By M. Jean Gilbert, PhD

We *Have* Come a Long Way: Women's Health at the Turn of the Millennium

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Twenty-six years have passed since the publication of *Our Bodies, Ourselves* by the Boston Women's Health Book Collective.[1] That bestselling book marked the beginning of a major change in women's attitudes about taking active responsibility for their health and about insisting on relationships with their physicians based on mutual health care decision-making. Women also began to lobby for research that would better define their health care needs: Women were becoming increasingly unwilling to accept as pertinent to them findings from observational studies or clinical trials that included only men. Lacking scientific data to indicate otherwise, the medical establishment appeared to assume that, excepting issues of reproductive health, women's health needs were essentially the same as men's. Since then, enormous changes have come about in our knowledge about women's health needs and how to approach them.[2]

During the 1980s, the groundwork was laid for substantial advances in research on women's health. In 1986 the National Institutes of Health (NIH) established a policy that required researchers to include women and minorities in NIH-funded research. Also in the mid-1980s, the Society for the Advancement of Women's Health Research was created to help design and encourage research focused on women's issues. By 1991, when the US Department of Health and Human Services created the Office of Women's Health, a groundswell of support had arisen for clinical research on women's health.[3,4] In 1993, the Federal Drug Administration issued new guidelines that lifted the ban on including women of childbearing age in many clinical trials conducted to develop new drug products.[5,6]

Research on Women's Health has Increased Massively

In the early part of the 1990s, studies on women's health mushroomed, and although it is still too early to have definitive answers regarding many important issues, information from several large prospective, observational studies is changing the way that the medical establishment understands women's needs. During the past few years, important data have been collected from the Nurses Study, a prospective study begun in 1976 that has been closely monitoring several cohorts of nurses. Over the years, the thousands of nurses included in the study have provided researchers with survey responses as well as biologic samples ranging from toenails to vials of blood.[7] The Study of Women's Health Across the Nation (SWAN) is examining health issues of women at midlife and is comparing the health status of African American, Latino, Asian American and white women.[8] The Women's Health Initiative (WHI) is a massive study focusing on the major causes of death, disability, and frailty in postmenopausal women. This multiyear study, conducted in >40 centers across the country, is the largest prevention-oriented clinical trial in US history.[9] Effects of progesterone/estrogen regimens in postmenopausal women are being studied in the PEPI Trial.[10] The National Breast Cancer Prevention Trial is studying the effectiveness of tamoxifen and raloxifene in preventing breast cancer among high-risk women.[10] The National Longitudinal Study on Adolescent Health, based on a survey of 90,000 adolescents across the country, will give us new information on risk factors and health issues among girls.[4,10]

Women and Men Differ Far More Than Previously Thought

As the vast amount of new information is being analyzed, what are we learning? One of the major outcomes is that we now have evidence for a gender-based biology that shows gender differences at the system, organ, tissue, cellular, and subcellular levels as well as in epidemiology and drug response.[10] Important examples of such differences are apparent in the areas of drug response, addiction, chronic disease state, susceptibility to infection, and vulnerability to mental and social problems.

Drug Response

Women tend to wake up from anesthesia more quickly than men (mean time, 7 minutes for women and 11 minutes for men). Some pain opiates (kappa-opiates) are far more effective for relieving pain in women than in men.[3]

Even common drugs (eg, antihistamines and antibiotics) can cause substantially different side effects and reactions in men than in women. Data suggest that the vascular systems of women differ from men in many ways; and in turn, this difference creates difference in the vasodilatory effects of many drugs. For example, side effects such as flushing, edema, and palpitations produced by the calcium blocker

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amlodipine were found to be more pronounced in women.[5] Women's higher levels of body fat content are also believed to alter the effects of drugs.[5]

Addiction

Women who smoke cigarettes are 7% to 20% more likely to become affected with lung cancer than men who smoke the same amount of tobacco.[3]

After consuming the same amount of alcohol, women have a higher blood alcohol content than men, even when allowing for different body size. Compared with men, women drinkers have a higher incidence of liver disease, even though they generally consume less alcohol for shorter periods of time.[8,11] Differences in how men's and women's bodies process alcohol are probably responsible for the greater tissue damage suffered by women.[8,11]

Chronic Disease State

In part because they live longer than men (seven years on average), women are more likely to be affected by such chronic, disabling conditions as osteoarthritis, osteoporosis, urinary incontinence, and Alzheimer's disease.[3]

Although women have lower rates of chronic obstructive pulmonary disease (COPD) than men, the COPD rates for women have nearly doubled since 1979, and the most rapid increases have been seen among women ≥75 years.[8,9]

Even though women have stronger immune systems to protect them from disease, women are more likely to acquire autoimmune diseases such as lupus, scleroderma, rheumatoid arthritis, and multiple sclerosis. These diseases also present differently in men and women: Greater disease acuity is seen in women. These gender differences are thought to be mediated by differences in the mechanism of antibodies.[3,8]

Heart attacks are the No. 1 killer of men and women, but women tend to have heart attacks about 10-15 years later in life, and the initial attack is more often fatal in women. Moreover, women are 25% more likely than men to have a second heart attack within one year after their first heart attack. A heart attack often manifests differently in women and men: Women are much less likely than men to report chest pain and are more likely to report feelings of indigestion, nausea, and extreme fatigue.[2-4,7,12]

Researchers have also learned that high levels of high-density lipoprotein (HDL) have a much greater protective effect in women than in men.

After menopause, women lose more bone mass than men—the reason why 80% of osteoporosis patients are women. Arthritis and other rheumatoid conditions (ie, chronic inflammation and stiffness of joints, muscles, and tendons) are more common in women than in men.[4,10]

Susceptibility to HIV Infection and Other Sexually Transmitted Diseases

During unprotected intercourse with an infected partner, women are twice as likely as men to contract a sexually transmitted disease and are ten times more likely to contract HIV.[8,13]

Vulnerability to Mental and Social Problems

Depression is two to three times more common in women than in men, partly because women's brains produce less of the hormone serotonin.[14] Violence is a major public health problem for women. Women are six times more likely than men to be abused by someone they know and are ten times more likely to become victims of sexual assault. Despite a move to treat domestic violence as a medical condition, the lack of good screening protocols and lack of tested, effective interventions impede progress in this area.[8]

Health Status Varies Greatly Across Groups of Women

Recent data also indicate that disease incidence and mortality rates vary considerably across racial and ethnic subgroups of women in the United States.[10,15-17] Some findings follow:

- Although heart disease is the leading cause of death among whites, blacks and Latinas, cancer is the leading cause of death among Asian/Pacific Islander women.
- African American women have the highest age-adjusted rate of death from heart disease (164 deaths per 1000 women), and Asian/Pacific Islanders have the lowest rate (56 deaths per 100,000 women). White women, Latinas, and Native Americans have rates between the other two.
- Cerebrovascular-related death among African American women occurs at a rate of 40 per 100,000 women—a rate far exceeding that of any other group. The rate for white women ranks second (23 deaths per 100,000 women).
- Although the incidence of breast cancer

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among white women (112 cases per 100,000 women) is higher than among any women of color, the mortality rate from the disease among white women (27 deaths per 100,000 women) dropped 6% during 1989-1993, whereas mortality rates among black women continue to increase. Asian women have the lowest breast cancer incidence (69 cases per 100,000 women) and mortality rate (13 deaths per 100,000 women).

- The incidence of cervical cancer is much higher among Vietnamese women (42 cases per 100,000 women) than among Latinas (16 cases per 100,000 women), blacks (13 cases per 100,000 women), and whites (9 cases per 100,000).
- The highest prevalence of type II diabetes is found among some groups of Native American women, such as the Pima and Papago (Tohono O'odham). Well over one third of Hawaiian women are diabetic. Although Latinas have a higher lifetime prevalence of diabetes, African American women have higher rates of morbidity and mortality from the disorder.
- Although rates of infant and maternal mortality have dropped dramatically in the United States during the past four decades, the infant mortality rate among African Americans has remained 2.4 times the rate among whites and Latinas, and the maternal mortality rate is four times that of women in the general population.
- Clear discrepancy in health status, mortality, and morbidity are found across subgroups of women and is of great concern to the nation. Differences in health care access, insurance, use of preventive screening, risk factors, behaviors, and even genetic variation are all believed to contribute to this discrepancy. Major initiatives undertaken by the Centers for Disease Control and Prevention and the Agency for Health Policy and Research in 1999 are designed to unravel the reasons for differences among populations and to create programs for narrowing the health care gaps between defined groups of women.

Kaiser Permanente's Focus on Women's Health

Kaiser Permanente researchers and clinicians are actively pursuing research on women's health issues and are developing programs that address women's most critical health needs. The organization is differentiating itself from other health plans by both the rigor and quantity of the attention given to women's health concerns. Literally dozens of research and program development efforts in women's health are ongoing within the organization.[18,19]

The Kaiser Permanente Northern California (KPNC) Division of Research is partnering with one of the 40 centers of the WHI national study and also in the part of the study known as WHIMS—the Women's Health Initiative Memory Study—which examines the effect of hormone replacement on Alzheimer's disease progression. Through a subcontract with the University of California at Davis, KPNC is also included in the SWAN examination of women in midlife, a study sponsored by the National Institute on Aging.

A study, Health Implications of Sexual Orientation Among Women, has been undertaken to discover whether health behavior and health-seeking behavior differ among women with different sexual orientation. The KPNC medical center at Richmond has fielded a research and demonstration model for reducing family violence through primary prevention, screening, and appropriate referral.

At Kaiser Permanente Southern California (KPSC), researchers in the Department of Research and Evaluation are participating in a study funded by the National Institute on Aging to investigate the effects of hormone replacement therapy (HRT) on Alzheimer's disease.[20] Researchers in the same KPSC department are also collaborating with the Pacific Institute for Women's Health on a demonstration and evaluation project focused on determining the feasibility and acceptability of making emergency contraceptive pills available.

Most of the research being done within Kaiser Permanente is linked to program development or service delivery and focuses on enhancing quality of care for women members.[20,21] For example, the study on women's acceptance of emergency contraceptive pills includes development of provider and patient education materials, repackaging oral contraceptives into emergency contraceptive kits, and development of information that will enable other health care organizations to replicate the program. Similarly, after Kaiser Permanente researchers studied different modes of care for women who were

at high risk for preterm labor, the study results were used to establish a preterm delivery prevention program that is helping to set the standard of care for these high-risk patients.

At KPNC, the Regional Health Education and Women's Health Departments are researching, developing, and testing *Menopause: a Kaiser Permanente Guidebook for Women* as part of an overall effort to provide women members with specific kinds of services focused on the menopausal period.

One Kaiser Permanente service area is implementing the "Women's Health Prevention Visit," a Saturday morning clinic time devoted to providing multiple women's health services and counseling at a single visit. Through a project called Care Coordination for Women and Families, another service area will integrate behavioral health care into obstetrics and gynecology services.

Kaiser Permanente has developed the nation's first evidence-based clinical practice guidelines for BRCAl, the gene linked to increased risk of breast or ovarian cancer. These guidelines make recommendations for genetic counseling of specific groups of women on the basis of their personal and family histories of cancer.

As the findings from Kaiser Permanente's research and demonstration projects focused on women are integrated into its service delivery patterns, the quality of services to women members is enhanced and important leadership in women's health is provided.

Women As Consumers and Coordinators of Health Care

A *New York Times* article[22] recently pointed out that an integrated managed care program seems tailor-made for women because it provides a coordinated system of care that makes preventive services readily available—and women use preventive services at twice the rate men do. Indeed, the Women's Health Study[21] conducted among Kaiser Permanente's women members in 1998 indicated that coordination of care is one of four priority areas of concern to women, along with access, choice and flexibility, and friendly and supportive clinicians and staff. Not surprisingly, considering that women place a much stronger value on the quality of interpersonal relationships, this same study found that encountering friendly and supportive physicians was most important in differentiating satisfied versus unsatisfied female members.

That women's health issues are now being taken very seriously in this country is evident from recently passed legislation that makes managed care more accountable to women patients. This legislation includes the Newborns' and Mothers' Health Protection Act,[23] which requires a minimum hospital stay of 48 hours after a normal vaginal birth and 96 hours after a Caesarean delivery unless mother and physician agree to an earlier discharge. The proposed Patients' Bill of Rights makes choosing an obstetrician and gynecologist for primary care the law of the land.

Now that numerous studies and marketing analyses have learned that women are the primary decision-makers in choosing a family's health plan and that women assume a coordinating role in their families' care, attention to women's health issues is playing an important role in the financial success of health care organizations. As Kaiser Permanente builds and further improves its firm base in research and in coordinated clinical programs for women, we can expect higher member satisfaction and continued member growth. ❖

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Bad Belly

The most important thing I know to be able to heal is not to take a cold drink on an empty stomach on a hot day … It gives you Bad Belly … you can't heal if you have Bad Belly.

Don Eligio Panti, 95-year-old Mayan healer, from Carl A. Hammershlag, MD
The Theft of the Spirit