PROGRAM BRIEF

Women's Health Highlights: Recent Findings

Agency for Healthcare Research and Quality

The mission of AHRQ is to improve the quality, safety, efficiency, and effectiveness of health care by:

- Using evidence to improve health care.
- Improving health care outcomes through research.
- Transforming research into practice.

Introduction

At the turn of the centruy (1900), U.S. women were most likely to die from infectious diseases and complications of pregnancy and childbirth. Today, the chronic conditions of heart disease, cancer, and stroke account for 63 percent of American women's deaths and are the leading causes of death for both women and men.

Women have a longer life expectancy than men, but they do not necessarily live those extra years in good physical and mental health. On average, women experience 3.1 years of disability at the end of life.

The Agency for Healthcare Research and Quality (AHRQ) supports research on all aspects of health care provided to women, inluding:

- Enhancing the response of the health system to women's needs.
- Understanding differences between the health care needs of women and men.
- Understanding and eliminating disparities in health care.
- Empowering women to make better health care decisions.

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This summary presents recent findings from a cross-section of AHRQ-supported research projects on women's health.

See the back cover of this brief to find out how you can get more detailed information on AHRQ's research programs and funding opportunities. An asterisk (*) indicates that reprints of an intramural study or copies of other publications are available from AHRQ.

Cardiovascular Disease

Heart disease is the number one killer of women in the United States. More than one-third of all deaths among U.S. women are due to heart disease, which usually occurs about 10 years later in life in women than in men. Heart disease mortality differs substantially among women of different races.

- *Women with atherosclerosis and high cholesterol receive less intense cholesterol management than men.*

The researchers examined cholesterol management of 243 primary care patients from one academic medical center. The patients had coronary heart disease, cerebrovascular disease, or peripheral vascular disease and high (over 130 mg/dl) low-density (bad) cholesterol. Cholesterol management by either medication adjustments or LDL monitoring occurred at 31.2 percent of women's visits and 38.5 percent of men's visits. Women were 23 percent less likely than men to have their cholesterol managed. Persell, Maviglia, Bates, and Ayanian, *J Gen Intern Med* 20:123-130, 2005 (AHRQ grant T32 HS00020)

- *Existing heart disease is undiagnosed in half of women who have a first heart attack.*

Many women who suffer a first heart attack have cardiac risk factors—such as high blood pressure, obesity, and diabetes—that have not been treated and represent missed opportunities to prevent heart problems in women. The researchers reviewed medical records of 150 women in one Minnesota county who suffered a heart attack between 1996 and 2001. Over the 10 years preceding their first heart attack, the women made a total of 8,732 outpatient visits and had 457 hospitalizations, but only 52 percent of the women had been diagnosed with heart disease. About 80 percent of women with high blood pressure were treated with antihypertensive medications, but only 28 percent of women were prescribed drug therapy for high cholesterol or lipid levels. Yawn, Wollan, Jacobsen, et al., *J Women's Health* 13(10):1087-1100, 2004 (AHRQ grant HS10239).

- *Younger women with heart failure have worse quality of life than men and older women.*

Shortness of breath, fatigue, and emotional problems caused by heart failure lead to reduced quality of life, which negatively affects younger women with heart failure more than elderly women or men of any age. However, women younger than 65 in this study had more improvement in fatigue over time than older women and more improvement in emotional symptoms over time than men age 65 or older. Hou, Chui, Eckert, et al., *Am J Crit Care* 13(2):153-161, 2004 (AHRQ grant HS09822).

- *Treatment of high cholesterol in women should be based on all risk factors for heart disease.*

For women who don't have cardiovascular disease, use of cholesterol-lowering drugs to treat high cholesterol does not affect rates of death due to coronary heart disease (CHD) or total death rates. In women with known cardiovascular disease (CVD), lipid-lowering therapy can reduce CHD-related death, heart attack, and heart surgery, but it does not affect total mortality. Walsh and Pignone, *JAMA* 291(18):2243-2252, 2004 (contract 290-97-0013).

- *Women and men with cardiovascular disease and high cholesterol may receive different levels of treatment.*

This study found that among people with CVD, men have their cholesterol measured more often, are treated more aggressively (e.g., with statins), and have lower levels of so-called "bad" cholesterol or LDL-C than women. Kim, Hofer, and Kerr, J *Gen Intern Med* 18:854-863, 2003 (AHRQ grant HS11540).

- *Diabetes increases a woman's risk of death from coronary heart disease.*

These researchers found that compared with women who had neither diabetes nor CHD, women with only CHD had nearly double the risk of CHD-related death, while women with only diabetes had nearly four times the risk for CHD death. Those who had both CHD and diabetes were at greatest risk for CHD death. Natarajan, Liao, Cao, et al., *Arch Intern Med* 163:1735-1740, 2003 (AHRQ grant HS10871).

- *Researchers find male-female differences in receipt of recommended cardiovascular care.*

These researchers evaluated differences between men and women in rates of receipt of recommended cardiovascular and diabetes care for enrollees in 10 commercial and 9 Medicare plans. In commercial plans, an average of 73.6 percent of men and 63.8 percent of women without a contraindication were prescribed a beta-blocker after a heart attack. Among the three plans with significant male-female differences, all favored men, ranging from an advantage of 23.4 to 40 percentage points. Bird, Fremont, Wickstrom, et al., *Women's Health Issues* 13:150-157, 2003 (contract 290-00-0012).

- *Lack of research on women limits usefulness of studies on CHD.*

Although CHD causes more than 250,000 deaths in women each year, much of the research in the last 20 years on CHD has either excluded women or included only limited numbers of women. Two reviews focused on CHD in women were conducted by AHRQ's Evidence-based Practice Center (EPC) at the University of California, San Francisco/Stanford. They examined the usefulness of various lab tests and treatments for CHD in women, the role of exercise, and the effectiveness of behavioral changes in lowering CHD risk in women. Copies of the two reports, *Results of a Systematic Review of Research on Diagnosis and Treatment of Coronary Heart Disease in Women*, Evidence Report/Technology Assessment No. 80 (AHRQ Publication No. 03-E035 full report; 03-E034 summary) and *Diagnosis and Treatment of Coronary Heart Disease in Women: Systematic Reviews of Evidence on Selected Topics*, Evidence Report/Technology Assessment No. 81 (AHRQ Publication No. 03-E037, full report; 03-E036 summary) are available from AHRQ (contract 290-97- 0013).*

- *Women with symptomatic heart failure benefit from ACE inhibitors and beta-blockers.*

Researchers at AHRQ's Southern California EPC examined evidence on pharmacologic management of heart failure and found that treatment with ACE inhibitors was beneficial in women, but it did not reduce mortality in women with asymptomatic left ventricular systolic dysfunction. They also found that both women and men with symptomatic heart failure have reduced mortality when treated with beta-blockers. Copies of Evidence Report/Technology Assessment No. 82, *Pharmacologic Management of Heart Failure and Left Ventricular Systolic Dysfunction: Effect in Female, Black, and Diabetic Patients, and Cost-Effectiveness* (AHRQ Publication No. 03-E044, summary and 03-E045, full report) are available from AHRQ (contract 290-97-0001).*

- *Insurance status does not explain male-female differences in heart attack treatments and outcomes.*

According to this study of more than 327,000 men and women who had a heart attack between 1994 and 1997, women received fewer cardiac treatments and procedures and had worse outcomes than men. Regardless of insurance status, women generally were less likely than men to receive aspirin, beta-blockers, intravenous heparin, or nitrate therapies within the first 24 hours of hospital admission. Also, women were much less likely than men to undergo coronary angiography, angioplasty, or coronary bypass surgery, and they were significantly more likely than men to die in the hospital. Canto, Rogers, Chandra, et al., *Arch Int Med* 162:587-593, 2002 (AHRQ grant HS08843).

- *Women have a higher prevalence of white-coat hypertension than men.*

Researchers at AHRQ's Johns Hopkins EPC examined the available evidence on the utility of blood pressure (BP) monitoring outside of the clinic setting. Although there was some support for the use of ambulatory BP monitoring, in general, the evidence was insufficient to compare clinic BP monitoring with BP monitoring elsewhere. Evidence on BP monitoring among population subgroups was rarely stratified by race or sex. The only notable subgroup finding was a higher prevalence of white-coat hypertension in women. Copies of Evidence Report/Technology Assessment No. 63, *Utility of Blood Pressure Monitoring Outside of the Clinic Setting* (AHRQ Publication No. 03-E003, summary and 03-E004, full report) are available from AHRQ (contract 290-97-0006).*

- *Age and sex are significant predictors of death after heart attack.*

In an editorial, this researcher notes that the interaction of age and sex remains a significant predictor of heart attack-

related death, even after adjustment for demographic factors, clinical characteristics, and inpatient cardiac care. Ayanian, *Ann Intern Med* 134(3):239-241, 2001 (AHRQ grant HS09718).

Cancer Screening and Treatment

Breast cancer continues to be the most commonly diagnosed cancer among women in the United Sates. In 2002, an estimated 203,500 U.S. women were newly diagnosed with breast cancer, and nearly 39,000 women died from the disease.

The good news is that breast cancer deaths have declined recently among white women in this country; the bad news is that over the same period, survival has decreased among black women. Although between 12 and 29 percent more white women than black women are stricken with breast cancer, black women are 28 percent more likely than white women to die from the disease. The 5-year breast cancer survival rate is 69 percent for black women, compared with 85 percent for white women.

In 2002, there were an estimated 13,000 newly diagnosed cases of invasive cervical cancer in U.S. women, and about 4,100 women died from the disease. Cervical cancer occurs most often among minority women, particularly Asian-American (Vietnamese and Korean), Alaska Native, and Hispanic women. Although deaths from cervical cancer have declined substantially over the past 30 years, the cervical cancer death rate for black women continues to be more than twice that of white women.

Women who have never had a Pap test or who have not had one for several years have a higher than average risk of developing cervical cancer. Many women still do not have regular Pap tests, particularly older women, uninsured women, minorities, poor women, and women living in rural areas. About half of the women with newly diagnosed invasive cervical cancer have not had a Pap test in the previous 5 years.

Breast Cancer

- *Study reveals shortage of radiologists at community mammography facilities.*

In a 2000-2001 survey of mammography facilities in three States, nearly half of the 45 facilities reported radiologist staffing shortages. Almost two-thirds (60 percent) of not-for-profit facilities reported shortages, compared with less than one-third (28 percent) of for-profit facilities. Waiting times for diagnostic mammography ranged from less than 1 week to 4 weeks. Forty-seven percent of facilities had a waiting time of 2 or more weeks for screening mammography, and some had waiting times of 1 to 2 months. Orsi, Tu, Nakano, et al., *Radiology* 235:391-395, 2005 (AHRQ grant HS10591).

- *Accuracy in reading mammograms is not associated with volume or years of experience.*

For this study, researchers linked nearly 500,000 screening mammograms interpreted by 124 radiologists with breast cancer outcomes data. Within 1 year of mammography, 2,402 breast cancers were identified, a rate of 5.12 per 1,000 screening mammograms. There was no significant association between accuracy and radiologists' years of interpreting mammograms or volume of reading mammograms. The researchers suggest that training prior to practice may be the most important determinant of accuracy in mammogram interpretation. Barlow, Chi, Carney, et al., *J Natl Cancer Inst* 96(24):1840-1850 (AHRQ grant HS10591).

- *Clinicians should discuss use of tamoxifen to prevent breast cancer with women who are likely to benefit from it.*

These researchers surveyed 605 women (aged 40 to 69) seen in 10 general internal medicine practices in North Carolina in 2001 and found that breast cancer risks were higher for white women than for black women. Nine percent of white women and 3 percent of black women in their 40s were found to be at high risk of breast cancer, compared with 24 percent of white women and 7 percent of black women in their 50s and 53 percent of white women and 13 percent of black women in their 60s. Tamoxifen has been shown to reduce the incidence of breast cancer, but it is associated with a higher risk of endometrial cancer, blood clots, and stroke. When these risks were considered, 10 percent or fewer of white women were potentially eligible to take the drug. Lewis, Kinsinger, Harris, and Schwartz, *Arch Intern Med* 164:1897-1903, 2004 (AHRQ contract 290-97-0011).

- *Study underscores the importance of involving women in breast cancer treatment decisions.*

According to this study, women who receive the breast cancer treatment they prefer have a better body image 2 years after treatment than women who do not. Figueiredo, Cullen, Hwang, et al., *J Clin Oncol* 22(19):4002-4009, 2004 (AHRQ grant HS08395).

- *Obesity affects breast cancer screening rates.*

According to this study, white women who are obese are less likely than non-obese white women to obtain a mammogram, a relationship not seen in black women. Among the 5,277 eligible women aged 50 to 75, 72 percent reported mammography use. White women who were obese were more likely than those who were not to report feelings of worthlessness in the

preceding 30 days. Black women did not report these feelings. Wee, McCarthy, Davis, and Phillips, *J Gen Intern Med* 19:324-331, 2004 (AHRQ grant HS11683).

- *Screening mammography is less accurate in overweight and obese women.*

In this study, overweight women had a 14 percent increased risk and obese women had more than a 20 percent increased risk of having a false-positive mammogram compared with underweight and normal weight women. A false-positive rate increase of 2 percent would lead to about 200,000 additional women with false-positive mammography results entailing an additional $20 million to evaluate the results, or about $600 per false-positive result. These costs are over and above the anxiety involved for the women. Elmore, Carney, Abraham, et al., *Arch Intern Med* 164:1140-1147, 2004 (AHRQ grant HS10591).

- *Most women who are diagnosed with early-stage breast cancer can choose either lumpectomy or mastectomy.*

Treatment for early-stage breast cancer usually includes either breast-conserving surgery (lumpectomy) along with radiation or mastectomy (complete removal of the affected breast). A new booklet can help women weigh the pros and cons of both options and take a more active role in the breast cancer treatment. The booklet was developed by AHRQ and the National Cancer Institute, along with other government and nongovernment partners. *Surgery Choices for Women with Early-Stage Breast Cancer* (AHRQ Publication No. PHS 04-M053 English; 05-0031, Spanish) is available from AHRQ.*

- *Researchers assess quality measures for breast cancer care.*

Researchers at AHRQ's University of Ottawa EPC analyzed the scientific literature on quality measures/indicators used to assess the quality of breast cancer care in women. They found only a few evidence-based, formal quality measures for breast cancer care and conclude that it is not possible to derive a meaningful overview of gaps in breast cancer care. Evidence Report/ Technology Assessment No. 105, *Measuring the Quality of Breast Cancer Care in Women* (AHRQ Publication No. 04-E030-1, summary; and 04-E030-2, full report) is available from AHRQ.*

- *Women with certain breast tumors should not increase use of soy products to minimize menopausal symptoms.*

Chemotherapy for breast cancer, including tamoxifen, may induce or accelerate ovarian failure, resulting in severe menopausal symptoms. This review of the evidence demonstrates that soy products may stimulate breast cancer growth and interfere with tamoxifen's anti-tumor activity. Duffy and Cyr, *J Womens Health* 12(7):617-631, 2003 (AHRQ grant T32 HS00011).

- *Screening relatively health elderly women for breast cancer every 2 years is cost effective.*

This review conducted for the U.S. Preventive Services Task Force shows that for women aged 65 and over without significant health problems, breast cancer screening every 2 years reduces mortality at reasonable costs. Mandelblatt, Saha, Teutsch, et al., *Ann Intern Med* 139(10):835-842, 2003 (contract 290-97-0011).

- *Women may not agree with clinicians about genetic testing for breast cancer risk.*

In this study, five focus groups that included both black and white women ages 30 to 79 discussed their opinions and knowledge about genetic testing for breast cancer risk. The women's understanding of risk, genetics, and genetic testing were affected by personal experience and beliefs and differed considerably from clinical definitions and interpretations. The women gave more emphasis to the emotional and social consequences of positive test

results than to physical outcomes. Vuckovic, Harris, Valanis, and Stewart, *Am J Obstet Gynecol* 189:S48-S53, 2003 (AHRQ grant T32 HS00069).

- *Use of tamoxifen to prevent breast cancer should depend on an individual woman's potential benefits and risks.*

This meta-analysis of 32 clinical trials of women (average age 55) on tamoxifen for 4.3 years showed that tamoxifen was associated with a significantly increased risk of endometrial cancer, gastrointestinal cancers, stroke, and pulmonary emboli. Conversely, tamoxifen use significantly decreased heart attack deaths and was associated with an insignificant decrease in heart attack incidence. Braithwaite, Chlebowski, Lau, et al., *J Gen Intern Med* 19:937-947, 2003 (AHRQ grant HS09796).

- *Researchers find international variations in mammography accuracy.*

Compared with community-based mammogram screening programs around the world, North American screening programs appear to interpret a higher percentage of mammograms as abnormal. However, they do not appear to detect more cancers per 1,000 screens. The variations found in this study are likely due to many factors, including characteristics of the women screened, features of the mammography exam, physicians interpreting the mammograms, and features of each country's health care system. Elmore, Nakano, Koepsell, et al., *J Natl Cancer Inst* 95(18):1384-1393, 2003 (AHRQ grant HS10591).

- *Among low-income black women, those most at risk for breast cancer know the least.*

Elderly women are more likely than younger women to die from breast cancer, and black women die more often from the disease due to late diagnosis. In this study, low-income black women 65 and older underestimated their risk of getting breast cancer, and those 85 and older were the least likely to have had a mammogram or breast exam in the preceding 2 years. Jones, Thompson, Oster, et al., *J Natl Med Assoc* 95(9):791-805, 2003 (AHRQ grant HS10875).

- *Higher levels of perceived emotional support lead to increased survival in women with breast cancer.*

This study involved 145 black and 177 white women diagnosed with breast cancer in Connecticut between January 1987 and March 1989. Higher levels of perceived emotional support had a significant association with increased survival among the women who were followed for 10 years. Soler-Vila, Kasl, and Jones, *Cancer* 98:1299-308, 2003 (AHRQ grant HS06910).

- *Delayed or incomplete followup of suspected breast cancer is more common in black women than white women.*

More than one-fourth of black women who have abnormal results from mammography or clinical breast exam have not resolved the diagnosis with followup tests 6 months later. Black women with prior breast abnormalities or higher levels of cancer anxiety were about half as likely as others to followup on the abnormal results within 3 to 6 months. Delays of 3 to 6 months have been associated with lower survival rates compared with women who have shorter delays. Kerner, Yedida, Padgett, et al., *Prev Med* 37:92-101, 2003 (AHRQ grant HS08395).

- *Radiologists' access to previous mammograms improves accuracy of mammogram readings.*

When radiologists have access to women's previous mammograms, the incidence of false-positive mammogram readings is reduced by at least half. The researchers examined 1999 medical data on screening and diagnostic mammograms for 5,000 patients at a single Southern hospital. Kleit and Ruiz, *Health Serv Res* 38(4):1207-1228 (AHRQ grant HS10068).

- *Benefits of adding radiation therapy to tamoxifen after lumpectomy diminish with increasing age.*

This study found that a 50-year old postmenopausal woman with localized breast cancer who receives radiation therapy and tamoxifen after breast conserving surgery is 54 percent less likely to die from breast cancer compared with receipt of tamoxifen alone. The reduced risk for an 80-year-old woman is 42 percent. Punglia, Kuntz, Lee, and Recht, *J Clin Oncol* 21(12):2260-2267, 2003 (T32 HS00020).

- *Study finds significant differences in survival for three breast cancer treatment alternatives.*

Using Medicare claims data, the researchers found highly significant differences in survival for elderly women with early stage breast cancer who underwent one of three treatments: mastectomy, breast conserving surgery with radiation, and breast conserving surgery only. These results, which are based on observational data, differ from results of randomized clinical trials. Hadley, Polsky, Mandelblatt, et al., *Health Econ* 12:171-186, 2003 (AHRQ grant HS08395).

- *Lumpectomy followed by radiation and mastectomy are equally effective for treating early-stage breast cancer.*

Two studies by researchers at Georgetown University examined the cost-effectiveness of surgical treatments for early-stage breast cancer and patients' quality of life after surgery. The first study found that giving older women with early stage breast cancer a choice of breast-conserving surgery (lumpectomy) followed by radiation treatment or mastectomy is cost effective. The second study showed that, with the exception of surgical removal of armpit lymph nodes to determine

cancer spread, how older women are treated during their care, not the therapy itself, is the most important determinant of long-term quality of life. Polsky, Mandelblatt, Weeks, et al., *J Clin Oncol* 21(5):1139-1146, 2003; Mandelblatt, Edge, Meropol, et al., *J Clin Oncol* 21(5):855-863, 2003 (AHRQ grant HS08395).

- *Reading a large volume of mammograms is only one factor influencing radiologists' accuracy.*

Radiologists who examine more than 5,000 mammograms a year are more likely to accurately interpret them than radiologists who read a low volume of mammograms. Factors other than volume also influence radiologists' accuracy in mammogram interpretation, including fear of medical malpractice, differences in the women screened, having women return to the same facility year after year, and having prior films available for comparison. Elmore, Miglioretti, and Carney, *J Natl Cancer Inst* 95(4):250-252, 2003 (AHRQ grant HS10591).

- *Patients' choice of breast cancer treatment affects health.*

Researchers surveyed 683 older women with localized breast cancer at 5 months, 1 year, and 2 years following breast cancer surgery at 1 of 29 hospitals in Massachusetts, Texas, Washington, DC, and New York. The investigators found that women aged 67 and older who participate with their doctor in choosing which treatment they receive recover faster and have a more positive short-term outlook than women who are not given a choice. Polsky, Keating, Weeks, et al., *Med Care* 40(11):1068-1079, 2002 (AHRQ grant HS08395).

- *Study finds variability in the interpretation of mammograms.*

In this study, investigators examined results from 24 community radiologists' interpretations of 8,734 screening mammograms from 2,169 women over 8 years. They found wide variation in how frequently different radiologists noted masses, calcifications, and other suspicious lesions. The rate of false-positive readings ranged from 2.6 to 15.9 percent. Elmore, Miglioretti, Reisch, et al., *J Natl Cancer Inst* 94(18):1373-1380, 2002 (AHRQ grant HS10591).

- *Older black women do not receive preferred breast cancer treatment.*

Data from 984 black and 849 white Medicare-insured women aged 67 years or older who had localized breast cancer were analyzed, and a subset of 732 surviving women were interviewed 3 to 4 years after treatment. Black women were 36 percent more likely than white women to receive mastectomy versus breast-conserving surgery and radiation. Further, when black women received BCS, they were 48 percent more likely than white women to not have radiotherapy. Mandelblatt, Kerner, Hadley, et al., *Cancer* 95:1401-1414, 2002 (AHRQ grant HS08395).

- *Patient age and provider specialty affect the use of axillary dissection.*

Using medical records for 464 elderly women with stage 1-2 breast cancer who had breast-conserving surgery and 158 surgeon surveys, investigators examined patient, clinical, and surgeon characteristics associated with the non-use of axillary lymph node biopsy. Older age was strongly associated with decreasing odds of undergoing node biopsy. Women who were cared for by surgeons with training in surgical oncology were 60 percent less likely to undergo node dissection than women cared for by other surgeons. Edge, Gold, Berg, et al., *Cancer* 94:2534-2541, 2002 (AHRQ grant HS08395).

- *Communication of treatment options enhances quality of care.*

Researchers analyzed data from 613 surgeons and their patients who had been diagnosed with localized breast cancer. According to the study results, older women who are told about treatment options by their surgeons are more likely to receive breast-conserving surgery with radiation than other types of treatment. These women also are more likely to be satisfied with the care they receive. Liang, Burnett, Rowland et al., *J Clin Oncol* 20(4):1008-1016, 2002 (AHRQ grant HS08395).

- *Removing axillary lymph nodes has a substantial negative impact on elderly women's quality of life.*

Researchers examined the quality of life of 571 elderly women diagnosed with stage I or II breast cancer between 1995 and 1997. They interviewed the women at 3 months, 12 months, and 24 months after surgery about problems with arm functioning, physical and mental functioning, overall impact of breast cancer on their lives, and worry about cancer recurrence. Sixty percent of the women reported arm problems at some time in the 2 years after surgery (83 percent had axillary lymph nodes removed and 17 percent did not). Women with arm problems used significantly more physical therapy services, and arm problems were the primary determinant of reduced physical and mental functioning. Mandelblatt, Edge, Meropol, et al., *Cancer* 95(12):2445-2454, 2002 (AHRQ grant HS08395).

- *Mammography improves outcomes of elderly cancer patients.*

To determine the impact of mammography screening on elderly breast cancer patients, data were examined on 718 patients newly diagnosed with stage I and II disease at 29 hospitals. Researchers found that 96 percent of women with cancer diagnosed with a mammogram had stage I lesions compared with 81 percent of women diagnosed by other means. Kerner, Mandelblatt, Silliman, et al., *Breast Cancer Res Treat* 69(1):81-91, 2001 (AHRQ grant HS08395).

- *Illness burden and breast cancer therapy are correlated.*

Investigators assessed the correlations between five measures of illness burden, global health, and physical function and evaluated how each measure correlated with breast cancer treatment patterns in a group of 718 older women with early-stage breast cancer. All of the measures were significantly correlated with each other and with physical function and self-rated health. Mandelblatt, Bierman, Gold, et al., *Health Serv Res* 36(6):1085-1107, 2001 (AHRQ grant HS08395).

- *Hospitals should implement care coordination mechanisms for early-stage breast cancer patients.*

Researchers interviewed 67 physicians, nurses, and support staff at six hospitals about inpatient and outpatient approaches to coordinating care for breast cancer patients. At high-coordination hospitals, 88 percent of women with breast-conserving surgery received recommended radiotherapy, and 84 percent of those with tumors larger than 1 cm received recommended systemic chemotherapy compared with 76 and 73 percent of women, respectively, at low-coordination hospitals. Bickell and Young, *J Gen Intern Med* 16:737-742, 2001 (AHRQ grant HS09844).

- *Task Force revises recommendations for mammography.*

The U.S. Preventive Services Task Force updated its recommendation by calling for screening mammography, with or without clinical breast exam, every 1 to 2 years for women 40 and over. The recommendation acknowledges some risks associated with mammography, which will lessen as women age. The strongest evidence of benefit and reduced mortality from breast cancer is among women ages 50 to 69. The recommendation and materials for clinicians and patients are available at www.ahrq.gov/clinic/3rdupstf/breastcancer/.

- *Outpatient mastectomies have increased over the last decade.*

Researchers reviewed hospital inpatient and outpatient discharge records for all women who were treated for cancer with a breast procedure (lumpectomy, partial mastectomy, or complete mastectomy) between 1990 and 1996 in Colorado, Maryland, New Jersey, and New York and between 1993 and 1996 in Connecticut. They found that two key factors influence whether a woman gets a complete mastectomy in the hospital or in an outpatient setting: the State where she lives and who is paying for it. For example, women in New York were more than twice as likely, and in Colorado women were nearly nine times as likely, as women in New Jersey to have an outpatient complete mastectomy. Nearly all Medicaid and Medicare enrollees were kept in the hospital after their surgery, as were 89 percent of women enrolled in HMOs. Case, Johantgen, and Steiner, *Health Serv Res* 36(5):869-884, 2001. Reprints (AHRQ Publication No. 01-R008) are available from AHRQ (Intramural).*

- *Physicians' preferences help determine treatment for older women with breast cancer.*

Researchers at Georgetown University queried a random sample of 1,000 surgeons who were given three scenarios of older women with localized breast cancer. They were asked whether they would use breast-conserving surgery (BCS) or mastectomy and whether they would use radiation therapy after BCS. Surgeons' preferences were significantly associated with self-reported practice and treatments and explained some of the variations in treatment among older women. Mandelblatt, Berg, Meropol, et al., *Med Care* 39(3):228-242, 2001 (AHRQ grant HS08395).

- *Evidence report focuses on management of breast abnormalities.*

Researchers conducted an extensive review of the evidence on management of breast abnormalities, including

excisional biopsy following a stereotactic core needle biopsy, use of tamoxifen therapy, and sentinel lymph node biopsy. The full evidence report, *Management of Specific Breast Abnormalities*, Evidence Report/Technology Assessment No. 33 (AHRQ Publication No. 01-E046) and summary (AHRQ Publication No. 01-E045), are available from AHRQ (contract 290-97-0016).*

Cervical Cancer

- *Despite new guidelines, most ob-gyns continue to over-screen low-risk women for cervical cancer.*

The American Cancer Society suggests that cervical cancer screening with Pap tests begin within 3 years after a woman becomes sexually active or by age 21, whichever comes first. The ACS no longer recommends annual screening in women over age 30 who have had three or more previous normal Pap tests. The American College of Obstetricians and Gynecologists has made similar recommendations. Yet, 185 randomly selected ob-gyns said that they would begin screening girls who were not yet sexually active at age 18. Also, 60 percent of respondents said that they would continue annual screening in a 35-year-old woman with three or more normal tests. Saint, Gildengorin, and Sawaya, *Am J Obstet Gynecol* 192:414-421, 2005 (AHRQ grant HS07373).

- *Less frequent cervical cancer screening may be a safe option.*

Current care guidelines recommend extending the interval for Pap tests from once a year to once every 3 years among low-risk women with three consecutive negative pap tests. According to this study, the less-frequent approach is a safe option with only minimal excess risk of cervical cancer in women aged 30 to 64. Sawaya, McConnell, Kulasingam, et al., *New Engl J Med* 349(16):1501-1509, 2003 (AHRQ grant HS07373).

- *Rural women report satisfaction with telecolposcopy.*

Women living in rural Georgia felt that telecolposcopy saved them time and money and said they would recommend the procedure to a friend. The women believed that telecolposcpy improved the quality of their care, and they felt better about their health after the exam. Ferris, Litaker, and Lopez, *J Am Board Fam Pract* 16:405-411, 2003; see also Bishai, Ferris, and Litaker, *Med Decision Making* 23:463-470, 2003 (AHRQ grant HS08814).

- *Cervical cancer rates among younger women have decreased.*

According to this study, the rate of cervical cancer detected among women younger than 30, incidence rates of cervical cancer overall and squamous cell cancer specifically declined by nearly 1 percent per year from 1973 to 1999. Chan, Sung, and Sawaya, *Obstet Gynecol* 102(4):765-773, 2003 (AHRQ grant HS07373).

- *South Asian women should be targeted to receive cervical cancer screening.*

Despite the high socioeconomic status of Indian and other South Asian women living in the United States, this study found that one-fourth of them had not had a Pap smear in more than 3 years. Regions with large South Asian populations should be targeted with messages promoting cervical cancer screening. The message should be aimed particularly at unmarried South Asian women of low socioeconomic status who have spent little time in America. Chaudhry, Fink, Gelberg, and Brook, *J Gen Intern Med* 18:377-384, 2003 (AHRQ grant HS10597).

- *Telecolposcopy can enhance diagnostic accuracy.*

Researchers examined the efficacy of telecolposcopy for women with abnormal Pap smears or other indications for colposcopy who were examined by local colposcopists at rural clinics. Images of colposcopic examinations were transmitted to a tertiary care center for interpretation by an expert colposcopist and to an expert at the rural site. The colposcopists did not share findings with each other. Agreement ranged from 60, 56, and 53 percent for the local colposcopists, distant experts, and site experts, respectively. Ferris, Macfee, Miller, et al., *Obstet Gynecol* 99(2):248-254, 2002 (AHRQ grant HS08814).

Breast and Cervical/Ovarian Cancer

- *Task Force recommends against routine testing for genetic risk of breast or ovarian cancer.*

According to the U.S. Preventive Services Task Force, primary care physicians should only refer certain women for genetic counseling and DNA testing to detect the presence of specific BRCA1 and BRCA2 gene mutations that may be associated with breast and ovarian cancer. Physicians should suggest counseling and DNA testing only for women who have specific family history patterns which put them at risk for these gene mutations. Nelson, Huffman, Fu, and Harris, *Ann Intern Med* 143(5):362-379; see also pages 355-361 in the same journal (AHRQ contract 290-97-0011).

- *Physician specialty influences use of screening mammography and Pap smears in gatekeeper plans.*

The impact of gatekeeper plans—which require a referral to see a specialist—on cancer screening varies according to the specialty of a woman's primary care physician, according to this study. For example, the use of mammography to screen for breast cancer and Pap smears to screen for cervical cancer among patients of internal medicine physicians were unaffected by enrollment in a gatekeeper plan. On the other hand, screening rates were increased if family practice physicians were in gatekeeper plans. The researchers note that

different cultures of practice may explain the study findings. Haggstrom, Phillips, Liang, et al., *Cancer Causes and Control* 15:883-892, 2004 (AHRQ grant HS10771 and HS10856).

- *Breast and cervical cancer screening rates are higher in areas with greater HMO market share.*

After taking into account individual and area factors, women in high HMO market share areas were nearly twice as likely to have recently had a mammogram or Pap smear, according to this study. Also, women were 58 percent more likely to have had a recent clinical breast exam than women in areas with low managed care penetration. Also, there was a spillover effect to women not enrolled in managed care. The researchers linked data on cancer screening from the 1996 Medical Expenditure Panel Survey with data on HMO market share and HMO competition in metropolitan statistical areas. Baker, Phillips, Haas, et al., *Health Serv Res* 39(6, part I):1751-1772, 2004 (AHRQ grants HS10771, HS10856, and HS10925).

- *Personalized form letters may improve breast and cervical cancer screening among some women.*

According to this study of more than 1,500 urban low-income and minority women, sending them a personalized form letter with general cancer information increases the likelihood they will be screened for cervical and breast cancer. Jibaja-Weiss, Volk, Kingery, et al., *Patient Educ Couns* 50:123-132, 2003 (AHRQ grant HS08581).

Other Cancers

- *Screening sigmoidoscopy may be less effective for detecting colorectal cancer in women and older people.*

This study found that screening for colorectal cancer with a 60-cm flexible sigmoidoscope resulted in inadequate exams for 18 percent of patients of all ages. The percentage of inadequate exams increased progressively with age, from 10 percent for ages 50 to 59 to 22 percent for ages 80 or older. Inadequate exams were more common in women of all ages, ranging from 19 percent (ages 50-59) to 32 percent (ages 80 and older). Women are more likely than men to experience pain during the exam, and they have longer colons in a smaller abdominal cavity. Walter, deGarmo, and Covinsky, *Am J Med* 116:174-178, 2004 (AHRQ grant K02 HS00006).

Hysterectomy and Other Treatments for Uterine Conditions

More than 500,000 hysterectomies are performed in the United States each year at an annual cost of more than $5 billion. More than one-third of women in the United States have had a hysterectomy by age 60.

The most common reason for hysterectomy for women of any age continues to be fibroid tumors, which in the mid-1990s accounted for about one-third of all hysterectomies (nearly two-thirds for black women). Other reasons for hysterectomy include endometriosis (about 18 percent), uterine prolapse (16 percent), excessive bleeding (5 percent), and other causes (10 percent).

- *Type of hysterectomy does not affect sexual functioning and quality of life 2 years later.*

Women who undergo supracervical hysterectomy (cervix is left in place) or total abdominal hysterectomy (cervix is removed) achieve similar sexual functioning and quality of life 2 years after the procedure, according to this study of 135 premenopausal women who underwent hysterectomy in one of four U.S. clinical centers. At 6 months postsurgery, sexual problems had improved dramatically in both groups, and at 2 years the women reported few problems in this area. Both groups also had substantial improvement in most other quality of life measures. Kuppermann, Summit, Varner, et al., *Obstet Gynecol* 105(6):1309-1318, 2005; see also Learman, Summitt, Varner, et al., *Obstet Gynecol* 102:453-462, 2003 (AHRQ grant HS09478).

- *Hysterectomy offers better outcomes than medicine for women with abnormal uterine bleeding.*

This randomized controlled trial of women aged 30 to 50 who had abnormal uterine bleeding for an average of 4 years found that those in the hysterectomy group had greater improvement in their symptoms and expressed higher satisfaction with their overall health 6 months after treatment than women in the oral medication group. Kuppermann, Varner, Summitt, et al., *JAMA* 291(12):1447-1455, 2004 (AHRQ grant HS07373).

- *Long-term outcomes are similar for women who either have a hysterectomy or go through natural menopause.*

This is the first study to examine the long-term impact of hysterectomy on quality of life. The researchers found no difference in quality of life between women who had a hysterectomy (with or without ovary removal) an average of 27 years earlier and women who had a natural menopause 25 years earlier. The study involved 801 women aged 50-96 who were interviewed between 1992 and 1996. Kritz-Silverstein, Von Muhlen, Ganiats, and Barrett-Connor, *Qual Life Res* 13:55-62, 2004 (AHRQ grant HS06726).

- *Several factors influence women's satisfaction with use of medication to treat abnormal uterine bleeding.*

Factors such as age, fertility status, attitudes about uterine conservation, and intensity of symptoms affect premenopausal women's satisfaction with use of oral medroxyprogesterone acetate to control bleeding. Richter, Learman, Lin, et al., *Am J Obstet*

Gynecol 189:37-42, 2003 (AHRQ grant HS9478).

- *Study finds racial differences in treatment and outcomes of women undergoing surgery for uterine fibroids.*

The researchers examined the medical charts of 225 women (53 percent black, 47 percent white) who underwent abdominal myomectomy for fibroid tumors at one medical center between 1992 and 1998. Black women were more than twice as likely as white women to have in-hospital complications or a blood transfusion. These increased complications were largely due to differences in uterine size and number of fibroids. Roth, Gustilo-Ashby, Barber, and Myers, *Obstet Gynecol* 101:881-884, 2003 (AHRQ grant HS09874).

- *Endometrial ablation does not substitute for hysterectomy.*

Using the State Inpatient and Ambulatory Surgery Databases of the Healthcare Cost and Utilization Project, investigators accessed data on women with benign uterine conditions who underwent hysterectomy or endometrial ablation. In the six States studied, from 1990 to 1997, increases in endometrial ablation rates did not mirror decreases in hysterectomy rates. Results show endometrial ablation was used as an additive medical technology rather than as a substitute for hysterectomy. Farquhar, Naoom, and Steiner, *Int J Technol Assess Health Care* 18(3):625-634, 2002. (Reprints, AHRQ Publication No. 03-R004).*

- *Study shows life satisfaction improves after hysterectomy.*

In a 1992 survey, women were asked to rate their life satisfaction as better, the same, or worse after menopause or hysterectomy. Women who were 20 or more years posthysterectomy or postmenopause were significantly more likely to reply "better" than women 5 or fewer years after these events. Among women with a hysterectomy, 53 percent with oophorectomy and 60 percent with ovarian conservation rated life better after the surgery. Only 42 percent of women who had not had a hysterectomy rated life satisfaction as better after menopause. Kritz-Silverstein, Wingard, and Barrett-Connor *J Women's Health and Gender-Based Med* 11(2):181-190, 2002 (AHRQ grant HS06726).

- *U.S. hysterectomy rates stayed constant but the type of surgery changed.*

An analysis of 1990-1997 hospital discharge data from the Nationwide Inpatient Sample of the Healthcare Cost and Utilization Project revealed that over the study period, rates of hysterectomy for benign uterine conditions remained about the same, abdominal hysterectomy remained the most common procedure, and laparoscopic hysterectomies increased 30-fold. Farquhar and Steiner, *Obstet Gynecol* 99(2):229-234, 2002. (Reprints, AHRQ Publication No. 02-R049) (Intramural).*

- *Study reveals effects of hysterectomy on UI.*

Using the Urinary Symptom Scale for Women, researchers interviewed 1,299 women to assess incontinence before and after hysterectomy. Responses indicate that UI improves for the first 2 years after surgery for most women who have moderate or severe incontinence. According to researchers, women who had mild or no incontinence before hysterectomy had a 10 percent risk of worse or new-onset incontinence after surgery. Kjerulff, Langenberg, Greenaway, et al., *J Urol* 167:2088-2092, 2002 (AHRQ grant HS06865).

- *Report describes evidence on management of uterine fibroids.*

Researchers at the Duke EPC reviewed the available evidence on the commonly used medical and invasive therapies for uterine fibroids and found the overall quality of the literature to be poor and inconsistent. They did, however, find

good evidence that use of gonadotropin-releasing hormone agonists prior to surgery reduces blood loss and may facilitate certain surgical approaches (e.g., use of laparoscopic or vaginal approaches or use of transverse abdominal instead of vertical incisions). They also found that 2-year outcomes are favorable for most women who undergo hysterectomy. Copies of Evidence Report/Technology Assessment No. 34, *Management of Uterine Fibroids* (AHRQ Publication No. 01-E051 summary and 01-E052, full report), are available from AHRQ (contract 290-97-0014).*

Reproductive Health

AHRQ's research on reproductive health focuses on fertility problems, use of contraceptives, chronic pelvic pain, and conditions that can affect fertility and childbearing.

Pelvic inflammatory disease (PID) is one of many health conditions that can affect women during their reproductive years. PID affects more than 1 million U.S. women each year and frequently results in infertility, ectopic pregnancy, and chronic pelvic pain. Annual estimated costs associated with PID and its consequences exceed $4 billion.

- *Uterine artery embolization found to be a low-risk procedure.*

Researchers examined the outcomes of more than 3,000 women who underwent uterine artery embolization for fibroids. The women were treated at 72 sites across the United States. Overall, less than 1 percent of women suffered from major inpatient complications; 4.8 percent suffered from major events (mostly inadequate pain relief) within the first 30 days following hospital discharge. There were no deaths related to the procedure, but 31 women required additional surgical intervention with 30 days of the procedure. Worthington-Kirsch, Spies, Myers, et al., *Obstet Gynecol* 106(1):52-59, 2005; see also pp. 44-51 by the same authors in the same journal (AHRQ grant HS09760).

- *Certain factors predict chronic pelvic pain after PID.*

One-third of women with PID subsequently suffer from chronic pelvic pain. A study of 780 urban women with PID found that women who smoked, those who had previous episodes of PID, women who were married, and those who had low mental health scores were more likely than other women to experience chronic pelvic pain. The researchers also note that recurrent PID can cause adhesions to form and may represent persistent, chronic infection or inflammation, all of which can result in chronic pelvic pain. Haggerty, Peipert, Weitzen, et al., *Sex Trans Dis* 32(5):293-299, 2005; see also Haggerty, Schulz, Ness, et al., *Obstet Gynecol* 102:934-939 (AHRQ grant HS08358).

- *Women who have urinary incontinence are more likely than those with pelvic organ prolapse to complain of sexual problems.*

Pelvic floor disorders—including urinary incontinence (UI) and pelvic organ prolapse—affect nearly one-third of adult women. Researchers at Johns Hopkins University examined the association between pelvic floor disorders and sexual complaints using data collected in 1992-1993 during in-home interviews of 1,299 women aged 30 to 50 who were scheduled to undergo hysterectomy. Nearly 40 percent of the women had evidence of pelvic floor disorders. UI was associated with twice the likelihood of low libido, vaginal dryness, and painful intercourse, independent of a woman's age, education, or race. In contrast, pelvic organ prolapse was not associated with sexual problems. Handa, Harvey, Cundiff, et al., *Am J Obstet Gynecol* 191:751-756, 2004 (AHRQ grant HS06865).

- *Drug regimens for treating PID should include metronidazole.*

In a recent study of 278 women with clinically suspected PID, researchers frequently isolated bacteria that are strongly associated with endometritis. This finding prompted them to recommend that all women with PID be treated with drug regimens that include the broad-spectrum antibiotic, metronidazole. They conclude that this approach could potentially reduce the frequency of infertility, chronic pelvic pain, recurrent PID, and ectopic pregnancy after treatment. Haggerty, Hillier, Bass, et al., *Clin Infect Dis* 39:990-995, 2004 (AHRQ grant HS08358).

- *Targeted chlamydia screening found to be most effective and cost effective.*

Annual screening for chlamydia of all sexually active women aged 15 to 29, coupled with semiannual screening of those with a history of chlamydial infection, is the most effective and cost-effective screening strategy, according to this study. Since most chlamydial infections are asymptomatic and are 100 percent curable if caught early, screening and early treatment are critical. Hu, Hook, and Goldie, *Ann Intern Med* 141:501-513, 2004 (AHRQ grant T32 HS00020).

- *Many women face barriers to consistent use of oral contraceptives.*

Uninterrupted use of oral contraceptive pills is necessary for optimal effectiveness. For some women, out-of-pocket costs and the inconvenience of making monthly pharmacy visits may be barriers to consistent use of oral contraceptives, according to this study. Phillips, Stotland, Liang, et al., *JAMA* 59:36-42, 2004 (AHRQ grants HS10771 and HS10856).

- *Researchers examine effects of condom use on recurrent PID.*

In this study of 684 sexually active women with PID, consistent condom users had 50 percent less risk of

recurrent PID compared with inconsistent users of condoms. Other barrier methods, such as diaphragms and use of oral contraceptives, had no effect on risk of recurrent PID. Ness, Randall, Richter, et al., *J Public Health* 94(8):1327-1329, 2004 (AHRQ grant HS08358).

- *Research findings suggest that invasive prenatal diagnostic testing should be offered to all women.*

Current guidelines recommend offering noninvasive screening tests (blood tests and/or ultrasound) to pregnant women younger than 35 and reserving invasive diagnostic testing (amniocentesis and chorionic villus sampling) for women age 35 or older and those at elevated risk for having a child with a genetic disorder. Two recent studies disagree. The first study recommends that prenatal diagnostic testing be offered to all women, not just those at elevated risk. The second study concludes that prenatal diagnostic testing can be cost effective at any age or risk level. Caughey, Washington, Gildengorin, and Kuppermann, *Obstet Gynecol* 103:539-545, 2004 (AHRQ grant HS07373); and Harris, Washington, Nease, and Kuppermann, *Lancet* 363:276-282, 2004 (AHRQ grant HS07373).

- *Endometritis does not predict reproductive problems after PID.*

In a study that involved 614 women, the researchers compared women with endometritis, upper genital tract infection (gonorrhea or chlamydia), or both to women without these problems for outcomes of pregnancy, infertility, recurrent PID, and chronic pelvic pain. For women with mild to moderate PID who were treated with standard antibiotics, endometritis and/or infection were not associated with reduced pregnancy, elevated infertility, or recurrent PID. Haggerty, Ness, Amortegui, et al., *Am J Obstet Gynecol* 188:141-148, 2003 (AHRQ grant HS08358).

- *Inpatient and outpatient PID treatment outcomes are similar.*

Researchers compared the effectiveness of inpatient and outpatient treatment strategies in preserving fertility and preventing recurrence of PID, chronic pelvic pain, and ectopic pregnancy for women with mild to moderate PID. After 35 months, pregnancy rates were nearly equal between the groups. There were no significant differences between the proportion of women with ectopic pregnancy, chronic pelvic pain, or PID recurrence. Ness, Soper, Holley, et al., *Am J Obstet Gynecol* 186(5):929-937, 2002 (AHRQ grant HS08358).

- *Contraception affects risk of upper genital tract infection.*

Researchers interviewed and obtained endometrial samples from 14- to 37-year-old females with PID to examine the link between hormonal and barrier contraception on the development of UGTI. About 60 percent of the women were age 24 or younger, and nearly 63 percent of the women were black. Although inconsistent use of condoms was associated with a two to three times greater risk of UGTI, no contraceptive method significantly reduced UGTI. Ness, Soper, Holley, et al., *Am J Obstet Gynecol* 185:121-127, 2001 (AHRQ grant HS08358).

- *Researchers evaluate use of clinical predictors of endometritis in women with symptoms of PID.*

Adnexal tenderness (tenderness of the ovaries and/or fallopian tubes) identifies over 95 percent of women with PID, but only 83 percent are identified by the minimum criteria for diagnosing PID suggested by the Centers of Disease Control and Prevention. These and other findings are based on the characteristics of 651 women enrolled in a multicenter randomized treatment trial for PID, clinical and laboratory findings, and endometrial sampling. Peipert, Ness, Blume, et al., *Am J Obstet Gynecol* 184:856-864, 2001 (AHRQ HS08358).

Health Care Access, Quality, and Costs

The many changes taking place in health care delivery in the United States have serious implications for women's health. These changes include a consolidation of the health care system, a shift to managed care, and decreased public funding of health care and health-related programs. These changes mean woman need more information than ever before to help them make informed health care choices for themselves and their families.

- *Physician specialty linked to patient satisfaction among younger women.*

Younger women (aged 18 to 34) are more satisfied with their health care when a reproductive health specialist is the primary provider, according to this study of more than 1,100 women who made primary care visits in 2001. The researchers defined reproductive health specialists as obstetrician/gynecologists and nurse midwives. They found increased satisfaction with health care coordination and comprehensiveness of care among younger women seen by these providers. Henderson and Weisman, *Med Care* 43(8):826-833, 2005 (HS10237).

- *Study finds link between State policies and women's mortality rates for certain diseases.*

Researchers at Oregon Health & Science University examined State policies affecting women's health in four areas: reproductive issues (e.g., State requirements for private insurers to cover cervical cancer screening), economic issues (e.g., child support payments), access to care (e.g., Medicaid eligibility requirements), and ensuring healthy communities (e.g., gun control and aid to victims of domestic violence). They found that Medicaid eligibility

policies accounted for 66 percent of the variation in heart disease mortality across States. Policies related to violence against women and gun control, family medical support and efforts to expand Medicaid, and tracking of environmental health accounted for 50 percent of the variance in lung cancer mortality. Wisdom, Berlin, and Lapidus, *Soc Sci Med* 61:1776-1784, 2005 (AHRQ grant T32 HS00069).

- *Informal caregivers influence hospitalization of elderly women.*

The researchers analyzed data from a sample of 420 disabled elderly women who were receiving informal care from family and friends. The objective was to examine the relationship between caregiver attributes and the women's hospitalization experiences. Results showed that the women were more likely to be hospitalized but less likely to have a delayed discharge if their caregivers felt competent in their role. Nearly half of the women were never hospitalized over 3 years. Those who were hospitalized tended to be older, were in worse health, had more task limitations, and had a cardiopulmonary condition or diabetes. Wolff and Kasper, *Aging Clin Exp Res* 16(4):307-313, 2004 (AHRQ grant T32 HS00029).

- *Inequalities in care continue to limit women's access to the most effective therapies.*

In this article, AHRQ's Senior Advisor on Women's Health identifies five key areas for advancing women's health: research, clinical practice, policy, curriculum development, and research training. Studies that focus separately on women and men are needed to develop targeted quality measures and other initiatives that address the unique health care needs of women. Correa-de-Araujo, *Women's Health Issues* 14:31-34, 2004 (Reprints, AHRQ Publication No. 04-R044) (Intramural).*

- *Racial disparities found in Medicare managed care plans.*

Data from the 1998 Medicare Health Plan Employer Data and Information Set on 305,574 elderly patients enrolled in Medicare managed care health plans revealed racial differences in clinical services. For example, blacks were less likely than whites to receive breast cancer screening (63 vs. 71 percent). Researchers said more than half of this disparity was explained by socioeconomic factors. Schneider, Zaslavsky, and Epstein, *JAMA* 287(1):1288-1294, 2002 (AHRQ grant HS10803).

- *Disparities in men's and women's mental health may be sociodemographic.*

Using the 12-item General Health Questionnaire with men and women working in three organizations in the United Kingdom, researchers found that women had more minor mental health problems than men. However, in each organization, women were overrepresented in the lowest grades and underrepresented in the higher grades. Studies of differences between men and women in mental health should take into account their work and life situations. Emslie, Fuhrer, Hunt, et al., *Soc Sci Med* 54:621-624, 2002 (AHRQ HS06516).

- *Lack of prenatal coverage decreases chances for timely care.*

This study examined the relationship between timing of insurance coverage and prenatal care among 5,455 low-income women. Rates of untimely prenatal care were highest among women who were uninsured throughout their pregnancy or whose coverage began after the first trimester and were lowest among women who obtained coverage during the first trimester. Egerter, Braveman, and Marchi, *Am J Public Health* 92(3):423-427, 2002 (AHRQ HS07910).

- *Medicare fees influence choice of breast cancer treatment.*

Investigators used data from Medicare files, the American Hospital Association's Annual Survey of Hospitals, and the 1990 census to investigate whether Medicare fees for breast-conserving surgery (BCS) and mastectomy (MST) affected the rate of BCS across 799 ZIP code areas. Results show a that a 10 percent higher BCS Medicare fee was associated with a 7 to 10 percent higher BCS rate. A 10 percent higher MST fee was associated with a 2 to 3 percent lower proportion of women receiving BCS. Hadley, Mitchell, and Mandelblatt, *Med Care Res Rev* 58(3):334-360, 2001 (AHRQ grant HS08395).

- *AHRQ fact book answers questions on hospital care for women.*

Using Healthcare Cost and Utilization Project (HCUP) data, researchers describe the care of women in U.S. hospitals in 2000 for the following categories: age, charges, length of stay, in-hospital deaths, insurance coverage, and obstetric care. Jiang, Elixhauser, Nicholas, et al., *Care of Women in U.S. Hospitals, 2000*, HCUP Fact Book No. 3 (AHRQ Publication No. 02-0044).*

- *Researchers describe U.S. women's health status.*

Using 1996 MEPS data, this report describes the health status of U.S. women (perceived health, mental health, and presence of limitations) and their insurance status. Information is presented on women's usual source and type of care as a way to examine access to care. Altman and Taylor, *Women in the Health Care System: Health Status, Insurance, and Access to Care*, MEPS Research Findings 17 (AHRQ Publication No. 02-0004).*

- *A new report illustrates health disparities and gaps between men and women.*

Based on data from the MEPS Household Component and the 1987 National Medical Expenditure Survey, this report presents estimates of health insurance, access to and use of care, and health status among women of different racial and ethnic groups in the United States, as well as differences between men and women. Kass-Bartelmes, Altman, and Taylor, *Disparities and Gender Gaps in Women's Health, 1996*, MEPS Chartbook No. 8 (AHRQ Publication No. 02-0003).*

- *Health plan satisfaction survey finds small differences between the sexes.*

Using the Consumer Assessment of Health Plans Study (CAHPS®) adult questionnaire, researchers interviewed nearly 100,000 men and women enrolled in 206 commercial managed care plans nationwide about satisfaction with their health plans. Results show small differences by sex in satisfaction, with no consistent pattern of one sex being more satisfied than the other. Health plan characteristics accounted for the largest variation in satisfaction, and not-for-profit plan status and lower turnover of primary care providers were stronger determinants of women's satisfaction. Weisman, Henderson, Schifrin, et al., *Women's Health Issues* 11(4):401-415, 2001. (Reprints, AHRQ Publication No. 02-R007) (Intramural).*

- *Race, income, and education influence older women's health.*

A survey of the health and functional status of 91,314 elderly women enrolled in Medicare managed care plans revealed that poorer and less educated women reported poorer health, experienced more chronic illness, and felt depressed or sad more of the time in the past year than their more affluent and educated counterparts. The percentages of women reporting fair or poor health were: black (46), Hispanic/Spanish (42), American Indian/Alaska Native (36), Asian/Pacific Islander (28), and white (27). Bierman, Haffer, and Hwang, *Health Care Financing Rev* 22(4):187-198, 2001 (Reprints, AHRQ Publication No. 02-R006) (Intramural).*

- *Survey data reveal health disparities among older women.*

Survey data were collected from 91,314 elderly women for a new quality measure in the Health Plan Employer Data and Information Set to assess functional outcomes in Medicare+Choice plans. Over half of the women surveyed suffered from three or more chronic conditions. Women with low income, less education, and minority group status were significantly more likely than other women to suffer from chronic diseases and limited ability to function. Bierman and Clancy, *J Am Med Womens Assoc* 56:155-160, 2001. (Reprints, AHRQ Publication No. 02-R023) (Intramural).*

- *Some disabled women face barriers to screening services.*

Researchers analyzed National Health Interview Survey data with Disability, Family Resources, and Healthy People 2000 supplements to examine the use of screening and preventive services among adult women with disabilities living in the community. Women with major lower extremity disability were much less likely than other women to receive Pap smears, mammograms, and clinician inquiries about smoking. Iezzoni, McCarthy, Davis, et al., *Am J Med Qual* 16(4):135-144, 2001 (AHRQ grant HS10223).

- *Researchers examine the role of ob-gyns as primary care providers for elderly women.*

Using Medicare claims data, researchers examined the degree to which ob-gyns in the State of Washington offered primary care to elderly women in 1994. About 12 percent of visits by elderly

women to ob-gyns involved nongynecologic diagnoses. Further, patients who saw ob-gyns received over 15 percent of their overall health care from an ob-gyn compared with 43 percent of total health care received by elderly women who saw family physicians. Fink, Baldwin, Lawson, et al., *J Fam Pract* 50(2):153-158, 2001 (contract 290-93-0136).

- *Nonprofit centers rate better than for-profits in serving disadvantaged women.*

Using data on 108 for-profit and 296 nonprofit women's health centers, investigators examined the association between center ownership and community benefits and concluded that nonprofit centers do a better job of serving disadvantaged women than for-profit centers. Nonprofit centers serve larger proportions of uninsured women and rural women, offer reduced rates to more clients based on financial need, offer a broader range of primary care services, and provide clinicians with more frequent training opportunities. Khoury, Weisman, and Jarjoura, *Med Care Res Rev* 58(1):76-99, 2001 (AHRQ grant HS09328).

Violence Against Women

An estimated 1.3 million women are physically abused by their intimate partners each year, and about one of every four women seeking care in emergency rooms has injuries resulting from domestic violence. There are many consequences of domestic violence, as reflected in the high use of health care services by abused women. In addition to physical injuries, women who are victims of domestic violence experience higher rates of depression, substance abuse, suicidal thoughts, and suicide attempts.

- *Three brief questions can help to identify women who are victims of intimate partner violence.*

A total of 448 urban women who reported intimate partner violence to police or the court system completed surveys at 8 weeks (baseline) and 5 and 10 months after the incident. The researchers compared answers to three questions about physical and psychological abuse and found that the physical abuse question at baseline identified 93 percent of abused women. Two questions about psychological abuse identified 94 percent of victims. The researchers call for testing of these three questions in real-world settings to assess their usefulness as a tool for initiating conversations with women about abuse. Bonomi, Holt, Thompson, and Martin, *Am J Prev Med* 28(1):55-58, 2005 (AHRQ grant HS10909).

- *Programs and tools are available to enhance care for vicitms of domestic violence.*

This publication describes training programs and tools, such as the Domestic Violence Assessment Tool, that are available for use by health care providers, social workers, and staff at shelters and other facilities that care for victims of domestic violence. Kass-Bartelmes and Rutherford, *Women and Domestic Violence: Programs and Tools that Improve Care for Victims*. Research in Action No. 15 (AHRQ Publication No. 04-0055).*

- *Task Force issues recommendation on screening for domestic violence.*

The U.S. Preventive Service Task Force suggests that clinicians always be alert to physical and behavioral signs and symptoms associated with abuse or neglect, treat any injuries, and arrange for professional counseling for the patient. Clinicians should provide patients with contact information for local crisis centers, shelters, and protective services agencies. U.S. Preventive Services Task Force, *Ann Intern Med* 140(5):382-386, 2004; and Nelson, Nygren, McInerney, and Klein, *Ann Intern Med* 140(5):387-396, 2004 (contract 290-02-0024).

- *Physicians are the key to identifying and referring women who are victims of domestic violence.*

Only 8 percent of women who are abused by their partners ever tell a doctor, and less than 50 percent ever tell anyone. Physicians should make an effort to identify and refer these women to appropriate community services, according to these researchers. They note that simply identifying abuse can influence the evaluation of patient complaints as well as the outcomes of care. Rhodes and Levinson, *JAMA* 289(5):601-605, 2003 (AHRQ grant HS11096).

- *Online tool helps hospitals evaluate their domestic violence programs.*

AHRQ provided support for development of a 37-item, Web-based instrument for use by hospitals to conduct a formal evaluation of their domestic violence screening and intervention programs. The instrument is available online at www.ahrq.gov or in print (AHRQ Publication No. 03-0004) (Intramural).*

- *Study links stressful life events to abuse during pregnancy.*

Using survey responses from 2,600 postpartum women, researchers examined sociodemographic characteristics, experience of 13 stressful life events during the year before childbirth, and experience of physical abuse. Physical abuse was associated with 5 of the 13 stressors. Additionally, 12 percent of the participants were poor (most were married, white, high school graduates, and aged 20 or older); 14 percent had suffered through five or more stressful events; and almost 9 percent were physically abused before and/or during pregnancy (usually by their husbands/partners). Martin,

Griffin, Kupper, et al., *Matern Child Health J* 5(3):145-152, 2001 (NRSA training grant T32 HS00032).

- *A new tool helps clients define abusive situations.*

Researchers developed the Domestic Violence Survivor Assessment for use with women who disclose intimate partner violence through screening or by seeking counseling or shelter. Family violence counselors can use this tool to help clients define their domestic situations and take the steps to live lives free from abuse. Dienemann, Campbell, Landenburger, et al., *Patient Educ Couns* 46:221-228, 2002 (AHRQ HS10731).

HIV/AIDS

The number of AIDS cases is growing more rapidly among U.S. women than among men. In 1985, women made up only 7 percent of all reported AIDS cases, compared with 18 percent in 1994 and 23 percent in 1999. AIDS occurs most often among women in their reproductive years (15 to 44 years of age). HIV/AIDS is the sixth leading cause of death among U.S. women 25 to 34 years of age and the leading cause of death for black women in that age group.

- *Study finds disparities among privately insured men and women in use and costs of HIV care.*

In this study of men and women enrolled in the health insurance plans of 24 large employers across the country, women with HIV disease were much less likely than men with HIV to receive potentially life-prolonging drugs, even though they had private insurance and should have had equal access to drug therapies. On average, women had total health care expenditures of $10,397 in 2000, compared with $16,405 for men. Hellinger and Encinosa, *Health Serv Res* 39(4):949-967, 2004 . Reprints (AHRQ Publication No. 04-R054) are available from AHRQ (Intramural).*

- *HIV-infected women who have abnormal Pap smears should be referred for colposcopy to rule out cervical cancer.*

Women with HIV whose Pap smears show atypical squamous cells of uncertain significance have a 15 percent risk for high-grade cervical cancer precursors. Although colposcopy is costly and uncomfortable, it should continue to be the next diagnostic step for these women, according to this study. It found that the alternative test, a DNA assay obtained by cervicovaginal lavage, was not sensitive enough for use in women with HIV. Massad, Schneider, Watts, et al., *J Women's Health* 13(2):147-153, 2004 (sponsored by AHRQ, NIH, and CDC).

- *Incidence of hepatitis C virus is low among HIV-infected women.*

The researchers examined blood samples obtained from HIV-infected and uninfected women during 1994-1999 to detect the presence of hepatitis C virus (HCV) antibody and viremia in the blood. The incidence rate of HCV in HIV-infected women was 2.7 cases per 1,000 person-years, compared with 3.3 cases for HIV-negative women. In most cases, HCV infection in women with HIV was linked to drug use, supporting the contention that drug use is the single most important risk factor for HCV infection. Augenbraun, Goedert, Thomas, et al., *Clin Infect Dis* 37:1357-1364, 2003 (cosponsored by AHRQ, NIH, and CDC).

- *Women with HIV infection are at increased risk for psychiatric conditions.*

This study of 847 women participating in AHRQ's HIV Cost and Services Utilization Study (HCSUS) found that 55 percent of them showed signs of mood disorders, drug dependence, or heavy drinking. Increased risk for psychiatric conditions was associated with younger age, having an AIDS diagnosis, prior physical abuse, needing income assistance, needing to care for

someone else, and other factors. Sherbourne, Forge, Kung, et al., *Women's Health Issues* 13:104-110, 2003 (AHRQ grant HS08578).

- *Women with HIV are especially vulnerable after childbirth.*

This study involved women with HIV who were enrolled in Medicaid. It found that the women were particularly vulnerable to substance abuse and noncompliance with antiretroviral therapy during the postpartum period. Warner, Wei, McSpiritt, et al., *J Am Med Women's Assoc* 58(3):143-153, 2003 (AHRQ grant HS11625).

- *Substance abuse treatment may contribute to menstrual problems in HIV-infected women.*

This study involving 1,075 seropositive or seronegative women enrolled in the Women's Interagency HIV Study found that women on methadone maintenance who used injection drugs or psychotherapeutic medications were likely to have very short menstrual cycles (less than 18 days) or very long cycles (90 days or more) . Harlow, Cohen, Ohmit, et al., *Amer J Obstet Gynecol* 188:881-886, 2003 (cosponsored by AHRQ, NIH, and CDC).

- *One-fifth of deaths among women with HIV are not AIDS related.*

Based on data from death certificates and CD4 cell count, researchers classified the causes of death for 414 women with HIV infection as AIDS - or non-AIDS-related. Data show that 20 percent of deaths among HIV-infected women are due to causes other than AIDS. Cohen, French, Benning, et al., *Am J Med* 113:91-98, 2002 (sponsored by AHRQ, NIH, and CDC).

- *Nonadherence to HIV treatment is linked to risky behaviors.*

Data were collected on 766 HIV-positive U.S. women to examine adherence to therapy, risk behavior, and disease markers. Two-thirds of the women took all medications as prescribed 95 percent or more of the time; however, the remaining one-third were more than twice as likely to engage in unprotected sexual activity. Women who were less adherent were more likely than those who adhered to treatment to have a detectable virus load, more impaired immune systems, and bothersome symptoms; use condoms inconsistently; and report drug use. Wilson, Barron, Cohen, et al., *Clin Infect Dis* 34:529-534, 2002 (sponsored by AHRQ, NIH, and CDC).

- *Special outreach needed for HIV-positive black women and drug abusers.*

Researchers analyzed antiretroviral medication use among 1,690 HIV-positive women, the majority of whom were black or Hispanic. Results show that women who are college-educated, are not black, are privately insured, and have not used illicit drugs are more likely to receive highly active antiretroviral therapy (HAART) to treat their HIV infection. Cook, Cohen, Grey, et al., *Am J Public Health* 92(1):82-87, 2002 (sponsored by NIH, CDC, and AHRQ).

- *Research uncovers important services for HIV-infected women.*

This study focused on the evaluation and management of HIV infection in women, particularly treatment issues specific to women with HIV. According to the author, women usually are not diagnosed until they seek medical attention for a gynecologic infection. Levine, *Ann Intern Med* 136(3):228-242, 2002 (sponsored by AHRQ, NIH, and CDC).

- *Increased use of health care is related to increased screening.*

This study examined mammography use among 2,059 HIV-positive and 569 HIV-negative socioeconomically disadvantaged women involved in the Women's Interagency HIV Study. Mammography use was also compared with U.S. women in the general population using data from the National Health Interview Survey. The HIV-positive women were 60 percent more likely than HIV-negative women to be screened for the first time while in the study. And, more HIV-positive than HIV-negative women reported having health insurance (82 vs. 59 percent); having a primary care provider (93 vs. 67 percent); and visiting a doctor in the past 2 months (84 vs. 54 percent). Preston-Martin, Kirstein, Pogoda, et al., *Prev Med* 34:386-392, 2002 (sponsored by AHRQ, NIH, CDC).

- *Highly active antiretroviral therapy alters progression of cervical disease.*

A multicenter longitudinal study involving 2,059 HIV-infected and at-risk women enrolled at six clinical sites sought to determine the effect of HAART on human papillomavirus (HPV) disease. Investigators obtained Pap smears and cervicovaginal lavage for HPV DNA testing from HIV-infected women at 6-month intervals. Women on HAART were 1.4 times more likely to experience regression, while those not on HAART were more likely to show HPV disease progression. Minkoff, Ahdieh, Massad, et al., *AIDS* 15(16):2157-2164, 2001 (AHRQ grant HS10399).

- *Black women are recruited/retained in HIV clinical trials.*

Researchers describe the recruitment and retention of a diverse group of women infected with HIV and at-risk HIV uninfected women participating in the Women's Interagency HIV Study. Factors found to be associated with

retention were older age, black race, stable housing, HIV-infected serostatus, past experience in studies of HIV/AIDS, and site of enrollment. Hessol, Schneider, Greenblatt, et al., *Am J Epidemiol* 154:563- 573, 2001 (sponsored by AHRQ, NIH, and CDC).

- *Survey shows people with HIV consider parenthood.*

The HIV Cost and Services Utilization Study (HCSUS) surveyed 2,864 adults infected with HIV who were receiving medical care in the United States in early 1996. The study revealed that more than one in four HIV-positive men and women desired children in the future. Of those who wanted children, 6 in 10 men and 7 in 10 women expected to have children. Chen, Phillips, Kanouse, et al., *Fam Plann Perspect* 33(4):144-152,165, 2001 (AHRQ grant HS08578).

- *Modifications suggested for cervical cancer screening guidelines for women with HIV.*

By incorporating data from studies, databases, and the literature, researchers calculated quality-adjusted life expectancy, lifetime costs, and the cost-effectiveness of targeted and universal cervical cytologic screening in HIV-infected women. Results show that adding an HPV test to the first two Pap smears (within the year after HIV diagnosis) and modifying subsequent screening intervals based on HPV test result will make screening more efficient. Goldie, Freedberg, Weinstein, et al., *Am J Med* 111:140-149, 2001 (AHRQ grant HS07317).

- *Women's HIV study identifies prevalence and predictors of skin disease.*

The Women's Interagency HIV Study analyzed baseline data on 2,018 HIV-infected women and 557 uninfected women and found that HIV-infected women were more likely than uninfected women to report skin abnormalities (63 vs. 44 percent) and diagnoses with more than two skin problems (6 vs. 2 percent). Paradi, Mirmirani, Hessol, et al., *J Am Acad Dermatol* 44:785-788, 2001 (sponsored by AHRQ, NIH, and CDC).

Homelessness

Homelessness is a major problem in the United States today, and the fastest growing segment of this population is made up of women and young families. Research on the health needs of homeless women has suggested that they are unlikely to use birth control, and they are likely to have limited gynecological care, unplanned pregnancies, inadequate prenatal care, and poor birth outcomes.

- *Studies demonstrate high rates of sexual assault and unmet health care needs among homeless women.*

In one study, 9 percent of women reported a history of sexual assault, and 31 percent reported physical assault. Both mental illness and sex work were common among the women. There was a strong association among sexual and physical assault, mental illness, poor health, sex work, and alcohol and drug use. In the second study, more than one-third of 974 homeless women (ages 15 to 44) reported an inability to access needed health care in the preceding 2 months. Kushel, Evans, Perry, et al., *Arch Intern Med* 163:2492:2499, 2003 (AHRQ grant HS11415); and Lewis, Anderson, and Gelberg, *J Gen Intern Med* 18:921-928, 2003 (AHRQ grant HS08323).

- *Many homeless women use faith-based providers.*

This survey of nearly 1,000 homeless women in Los Angeles, CA, found that 52 percent of the women were using the services of faith-based providers. Those with no religious affiliation were less likely than Christian women to use faith-based providers, and blacks and Hispanics were less likely than white women to use them. Heslin, Andersen, and Gelberg, *J Urban Health* 80(3):371-382, 2003 (AHRQ grant HS08323).

- *Homeless women express dissatisfaction with care delivered in traditional government clinics.*

Homeless women in Los Angeles, CA, are more satisfied with health care that is provided at homeless-focused health care sites (shelter/outreach clinics and mobile vans) and doctors' offices versus county/government clinics. Researchers assessed the women's satisfaction with scheduling, quality of care, and access to care, and the appointment itself. Swanson, Andersen, and Gelberg, *J Women's Health* 12(7):675-686, 2003 (AHRQ grant HS08323).

- *Homeless women report deterrents to use of contraceptives.*

Homeless women reported deterrents to consistent use of contraceptives, including side effects, fear of potential health risks, partner's dislike of contraception, and cost. Hispanic women were much more likely than white women to cite not knowing how to use contraceptives or which method to use. Black women were more likely to cite not knowing which method to use, lack of storage, health risks, and discomfort as barriers to use. Gelberg, Leake, Lu, et al., *Perspect Sex Reprod Health* 34(6):278-285, 2002 (AHRQ grant HS08323).

- *Homeless women should be encouraged to have an HIV test.*

This 1997 survey of homeless women in Los Angeles County revealed that 68 percent of them had an HIV test in the preceding year, and 1.6 percent of the women had been diagnosed with HIV at some point. About one-fourth of homeless women with indications for HIV testing had not been tested in the previous year. Herndon, Asch, Kilbourne, et al., *Public Health Reports* 118:261-269, 2003 (AHRQ gant HS08323).

- *More assertive outreach programs are needed to link homeless women to case managers and more services.*

Over half (56 percent) of nearly 1,000 homeless women interviewed in Los Angeles County in 1997 had case managers to help them find and obtain care. Women with case managers were nearly twice as likely as those without case managers to use food stamps and more than twice as likely to have found shelter in the month before the interview. Heslin, Andersen, and Gelberg. *J Health Care Poor Underserved* 14(1):34-51, 2003 (AHRQ grant HS08323).

- *Study identifies deterrents to contraceptive use among homeless women.*

This survey of 974 homeless women in Los Angeles County in 1997 found that they had substantial deterrents that reduced their use of contraceptives, including side effects, fear of potential health risks, partner's dislike of contraception, and cost. Black and Hispanic women were much more likely than white women to report barriers to contraceptive use. Gelberg, Leake, Lu, et al., *Perspect Sex Reprod Health* 34(6):278-285, 2002 (AHRQ grant HS08323).

- *Community clinics serve as a safety net for homeless women.*

Researchers surveyed administrators and clinicians at 112 clinic sites that provide or could provide primary health care to 95 percent of the homeless women in Los Angeles County. Results from 73 completed surveys revealed that the clinics treat 30 or more homeless, primarily Hispanic women monthly; struggle to provide comprehensive care; and suffer from staff burnout and scarce resources. Despite being unable to offer substance abuse, mental health, and support services, the sites enhance access to care with evening and weekend hours, walk-in visits, and proximity to pubic transportation. Luck, Andersen, Wenzel et al., *J Ambulatory Care Manage* 25(2):53-67, 2002 (AHRQ grant HS08323).

- *Homeless women lack sufficient access to medical care.*

Investigators interviewed 974 homeless women about their number of hospitalizations, outpatient visits, and preventive health screens. Homeless women living on the streets were less likely than women who stayed in shelters and traditional housing to have been hospitalized (21, 28, and 38 percent); had outpatient visits (3.7, 7.2, and 7.4 visits); or had health screens in the past year (2.9, 3.6, and 3.6 out of 4 screens). Lim, Andersen, and Leake, et al., *Med Care* 40(6):510-520, 2002 (AHRQ grant HS08323).

- *Accessible ob-gyn services are needed for homeless women.*

When nearly 1,000 Los Angeles County homeless women of reproductive age were interviewed, two-thirds reported symptoms during the previous year ranging from abnormal vaginal discharge, severe pelvic pain, and skipped periods to breast lumps and burning during urination. One-fourth of the women were either pregnant at the time of the study or had been pregnant during the preceding year. Wenzel, Andersen, Gifford, et al., *J Health Care Poor Underserved* 12(3):323-343, 2001 (AHRQ grant HS08323).

Prevention

In addition to supporting research on preventive services, AHRQ supports a panel of independent, private-sector experts in prevention and primary care—the U.S. Preventive Services Task Force (USPSTF)—and conducts a program to increase the appropriate use of preventive services—Put Prevention Into Practice. The USPSTF reviews the scientific evidence and develops recommendations for interventions such as screening tests, counseling, immunizations, and chemoprophylactic regimens. Many of these preventive interventions are of particular importance to women.

- *Sociodemographic factors affect receipt of preventive care among older women.*

This study found that despite Medicare coverage of preventive care services, wealth, age, education, and race continue to be important factors in the receipt of preventive services by women aged 65 and older. Women enrolled in one of two Medicare HMOs who lived in wealthier households were 11 to 17 percent more likely than women in the lowest wealth category to receive a mammogram and colorectal cancer screening. Women who had a college education were more likely to receive colorectal cancer screening, and they received a greater average number of preventive services than women without a high school education. Morales, Rogowski, Freedman, et al., *Prev Med* 39(4):738-745, 2004 (AHRQ grant HS09630).

- *Drugs to prevent breast cancer should not be used routinely.*

The USPSTF reviewed three randomized controlled trials on the use of tamoxifen and raloxifene to reduce the risk of breast cancer. They recommend that clinicians discuss with their female patients who are at high risk for the disease the benefits and risks of taking prescription medicines to reduce their risk of breast cancer. The Task Force recommends against the use of these drugs by women at low or average risk for breast cancer. USPSTF, *Ann Intern Med* 137(1):56-58, 2002 (AHRQ contract 290-97- 0011).

- *The USPSTF recommends routine screening for chlamydia.*

The USPSTF recommends the routine screening of all sexually active women, including pregnant women, 25 years of age and younger for chlamydial

infection. Other asymptomatic women at increased risk of infection should be screened as well. USPSTF, *Am Fam Physician* 65(4):673-676 (AHRQ contract 290-97-0011). See also *What's New from the Third USPSTF: Screening for Chlamydial Infection* (AHRQ Publication No. APPIP01-0010).*

- *Routine screening for bacterial vaginosis in pregnancy lacks support.*

The USPSTF concludes there is insufficient evidence to recommend for or against routine screening of high-risk pregnant women for bacterial vaginosis. The Task Force recommends against routine screening of average-risk asymptomatic pregnant women for bacterial vaginosis. USPSTF, *Am Fam Physician* 65(6):1147-1150 (AHRQ contract 290-97-0011). See also *What's New from the Third USPSTF: Screening for Bacterial Vaginosis in Pregnancy* (AHRQ Publication No. APPIP 01-0012).*

Pregnancy, Birth Outcomes, and Family Planning

The last half of the 20th century saw a decline in maternal deaths among U.S. women—from about 74 deaths in 1950 to about 7 deaths in 1993 for every 100,000 live births. Mortality related to pregnancy and childbirth is low for U.S. women compared with other causes of death, primarily because of health care advances that have occurred over the past 50 years. However, black women and older women continue to be at higher risk of death from complications of pregnancy.

- *Screening new mothers for postpartum depression is particularly important in women of color.*

According to this survey of 655 women who were 2 to 6 weeks postpartum, nearly one-half of Hispanic (47 percent) and black (45 percent) mothers reported depressive symptoms, compared with less than one-third (31 percent) of white mothers. Factors associated with postpartum depression—the burden of physical symptoms, lack of social support, and lack of self-confidence in infant care—were the same for all women regardless of race. Howell, Mora, Horowitz, and Leventhal, *Obstet Gynecol* 105(6):1442-1450, 2005 (AHRQ grant HS09698).

- *Prenatal screening is needed to identify pregnant women with asymptomatic chlamydial infection.*

Nine percent of pregnant women who have chlamydia have no symptoms associated with the infection, according to this study of nearly 2,000 pregnant women with chlamydia. In 44 percent of the women, the infection resolved spontaneously, but most women with asymptomatic infection who were not treated had persistent infection. This finding reinforces the current recommendation for screening pregnant women for chlamydia at the first prenatal visit and, for at-risk women, screening a second time in the third trimester. Sheffield, Andrews, Klebanoff, et al., *Obstet Gynecol* 105:557-562, 2005 (AHRQ contract 290-92-0055).

- *Evidence is insufficient to determine safety of inducing labor in women with a prior cesarean.*

According to this systematic review, there is little high-quality evidence to guide clinical and health policy decisions about the safety of inducing labor in women who have had a prior cesarean delivery. Evidence is particularly lacking on the appropriate dose of oxytocin and other agents used to induce labor and the reasons for inducing labor instead of waiting for spontaneous labor. Better quality studies that include appropriate comparison groups are also needed. McDonagh, Osterweil, and Guise, *BJOG* 112:1007-1015, 2005 (AHRQ grant HS11338).

- *Screening asymptomatic, low-risk pregnant women for hepatitis C is not cost effective.*

An estimated 1 to 4 percent of pregnant women are infected with hepatitis C

virus (HCV), yet screening all pregnant women for HCV would not be cost effective, according to this study. Compared with no screening, the additional cost of screening, treatment, and cesarean delivery was $117, with a cost-effectiveness ratio of $1.17 million per quality-adjusted life year-way above the $50,000 per QALY typically considered to be cost effective. Plunkett and Grobman, *Am J Obstet Gynecol* 192:1153-1161, 2005 (AHRQ grant T32 HS00078).

- *Task Force recommends HIV screening for all pregnant women.*

The U.S. Preventive Services Task Force issued a new recommendation calling for all pregnant women—not just at-risk women—to be screened for HIV infection. This recommendation is based on evidence that currently available tests accurately identify pregnant women who are HIV infected. This will permit the use of recommended treatments to dramatically reduce the chances that an infected mother will transmit HIV to her infant. In addition, elective cesarean section and avoidance of breastfeeding have been shown to further reduce mother-to-infant transmission of HIV infection. Chou, Smits, Huffman, et al., *Ann Intern Med* 143(1):38-54, 2005; also in the same journal, see pages 32-37, and pages 55-73 (AHRQ contract 290-97-0011).

- *Half of pregnant women who support abortion availability would only consider a first-trimester procedure.*

Researchers interviewed more than 1,000 socioeconomically diverse pregnant women receiving prenatal care in the San Francisco Bay area; nearly half were aged 35 or older. Most of the women (92 percent) were in favor of abortion availability, but half (50 percent) said they would only consider having the procedure in the first trimester of pregnancy. Among women willing to consider abortion, 84 percent would do so after rape or incest or if their life was endangered by continuing the pregnancy. Three-quarters of the women (76 percent) would consider an abortion if their fetus had Down syndrome. Learman, Drey, Gates, et al., *Am J Obstet Gynecol* 192:1939-1947, 2005 (AHRQ grants HS10214, HS10856).

- *Attitudes toward pregnancy outcomes determine women's preferences for prenatal testing.*

A pregnant woman's attitude toward miscarriage, pregnancy termination, and the possibility of giving birth to a baby with Down syndrome are more important than her age in determining her preferences for prenatal testing to detect fetal chromosomal abnormalities, according to this study. The researchers assessed the preferences for 12 potential prenatal testing outcomes of 584 racially and economically diverse pregnant women recruited from 23 San Francisco Bay area practices. Women gave the highest preference scores to outcomes resulting in the birth of a chromosomally normal infant; their least preferred outcome was the birth of a Down syndrome infant. Kupperman, Nease, Gates, et al., *Prenatal Diagnosis* 24:424-429, 2004 (AHRQ grants HS07373 and HS10214).

- *Pregnant women who give birth in jail are more likely to have low-birthweight and premature babies.*

Women in their 30s who are in an urban jail during pregnancy are more likely than women not in jail to have low-birthweight and preterm babies, according to this study. The researchers compared outcomes for 496 births to women who were in jail for part of their pregnancy with nearly 5,000 Medicaid-funded births in the community. Younger women (aged 18-29) were less likely than older women (aged 30-39) to deliver a low birthweight infant. Bell, Zimmrman, Cawthon, et al., *J Urban Health* 81(4), online at www.biomedcentral.com (AHRQ grant T32 HS13853).

- *Acupuncture may be a safe alternative for treating depression in pregnant women.*

Antidepressant medications are not recommended during pregnancy for fear they may harm the fetus. In this study, pregnant women with depression who received acupuncture specifically tailored for depressive symptoms got more relief than women who received nonspecific acupuncture or massage. Also, women who responded to any treatment reported significantly less depression at 10 weeks postpartum. Manber, Schnyer, Allen, et al., *J Affect Disorder* 83:89-95, 2004 (AHRQ grant HS09988).

- *Difficulty sleeping and other problems common during pregnancy may mask symptoms of perinatal depression.*

According to this evidence report, depression is as common in women while they are pregnant as it is after childbirth. However, health care providers and patients may not recognize depression during pregnancy because signs of depression like tiredness, inability to sleep, emotional changes, and weight gain may also occur with pregnancy. Factors contributing to depression during or after pregnancy include personal or family history of depression or substance abuse, anxiety about the unborn child, problems with a previous pregnancy or birth, and marital or financial problems. The report also discusses screening for depression, the effectiveness of psychotherapy and antidepressants, and the value of providing psychosocial support to pregnant and postpartum women with depression. *Perinatal Depression: Prevalence, Screening, Accuracy, and Screening Outcomes*. Evidence Report No. 119 (AHRQ Publication Nos. 05-E006-1, summary; 05-E006-2, report) (AHRQ contract 290-02-0016).*

- *Potential benefits of episiotomy do not offset the fact that many women would have less injury without it.*

Episiotomy is a common procedure used in an estimated one-third of vaginal deliveries to hasten birth or prevent tearing of the skin during delivery. According to this evidence report, routine use of episiotomy for uncomplicated vaginal births does not provide immediate or longer term benefits for the mother. The evidence shows that women who experience spontaneous tears without episiotomy have less pain than women with episiotomies.. Furthermore, complications related to the healing of the perineum are the same with and without episiotomy. *Use of Episiotomy in Obstetrical Care: A Systematic Review.* Evidence Report No. 112 (AHRQ Publication Nos. 05-E009-1, summary and 05-E009-2, report) (AHRQ contract 290-02-0016).*

- *Study focused on trends in repeat c-section.*

Using 1996-1998 hospital discharge data for New York State, the researchers compared changes in obstetric methods over time. They found that there was a dramatic fall in the rate of repeat c-sections and a large increase in the proportion of births paid for by HMOs. *Determinants of Cesarean Section: Explaining Recent Changes*. Grant final report; available from NTIS at www.ntis.gov (HS10065).

- *Most obstetricians are against first-time c-section without medical indications.*

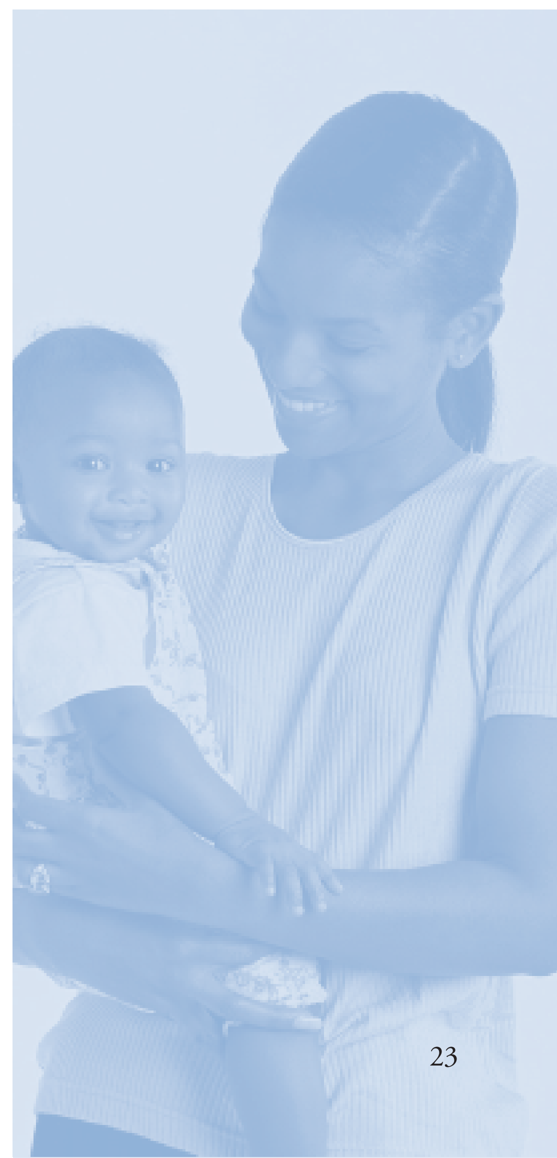
A growing number of women are asking their obstetricians for a cesarean delivery, even though there is no medical reason for the procedure. Some women want the convenience of scheduling their delivery, while others are tired of being pregnant and want to get it over with. This study found that most obstetricians are reluctant to agree to these requests, although male physicians are more likely than female physicians to respond favorably, especially for patients in higher socioeconomic brackets. However, when cesarean delivery was medically indicated, there was no difference between female and male physicians. Ghetti, Chan, and Guise, *Birth* 31(4):280-284, 2004 (AHRQ grant HS11338).

- *Stress incontinence occurs more often among women who have given birth vaginally than those with cesarean-only deliveries.*

Women who have given birth via c-section only are 40 percent less likely to suffer from stress incontinence later in life than women who have had vaginal deliveries. A survey of 1,299 women scheduled for elective hysterectomy revealed that both stress incontinence and urinary urgency increased nearly two-fold after a single vaginal delivery. Handa, Harvey, Fox, and Kjerulff, *Am J Obstet Gynecol* 191:463-469, 2004 (AHRQ grant HS06865).

- *Study focused on the cost-effectiveness of cesarean delivery to prevent perinatal HCV transmission.*

The goal of this study was to determine the cost-effectiveness of elective cesarean delivery to avert perinatal hepatitis C virus (HCV) transmission. The researchers considered two approaches: one, offering elective c-section to pregnant women infected with HCV, and two, performing a cesarean only for obstetric indications. They calculated that when elective cesarean delivery prevented all HCV transmissions, 18 elective cesareans were necessary to avert one neonatal HCV infection, resulting in a cost-effectiveness ratio that was similar or less than other accepted therapies. However, if rates of HCV transmission were relatively low, elective cesarean was not cost effective even if it prevented all perinatal HCV transmissions. Plunkett and Grobman, *Am J Obstet Gynecol* 191:998-1003 (AHRQ grant T32 HS00078).



- *Risk of rupture from tubal pregnancy is highest within 48 hours after onset of symptoms.*

According to this study, the risk of rupture from tubal pregnancy is highest—at 5 to 7 percent—within 48 hours after onset of symptoms such as abdominal or pelvic pain, vaginal bleeding, and tenderness or mass of the fallopian tubes or ovaries. The researchers note that factors important in diagnosing tubal pregnancy are not helpful in predicting the risk of rupture. They reviewed inpatient, clinic, and physician office charts of 221 women with tubal pregnancy to assess the risk of rupture and correlate the risk with time passed since symptom onset and other factors. Bickell, Bodian, Anderson, and Kase, *Obstet Gynecol* 104(4):789-794, 2004 (AHRQ grant HS09698).

- *Service coordination for pregnant women in prison can improve their use of health services after release.*

This study involved 453 women who were in custody in one jail and had an estimated delivery date during the period 1994-1998. It demonstrated that jail settings can become a place of coordination between public health and criminal justice professionals to ensure that pregnant women receive essential services—including family planning and substance abuse treatment—following their release from jail. Bell, Zimmerman, Huebner, et al., *J Health Care Poor Underserved* 15:426-442, 2004 (AHRQ grant T32 HS13853).

- *Researchers examine perinatal outcomes among pregnant women hospitalized for respiratory infection.*

This study involved 294 pregnant women enrolled in Medicaid during eight influenza seasons from 1985 to 1993 who had an acute hospitalization for respiratory infection. They were matched (age, race, trimester of pregnancy, and coexisting conditions) with 590 similar women without such hospitalizations. Although there was no significant association between respiratory hospitalization during flu season and adverse perinatal outcomes, the researchers conclude that pregnant women should be encouraged to receive flu vaccination. Hartert, Neuzil, Shintani, et al., *Am J Obstet Gynecol* 189:1705-1712, 2003 (AHRQ grant HS10384).

- *Women who have low-risk deliveries in birth centers fare as well as those delivered in hospitals.*

Whether low-risk women give birth in collaborative care birth centers that use certified nurse-midwife/obstetrician management or in a hospital where care is managed by an obstetrician, maternal and infant outcomes are similar. However, the birth centers have fewer surgical deliveries and use fewer medical resources. Surgical deliveries and hospital stays—major determinants of cost—were substantially reduced with collaborative care. Jackson, Lang, Swartz, et al., *Am J Public Health* 93(6):999-1006, 2003 (AHRQ grant HS07161).

- *Home visits by a nurse-health advocate team benefits low-income minority mothers and infants.*

Researchers examined maternal/infant outcomes for 406 black and 186 Mexican-American low-income pregnant women from two university-associated prenatal clinics in Chicago who received regular home visits by a nurse-health advocate team over the 12-month period after childbirth. Many of the mothers were depressed and had several difficult life circumstances, such as an abusive partner or inability to pay bills. For black women the program resulted in better tracking of infant immunizations, better parenting skills, and higher 12-month infant mental development scores. For Mexican American women, the program improved daily living skills and knowledge of appropriate play materials for their infants. Kuzujanakis, Kleinman, Rifas-Shiman, and Finkelstein, *Ambul Pediatr* 3(4):203-210, 2003 (AHRQ grant HS10247).

- *Higher rate of cesarean delivery does not necessarily correlate with better infant outcomes.*

The researchers linked vital birth certificate data to corresponding hospital discharge records on 171,295 singleton births in New Jersey in 1996 and 1997. They compared rates of perinatal mortality, birth injury, and uterine rupture among obstetricians performing low, medium, and high rates of cesarean delivery and found comparable perinatal mortality rates among the three groups. High cesarean rates did not improve the survival of low and very low birthweight infants. Li, Rhoads, Smulian, et al., *Obstet Gynecol* 101(6):1204:1212, 2003 (AHRQ grant HS10795).

- *Use of tocolytic therapy to stop uterine contractions may prolong pregnancy and prevent preterm birth.*

Treatment of preterm labor with bed rest, hydration, medication, and combinations of these interventions may be used to prevent preterm birth, the leading cause of infant death and serious neonatal problems. According to this review of the evidence, management of uterine contractions with first-line tocolytic therapy can prolong gestation, but maintenance tocolytic therapy has little or no value. Berkman, Thorp, Lohr, et al., *Am J Obstet Gynecol* 188(6):1648-1659, 2003 (contract 290-97-0011).

- *Delaying the urge to push during second-stage labor does not benefit women who receive low-dose epidural analgesia.*

According to this study, women giving birth for the first time who receive low concentration epidural analgesia do not benefit from delaying pushing efforts until there is a strong urge to push. Such a delay did not reduce the duration of pushing in the second stage

of labor or increase maternal satisfaction among women in this study. Plunkett, Lin, Wong, et al., *Obstet Gynecol* 102(1):109-114, 2003 (AHRQ grant T32 HS00078).

- *Later admission in labor and collaborative care increase spontaneous vaginal delivery in low-risk women.*

In this study, pregnant women who delayed hospital admission until active labor was established (at least 4 cm cervical dilation) and had collaborative care by a certified nurse midwife and obstetrician were more likely to have a spontaneous vaginal delivery—that is, unassisted by forceps, cesarean, or other intervention—than women who were admitted to the hospital early in labor (dilation of 3 cm or less). Jackson, Lang, Ecker, et al., *J Obstet Gynecol Neonatal Nurs* 32(2):147-157, 2003 (AHRQ grant HS07161).

- *Outpatient support for new mothers can reinforce breastfeeding after early postpartum discharge.*

According to this study, new mothers who had normal vaginal deliveries and remained in the hospital 24 hours or less were no more likely to discontinue breastfeeding than other mothers if they received outpatient breastfeeding support and one or more home visits from a nurse specialist. The researchers studied medical record data from a large HMO in eastern Massachusetts on more than 20,000 mother-infant pairs with normal vaginal deliveries between October 1990 and March 1998. Madden, Soumerai, Lieu, et al., *Pediatrics* 111(3):519-524, 2003 (AHRQ grant T32 HS00086).

- *First trimester ultrasound is a cost-effective means to identify fetuses with a high risk of Down syndrome.*

According to this study, first trimester ultrasound screening for nuchal translucency (swelling at the back of the neck) either alone or in combination with maternal serum markers, can identify more Down syndrome fetuses and is more cost effective than the currently used second trimester screening. Caughey, Kuppermann, Norton, and Washington, *Am J Obstet Gynecol* 187:1239-1245, 2002 (AHRQ grant T32 HS00086).

- *New cost-effective test detects maternal GBS infection during labor.*

Researchers examined the health benefits, costs, and savings associated with three strategies for identifying and treating a hypothetical group of pregnant women at risk of passing GBS infection on to their infants. The analysis showed that using the rapid and accurate polymerase chain reaction test to detect maternal GBS infection during labor is more cost effective than two current screening strategies (maternal rectovaginal culture at 35 to 37 weeks of pregnancy and screening for risk factors at the time of labor). Haberland, Benitz, Sanders, et al., *Pediatrics* 110(3):471-480, 2002 (AHRQ grant T32 HS00028); see also Petrova, Smulian, and Ananth, *Am J Obstet Gynecol* 187:709-714, 2002 (AHRQ grant HS09788).

- *AHRQ published a report on managing prolonged pregnancy.*

Researchers at Duke University conducted a systematic review of the relevant literature on the management of prolonged pregnancy. The report provides health plans, providers, purchasers, and the health care system with comprehensive, science-based information. The full evidence report, *Management of Prolonged Pregnancy*, Evidence Report/Technology Assessment No. 53 (AHRQ Publication No. 01-E018) and summary (AHRQ Publication No. 01-E012), are available from AHRQ (contract 290-97-0014).*

- *Study urges discontinuation of low birthweight index.*

This study demonstrates that there is a bias in the Adequacy of Prenatal Care Utilization (APNCU) index. The index was used to study 54 million births and demonstrated increasing trends toward the use of more prenatal resources accompanied by worsening trends in birth outcomes. The authors call for further study of the association between low birthweight and prenatal care use. Koroukian and Rimm, *J Clin Epidemiol* 55:296-305, 2002 (AHRQ grant T32 HS00059).

- *Preeclampsia risk increases with assisted conception.*

This study examined 525 multiple gestations to compare the risk of preeclampsia among women who conceived as a result of assisted conception and women who conceived spontaneously. The former group experienced nearly three times the relative risk of mild preeclampsia and nearly five times the risk of severe preeclampsia compared with women who conceived spontaneously. After adjusting for age and number of pregnancies, women in the former group were twice as likely to develop preeclampsia. Lynch, McDuffie, Murphy, et al., *Obstet Gynecol* 99(3):445-451, 2002 (AHRQ HS10700).

- *Preserving women's health is the best prenatal care target.*

Participants at a 1997 conference on the effects of prenatal care concluded that treating bacterial vaginosis with antibiotics during pregnancy, reducing maternal tobacco use, supplementing deficient maternal iron stores, and reducing maternal stress offer some promise in reducing premature births. However, providing routine prenatal care, enhanced nutrition, drugs to inhibit labor, and home uterine monitoring to identify early labor have not been shown to reduce the incidence of low birthweight infants. McCormick and Siegel, *Ambulatory Pediatr* 1(6):321-325, 2001 (AHRQ grant HS09528).

- *Many with unplanned pregnancies did not use contraception.*

In a study of 279 women (most of whom were unmarried and black) enrolled in a Medicaid managed care health plan, 78 percent said that their most recent or current pregnancy had been unintended. Of these women, more than 57 percent said they had not used any birth control in the month before conception, 5 percent had used birth control of high effectiveness, and 19 percent had used birth control of medium effectiveness. Petersen, Gazmararian, Clark, et al., *Women's Health Issues* 11(5):427-435, 2001 (AHRQ grant T32 HS00032).

- *Black women living in the Northeast have the highest rates of abruptio placentae.*

Researchers derived age-adjusted rates of abruptio placentae (premature separation of the placenta) for combinations of regions of birth and regions of residence of all live singleton births among black women in the United States during 1995-1996. The region and rates among women who had not migrated from the South included the following: Northeast (8.3 per 1,000), Midwest (6.3 per 1,000), South (6.0 per 1,000), and West (4.9 per 1,000). Faiz, Demissie, Ananth, et al., *Ethn Health* 6(3):247-253, 2001 (AHRQ grant HS09788).

- *First-time moms with unassisted deliveries fare best.*

Data from a 7-week postpartum survey of women giving birth for the first time to a single infant were analyzed. Results show that women who were assisted with vaginal deliveries reported substantially worse sexual, bowel, and urinary functioning than women with spontaneous vaginal deliveries. Lydon-Rochelle, Holt, and Martin, *Paediatr Perinat Epidemiol* 15:232-240, 2001 (AHRQ grant T32 HS00034).

- *Chronic hypertension associated with an 11-fold increase in risk of preeclampsia during pregnancy.*

The researchers used hospital discharge records for 1988-1996 involving 38,402 black and 144,285 white pregnant women who gave birth in the hospital. Irrespective of race, the risk of preeclampsia was greater among younger women (aged 15 to 19) than older women (aged 20-39) and among single women compared with married women. Diabetes and urinary tract infection increased the risk of preeclampsia. Both black and white women with chronic hypertension had an 11-fold higher risk of developing preeclampsia during pregnancy. Samadi, Mayberry, and Reed, *Ethnicity Dis* 11:192-200, 2001 (AHRQ grant HS07400).

- *Maternal fever during labor is strongly associated with infection-related neonatal and infant death.*

Maternal fever during labor usually signals inflammation of the fetal membranes due to infection. In this study of birth records for more than 11 million single live births between 1995 and 1997, intrapartum fever tripled the risk of early neonatal death and doubled the risk of infant death for term infants. It was associated with meconium aspiration syndrome, hyaline membrane disease, neonatal seizures, and newborn need for assisted ventilation among both term and preterm infants. Petrova, Demissie, Rhoads, et al., *Obstet Gynecol* 98:20-27, 2001 (AHRQ grant HS07400).

- *AHRQ evidence report presents a systematic review of the evidence on vaginal birth after cesarean.*

In this report, researchers at AHRQ's Evidence-based Practice Center at Oregon Health & Science University discuss the results of their systematic review of the literature on the risks and benefits of vaginal birth after cesarean (VBAC) and repeat cesarean. Covered

topics include frequency of VBAC; harms, such as maternal death, infection, transfusion, and hysterectomy; uterine rupture; quality of life after delivery; patient satisfaction; patient decisionmaking; and nonclinical factors affecting delivery options. Copies of *Vaginal Birth After Cesarean*, Evidence Report/Technology Assessment No. 71 (AHRQ Publication No. 03-E018, full report) and summary (AHRQ Publication No. 03-E017) are available from AHRQ (contract 290-97-0018).*

- *Risk of uterine rupture during labor is higher for women with a prior cesarean delivery.*

Researchers analyzed the records of more than 20,000 women who had their first child delivered by c-section and delivered a second child either by cesarean or following labor. Results show that 91 women who underwent a trial of labor followed by vaginal delivery had a uterine rupture during the second birth. When compared with women who had repeat c-sections without labor, uterine rupture was 15 times more likely with prostaglandin induction of labor and 5 times more likely when labor was induced without prostaglandin. Lydon-Rochelle, Holt, Easterling, et al., *N Engl J Med* 345(1):3-8, 2001 (AHRQ grant T32 HS00034).

- *Expanded Medicaid programs decreased the rate of repeat cesareans during the 1990s.*

As more Ohio women became enrolled in Medicaid managed care versus fee-for-service programs from 1992 to 1997, the overall rate of repeat c-sections declined, say researchers at Case Western Reserve University. Based on an analysis of Ohio birth records and Medicaid files, study findings also show that the rate of first-time c-sections remained about the same for both groups. Koroukian, Bush, Rimm, *J Managed Care* 7:134-142, 2001 (AHRQ grant T32 HS00059).

- *Pregnancy-related maternal deaths are more common for cesarean than for vaginal birth.*

University of Washington researchers explored the association between method of delivery and maternal death and found that women who had c-sections were four times as likely to die a pregnancy-related death as women who had vaginal deliveries. However, the researchers note that cesarean delivery may be a marker for serious preexisting maternal problems and not necessarily a risk factor for death. Lydon-Rochelle, Holt, Easterling, et al., *Obstet Gynecol* 97(2):169-174, 2001 (AHRQ grant T32 HS00034).

- *Augmented prenatal care does not reduce low birthweight in poor black women.*

Researchers at the University of Alabama at Birmingham assigned 318 Medicaid-eligible pregnant black women to augmented prenatal care and 301 similar women to usual care. Augmented care included education-oriented peer groups, extra appointments, extended time with clinicians, other supports, and risk-reduction programs. Augmented care improved knowledge about pregnancy risk, social support, care satisfaction, and a sense of control; however, it did not reduce the likelihood of low birthweight. Klerman, Ramey, Goldenberg, et al., *Am J Public Health*, 91:105-111, 2001 (Low Birthweight PORT contract 290-92-0055).

Women and Medications

AHRQ has a growing research program focused on medication use by women, including the use of antibiotics, contraceptives, drugs to prevent or treat osteoporosis, and hormone replacement therapy to ease the symptoms of menopause. AHRQ also supports studies focused on medication safety, the cost of medications, and other related topics. Examples of recent findings from these studies include the following.

- *Estrogen therapy with progestin is often discontinued in women who have diabetes or cardiovascular disease.*

For this study, researchers examined data from five HMOs on hormone use among nearly 170,000 women aged 40 to 80. They found a greater decline in use of estrogen plus progestin therapy (HRT) by women with diabetes or cardiovascular disease than other women following release of findings in 2002 from the Women's Health Initiative study. According to the WHI study findings, combination estrogen-progestin therapy increased women's risk for breast cancer, stroke, and pulmonary embolism. Discontinuation rates increased nearly seven-fold among women with diabetes and nearly six-fold among women with cardiovascular disease. Newton, Buist, Miglioretti, et al., *J Gen Intern Med* 20:350-356, 2005 (AHRQ grant HS11843).

- *Women respond differently to medications than men and should be proactive about their medication use.*

Women take more medications than men. They also respond differently to medications and are more likely than men to suffer medication-related problems. Thus, women should be proactive about their medication use. They should take responsibility for their own health and ask clinicians questions about diagnosis, treatment, and medication use. It is important for women to make sure they understand the need for each medication they are prescribed, and they should be sure to take their medications according to their doctor's instructions. The author provides a number of other caveats for women related to medication use. Correa-de-Araujo, *J Women's Health* 14(1):12-15, 2005; see also pages 16-18 in the same journal. (Reprints, AHRQ Publication Nos. 05-R020 and 05-R021) (Intramural).

- *Task Force recommends against routine use of estrogen in postmenopausal women who have undergone hysterectomy.*

The U.S. Preventive Services Task Force has issued a recommendation against the routine use of estrogen to prevent chronic conditions—such as heart disease, stroke, and osteoporosis—in postmenopausal women who have undergone a hysterectomy. They noted that although estrogen can have positive effects such as reducing the risk for fractures, hormone therapy should not be used routinely because it appears to increase women's risk for potentially life-threatening clots that block blood vessels, as well as stroke, dementia, and mild cognitive impairment. Materials for clinicians and consumers are available at www.ahrg.gov; select "Clinical Information" (AHRQ contract 290-97-0011).

- *Use of hormone therapy plummeted after release of findings from the Women's Health Initiative trial.*

The researchers used automated pharmacy data to identify all oral and transdermal (patches) HRT prescriptions dispensed between September 1, 1999 and June 21, 2002 (baseline) and December 31, 2002 (followup) to 169,586 women aged 40 to 80 enrolled in five HMOs. At followup (5 months after trial results were published), 46 percent fewer women were taking combination estrogen-progestin therapy, and 28 percent fewer women were taking estrogen alone. There also was an immediate and dramatic decrease in the number of women initiating HRT use. Buist, Newton, Miglioretti, et al., *Obstet Gynecol* 104:1042-1050, 2004 (AHRQ grant HS11843). See also Hillman, Zuckerman, and Lee, *J Women's Health* 13(9):986-992, 2004 (AHRQ grant HS11673); and Majumdar, Almasi, and Stafford, *JAMA* 292(16):1983-1988, 2004 (AHRQ grant HS13405).

- *Older women used more medications and had higher drug expenses than same-age men from 1999 to 2001.*

Women aged 65 and older had expenditures for prescription medications that were 17 percent higher than men of the same age, according to this analysis of MEPS data for 1999, 2000, and 2001. Overall, older women spent an average of $1,178 per year, compared with $1,009 spent by older men. Also, women were somewhat more likely than men (92 percent vs. 88 percent) to use prescription drugs, with women purchasing almost 20 percent more prescription drugs on average than men. Correa-de-Araujo, Miller, Banthin, and Trinh, *J Women's Health* 14(1):73-81, 2005 (Reprints, AHRQ Publication No. 05-R019) (Intramural).*

- *Pregnant women are sometimes given drugs that may be unsafe to take during pregnancy.*

Researchers reviewed data from eight health maintenance organizations in diverse geographic areas involving more than 150,000 women who delivered an infant in a hospital between January 1, 1996 and December 31, 2000. They found that 64 percent of women were dispensed a medication other than a vitamin or mineral supplement within the 270 days before delivery. Nearly 40 percent of these women received a drug for which human safety has not been established. About 5 percent of the women received a drug for which the evidence indicates definite fetal risk, and the risk of using the drugs clearly outweighs any possible benefit. Andrade, Gurwitz, Davis, et al., *Am J Obstet Gynecol* 191:398-407, 2004 (AHRQ grant HS10391).

- *Among older, privately insured adults, women spend much more than men on prescription medicines.*

According to this study, women have higher drug expenditures than men due to higher rates of use rather than high prices paid for drugs. Because women constitute the majority of the older adult population and are more likely than men to be chronically ill, they use more health services, including medications. The researchers examined 1999-2001 data on 1,346 women and 1,312 men with 61,999 prescription drug purchases during the study period. Total prescription drug expenditures were $6.93 million for women and $5.77 million for men. This difference is likely to be much larger in the full population of older adults, where women outnumber men by a much larger margin than in this study. Correa-de-Araujo, Miller, Banthin, and Trinh, *J Women's Health* 14(1):73-80, 2005. (Reprints AHRQ Publication No. 05-R019) (Intramural)*

- *Journal supplement focuses on use of medications by women.*

In April 2004, AHRQ convened a 2-day expert panel meeting of 35 experts who focused on issues related to improving the use and safety of medications by women. The January 2005 issue of the *Journal of Women's Health* presents papers from the meeting, including three papers by AHRQ's Senior Advisor on Women's Health. One paper on disparities and costs is described above. The other two are an introduction to the supplement and a short piece on using medications safely. Correa-de-Araujo, *J Women's Health* 14(1):12-15 and 16-18, 2004. (Reprints, AHRQ Publication Nos. 05-R020 and 05-R021) (Intramural).*

- *Using oral erythromycin with certain other drugs increases risk of sudden cardiac death.*

Patients who took the antibiotic erythromycin with certain other commonly prescribed medications had a five times greater risk of sudden death from cardiac causes, including torsades de pointes, than patients who did not

take the drugs at the same time. These drugs included certain calcium channel-blockers, certain anti-fungal drugs, and some antidepressants. Research has shown that women are at increased risk for prolongation of the QT interval, which may lead to torsades de pointes, a potentially fatal ventricular arrhythmia. Ray, Murray, Meredith, et al., *New Engl J Med* 351(11):1089-1096, 2004 (AHRQ grnat HS10384); and Al-Khatib, LaPointe, Kramer, and Califf, *J Am Med Assoc* 289(16):2120-2127, 2003 (AHRQ grant HS10548).

- *Quality-of-life benefits of short-term HRT may outweigh the risk for some women.*

The researchers examined the trade-off between short-term relief of menopausal symptom and risks of harm from HRT—heart disease, stroke, pulmonary embolism, and breast cancer—to determine if some women might benefit from a short course of HRT (up to 2 years). They found that women with the most severe menopausal symptoms benefitted the most, but even those with mild menopausal symptoms gained in quality of life scores. They also found that individual risk for harms had little effect, reflecting the small relative risk of HRT on these outcomes given the short duration of HRT. Col, Weber, Stiggelbout, et al., *Arch Intern Med* 164:1634-1640, 2004 (AHRQ grant HS13329).

- *Clinicians and patients responded quickly to evidence of harms associated with hormone therapy.*

Results from the Women's Health Initiative were published in July 2002. They showed that oral estrogen combined with progestin increased the risk of cardiovascular disease and breast cancer in postmenopausal women. Over the next year, hormone therapy prescriptions declined substantially from prepublication levels. Hersh, Stefanick, and Stafford, *JAMA* 291(1):47-53, 2004 (AHRQ grant HS13405).

- *Findings from the Nurses' Health Study seem to contradict the Women's Health Initiative findings.*

Unlike the randomized Women's Health Initiative that showed no benefit of menopausal HRT on coronary heart disease, observational studies like the Nurses' Health Study found it to be protective. These differences have been attributed to the fact that women who choose to use HRT tend to be healthier than those who do not. However, reporting biases of those who believe in HRT may have affected the interpretation of heart disease outcomes in observational studies. Col and Pauker, *Ann Intern Med* 139:923-929, 2003 (AHRQ grant HS13329).

- *HRT may increase the risk of heart disease.*

Researchers conducted two systematic reviews of the evidence on postmenopausal use of HRT. The reviews were prepared for the U.S. Preventive Services Task Force. They show that harms could exceed benefits for women taking HRT for 5 years or longer to prevent chronic conditions. Harms include an increased risk of blood clots and stroke, an increase in breast cancer with 5 or more years of use, and a probable increase in gallbladder disease. Humphrey, Chan, and Sox, *Ann Intern Med* 137(4):273-284, 2002; Nelson, Humphrey, Nygren, et al., *JAMA* 288(7):872-881, 2002 (contract 290-97-0018).

- *Women using estrogen are at risk for thromboembolism.*

These authors identified three randomized controlled trials, eight case-control studies, and one cohort study to assess the risk of venous thromboembolism in women using estrogen replacement therapy. Postmenopausal estrogen replacement is associated with an increased risk for venous thromboembolism. Miller, Chan, and Nelson, *Ann Intern Med* 136(9):680-690, 2002 (contract 290-97-0011).

- *Estrogen therapy does not improve cognitive performance.*

Researchers analyzed data on a community-based sample of 885 postmenopausal women aged 60 to 89 who had undergone a hysterectomy. Among those not using estrogen, there were no significant differences on mean cognitive function scores. Among those using estrogen, women with a hysterectomy and bilateral oophorectomy performed less well on two tests of cognitive function. Kritz-Silverstein and Barrett-Connor, *J Am Geriatr Soc* 50:55-61, 2002 (AHRQ HS06726).

Osteoporosis

In the United States today, 10 million people have osteoporosis, and another 18 million have low bone mass, placing them at risk for this condition. Women are four times more likely than men to develop osteoporosis, and one of every two women will have an osteoporosis-related fracture in her lifetime. Although osteoporosis is the underlying cause of most fractures in older people, it is silent and often goes undetected until a fracture occurs. U.S. health care costs related to osteoporosis are estimated to be $10 to $15 billion per year.

- *Better medications for osteoporosis have increased recognition and treatment of the disease.*

More effective and convenient medications for osteoporosis increased osteoporosis-related doctor visits four-fold between 1994 and 2003. The largest increases coincided with market approval of two important osteoporosis drugs—alendronate (September 1995) and raloxifene (December 1997). Stafford, Drieling, and Hersh, *Arch Intern Med* 164:1525-1530, 2004 (AHRQ grant HS13405).

- *Few postmenopausal women who have suffered a fracture receive medication to prevent further fractures.*

This study of postmenopausal women enrolled in seven HMOs across the country found that only 24 percent of those who had suffered an osteoporosis-related fracture received drug treatment for osteoporosis within a year following the fracture. Older women were less likely than younger women to receive osteoporosis treatment, even though aging increases the risk of fracture. Andrade, Majumdar, Chan, et al., *Arch Intern Med* 163:2052-2057, 2003 (AHRQ grant HS10391).

- *Clinical practice lags behind guidelines for osteoporosis screening and treatment.*

Researchers examined administrative data and medical records for nearly 4,000 women (average age 71) enrolled in an HMO who had been diagnosed with a new fracture from 1998 to 2001. Only about 12 percent of the women had been diagnosed with osteoporosis prior to the fracture, even though nearly 11 percent had conditions or were taking medications that would put them at risk for the condition. Also, 39 percent of the women were already at increased risk of falling due to medical problems (e.g., dementia) or medication (e.g., antidepressants). Physician adherence to guidelines—which call for bone mineral density testing to detect bone loss and, when needed, medication to treat osteoporosis—did not significantly improve from 1998 to 2001. Feldstein, Nichols, Elmer, et al., *J Bone Joint Surg* 85(12):2294-2302, 2003 (AHRQ grant HS13013).

- *Racial disparities found in receipt of osteoporosis screening and management.*

According to this survey of more than 8,000 women aged 50 or older in Alabama, postmenopausal black women are much less likely than their white counterparts to receive bone mineral density testing to detect osteoporosis or to be prescribed medication for osteoporosis. This finding held even among those who had a previous fracture. Mudano, Casebeer, Patino, et al., *South Med J* 96(5):445-451, 2003 (AHRQ grant HS10389).

- *The USPSTF updates osteoporosis screening recommendations.*

The U. S. Preventive Servies Task Force recommends that women 65 and older receive routine screening for osteoporosis to reduce the risk of fracture and spinal abnormalities often associated with the disease. The USPSTF also recommends that routine screening begin at 60 for women identified as high risk because of their weight or estrogen use. Nelson, Helfand, Woolf, and Allan, *Ann Intern Med* 137(6):529-541, 2002 (AHRQ contract 290-97-0011).

Women and Working Conditions

- *Staffing patterns and nurses' working conditions are associated with patient safety and medical errors.*

Nearly 3 million registered nurses (RNs) work in the United States, and 95 percent of these nurses are women, as are most licensed practical nurses and unlicensed nurse assistants. According to AHRQ's Senior Advisor on Women's Health and her colleagues, nurses' working conditions are often poor and contribute to recruitment and retention problems, resulting in a shortage of qualified nurses and threatening public safety. Monitoring and improving the working conditions of nurses would be likely to improve health care quality by decreasing the incidence of many infectious diseases, assisting in retaining qualified nurses, and encouraging others to enter the profession. Stone, Clarke, Cimiotti, and Correa-de-Araujo, *Emerg Infect Dis* 10(11):1984-1989, 2004 (Reprints, AHRQ Publication No. 05-R006) (Intramural).*

- *Nurses play an important role in patient safety and quality of care.*

As caregivers, nurses represent the frontline surveillance system in many health care settings, and often, they can detect potential errors before a patient is harmed. Extended hours and workload are key factors in nurses' work environments. Most nursing staff are women, and substantial numbers of them are leaving the field for other careers. Improving working conditions for nurses may increase the supply of nurse workers and reduce adverse patient outcomes. *Emerg Infect Dis* 10(11), 2004; available online at www.cdc.gov/ncidod/EID. (Reprints, AHRQ Publication No. 05-R012) (Intramural).*

Other Research

- *Women differ from men in the effects of social class on behavioral risk factors.*

This study of British civil servants explored reasons for the differences in various conditions between men and women by analyzing their own or their spouse's socioeconomic position and a set of risk factors for prevalent chronic diseases. The researchers found that social inequality affected women more than men, and that a nonworking husband or male partner was associated with lower levels of social support and higher negative social support; men with nonworking wives or partners were not affected. These findings have implications for future studies of male/female differences in health and risk factors. Bartley, Martikainen, Shipley, and Marmot, *Soc Sci Med* 59:1925-1936, 2004 (AHRQ grant HS06516).

- *Renal disease may progress faster in women than in men.*

According to this study, renal disease progression is not slower in women than in men, and it may even be faster. The researchers analyzed pooled data from 11 randomized trials evaluating the efficacy of angiotensin-converting enzyme (ACE) inhibitors for slowing renal disease progression. Overall, nearly 17 percent of patients had a doubling of baseline serum creatinine, and 9.5 percent developed end-stage renal disease. Women had a 32 to 36 percent higher risk than men of doubling their baseline serum creatinine. Jafar, Schmid, Stark, et al., *Nephrol Dial Transplant* 18:2047-2053, 2003 (AHRQ grants HS13328 and HS10064).

- *Women are more likely than men to experience long-term posttraumatic stress disorder after major trauma.*

Regardless of the type or severity of traumatic injury, women are more than twice as likely as men to suffer from PTSD, according to a study involving 1,048 adult trauma patients triaged at four trama center hospitals between 1993 and 1996. Patients were evaluated at discharge and at 6, 12, and 18 months postdischarge. Holbrook, Hoyt, Stein, and Sieber, *J Trauma* 53:882-888, 2002 (AHRQ grant HS07611).

- *How posttraumatic stress affects women's health is unclear.*

The literature on PTSD, hostility, and health was examined to determine possible mechanisms underlying the relationship between PTSD and hostility on health outcomes. Results show hostility is a risk factor for hypertension, coronary heart disease, and heart attack; and PTSD is associated with increased health problems including arthritis, bronchitis, migraines, and gynecological complaints. However, the mechanisms responsible are unclear. Beckham, Calhoun, Glenn, et al., *Ann Behav Med* 24(3):219-228, 2002 (AHRQ grant T32 HS00079).

- *Women suffer more than men before and after hip replacement surgery.*

This study examined differences in functional status and pain at the time of total hip arthroplasty (THA) and 1 year later in a group of 432 male and 688 female Medicare beneficiaries. Results show that the women were in worse shape than the men when they elected THA. After 1 year, women walked shorter distances and were more likely than men to report needing help with walking (30 vs. 21 percent); housework (29 vs. 23 percent); and grocery shopping (27 vs. 19 percent). Holtzman, Saleh, and Kane, *Med Care* 40(6):461-470, 2002 (AHRQ grant HS09735).

- *A low sense of control causes depression and anxiety.*

Researchers analyzed data on demographics, work characteristics, and physical and mental health of British civil servants. Women with low control at home had more than twice the risk of depression as women with high control. Also, women in the lowest employment grade with low control at home had significantly higher risk for depression than men across all grades and women in higher grades. Women in the lowest grade had a higher risk for anxiety than women in higher grades. Griffin, Fuhrer, Stansfeld, et al., *Soc Sci Med* 52:783-798, 2002 (AHRQ HS06516).

- *Women are more likely than men to be diagnosed as depressed.*

Doctors examined the absence or presence of a depression diagnosis among 508 patients seeking care from a university medical center as well as sociodemographic characteristics, self-reported depressive symptoms, and general health status obtained through interviews. Women expressed more symptoms of depression (6.4 vs. 4.3 percent), had a higher mean number of primary care clinical visits (4.0 vs. 3.1 percent), and were significantly more

likely to be diagnosed as depressed (19 vs. 9 percent) than men. Bertakis, Helms, Callahan, et al., *J Women's Health Gender-Based Med* 10(7):689-698, 2001 (AHRQ grants HS06167 and HS08029).

- *Women are less likely than white men to be recommended for kidney transplants.*

A national random survey of 271 U.S. nephrologists was used to gauge their criteria for transplant recommendations for people with end-stage renal disease. All clinical factors being equal, results show that white men were almost 2.5 times as likely as white women to be recommended for kidney transplants. White women were equally as likely as black women and Asian men were half as likely as white men to be recommended for transplantation. Thamer, Hwang, Fink, et al., *Transplantation* 71(2):281-288, 2001 (AHRQ grant HS08365).

Medical Expenditure Panel Survey

In 1996, AHRQ launched the Medical Expenditure Panel Survey (MEPS), a nationally representative survey to collect detailed information on health status, health care use and expenses, and health insurance coverage for individuals and families in the United States, including nursing home residents. MEPS is helping the Agency to address many questions important to women, including how health insurance coverage, access to care, use of preventive care, the growth of managed care, changes in private health insurance, and other changes in the health care system are affecting the kinds, amounts, and costs of health care services used by women. For more information related to MEPS, visit the AHRQ Web site at www.ahrq.gov and click on "MEPS" under "Data & Surveys."

More Information

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