged 50 and older accounting for 77% of newly diagnosed cases.[15] In addition, about 70% of all cervical cancer deaths occur among women aged 50 and older.[16] Half of women over age 50 will have an osteoporosis-related fracture in their lifetimes.[17] It is estimated that 33.5% of women aged 45 to 64 have arthritis. By age 65, 55% suffer from this disease.[18] One in nine women aged 45 to 64 has some form of heart disease; one in three women aged 65 and older has heart disease.[19]

Perimenopause and Menopause. Perimenopause, which is estimated to last about four years, begins for most women in the U.S. at about age 47.[20] For many women, perimenopause is a time in which either symptoms of menopause or concerns about preventing osteoporosis or heart disease bring them into contact with health care providers.

Dr Woods observed, "There is an interesting poll that the North American Menopause Society[21] helped to conduct that provides pretty clear evidence that the majority of women change some element of their health-related behavior, such as quitting smoking, during midlife."

The average age of menopause for women in the U.S. is approximately 51.[20] Menopause is a time when women may begin to use hormonal or nonhormonal therapies. In *The Commonwealth Fund 1998 Survey of Women's Health*, about 34% of women 50 and older said they were using hormone replacement therapy (HRT), compared with 23% in 1993.[22] Only one-third of women aged 50 and over reported that their providers had discussed HRT with them during the past year.[22] The use of HRT was heavily concentrated among higher-income and more-educated women. Physician counseling and recommendations had a strong impact on women's decision to begin HRT. The use of HRT varies by race: African Americans were the least likely to use HRT, compared with Hispanic or white women, who were the most likely to use this therapy.[22]

To help health care providers and health plans provide comprehensive counseling to women about managing menopause, the Washington, DC–based Jacobs Institute of Women's Health has recently published *Guidelines for Counseling Women on the Management of Menopause*. The guidelines are designed for use in conjunction with the

"I do not know if the public truly understands that prevention needs to start very early in a woman's life."

Dr Dean

National Committee for Quality Assurance's HEDIS (Health Plan Employer Data and Information Set) Management of Menopause measure. The HEDIS menopause measure was developed to determine whether health plans and/or their clinicians provide adequate counseling to their patients about menopause. Counseling is specially important in relation to osteoporosis because bone loss is most rapid in the first few years after menopause.[23]

"The goal of the guidelines is to help women make decisions that are best for them, given their own health history, family health history, and personal preferences and concerns. Because our knowledge base in this area is changing daily, women's need for information is understandable," said Dr Weisman, who co-chaired the expert panel that developed the HEDIS menopause guidelines.

The Older Years. The first baby boomers (born between 1946 and 1964) will become elder boomers and reach age 65 by 2011. The percentage of the female population older than 65 in the U.S. will be nearly 22% by 2030.[24] These trends mean that the health concerns of older women, including their chronic conditions and disabilities, will be more prevalent and will demand more attention from health care providers. Older women have consistently been found to have higher rates of disability than men of the same age. This difference does not result from women developing disability more often than men, but rather surviving longer with their disabilities.[25]

Leading chronic conditions among women aged 65 and older are arthritis, osteoporosis, and cardiovascular disease, including high blood pressure. In 1998, cancer was the leading cause of death among women aged 65 to 74, and heart disease was the biggest killer for women older than age 75.[12] Osteoporosis affects 28 million Americans, 80% of whom are women.[23]

"I believe the 21st century will soon be thought of as the Century of the Older Woman," Dr Barber said. "However, the gains in mortality will be offset by increased morbidity. Women have two to four more physical or psychological complaints than men; most women I see in my practice are on four to six drugs. Yet the most pressing problems for the elderly woman are retaining independence, while at the same time continuing to be connected to family and community life as a way of staving off loneliness."

CERTAIN IMPEDIMENTS TO ACHIEVING WELLNESS FOR WOMEN

Inadequate Preventive Care. The panelists agreed on the importance of prevention in keeping women healthy; they also agreed that women, for various reasons, often do not get the preventive care they need.

"I do not know if the public truly understands that prevention needs to start very early in a woman's life," said Dr Dean. "Osteoporosis is a good example. It is really a disease for which preventive steps need to start in childhood. If we started good health care practices at that age, we probably would not have as big a problem at the other end of the age spectrum."

"There is a big emphasis today on what is called 'compression of morbidity,'" noted Dr Woods. "It is the idea that people might remain healthy for the major portion of their lives, experiencing illness only toward the very end of life. However, without the support of governments—federal, state, and local—preventive measures that might help drive that goal are hard to achieve."

Dr Weisman said that the fragmented nature of the health care delivery system undermines the ability of many women to get preventive care. "Women see multiple providers for primary care: Ob/Gyns, family practitioners, general internists, advanced practice nurses, and others," said Dr Weisman. "*The Commonwealth Fund 1998 Survey of Women's Health* found that 37% of adult women see two doctors routinely for their health care—an Ob/Gyn for reproductive services and a generalist physician. The care provided by these two doctors is not necessarily coordinated. And how much time and effort should women be spending on getting health care? In many communities, different services are located in different places: women go one place for a regular checkup and another place for a mammogram. Scheduling can be a problem too. For example, imaging facilities can be so overloaded that there is often a long wait for screening mammograms—up to nine months where I live. This makes it almost impossible to get annual mammograms

if you are in the age group for which this is recommended. The burden on women to access and coordinate their care is likely to worsen as women age and develop multiple chronic conditions that need to be managed."

The business of being healthy takes a lot of work, and that's work that gets imposed on an already overworked population. "The simple act of accessing services can be very, very difficult for a lot of women because we have so many other obligations," Dr Woods said. "In addition, women may be penalized for taking time off to be screened or treated. I think it does affect health ultimately. I was a co-investigator for a study in which we kept hearing repeatedly that women's decisions about which therapeutic path to take for breast cancer were influenced by how much work they had to miss. If a woman opted for radiation, she might have to miss a day of work fairly often, whereas if she chose chemotherapy, she might still have to miss work, but maybe not as often. The many demands on a woman's life hold a lot of sway when it comes to making really important health decisions for herself."

To Dr Murphy, the time crunch is one of the essential limiting factors faced by women in their attempt to obtain adequate preventive care. "We go to doctors' offices, clinics, hospitals. Once we have gotten the prescription, we go to the pharmacy. And then when we've gotten the approval to get a mammogram, we go there. We go everywhere. But until we learn how to match services with the time constraints of the working woman, we cannot expect her to take even the most simple precautionary measures, much less the more time-consuming ones, because it jeopardizes her job. Her job may already be in jeopardy if she is taking personal time off due to illness. Then, she is nervous as well as ill. And, of course, anxiety cannot be good for her health."

Despite national attention on the importance of increasing preventive health care for women, preventive screening rates have improved little since the early 1990s and are also widely disparate in terms of income, education level, and race and ethnicity.

For example, in 1998, only one-half to two-thirds of women had received preventive care in the past year: 61% received a physical exam, 64% received a Pap test, 66%

Prevention Report Card

In a first-of-its-kind report assessing health care policies that affect women's health, the National Women's Law Center announced in August 2000 that there is too great a focus in the U.S. on illness rather than on health. The report, *Making the Grade on Women's Health: A National and State-by-State Report Card*,[26] looked at the overall health of women at the state and national levels by exploring 32 health-status indicators and 32 health-policy indicators. Not a single state received a grade of "satisfactory." The report card is designed to provide public health leaders and researchers with a common set of parameters on women's health. Marcia Greenberger, Co-President, National Women's Law Center, said, "We need to improve women's access to health insurance and health care services, place a stronger emphasis on, and invest in, more research. National and state policymakers have a compelling mandate to act quickly to develop and implement policies that will measurably improve the health and well-being of women."

Conclusions reached by "Making the Grade on Women's Health" included:

- Too many women lack health insurance coverage, and many have inadequate coverage. Nationally, nearly one in seven (14%) does not have health insurance.
- The states and the nation have not done enough to address many women's lack of access to health care and to health care providers.
- The states and the nation have not focused enough attention on preventive measures, such as smoking cessation, nutrition, physical activity, and screening for diseases and conditions.
- More research into women's health, better data collection and data systems, and a greater focus on emerging issues affecting women's health and well being are needed.

"I think one of the implications of the report card, is that it shows we need better data on women's health status and access to services," Dr Weisman said. "The data are limited in what is covered, what is broken out by gender, and what is broken out by race and ethnicity. To monitor women's health status, we need a national effort to ensure that key indicators are collected and reported by the states."

received a clinical breast exam, and 55% received a blood cholesterol test.[22] Those rates were virtually the same as those in 1993. One positive sign was that mammography rates for women aged 50 and older did improve, from 61% in 1994 to 69% in 1998.[27]

Health Disparities. One of the goals of The U.S. Department of Health and Human Services report *Healthy People 2010: Understanding and Improving Health* is to eliminate health disparities among different segments of the U.S. population. These include differences that occur by gender, race or ethnicity, education or income, disability, residence in rural localities, or sexual orientation. The report states that income inequality in the U.S. has increased over the past three decades, with distinct demographic differences in poverty by race, ethnicity, and household composition as well as geographical variations in poverty across the U.S. "Recent health gains for the U.S. population as a whole appear to reflect achievements among the higher socioeconomic groups; lower socioeconomic groups continue to lag behind," the report states.

Poverty has a detrimental effect on health. When comparing women's health across income groups, the lower a woman's family income, generally, the greater her risk for physical and mental health problems. Among working-age women, those with family incomes in the bottom half of the income distribution are significantly more likely than higher-income women to have a chronic health condition or disability (eg, hypertension, heart disease, diabetes) or to be diagnosed with depression and anxiety.[22]

"I honestly think that when it comes to providing health care for poor women, we did a better job 25 years ago than we do today," said Dr Rebar. "I have not seen much improvement with regard to the overall health of poor women in the nearly three decades I have been practicing medicine."

> "Until we learn how to match services with the time constraints of the working woman, we cannot expect her to take even the most simple precautionary measures, much less the time-consuming ones, because it jeopardizes her job."

Dr Murphy

Because more women than men are poor, they often must keep on working, even when they are suffering ill health, Dr Murphy observed. "Retirement is often not an option that can be easily achieved for a lot of women anymore; many women believe they will have to work the rest of their lives. This is a very serious problem coming at us."

Caregiving Responsibilities. Some estimates are that there are 25 million family caregivers in the U.S. and that the value of unpaid caregiving is about 19% of total health care expenditures, or $196 billion.[28] Women continue to provide the majority of informal caregiving at the same time that most of them also work outside the home. About 9% of American women—more than 9 million women—and 4% of men are caring for a child, spouse, parent, or other relative who is sick or disabled.[29] This number is expected to rise as baby boomers age. The U.S. Census Bureau reports that by 2020, the number of people older than age 80 will rise by 50%. This will lead to a drastic increase in the number of people living with chronic conditions who need long-term care. Although caregiving cuts across all ages and demographic groups, lower-income caregivers are less likely to have a break from their caregiving responsibilities. The rates of caregivers are highest among women aged 45 to 64.[28]

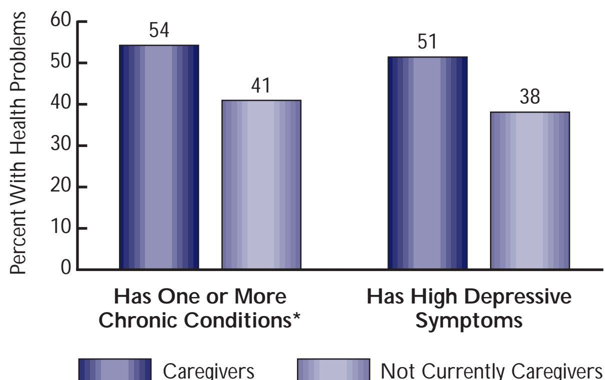
The demands on caregivers often have an effect on their ability to work outside the home. A 1997 National Alliance for Caregiving/American Association of Retired Persons survey found that about one-fifth of caregivers changed their work status while caregiving, 7% switched from full-time to part-time employment, 11% took a leave of absence, and 6.4% gave up work altogether.[30] These moves can have an effect on Social Security benefits, pensions, and health insurance coverage.

Overall, female caregivers themselves are often in need of care: they report relatively high rates of poor health, chronic conditions, and depression. (See Figure 2.)

"Population-based studies of women over the past 20 years have shown that fatigue levels are very high," said Dr Woods. "I have data on three different populations of women, of different ages, that suggest that the most common symptom women experience across all those populations is fatigue. It lines up pretty closely with the number of obligations women have. It is not just employment; it is also the parent care or in-law care women are providing, especially midlife women, who may be parenting their own children while also taking care of elderly family members."

Violence. Violence and abuse rates during women's

Figure 2. Women Who Are Caregivers Are More Likely to Have Health Problems



* Defined as hypertension, heart disease/attack, cancer, diabetes, or arthritis diagnosed by a doctor in the last five years.

Source: *The Commonwealth Fund 1998 Survey of Women's Health.*

One quarter (25%) of women caring for a family member who is sick or disabled say their own health is fair or poor, compared with one-sixth (17%) of other women. More than half (54%) of female caregivers have one or more chronic health conditions, compared with two-fifths (41%) of other women. In addition, half (51%) of all female caregivers are depressed compared with other women (38%).

lifetimes are high and have long-term health effects. According to *The Commonwealth Fund 1998 Survey of Women's Health*, two out of five women have experienced at least one type of abuse or violence in their lifetime. Those who had any history of violence or abuse were at notably higher risk for physical and mental health problems. Domestic abuse seems to be the most prevalent, with one-third (31%) of all adult women reporting that they have been kicked, hit or punched, choked, or otherwise physically abused by a spouse or partner. Women who were abused as children are generally thought to be at greater risk for adult abuse than the overall population. The survey found that nearly two-thirds (62%) of women reporting childhood abuse had experienced domestic violence as adults, compared with only one quarter (25%) of women without a history of childhood abuse. Abuse cuts across the economic spectrum and across physical boundaries, occurring in cities, suburbs, and rural areas. Overall, nearly half of women with incomes of less than $16,000 and about one-third of women with incomes greater than $50,000 reported at least one incident of violence or abuse.

"Because violence against women takes place largely at home, it has a particularly insidious character and effect. Women are seven times more likely than men to experience violence committed by someone close to them: a lover, a spouse, or an ex-lover. This corruption of trust and intimacy means that primary relationships are disrupted throughout the household and that a vicious cycle is set in motion—one that is at risk of being perpetuated by the next generation," Lisa Mellman, MD, Associate Clinical Professor, Columbia University, wrote in *Scientific American*.[31]

Violence and abuse are linked to poorer health in women. Half the women in the Commonwealth survey who had suffered any type of abuse showed high levels of depressive symptoms, compared with one-third of women who had not experienced violence. (See Figure 3.) Experience with violence may also lead to behaviors that could put health at risk: women who had been exposed to violence or abuse were twice as likely as other women to smoke (32% vs. 16%) and nearly 40% more likely to drink (22% vs. 16%).[22]

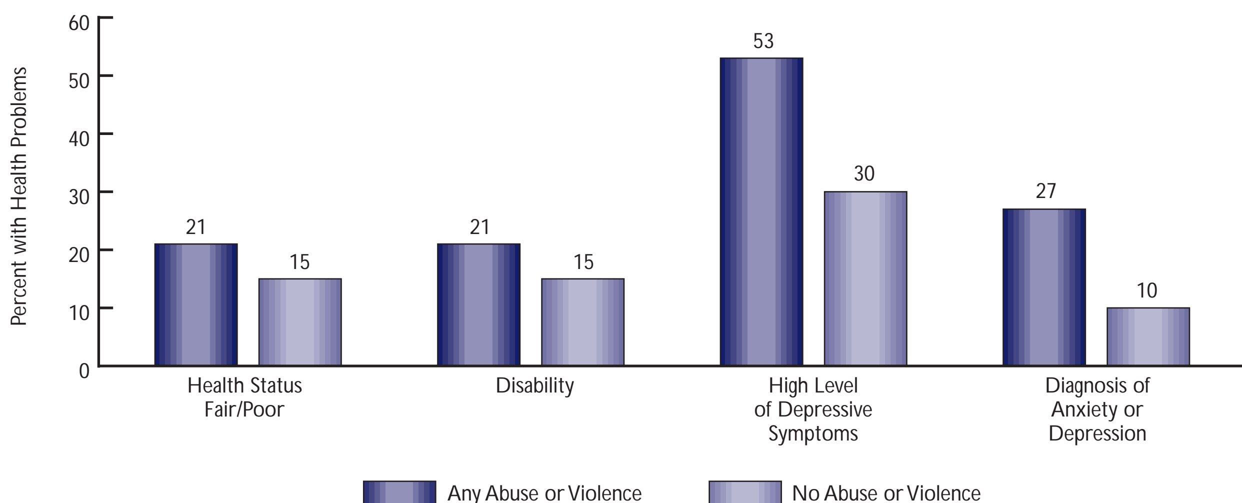
Sexual or physical abuse is also prevalent among adolescents. One in five adolescent girls (21%) reports that she has been physically or sexually abused.[32] Most abuse occurs at home, and the abuser is usually a family member; the abuse usually occurs more than once. Nearly 8% of high school girls say they have been forced to have sex against their will.[32] Abused adolescent or older girls often exhibit depression, experience a decline in self-confidence, entertain thoughts of suicide, and have poor mental health.

"If you take a look at the biggest users of health care systems, the victims of violence are much more apt to use health care facilities and have a number of health complaints than others who do not experience violence," said Dr Rebar. "The results of forced intercourse are often unintended pregnancies, sexually transmitted diseases, and an increased usage of health care because there are increased numbers of chronic complaints among those individuals. Health care providers need to be made more aware of the extent of sexual abuse and how to be on the lookout for it because many times the victims themselves will not talk about it."

Rape. The panelists felt strongly that rape of women in the U.S. is an underrecognized public health issue.

The National Women's Study, a longitudinal survey of a large national probability sample of 4008 women aged 18 and older conducted by the National Victim Center and the Crime Victims Research and Treatment Center,[33] suggests that at least 12.1 million women in the U.S. have been victims of forcible rape sometime during their lives. The study indicated that approximately 683,000 adult American women were raped during a

Figure 3. Violence and Abuse Are Linked to Poorer Health for Women



* Includes assault, battery, or rape by a spouse or partner, or physical/sexual assault or rape by anyone else, or physical or sexual abuse that occurred in childhood.
Source: *The Commonwealth Fund 1998 Survey of Women's Health.*

12-month period. This number does not include all rapes in a one-year period, since rapes of female children and adolescents under the age of 18 were not included in the study. It is estimated that 60% of all rapes occur before the victim is 18. The study also suggests that 84% of rape victims do not report the offense to the police.

The study further confirmed that the mental and physical impact of rape can be severe. For example, 31% of all rape victims developed posttraumatic stress disorder (PTSD), a debilitating mental health disorder that can occur after a highly disturbing traumatic event such as military combat or violent crime. Victims of PTSD may experience flashback episodes, nightmares, sleep disturbances, and emotional numbness, as well as physical problems.[34] One recent study suggests that significantly elevated rates of hospitalization, suicide attempts, and alcohol abuse among those with the disorder impose a high financial and social cost on society.[35] Depression is often another consequence of rape: 30% of rape victims experience at least one major depressive episode and often manifest long-term health symptoms of chronic headaches, fatigue, sleep disturbances, recurrent nausea, decreased appetite, eating disorders, menstrual pain, sexual dysfunction, and suicide attempts.[23] Rape victims are also more likely to be substance abusers than nonvictims; for example, they are 5.3 times more likely to have used prescription drugs nonmedically (14.7% vs. 2.8%), 3.4 times more likely to have used marijuana (52.2% vs. 15.5%) and 6 times more likely to have used cocaine (15.5% vs. 2.6%). For most rape victims, the age at which the first rape occurred was younger than the age at which they first became intoxicated, or began using marijuana or cocaine.[32]

There is some evidence that the number of visits to doctors by rape victims increases in the year following the crime—one study found victims' physician visits increased 15% to 24% during the year of the crime, compared with a 2% change among nonvictims.[36]

Elder Abuse. As the elderly population grows, so may the occurrence of elder abuse. Between 1986 and 1996, the number of reported cases of elder abuse increased by 150%.[37] Many elderly women rely on others to help them with daily activities, and many experts feel that this increases the risk of abuse. Staying at home or needing a caregiver can leave them open to physical, sexual, or psychological abuse; neglect; or financial exploitation. In most cases the abuser is a family member, usually a spouse or adult child.[37]

"Elder abuse is a hidden problem," Dr Barber said. "The sad fact is that victims of elder abuse are older women with chronic illnesses or disabilities. A woman who is physically weak or mentally debilitated is probably not going to be able to resist abuse. Others who come into contact with the woman, such as doctors or other medical personnel, have to be on the lookout for signs of abuse."

In the next chapter, *The Pfizer Journal®* takes a gender-specific look at the diseases that affect women.

Chapter 2

The Major Diseases Affecting Women

MENTAL DISORDERS

Mental illnesses affect women and men in diverse ways—some disorders are simply more common in women, and others express themselves differently. (See Table 1.) Scientists are now trying to better understand mental illness in women by looking at the various biological and psychosocial factors that may contribute to the diseases.

Depression. In a study that examined sex differences in the rates of depressive illnesses in 10 countries, including the U.S., Canada, France, Italy, and Lebanon, women's rates of depression were higher than men's.[38]

It is estimated that in the U.S. nearly twice as many women (12%) as men (6.6%) are affected by a depressive disorder each year. These figures translate to 12.4 million women and 6.4 million men.[39] Depressive disorders include major depression, dysthymic disorder (a less severe but more chronic form of depression), and bipolar disorder (manic-depressive illness).

A depressive disorder raises the risk that someone will commit suicide. Men are four times more likely than women to die by suicide, although women report attempting suicide about two to three times as often as men.[40] Research has shown that more than 90% of people who kill themselves have depression or another diagnosable mental or substance abuse disorder.[40]

Why are women more prone to depression? Ellen Liebenluft, MD, Chief of the Unit on Rapid Cycling Bipolar Disorder at the National Institute of Mental Health, says there are no easy answers. In an article that appeared in *Scientific American* in 1998 titled "Why Are So Many Women Depressed?" Dr Liebenluft wrote that a variety of studies show that depression clearly has psychological, environmental, and biological roots: "Modern neuroscience is beginning to teach us how these roots can become intertwined and reinforce one another. In other words, an increased risk for depression in women might stem from genetics, the effects of stressful events or social pressures, or some combination of all three. . . . To figure out why depression is more common in women, scientists have to study how genetics and environment divide the sexes and how the two conspire to produce the symptoms we call depression."

Depression in Adolescent Girls. Along with physical, intellectual, and hormonal changes, adolescence is a time of identity formation, emerging sexuality, and separation from parents. Prepubescent boys are, if anything, more likely than girls to be depressed. But between 11 and 13, this trend is reversed. By age 15, girls are twice as likely to have gone through a major depressive episode as boys, and this gender gap persists for the next 35 to 40 years.[41] Studies suggest that female high school students have significantly higher rates of depression, anxiety disorders, eating disorders, and adjustment disorders than male students, who have higher rates of disruptive behavior disorders.[42] Studies on childhood adversities and gender roles have provided evidence that helps to explain why more girls are depressed than boys. The explanation is complex and multifaceted, but many experts believe that girls are more likely to experience and internalize negative events in the family than are boys; these adversities are, in turn, associated with elevated depression.[43] Girls also identify more strongly with a feminine stereotype of needing to appear thin and, consequently, become more dissatisfied with their body shape and physical appearance, which, in turn, is sometimes associated with depression.[43]

Depression in Adult Women. Some experts have said that the higher incidence of depression among women is due not simply to greater vulnerability but also to the stresses that many women face in their lives.

"Stress can contribute to the onset of depression, particularly in women," said Carolyn Mazure, PhD, Professor of Psychiatry and Director of Women's Health Research at Yale University School of Medicine. "Our research has

shown that although both women and men incur a risk for depression from adverse life events, stressful events pose a greater risk for depression among women because women are affected by more events than men. Whereas both men and women can become depressed in response to events that affect their immediate loved ones—such as the death of a spouse or child—women also become depressed about events that affect friends and other relatives. They may also become depressed by environmental events such as a change in living circumstances, physical attack, serious illness, or injury."

For both men and women, rates of major depression are highest among those separated or divorced and lowest among the married, while always remaining higher for women than for men. Lack of an intimate, confiding relationship as well as overt marital disputes have been shown to be related to depression in women.[42]

Depression Associated With Reproductive Events. The menstrual cycle, pregnancy, the postpartum period, infertility, and menopause, can bring about fluctuations in mood that for some women may trigger depression, anxiety, or other serious mental illness. Reproductive hormones have an effect on the brain chemistry that controls emotions and mood. Fluctuations in reproductive hormones may interactively affect neuroendocrine, neurotransmitter, and circadian systems.[44]

Many women experience certain behavioral and physical changes during the menstrual cycle. In premenstrual syndrome (PMS) or premenstrual dysphoric disorder (PMDD), these symptoms can be severe. The changes typically begin with ovulation and become gradually worse until menstruation starts. Scientists are exploring how the cyclical rise and fall of estrogen and other hormones affect the brain chemistry associated with depressive illness.

Depression in Later Life. As with younger age groups, more elderly women than men suffer from depressive illness. Widowhood may be a risk factor for depression. About 800,000 people a year are widowed, most of them older and female. Many experience varying degrees of depressive symptoms and about one-third meet the criteria for a major depressive episode in the first month after the death of the spouse. About half of these remain clinically depressed after one year.[42]

Anxiety Disorders. Anxiety disorders include panic disorder, obsessive-compulsive disorder (OCD), PTSD, phobias, and generalized anxiety disorder (GAD). The most common mental illnesses in the U.S., they affect an estimated 13.3% of Americans aged 18 to 54 in a given year, or about 19 million adults in this age group.[39] Women outnumber men in each illness category except for OCD and social phobia, which affects both sexes equally.[39]

Kimberly Yonkers, MD, Associate Professor, Department of Psychiatry, Yale University School of Medicine, feels that not enough is known about why women are so much more prone to mental disorders like GAD. "So little attention is devoted to the fact that anxiety disorders are between one-and-a-half and four times as prevalent in women as in men," she observed. "There is very little research going on, so we have no known pathophysiological explanations."

Results from a National Institutes of Mental Health survey suggested that the risk among women of developing PTSD following trauma is twice that of men.[39] PTSD is characterized by persistent symptoms of fear that occur after such events as rape or other criminal assault, war, child abuse, a natural disaster, or a serious accident. Nightmares, flashbacks, emotional numbness, depression, anger, irritability, and being easily startled are common. Women are more likely to develop long-term PTSD than men and to have higher rates of other medical and psychiatric problems.

Eating Disorders. Females make up the vast majority of those with an eating disorder, such as anorexia nervosa (self-starvation, an intense desire to be thin, repeated diet attempts, and excessive weight loss), binge-eating disorder (repeated episodes of uncontrolled eating) or bulimia (binge eating followed by self-induced vomiting and/or misuse of laxatives, diet pills, diuretics, excessive exercise, or fasting). It is estimated that .5% to 3.7% of females suffer from anorexia and about 1.1% to 4.2% from bulimia. An estimated 2% to 5% engage in binge eating in a 6-month period.[45] Eating disorders are treatable illnesses that often occur at the same time as depression, substance abuse, and anxiety disorders and cause serious physical health problems.[44]

Schizophrenia. Schizophrenia is the most chronic and disabling of the mental disorders, affecting about 1% of women and men worldwide. In the U.S., an estimated 2.2 million adults aged 18 and older, about half of them women, have schizophrenia.[45] The illness typically appears earlier in men, usually in their late teens or early 20s, than in women, who are generally affected in their 20s or 30s. Women may have more depressive symptoms, paranoia, and auditory hallucinations than men, but tend to respond better to antipsychotic medications. A significant proportion of women with schizophrenia experience increased symptoms during pregnancy and postpartum.[39]

Table 1

Depression: How Men and Women Differ

Parameters	Differences in women, compared with men
Lifetime prevalence rate	20% (10% in men)
Age of onset	May be earlier
Duration of episodes	May be longer
Course of illness	May more often be recurrent
Seasonal effect on mood	Greater
Association with stressful life events	More frequent
Atypical symptoms of depression (eg, hypersomnia, hyperphagia)	Experienced more often
Severity of depression	May be greater if self-rated by the patient
Feelings of guilt	May be experienced more often
Suicidal behavior	Suicide attempted more often
Association of anxiety disorders, especially panic and phobic symptoms	Greater
Association of eating disorders	Greater
Association of alcoholism and substance use disorder	Usually less
Association of thyroid disease	Greater
Association of migraine headaches	Greater
Association of antisocial, narcissistic, and obsessive-compulsive personalities	Less
Effect of exogenous and endogenous gonadal steroids on mood	Greater

Source: Bhatia SC, Bhatia SK. Depression in women: diagnostic and treatment considerations. *American Family Physician*, 1999.

OTHER CHRONIC DISEASES

Alzheimer's Disease. Although Alzheimer's disease is not usually included in the list of important women's health issues, it is largely a women's disease for two important reasons. Not only do more women than men have the disease, but women, in their roles as wives and daughters, also provide more care for others with the disease. The prevalence of Alzheimer's disease increases dramatically with age and is greatest among those aged 85 and older. Since women make up 72% of the U.S. population older than those aged 85, they are, therefore, the group most affected by the disease. By the year 2050, the number of people with Alzheimer's disease could more than double from about 4 million to 10 million, and 70% will be age 85 or older.[46] Although the symptoms and the course of the disease may be similar in both sexes, social and economic factors may produce a greater disease burden among women because women typically have more limited financial resources and more social disadvantages, ie, they are more often widowed or living alone. In addition, the chronic stress often associated with the caregiving role may contribute to mental health problems; caregivers are much more likely to suffer from depression than is the average person. Since women generally are at greater risk for depression than men, female caregivers of people with Alzheimer's disease may be particularly vulnerable to depression. A study of 1500 family caregivers from the 1996 *National Caregiver Survey* suggests that dementia care is different from other types of family caregiving: it involves more hours per week and has a greater impact in terms of employment complications, financial difficulties, caregiver strain, mental and physical health problems, time for leisure, and family conflict.[47]

Heart Disease. Although cardiovascular disease (CVD) is the number-one killer of American women—500,000 U.S. women die each year of diseases of the heart and blood vessels (see Table 2), compared with 259,000 who die of all cancers combined—most women are not fully aware of their risk.[48] A survey of 1000 white, African American, and Hispanic women aged 25 years and older showed that 61% of the participants identified cancer as the greatest health threat facing women, while only 8% said heart disease or stroke was their greatest health threat.[49] And, in a 1997 telephone survey of 1002 U.S. women that asked about their knowledge of heart disease risk, 74% rated themselves as fairly or very knowledgeable about women's health issues, yet 44% considered themselves somewhat or very unlikely to have a heart attack at some point in their lives. Fifty-eight percent believed that they were as likely or more likely to die of breast cancer than of coronary artery disease (CAD).[50] Why does this misperception exist?

The answer may be surprisingly simple: Many women do not know that heart disease is a serious health threat because their health care providers do not tend to focus on it. Recently, the Centers for Disease Control and Prevention National Ambulatory Medical Care Survey[51] showed clinicians are missing opportunities to prevent CVD. In this study of 29,273 routine office visits, women were counseled less often than men about exercise, nutrition, and weight reduction. In addition, many health care providers themselves are not aware of the risk of heart disease in women because, until about a decade ago, women were largely excluded from heart disease studies and valid epidemiological data on heart disease were lacking.

"Misdiagnosis and delayed diagnosis of heart disease in women are pervasive," said Nancy Loving, the cofounder of WomenHeart, a Washington, DC–based national patient advocacy organization for women with heart disease. "When a woman shows up in the emergency room with cardiac symptoms, there's a good chance she will be diagnosed with a gastrointestinal or psychiatric problem instead." Ms Loving said that women often receive suboptimal care after a heart attack. They are less likely to receive "clot buster" therapy, beta blockers, ACE inhibitors, or aspirin upon release from the hospital. Women are much less likely than men to be referred to cardiac rehabilitation and more likely than men to drop out of it.

Ms Loving, who suffered a heart attack herself at age 48, believes her own ignorance about the disease nearly killed her. "I was shocked by how little I knew about women and heart disease, and my own risk factors for it. In fact, I never knew that there were even such things as risk factors for heart disease."

In addition, she knew nothing about the symptoms of heart attacks in women. "When I experienced upper back pain, nausea, and lightheadedness, 'heart attack' was the last thing on my mind," she said. "I thought it was a bad case of the flu."

CVD is the leading cause of death among American women for all age groups, but increases dramatically after age 55.[52] Sex hormones, especially estrogen, are believed to shield younger women's hearts to some degree, by boosting levels of HDL, the so-called "good cholesterol," and keeping levels of LDL, the "bad cholesterol," relatively low. After menopause, however, when estrogen production begins to taper off, a woman's risk of developing CAD climbs steadily each year.[52]

"With millions of baby boomers starting to hit menopause, and tens of millions more about to enter menopause in the coming decade, all of these women will lose the cardioprotection of estrogen," said Dr Ofili. "It will not work to have a head-in-the-sand position on women and heart disease because, as a society, we are facing a significant public health issue."

Cancer. The rate of new cancer cases and deaths for all cancers combined declined between 1990 and 1997, according to *The Annual Report to the Nation on the Status of Cancer, 1973-1997*.[53] This trend reversed a pattern of increasing incidence rates from 1973 to 1992. Cancer mortality rates also declined .8% for the period 1990 to 1997.[53] The authors suggest that screening and advances in treatment have helped reduce cancer mortality.

Breast cancer is still the most common cancer among women, excluding nonmelanoma skin cancers. The American Cancer Society estimates that in 2001 about 192,200 new cases of invasive breast cancer (stages I-IV) will be diagnosed among women in the U.S.[54] Breast cancer incidence rates have shown little change in the 1990s, while breast cancer death rates have declined about 2% per year since 1990.[54]

Lung cancer, the second most commonly occurring cancer among women, is actually the most common cause of cancer-related death.[55] Although lung cancer death rates in men have dropped since 1990, they have continued to rise among women. Since 1987, more women have died from lung cancer than from breast cancer.[54]

In *Women and Smoking: a Report of the Surgeon General*, which was released in March 2001, smoking is

Major Risk Factors for Cardiovascular Disease in Women

Cigarette smoking, high blood pressure, high blood cholesterol, obesity, physical inactivity, poor nutrition, and diabetes are the major risk factors for cardiovascular diseases.

• **Smoking.** Among women in the U.S., smoking causes 1.5 times as many deaths from heart disease as from lung cancer.[56] A smoker is two to six times more likely to suffer a heart attack than a nonsmoker, and the risk increases with the number of cigarettes smoked per day. Smoking also raises the risk of stroke.[56]

• **Physical inactivity.** Physical inactivity increases the risk of heart disease, contributes directly to heart-related problems, and increases the chances of developing other risk factors, such as high blood pressure and diabetes. According to the *Surgeon General's Report on Physical Activity and Health*, physical inactivity is more common among women than men. Sixty percent of American women do not engage in the recommended amount of moderate daily physical activity, such as 30 minutes of brisk walking or 15 to 20 minutes of jogging, and more than 25% are not active at all.[57]

• **Poor nutrition.** Many researchers believe that a diet high in cholesterol and saturated fat and high blood cholesterol levels play a role in the development of coronary artery disease (CAD). The American Heart Association recommends that health care providers assess nutritional habits as part of a routine evaluation in all women.

• **Obesity.** Currently in the U.S., about one-third of adult women (34 million) are considered obese,[58] as defined by the body-mass index and the waist-hip ratio. Overweight women are three times more likely to develop heart-related problems, even with no other risk factors. Excess body weight in women is linked to CAD, stroke, congestive heart failure, and death from heart-related causes. Excess weight contributes not only to cardiovascular diseases but also to the onset of high blood pressure, high blood cholesterol, and diabetes.

• **High blood pressure.** Blood pressure is considered high when it stays above 140/90 mm Hg over a period of time. However, even pressures slightly lower than this can increase the risk of heart disease and stroke. About 52% of women older than 45 have this elevated blood pressure.[58] Many older Americans have a form of high blood pressure called "isolated systolic hypertension" (ISH). This occurs when the systolic pressure is high but the diastolic pressure is normal. If not controlled, this condition can also lead to heart attack and stroke.

• **High cholesterol.** Blood cholesterol levels among women in the U.S. tend to rise from about the age of 20.[56] They rise sharply beginning at about age 40 and continue to increase until about age 60.[56] The higher the blood cholesterol, the higher the risk of heart attacks. About one-quarter of U.S. women have blood cholesterol levels high enough to pose a serious risk of heart disease.[56]

• **Diabetes.** Diabetes is often called a woman's disease because, after age 45, about twice as many women as men develop the disease. Women with diabetes are also more liable to have high blood pressure and high cholesterol. Diabetes is associated with a threefold to sevenfold elevation in the incidence of heart disease among women, compared with a twofold to threefold elevation among men; this gender difference may be due to the particularly deleterious effect of diabetes on lipids and blood pressure in women.[58] Diabetes is the fourth leading cause of death among African American women and third among Hispanic women aged 45 to 74 and Native American women aged 65 to 74.[58]

clearly defined as a woman's issue.[59] The report summarizes what is now known about smoking among women, including patterns and trends in smoking habits, factors associated with starting to smoke and continuing to smoke, the consequences of smoking on women's health, and interventions for cessation and prevention. The report states, "smoking is the leading known cause of preventable death and disease among women." Among the conclusions of the surgeon general's report:

- Despite all that is known of the devastating health consequences of smoking, 22% of women smoked cigarettes in 1998.
- In 2000, 29.7% of high school senior girls reported having smoked within the past 30 days.
- Since 1980, approximately 3 million U.S. women have died prematurely from smoking-related neoplastic, cardiovascular, and respiratory diseases, as well as cigarette-caused burns.
- Exposure to environmental tobacco smoke is a cause of lung cancer and cardiovascular disease among women who are lifetime nonsmokers.
- Women who stop smoking greatly reduce their risk of dying prematurely.

The report *Healthy People 2010: Understanding and Improving Health* states: "It is estimated that as much as 50% or more of cancers can be prevented through smoking cessation and improved dietary habits, such as reducing fat consumption and increasing fruit and vegetable consumption." Physical activity and weight control also can contribute to cancer prevention. Data from randomized trials of cancer screening, together with expert opinions, indicate that adherence to screening recommendations for cancers of the breast, cervix, and colon/rectum reduces deaths from these cancers.

Autoimmune Diseases. The term "autoimmune disease" refers to a wide range of more than 80 serious, chronic illnesses that involve almost every human organ system. It includes diseases of the nervous, gastrointestinal, and endocrine systems, as well as skin and other connective tissues, eyes, blood, and blood vessels. In all of these diseases, the underlying problem is similar: the body's immune system becomes misdirected, attacking the very organs it is designed to protect.[61]

Women are disproportionately affected by autoimmune diseases (see Table 3), which tend to occur most often during childbearing years. While autoimmune diseases individually are not very common, when taken together they represent the fourth-largest cause of disability among women in the U.S. These diseases remain among the most poorly understood of any category of diseases. They are also hard to diagnose because their symptoms are often misleading.

"I believe there is a serious lapse in medicine when it comes to understanding the etiology and prevention of autoimmune diseases," said Dr Faustman. "The research

Table 2

Women, Heart Disease, and Stroke

- In 1997 in the U.S., all cardiovascular diseases combined claimed the lives of more than 502,938 women. In the same year, 450,172 men died from these diseases.
- Coronary artery disease (CAD) is the single largest killer of American women.
- From 1987 to 1997, the death rate for women declined 23.5% for CAD; 13.1% for stroke; and 17.5% for all cardiovascular diseases.
- The 1997 death rate for CAD was 14.6% higher for African American women than for white women, and the death rate for stroke among African American women was 31.4% higher than among white women.
- Studies show that female smokers who use oral contraceptives are more likely to have a heart attack and much more likely to have a stroke than are nonsmokers who use birth control pills. This risk increases with age and with heavy smoking (15 or more cigarettes per day), especially for smokers over the age of 35.[60]
- In 1997, heart attacks and other coronary events claimed the lives of 466,101 people; 228,769 (49.1%) of those were women.
- In 1997, stroke killed 97,227 women (60.8% of total deaths from stroke).
- More than one in five women have some form of heart or blood vessel disease.
- Forty-two percent of women who have heart attacks die within a year, compared with 24% of men.
- During the first six years after a heart attack, the rate of having a second attack is 33% for women compared with 21% for men.

Source: American Heart Association, 2000.

is extraordinarily expensive and long-term and not necessarily guaranteed. So the biggest developments in two major inflammatory diseases—pain and autoimmune diseases—are in the area of symptomatology. We treat inflammation because it is easier than trying to figure out why the inflammation got there in the first place. I'd like to see this change."

HIV/AIDs. By 1997, more than 98,000 cases of HIV/AIDS in adult and adolescent women were reported to the CDC, comprising over 15% of all reported cases, up from 9% in 1989.[13] The epidemic is hitting hardest among teenagers and young women: HIV/AIDS cases among teen women (ages 13 to 19) increased 18 times from 1989 to 1998.

In 1997, African American and Hispanic women made up 76% of HIV/AIDS cases among women (56% African American and 20% Hispanic) although they comprised only 23% of women in the U.S.[13]

The dramatic increase in HIV infection among women, especially young women, in the U.S. suggests that existing prevention strategies may not be adequately reaching women.[62]

Sexually Transmitted Diseases (STDs). The term "STD" denotes the more than 25 infectious organisms that are transmitted through sexual activity,[63] along with dozens of clinical syndromes that they cause. Some examples of STDs are HIV/AIDS, chlamydial infection, gonorrhea, syphilis, human papillomavirus infection, and genital herpes. STDs disproportionately affect women and teenagers.

Chlamydial infection is the most common bacterial STD in the U.S.—it is now estimated that there are three million new cases of chlamydial infection annually.[64] Forty-five million people are believed to be infected with genital herpes and 20 million with human papillomavirus.[64] A variety of women's health problems, including infertility and chronic pelvic pain, result from unrecognized or untreated STDs. Consequences of untreated STDs can be very serious in women and in their babies (stillbirth, blindness) and are sometimes fatal (cervical cancer, ectopic pregnancy, sepsis).

Teenage girls and young women are particularly susceptible to cervical infections, such as gonorrhea and chlamydial infection, because the cervix of female adolescents and young women is especially sensitive to infection by certain sexually transmitted organisms.[64] Chlamydial infection has been consistently high among adolescents: in some studies, up to 30% to 40% of sexually active adolescent girls have been infected.[64] Viral STDs, such as human papillomavirus infection, are also becoming more prevalent at younger ages as adolescents engage in sexual intercourse earlier. Cervical cancer rates are increasing among young women, probably due to increased exposure to STDs.

"In addition to the fact that girls and young women often don't have symptoms, they tend not to seek treatment," Dr Merkatz said. "There's often a stigma attached to STDs. Young women may be fearful or embarrassed about seeking health care even if they have symptoms or believe they have been exposed."

Being a female patient at the dawn of the 21st century, no matter what stage in the life cycle a woman is in, is different than it was even a decade earlier. For one thing, there must be a greater awareness on the part of both patient and provider of the need for taking sex and gender into consideration as a means of achieving the best health outcome. In the next chapter, *The Pfizer Journal®* looks at what it means to be a female patient today.

Table 3

Female/Male Ratios in the Most Common Autoimmune Diseases

DISEASE	RATIO
Hashimoto's disease	50:1
Systemic lupus erythematosus	9:1
Sjogren's disease	9:1
Antiphospholipid syndrome	9:1
Primary biliary cirrhosis	9:1
Mixed connective tissue disease	8:1
Chronic active hepatitis	8:1
Graves' disease	7:1
Type 1 diabetes	2:1
Rheumatoid arthritis	4:1
Scleroderma	3:1
Myasthenia gravis	2:1
Multiple sclerosis	2:1
Chronic idiopathic thrombocytopenic purpura	2:1

Source: The American Autoimmune Related Diseases Association, 1998.

Chapter 3

The Female Patient

"When I was an Ob/Gyn resident in the 1970s at Parkland Hospital, an inner-city hospital in Dallas, Texas, the experience opened my eyes to the cultural differences that can exist between patient and doctor," Dr Rebar said. "The patient population at Parkland was very different from what I had experienced growing up and going to school in the Midwest. In the beginning, I could barely speak to the patients I was asked to see. For weeks, I had to learn, on my own, what kinds of interactions would work. I thought a lot about this at the time. I would like to believe that I picked it up eventually, but there was definitely a period of acculturation. Being a good doctor in that setting required more than just providing good medical care—it required really making an effort to communicate. I see that again and again among providers: the challenge of having to bridge a cultural gap. But it's absolutely necessary to do this if one wants to provide good care."

FOSTERING A POSITIVE PATIENT-PHYSICIAN RELATIONSHIP

Achieving a positive patient-provider relationship is based in part on communication skills, but sometimes gender gets in the way. A recent study[65] looked at how gender bias can influence medical students' clinical decision-making. The investigators experimentally manipulated patient gender in 27 written clinical vignettes embedded in the United States Medical Licensing Examination, a multiple-choice test of clinical decision-making. The data suggested that students were variably influenced by gender bias in their investigation and management of patients in a written test of clinical decision-making.

In a study[66] that assessed the effects of race and gender on physician treatment recommendations for chest pain, actors portrayed patients with particular characteristics in scripted, recorded interviews that were then presented to 720 primary care physicians. Each physician viewed the interviews and was given data about the hypothetical patient. The study results suggested that the race and gender of a patient influences how physicians manage chest pain.

"Before that article was published, most of us in the health care field thought that the type of care a patient received was based on a complex set of variables having to do with risk factors, perception of health, and the type of insurance the patient had," Dr Faustman said. "What was alarming about the study was that race and gender did seem to make a difference in how the physicians made recommendations. White men were most likely to receive aggressive medical care or to be referred for specialist care, followed by African American men, white women, and then, last, African American women. This study suggests that as we seek to raise awareness about various health conditions and mount prevention campaigns, we need to have similar messages targeted at providers as well as patients. Physicians need to be retrained about how to perceive women's complaints so that they can better understand the cultural context of those complaints."

How is the patient-physician relationship different when the provider is a woman? The answer to this question may become more evident in the coming years because the chances are increasing that female patients will have female doctors. Data from the American Academy of Medical Colleges indicate that female medical students now make up about 45% of current enrollment in medical schools.[67] Moreover, a higher proportion of women than men are entering internal medicine. This trend has prompted research into the effects of gender on the patient-provider relationship. A few studies have turned up subtle differences in the way male and female primary care physicians respond to female patients. A study conducted at the Mayo Clinic suggests that, during a routine visit, communication between a male physician and his patient runs more smoothly if the patient is also male. The study found that male physicians failed to identify the patient's

Women's Participation in Clinical Trials

In recent years, there has been growing awareness of the need to include more women in clinical trials. Historically, women were mostly left out of clinical trials for early phases of drug testing, except for life-threatening conditions. This affected women's health in a number of ways.

"Although many drugs were not tested on women to a large extent, they were prescribed for and taken by women, and differences in side effects, adverse effects, and even dosage requirements for women were often discovered only after the drugs were marketed," said Dr Faustman, who is President and Chairman of the Board of the Society for Women's Health Research. "For example, recent studies have found significant differences in the experience and perception of pain between men and women, and differences in the effectiveness of analgesics. Drugs that have been deemed ineffective for pain because they do not work in men have been found to work in women."

In 1990, the Office of Research in Women's Health (ORWH) was established to monitor the NIH's agenda for biomedical and behavioral research into the causes, treatment, and prevention of diseases and conditions that affect women. The NIH Revitalization Act of 1993 was enacted to ensure that NIH-funded studies include women and minorities and their subpopulations in all human subject research.

While acknowledging the importance of women's participation, Dr Rebar said that many women are still reluctant to join a trial. "Because of a lot of negative publicity surrounding clinical trials, the first thing patients ask is what are the chances that they will be placed on a placebo. I do not think this is limited to women; it is true of most people facing trials. But the fear does limit participation. There is not enough good information about what trials are trying to achieve."

Dr Dean feels that the issues surrounding the nascent field of gene therapy will inevitably bring about greater public discourse about trials. "Issues such as patients' rights and privacy, what institutional review boards do and do not do, ethics . . . all these things are inevitably coming up. We do have to acknowledge that there are significant issues around clinical trials, particularly with communities of color and women of color because of some egregious mistakes that were made in the past," she said. Dr Dean added that the recent creation of the NIH Web site *www.ClinicalTrials.gov*, which will ultimately list all federally sponsored trials as well as those sponsored by pharmaceutical companies, will go a long way toward assisting the public in finding trials. Another development Dr Dean is watching is the role of Medicare, now that beneficiaries have the option to join some clinical trials for the diagnosis and treatment of illnesses with some of the patient care costs covered by Medicare. "I am upbeat about the opportunities that would give women, especially elderly women," she said.

Dr Ofili, who, in addition to her private practice also directs the clinical research center at the Morehouse University School of Medicine, is interested in clinical outcomes, which are different from clinical trials. "Again, there is a lot of misinformation, not only among the public but also among the physician community. There is some evidence to suggest that even in the worst-case scenario, when someone gets a placebo, they get better care when they are in a trial, so their outcome is better. That is the kind of information we have to get out."

"The breast cancer advocates helped make women aware of the importance of research in women's health," Dr Faustman said. "The women AIDS activists brought the issue of women in trials to the forefront, because the early studies of AIDS drugs were mainly done in men. They were one of the forces behind the change in the FDA guidelines in 1993."

Today, greater effort is being made to focus on gender differences in developing treatment guidelines; however, the best point at which to start anti-HIV drug treatment in women, or in men, is still not known.[68]

The Institute of Medicine report, *Exploring the Biological Contributions to Human Health: Does Sex Matter?*, declared that being male or female is an important variable that should be considered when designing and analyzing basic and clinical research. The report went on to say, "The past should not limit the future of research but should serve as a guide to its use. Ethical research on the biology of sex differences is essential to the advancement of women's health and should not be constrained."

> "Physicians need to be retrained about how to perceive women's complaints so that they can better understand the cultural context of those complaints."

Dr Faustman

main reason for the visit more often when the patient was female and suggested that physicians should pay more attention to the patient's stated reason for the visit.[69]

A 1993 study that sought to assess the importance of the gender of the physician to whether a woman received adequate screening for cancer looked at the claims of more than 95,000 women in a large health plan. The results suggested that those who had a female primary care physician were more likely to have an annual Pap smear and mammogram than those whose primary care physicians were men.[70]

In recent years, however, there has been greater focus on the type and quality of health care women receive, and things are starting to change. For example, The Association of Professors of Gynecology and Obstetrics (APGO), an academic medical organization dedicated to women's health care education and faculty development in medical schools, is studying women's health curricula in medical schools. In 1997, APGO created a new Women's Healthcare Education Office (WHEO), which is working to promote and coordinate a comprehensive, integrated, multidisciplinary approach to undergraduate women's health care education.

FEMALE HEART PATIENTS

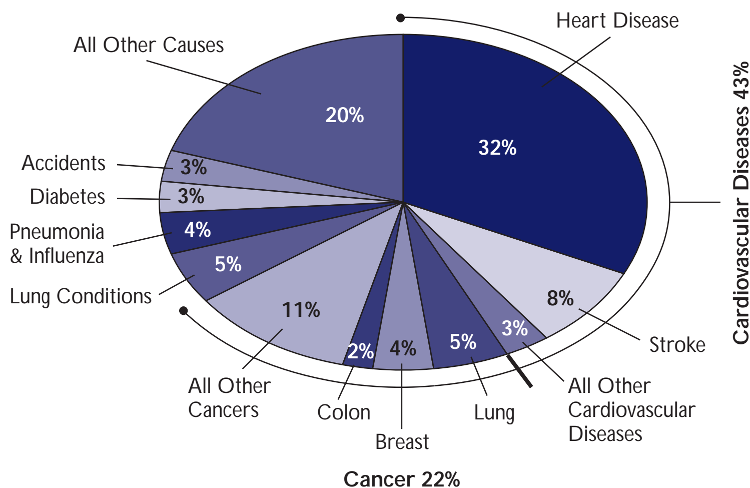
Many primary care physicians have not been trained to look at their patients through a sex-specific lens. Although heart disease is the single biggest cause of mortality in women in the U.S. (see Figure 4), a 1995 Gallup survey[71] of 300 physicians practicing in the primary care specialties of internal medicine, family practice, or Ob/Gyn, found

- Sixty-two percent thought risk factors for heart disease are the same in men and women.
- Eighty-eight percent believed the signs and symptoms of heart disease are the same in men and women.
- Seventy-eight percent had not increased the number of women referred for cardiology consultation from the previous year.

Physicians perceived a need for educational and communications programs to increase women's awareness of CVD. About one in five (18%) said there is an extremely high level of need and an additional 46% said there is a high level of need for such programs. Only 5% described the need as low. Most physicians also felt there was a need for educational programs for physicians.

In her book, *The Female Heart*, Marianne Legato, MD, Director of the Partnership for Women's Health at Columbia University, writes that because of inadequate patient education, the female heart patient may to some degree be responsible for her poorer outcome when she ignores or underestimates her symptoms. She may neglect to call her doctor, even when she is having a full-blown heart attack, believing that the pain is due to a benign, noncardiac problem, such as indigestion.

Figure 4. Heart Disease Is the Single Biggest Cause of Mortality in Women in the U. S.



Source: *National Vital Statistics Report*, 1999.

Adolescent Girls and The Patient-Provider Relationship

During adolescence, girls typically see physicians infrequently —thus, the need for communication and trust is heightened. Adolescent girls' reports on their interactions, physician preferences, and comfort in talking about sensitive topics with health care providers suggest that their experiences often do not meet their expectations.[72]

Discussion of sensitive topics such as drugs, alcohol, smoking, eating disorders, pregnancy prevention, and sexually transmitted diseases do not occur often, despite adolescent girls' belief that physicians should discuss a range of topics with them.

Embarrassment undermines open discussion. Many girls say that there have been times when they are too uncomfortable to discuss a problem with their physicians. Topics that cause embarrassment include physical or sexual abuse, physical developmental changes, menstruation, birth control, and sexually transmitted diseases.

About half of girls say that they would prefer a female physician, but most do not see one.

Girls often lack the chance to speak privately with their physician.

Dr Ofili thinks the problem of inadequate treatment and underestimation of risk is compounded in African American women: "The Association of Black Cardiologists spends a good deal of time working with physicians at the community level. We find that non–African American physicians care for the vast majority of African American cardiology patients. It is shocking when you look at the beliefs held by physicians about the prevalence of cardiovascular disease and heart attacks among African Americans, and women in particular. A lot of physicians actually have significant gaps in their knowledge base, and if you have those gaps, there is really no way you can communicate with the patient." In fact, for African American women between the ages of 35 and 74, the death rate from heart attack is about twice that of white women and triple that of women of other races.

Until the 1990s, the medical community discussed heart disease mainly as a man's problem, largely because heart disease was studied mostly in men. Several large male-only research studies conducted in the 1970s and 1980s, such as the Physician's Health Study and Mr Fit, did not provide information about how women react to lifestyle factors and heart disease tests and treatments. More recently, however, studies have been conducted to try to gain a better understanding of women and heart disease. Some of those studies include the HERS study—the first large, randomized trial that examined the effect of hormone replacement therapy on women with heart disease; the Women's Health Initiative—a 12-year, NIH-funded prevention study that seeks to learn how diet, hormone therapy, calcium, and vitamin D might prevent heart disease, cancer, osteoporosis, and memory loss, which are the major causes of death, disability, and frailty in older women; the BELLES study—which measures the effect of cholesterol lowering on the amount of calcium in the heart, a barometer of heart disease; and the Nurses Health Study—started 22 years ago, one of the longest running, most comprehensive surveys ever undertaken of women's health. Over the years it has yielded significant information about conditions such as heart disease and cancer.

How important are health messages to women's well-being? In the next chapter, *The Pfizer Journal*® examines how the types of messages women receive can affect their health, both positively and negatively.

> "We do have to acknowledge that there are significant issues around clinical trials, particularly with communities of color and women of color because of some egregious mistakes that were made in the past."
>
> —Dr Dean

Chapter 4

Delivering Health Messages

Attitudes about the way women ought to look and behave are culturally embedded, the panelists agreed; thus, change must occur on a societal level. "We cannot solve cultural problems by intervening only with individual women; we need broader approaches for cultural change," Dr Weisman said. "Rape, for example, is a violent act that occurs because of the way men are socialized to view women and deal with women. Rape is a public health problem for women, but it comes from a set of cultural attitudes shaping men's behavior. We cannot solve the problem by talking only to women; we need a cultural intervention."

The overemphasis on youth in the U.S. is another deeply embedded cultural mindset that is detrimental to the self-image of many women.

"We have to figure out ways to educate younger people about what it is like to be older, what older people can do, what the challenges of aging are," Dr Barber observed. "There's a tendency in our society to just ignore the elderly: if grandma is out of sight, that is fine—we have our own lives to live. This is wrong. The young girls of today will be the elderly women of the future, so it can only help them to know what aging is all about."

CULTURAL MESSAGES START EARLY

"There was a series of very fine studies that looked at young girls' experiences in grade school, the intimidation factor that was allowed to persist in the classroom between boys and girls, and the consequence of that behavior on young girls as they were developing a sense of efficaciousness," Dr Woods said. "These very young girls were being exposed to an environment that taught them not to be efficacious. It was an environment that supported not physical violence necessarily, but abusive conversations directed at young girls. I think that very early training about what one is or is not capable of doing or aspiring to—those very early subtle and not-so-subtle messages—have a very significant impact on how one comes to think about oneself throughout life and the choices one makes."

The panelists spoke about the role the media can play in dispelling stereotypes and spreading positive health messages.

"Girls are bombarded with images of rail-thin models, so that is what they aspire to look like. Sometimes, no matter how hard parents try to counteract these images, we are not able to. We have to be very aware that there are lots of pressures out there that will influence how our daughters view themselves. The media have to act responsibly and convey the message that girls and women come in all different ages, shapes, and sizes," Dr Ofili said.

The media have a tremendous potential to help shift our way of thinking from one of absence of disease to wellness, Dr Pert added: "It can get out the message that what we believe about ourselves often does come true, since most of what is going on in our bodies is happening subconsciously. For example, we have different appetite states that are triggered by different emotional states. I think we have to move to a more holistic model and go further to educate, not just women, but men, too, about the mind/body interaction."

"The media" actually refers to many different forms of communication—advertising, print, television, radio, cable, and, of course, the Internet. "We have to think constructively and aggressively about the best medium to convey the kinds of information we want to get across," Dr Murphy said.

Dr Pennington felt that television is doing a better job these days of bringing attention to women's health issues through daytime programs, and even through prime-time programming.

"Americans are getting to a point where we are willing to open up and admit that we have had certain problems or that someone in our family has," she said. "The media are doing a decent job with awareness, but from a

prevention standpoint, I would like to see the media provide more actionable health advice for women. We need to address a few groups that can provide this actionable advice via the media: the practitioners, pharmaceutical companies, policy-makers, and medical societies. I would ask that medical societies band together and put together programs, whether in print, radio, or television, to get messages out there in creative, clever ways."

Dr Ofili

"The media have to act responsibly and convey the message that girls and women come in all different ages, shapes, and sizes."

THE POWER OF SLOGANS

"When I was President of the New York City division of the American Cancer Society, we found that short messages on television, 15 to 30 seconds, did a lot of good," Dr Barber pointed out. "During the 1960s, for example, there was an epidemic of melanoma that received a great deal of attention. It turned out that a number of young girls were getting these lesions on the front of their legs, on the lower leg, around their knees, because they were wearing miniskirts and thus had more sun exposure in those areas. To get a message home—a quick one—we had meetings about this at the cancer society, hired some professional advertising help, and we came up with the slogan, 'Baking is good for potato skin but not human skin.' Another time, I developed the slogan 'Condoms, not diamonds, are a girl's best friend.' A lot of the teenagers we were trying to educate in the high schools about birth control and protection against sexually transmitted diseases said that this message got through to them."

More recent slogans include the American Heart Association's: "Overweight and obesity … they're a real drag," "High blood cholesterol … is your number up?" "High blood pressure … the silent killer," and "Tobacco smoke … it'll make you choke!"

"I think the associations that represent all of the different diseases could develop similar slogans to get across short, powerful messages," Dr Barber said.

Dr Ofili agreed that slogans were important, but urged the panel to recognize that messages need to be group specific. "Look at the issues of obesity, cigarette smoking, physical activity, and exercise among minority and nonminority young girls," she said. "On the one hand, there is data that suggests that African American girls are more likely to be pleased with their bodies than white girls. On the face of it, the African American girls' attitudes would be considered healthier. But if you look closer, you see that obesity has reached almost epidemic proportions among African American women. So how do you address this issue without affecting that positive body image? You want to say to these girls, 'It is great that you feel good about yourself. You do not have to be skinny. But there are risks associated with being overweight. I do not want you to be obsessed with your body size, because that is not healthy, either. There are many skinny people who are not healthy, because they smoke as a way of staying thin. But neither do I want you to ignore a very real health concern.' Having a broad message might miss this audience of girls who feel there's nothing wrong with being overweight. The bottom line is that messages need to be targeted to their audience, and it is important to remember that not all women, nor their health concerns, are the same."

The panelists felt that getting messages out appropriately applies to age as well as to race. "Prevention messages have to be geared toward women of all ages, not only the young," Dr Woods said. "As women age, there seem to be two points during which they engage with the health care system. One is around menopause in midlife. I think we have some promising evidence that this is a time when the majority of women in the U.S. make changes in health-related behavior. And then a second opportunity seems to be at retirement. As women make a transition out of the labor force, many employers conduct a session at which they talk about changes in health benefits or signing up for Medicare and the like. I think there may be some opportunities at those times for health education. The baby boomer generation—my generation—is a very good target for messages that promote healthy aging. There are some windows of opportunity for health education messages for women, but these messages need to be customized according to the women's birth cohort and an understanding of what her life has been like to that point. It is probably never too late to try to create a health education message that can have some profound benefits."

HEALTH LITERACY

Health literacy is the ability to read, understand, and act on health care information. This includes reading consent forms, medicine labels, and other written information; understanding written and oral information from health care providers; and acting on procedures and instructions, such as medications and appointment schedules.

Based on estimates derived from the 1992 *National Adult Literacy Survey*, as many as 90 million adults in the U.S. are either functionally or marginally illiterate.[73] Health literacy is an important aspect of literacy because individuals with low health literacy are more likely to suffer from poor health and may be susceptible to potentially serious medical errors if they don't understand their illness or treatment. People with low health literacy may have problems communicating with their health care providers or properly using prescribed medicines.

A 1999 study of 3260 Medicare beneficiaries found that one-third of the English-speaking beneficiaries and more than half of the Spanish-speaking beneficiaries surveyed were unable to adequately understand basic health-related materials.[74] At age 85 and older, nearly 60% of beneficiaries had low health literacy skills.

"Although low health literacy affects people of all socioeconomic levels, the poor, the elderly, and the chronically ill are particularly at risk. Because women fall disproportionately into these categories, they are most at risk from problems associated with a lack of adequate health literacy," said Dr Merkatz. "This is something that we at Pfizer are trying very hard to work on. In the Information Age, we have at our fingertips the tools to provide great education materials and information to women; the question is, how do we do it in a way that allows people to really understand what is being said, whether it's being able to understand one's insurance policy or instructions about how to take medications?"

Said Dr Dean: "This roundtable panel is probably in the minority in this country in terms of having a deep understanding of the issues around women's health. If we ourselves struggle with the issues and solutions, and if we cannot effectively translate everything back to our families and to our communities, what about all of those other people? That is a filter that I constantly employ when I think about these issues."

WOMEN ON THE WEB

An estimated 40 million women use the Internet in the U.S. today.[75] Many of those are using the Web to access health information, make health decisions, and take action. One survey found that after visiting Internet Web sites

- Twenty-one percent of women reported increased compliance with prescriptions[76]
- Thirty percent visited their doctor[76]
- Forty-two percent made a treatment decision[76]
- Forty-three percent asked their doctors about a prescription[76]
- Forty-seven percent urged a family member to visit a health care provider.[76]

"The Internet has turned everyone into a virtual expert," Dr Pert said. "Any piece of health information a woman might be looking for is out there somewhere."

Of course, a good deal of the information on the Internet may come from questionable sources, so the panelists cautioned that women use that information as an adjunct to—not a replacement for—advice and care from their health care provider.

Dr Ofili gave an example about how doing otherwise may jeopardize health: "It's true that you can go online and get a lot of information, but the information still does not give someone the expertise they will get from their physician or other health care provider. I would caution women to be very careful. Already, clinicians are frustrated because they feel huge numbers of patients may be receiving inaccurate information via the Internet. I think that there is the potential for damage to patients. There have been instances in which purported side effects of a drug were reported in the scientific literature, then widely disseminated on the Internet without proper context or interpretation by a health care professional. This, unfortunately, has led to patients' inappropriately stopping important treatment or becoming unduly concerned about the care they are receiving. When patients with poorly controlled diseases, such as the elderly or African Americans with high blood pressure, stop the drugs, there is a chance that pressure can shoot up from 140/90 to 180 or even 200/120. Then they are looking at a stroke. But nobody thought that the reaction would be like that. My association, the Association of Black Cardiologists, had to scramble and start saying to patients, 'Do not stop taking your medication. Talk to your physician or health care provider. Take the knowledge they bring to the table. By all means, bring in the information you have accumulated, but work in partnership with your physician or health care provider.'"

Where do we go from here? What are some of the steps that might be taken in the coming years that will help women lead healthier lives? *The Pfizer Journal®* panelists offer some suggestions in the next chapter.

Chapter 5

Looking Ahead

A dominant image the panelists used when speaking about the effect women's health issues will have on society in the next several decades was a tsunami, a giant tidal wave. They spoke about averting the tsunami by applying an increasing understanding of the ways in which sex and gender affect women's health—before the wave comes crashing onto the shore.

Dr Merkatz spoke about progress that is already being made: "I'm heartened when I think about what has happened in the health consumer movement—starting in the 1960s and 1970s when I began practicing nursing and we focused on changing practices around childbirth. Today, consumers sit on most advisory committees at the FDA and have a vote on whether or not to approve new drugs. They are helping to shape the nation's research agendas at the NIH. These are enormous steps in the right direction."

Dr Woods talked about the growing awareness of the importance of race, ethnicity, culture, lifestyle, socialization, and oppressive social circumstances—including discrimination and economic disadvantage—in shaping health. "I think awareness is growing about the disparity in health across racial and ethnic lines," she stated. "I was very pleased when the Office of Research in Women's Health and the NIH, in assembling their recent research agenda, paid clear attention to things like sexual orientation as the basis for health disparities, as well as ethnicity, race, and class."

A recent study[77] by the National Institute on Aging suggests that the chances that elderly Americans will be devastated by chronic disabilities like stroke and dementia are declining. Still, the panelists felt that there is a way to go toward achieving better health for women and offered the following suggestions:

Integrate Women's Health Care

"Women are not well served by the disjointed nature of health care in this country, which requires them to see different providers for reproductive health care and for other physical and mental health services," Dr Weisman said. "A woman wants to be seen as a whole person, someone who may need a pelvic exam but also treatment for elevated cholesterol or for depression. Not everyone has the means to see a specialist for every condition or the capacity to navigate an uncoordinated health care system."

Women's health advocates have helped drive health care professionals toward a new awareness of women's needs as health care consumers. For example, there are new comprehensive women's health centers and numerous innovations in medical education and residency training, including programs for primary care Ob/Gyns and programs in women's health for internal medicine residents.

"These developments are all very positive if they help improve the quality of women's health care," Dr Weisman noted.

Make Health Coverage Less Dependent on Employment

"As women get older, we need to keep working, even as we begin to have chronic maladies, yet we may not be able to work the same hours or at the same jobs we did before," Dr Woods explained. "We have created a situation in this country in which our health benefits are so dependent on employability that, by definition, we make it impossible for people with certain chronic health problems to have access to the health care and health support that they need if they cannot work. And if they are able to work at all and earn a certain amount, they may lose government health care benefits like Medicaid. It's a

cyclical problem that I think is discouraging people from working despite the fact that many want to."

Support Prevention in Women of All Ages

"We have not really figured out how to make older women more aware of the importance of prevention," Dr Murphy pointed out. "For instance, I have severe back problems, and in the course of learning how to manage this pain, I have changed my diet so that my weight and cholesterol are also down. By doing things to lessen my back pain, I am preventing other problems from cropping up. I was thinking about this in terms of arthritis. There has to be a way to say to someone, 'Here is a problem you must cope with every single day, but understand that if you take certain steps to prevent further deterioration, you will help the rest of your health.' I think it is very important when talking about health not to forget that prevention is always something we should be thinking about—in older as well as younger women."

The sedentary lifestyle is something that requires greater attention, the panelists agreed.

"Technology has certainly improved our ability to understand, diagnose, and treat disease," said Dr Merkatz. "But it has also kept us from moving around as much as we should. Think of the time so many of us spend in front of the computer or TV. Being sedentary increases the risk of developing serious conditions, like heart disease and arthritis, and also has an effect on mental well-being."

Advocate for Well-Being

"Several years ago, we did a survey[78] of about 500 women in the Seattle area, asking them to define what being healthy meant to them," Dr Woods said. "They said that being free of disease was just one part of good health. Many spoke about how being healthy meant being able to deal with the stresses and strains that were part of their daily lives, being able to perform optimally at whatever their roles were in society, whether that was going to work, taking care of their kids, being responsible for caregiving for elderly family members. And then there were some women who talked about health in a different way, as achieving a high level of wellness, really having a sense of feeling good. So the realization might be that as we try to help women understand what they can do to be healthy, it is important to understand that it is not just the absence of symptoms or the absence of disease that is important, but the presence of some of these other things."

"Being sedentary increases the risk of developing serious conditions like heart disease and arthritis."

Dr Merkatz

Promote Stakeholders' Greater Involvement in Women's Health

"Employers are major stakeholders in women's health," Dr Weisman explained. "Therefore, one has to wonder why more employers are not providing benefits like on-site childcare and paid parental leave. Why aren't they covering contraception in their health plans? Why aren't they more concerned about helping women balance their multiple roles so that they can be healthy and productive at work?"

Dr Murphy gave an example of an employer in her state who, early on, saw the benefit to his business of providing childcare for his employers:

"In the early 1980s, Massachusetts had a very tight labor market. As Lieutenant Governor, I was then running the economic policies and programs for the state, and I decided that to help the situation, we needed better childcare. It was not going to be state-sponsored childcare, either; I felt that corporate childcare was the way to go. There was one businessman, Arnold Hiatt, formerly the head of Stride Rite shoes, who came forward and testified about childcare at Stride Rite and how it was great for his business. He said that productivity increased because parents felt wonderful being able to go down the hall to see their child and not worry about him or her. There was not as much time lost for sick days or vacation time. Mr Hiatt said his business actually made more money by providing corporate childcare. I think if more companies realized the tremendous benefits to their business of programs like these, they would start them in their own companies. It is a win-win situation. Good for business, and good for women."

Support Health Literacy

The panelists spoke about the importance of making the insurance payment system less confusing. "I would urge health care providers and payers to offer information in ways that women can readily understand and are sensitive to their health status, culture, and financial conditions," noted Dr Murphy. "If we find the system confusing at times, and we are familiar with it, pity the poor woman who does not understand the difference between co-payments and deductibles or pre-existing conditions or balance billing or all those other things. My advice to payers is to simplify the policy statements. In Massachusetts, we require automobile insurers to write their policies in plain English, using commonsense language that anybody can understand. I think health payers ought to be held to the same standard. The basic integrity of our health care system depends upon whether, in fact, women are respected—women's time is respected, women's financial circumstances are respected, and women's ways of dealing with information processing and making medical decisions are respected, and that includes making health insurance coverage less obtuse."

Pay Greater Attention to the Health of the Aging Female Population

By 2030, it is estimated, one in five Americans will be on Medicare, and most of those will be women. "I think one of our responsibilities, aside from the scientific advances, is that we are going to have to organize and be vocal about preserving and expanding Medicare and Social Security," Dr Barber said. "When we consider that the fastest-growing segment of the U.S. population is 85 and older—and that they are mostly women—we do have a serious problem, one that I think our leaders need to be addressing aggressively. I believe that we have to take a hard look at some of the social and economic factors that affect aging, especially in women, who make up such a large number of this population."

Encourage Quality Reproductive Care

"I do not think we can speak about women's health without talking about the subject of reproductive choice," Dr Rebar observed. "In this country, nearly half of all pregnancies are unintended. We know that unintended pregnancies clearly lead to more expenses: more usage of health care, fewer employment opportunities outside the home, curtailed education when the mothers are young. Unfortunately, female contraception has gotten all tied up with abortion politics, so it is not always that easy for many women to have access to contraception."

Dr Rebar

"I do not think we can speak about women's health without talking about the subject of reproductive choice."

Dr Faustman added, "There have been a number of studies over the past five years that have looked at why so many high school girls, or high school–age girls, get pregnant in the U.S. Even though the teenage pregnancy rate in the U.S. seems to be going down, it's still much higher than in countries like Sweden, France, or Italy. For a long time, the theory with respect to teenage pregnancy in the U.S. was that teenagers here are having sex at an earlier age. It turns out that is not the case. In fact, teenagers in Europe and Australia have sex two years earlier on average than in the U.S. The major difference is that in the U.S., unprotected intercourse goes on for years. Studies done in France, Norway, Sweden, Switzerland, and Italy, suggest that in those places, the very first sexual encounter is protected. The major difference in the U.S. is not age. It is protection."

Take Political Action

"I think women need to be even more assertive and active in politics about all women's health issues," said Dr Murphy. "We have to ask ourselves, 'How much are we going to fight for research budgets?' We all know that there is only a certain amount of money, and if we are not in there pressing for our research priorities, if we are not pressing for regulations that help inspire more attention to women's health, our priorities will not be funded. Politics is always rough and tumble. However, not to play in the political arena is to ensure that we never advance a women's health agenda."

Dr Dean spoke about building coalitions with senators, and congressmen and women during state-sponsored

Recent Congressional Action on Women's Health

The effort to improve women's health has received a great deal of Congressional attention in recent years. Here is only a partial list of action taken:[66]

• The Women's Health Reauthorization Act of 1998 directed the NIH to expand, intensify, and coordinate research on heart attack, stroke, and other cardiovascular diseases in women.

• In 1998, Congress created a commission to examine the barriers keeping women, minorities, and the disabled from careers in scientific fields.

• Legislation was enacted in 2000 to require the CDC to conduct surveillance of human papillomavirus, research prevention strategies, and prepare and distribute educational materials on this virus.

• Congress urged the National Institute of Environmental Health Sciences to "enhance its research efforts to study the links between the environment and breast cancer through all available mechanisms, as appropriate, including establishing centers of excellence."

• The effort to prevent the spread of STDs was boosted when Congress approved a $26 million increase to $148 million for STD prevention and control activities at the CDC. A $6 million increase was allotted for *Chlamydia* screening.

• The House Appropriations Committee pushed for the establishment of a national media campaign to educate the public about eating disorders and for a toll-free number and an information clearinghouse on eating disorders.

Source: Women's Policy Inc., 1999-2000.

health days: "While these are usually informational days sponsored by the governor's office or by other agencies and officials at the state level, they can also be used by people who are not in government to begin to build bridges with people in government who have the power to make things happen. There are also many states with emerging networks of professional health organizations, advocacy groups, and community groups that are talking with their legislators about their needs and their concerns. There is no magic to this. It is getting up and doing the testifying. It is bringing the data and the experts and going out one by one to legislators with a strategy, building the momentum for ultimately getting the number of votes needed in any legislative body. I know that many women feel they are too busy with their own work and responsibilities and do not have time for this type of activism. But, in fact, it is this kind of activity in the political arena, as well as in the media arena, that will bring about positive changes in women's health."

Dr Melnick added that activists have to include not only professional and academic groups but also laypeople. "The Breast Cancer Coalition is a good example of how grassroots action can bring about change," she said. "This coalition got its strength from large numbers of community groups. They had hundreds of thousands of signatures to present to Congress and the President, and they really brought the issue of breast cancer to public consciousness. Congress responds to its constituency. As long as women have large constituencies talking about a particular issue, they have a chance of being successful. The best way to gain that constituency is to go to the many well-organized women's community organizations, persuade them to put the issue on their agenda, and then have several of those organizations rally behind the issue together. That is what the Breast Cancer Coalition has done so effectively."

There are many health conditions that affect women that do not necessarily command as much attention as breast cancer does, Dr Merkatz said. "One very important example is childbirth outcomes, particularly low-birth-weight births as a result of preterm delivery, which disproportionally affects African American women. It's been hard to get broad and sustained support to ameliorate their critical problem."

Create a New Health Care Model

"I think one of the major steps that have helped advance the cause of women's health is that problems that were never talked about before are being openly discussed," Dr Barber pointed out. "Things like incontinence, or overactive bladder, which was once very hush-hush, is a condition that does not kill women, it just kills their lifestyle. And then, of course, there is domestic violence and rape. Everyone should care about violence against women, not only because it is an issue that demands our com-

passion but also because it costs the taxpayer a lot of money. I have been to Albany several times over the past two decades to try to get laws passed on domestic violence. I pointed out to politicians that putting a woman back together after she has been battered can be very expensive. I called attention to the fact that at one time we had more shelters for dogs in New York than we had for battered women. So we got some pretty good laws passed. The problem is not solved, by any means, but at least we are talking more openly about this and other issues that affect women's health. Nothing will happen if we sweep things under the rug."

Dr Merkatz added that she also sees as a sign of real progress the fact that a major pharmaceutical company like Pfizer Inc, with its commitment to and experience in research, is developing products that are part of the solution for some of the major health problems of women. "Pharmaceutical companies are now very much aware of the serious health problems that affect women, such as cardiovascular disease, depression, and the musculoskeletal diseases, such as arthritis and osteoporosis, that really impair women's quality of life and their ability to move," she said. "It has been exciting to see a company such as Pfizer embrace a broad concept of women's health, while never excluding the importance of reproductive issues in the life cycle of a woman."

World Conference Calls Attention to Women's Health

The panelists were particularly concerned about the very serious women's health issues in developing nations—problems that include malnutrition, high numbers of maternal deaths, and inadequate medical care. They spoke positively of the 2000 United Nations conference Beijing Plus Five, which emphasized gender equity and the empowerment of women as cornerstones for the planning of effective health programs. The conference, a follow-up to the women's conference held in 1995 in Beijing, created a platform for action, which included five strategic objectives for improving women's health worldwide:

1. Increase women's access throughout the life cycle to appropriate, affordable, and quality health care, information, and related services
2. Strengthen preventive programs that promote women's health
3. Undertake gender-sensitive initiatives that address STDs, HIV/AIDS, and sexual and reproductive health issues
4. Promote research and disseminate information on women's health
5. Increase resources and monitor follow-up for women's health.

"One very strong impression that those of us who attended the Beijing Plus Five conference came away with is that there are many grassroots organizations working on women's issues in the developing world that need our help," Dr Melnick stated. "They need to learn how to get certain information, how to find certain resources. They do not need us in the developed world to tell them what to do, but they do need our help, knowledge, and expertise in collaborating as equal partners."

Dr Dean agreed, adding, "I was struck at the conference by some of the activities that are happening at local levels. For example, I was on a panel on science and technology with a woman from Gambia who was trained as an engineer. She is running for election in her country so that she can be in a position to leverage her skills to help her people—women and men—achieve better health. I think that to the extent that we can be supportive of these efforts, we should do our best to help."

The Pfizer Journal® panel emphasized that they thought the five objectives outlined at the Beijing Plus Five conference be included on local—as well as international—health agendas.

Pfizer's Commitment to Women's Health

Pfizer conducts a number of programs geared toward advancing the health of women—both inside and outside the company.

Throughout 2001, Pfizer Women's Health, in partnership with the company's fitness center and other business units of Pfizer, is sponsoring a series of events called "Journey Through the Body." The goal is to educate and raise awareness among female employees about various diseases that affect women, such as osteoporosis, cardiovascular disease, skin cancer, and breast cancer. The first event, on osteoporosis, took place at the company's New York headquarters in March. Physicians and other experts spoke about the disease, and educational materials and brochures were distributed. A month later, osteoporosis screening vans were available at Pfizer to provide bone density scans for all at-risk female employees. Similar educational/screening events will be held for each of the other diseases.

"We cannot afford any action other than a purposeful focus on disease and health information that affects nearly half of our company's talent," said Kathleen Donovan, Vice President, Human Resources, Pfizer. "Clearly, our female employees value information that can positively affect their health, because this series so far has been standing room only."

Pfizer Women's Health also motivates employees to participate in national and local health-related events such as "The Race for the Cure," an event that raises funds for breast cancer research and receives significant sponsorship from Pfizer Inc. In 2000, more than 300 Pfizer employees completed the 5K race in New York.

The Boston Heart Party is just one example of how Pfizer is working externally to meet the health needs of women in local regions of the country. The Boston Heart Party is a collaboration between Pfizer Inc and several major health care groups in Boston including The CareGroup Healthcare System and Partners HealthCare System. These systems include some of the most prestigious hospitals that are part of Harvard Medical School, including Massachusetts General Hospital, Brigham and Women's Hospital and Beth Israel Deaconess Hospital.

The Boston Heart Party is a free cardiovascular screening program designed to educate women in the Boston area about heart disease. Now in its third year, the series of free blood pressure, cholesterol, and glucose screenings took place from March to May 2001, at various physician's offices, medical centers, malls, and supermarkets throughout the Boston area.

In the three years since the program began, more than 10,000 people (mostly women) have participated in The Boston Heart Party and almost half of those screened were found to be at risk for heart disease. Boston is twelfth in the nation in the number of women with heart disease. In 2001, free screenings for both men and women were available at 140 sites throughout Boston. Screenings were also held at various companies and integrated into employee health fairs.

"We cannot afford any action other than a purposeful focus on disease and health information that affects nearly half of our company's talent."

Ms Donovan

"As baby boomer women age, they have to be made more aware of the risk of heart disease and encouraged to take greater ownership of their health," said Valerie Sullivan, Pfizer's Boston Market Strategy Manager. "The Boston Heart Party is one way for people to learn where they stand in terms of their own risk."

Other Pfizer Women's Health external programs include the Scholars Grants for Faculty Development in Women's Health, which it sponsors in collaboration with the Society for Women's Health Research. The $65,000 per year, three-year grants are given to three junior researchers every year to further study in the basic biology of mechanisms of serious diseases such as cardiovascular disease, mental health, and reproductive physiology. (See sidebar.)

Other Pfizer Inc grant programs include the 2001 NAMS/Pfizer Women's Health Diversity Award, a new award established in conjunction with the North American Menopause Society. It is designed to acknowledge an individual whose body of research has recognized the importance of addressing women's diversity in achieving optimal health during perimenopause and beyond. Diversity can include any differences between populations, such as ethnicity, culture, socioeconomics, and body weight. Another Pfizer grant has enabled the Association of Professors of Gynecology and Obstetrics (APGO) to fund a women's health curriculum-development project, focused on the undergraduate level, that is related to women's health undergraduate medical student education.

Apart from its efforts on behalf of female employees, and funding external research efforts in basic science, Pfizer is also working to educate the public about women's health issues. The company is one of four sponsors of "The Changing Face of Women's Health," a traveling exhibition devoted exclusively to women's health issues. The exhibition opened in March 1999 at the Maryland Science Center in Baltimore and is now at the National Museum of Health and Medicine in Washington, DC. It will move in August 2001 to the Franklin Institute of Science Museum in Philadelphia, and then to museums in Boston, Chicago, and Los Angeles. The interactive exhibit is organized into four central themes: detection of disease, prevention, risk, and control. It is the first major touring presentation dedicated solely to the latest scientific information about women's health.

Pfizer Awardee Searches For Cause of Cervical Cancer Metastasis

Concepcion Diaz-Arrastia, MD, a gynecological oncologist and Assistant Professor, Department of Obstetrics and Gynecology, at the University of Texas Medical Branch at Galveston, was the 2001 Pfizer Scholars Grant recipient in the category of reproductive physiology. The award will allow Dr Diaz-Arrastia, working in collaboration with her mentor, Stephen Tyring, MD, PhD, to pursue further research on the role of epithelial-cadherin—an adhesion molecule—in cervical cancer.

"Cadherin is a kind of molecular glue that connects cells to cells," Dr Diaz-Arrastia said. "Cancer metastasis, where cells are splitting off, is associated with a cadherin adhesion malfunction. This grant will allow me to find out more about the role of interferon in cadherin expression so that one day we might be able to treat cervical cancer with gene therapy, rather than by cutting away or burning cancer cells with radiation."

Cervical cancer almost always results from infection by the human papillomavirus and can only be detected by a Pap smear. Thus, this type of cancer is usually found in women in poor areas of the U.S. or in countries where women do not routinely receive Pap smears. For example, it is the number-one killer of women in Mexico.

"My interest in cadherin expression began when I started running tests on biopsies from patients with cancer or precancer. Many, many women have abnormal Pap smears, but only a small percentage of abnormal cells go on to become cancer. I want to know why that happens," said Dr Diaz-Arrastia.

Appendix

WOMEN'S HEALTH INTERNET RESOURCE GUIDE

FDA Office of Women's Health
http://www.fda.gov/women's/default.htm

CDC Office of Women's Health
http://www.cdc.gov/health/womensmenu.htm

National Institutes of Health
Office of Research on Women's Health
(NIH/ORWH)
http://www4.od.nih.gov/orwh

National Women's Health Information Center
http://www.4woman.gov/index.htm

National Heart, Lung, and Blood Institute
http://www.nhlbi.nih.gov

National Cancer Institute
http://www.nci.nih.gov

Office of Research on Women's Health
http://ohrm.od.nih.gov/orwh/women.html

Mayo Clinic
http://www.mayohealth.org

Journal of the American Medical Association
http://www.ama-assn.org/special/womh/index.htm

American College of Obstetricians and Gynecologists
(ACOG)
http://www.acog.org

Jacobs Institute of Women's Health
http://www.jiwh.org

Society for Women's Health Research
http://www.women's-health.org

The Alan Guttmacher Institute
http://www.agi-usa.org

National Center for Policy Research (CPR)
for Women and Families
http://www.cpr4womenandfamilies.org

American Heart Association
Take Wellness to Heart
http://women.americanheart.org

National Association for the Mentally Ill (NAMI)
http://www.nami.org

North American Menopause Society (NAMS)
http://www.menopause.org

National Alliance of Breast Cancer Organizations
(NABCO)
http://www.nabco.org

The Arthritis Foundation
http://www.arthritis.org

Association of Professors of
Gynecology and Obstetrics
http://www.APGO.org

WomenHeart: The National Coalition for Women
with Heart Disease
http://www.womenheart.org

National Osteoporosis Foundation
http://www.nof.org

Association of Reproductive Health Professionals
http://www.arhp.org

National Women's Health Resource Center
http://www.healthywomen.org

American Social Health Organization
http://www.ashastd.org

The Posttraumatic Stress Disorder (PTSD) Alliance
http://www.PTSDAlliance.org

BlackWomensHealth
http://www.blackwomenshealth.com

American Society for Reproductive Medicine
http://www.asrm.com

Pfizer Generational Health
http://www.generationalhealth.com

Pfizer Women's Health
http://www.pfizerwomenshealth.com

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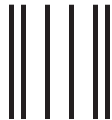

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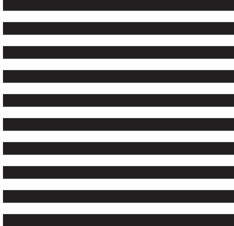

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