Surveillance of Screening-Detected Cancers (Colon and Rectum, Breast, and Cervix) — United States, 2004–2006

CONTENTS

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Abstract

Problem/Condition: Population-based screening is conducted to detect diseases or other conditions in persons before symptoms appear; effective screening leads to early detection and treatment, thereby reducing disease-associated morbidity and mortality. Based on systematic reviews of the evidence of the benefits and harms and assessments of the net benefit of screening, the U.S. Preventive Services Task Force (USPSTF) recommends population-based screening for colon and rectum cancer, female breast cancer, and uterine cervix cancer. Few publications have used national data to examine the stage at diagnosis of these screening-amenable cancers.

Reporting Period Covered: 2004–2006.

Description of Systems: Data were obtained from cancer registries affiliated with CDC's National Program of Cancer Registries (NPCR) and the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program. Combined data from the NPCR and SEER programs provide the best source of information on national population-based cancer incidence. Data on cancer screening were obtained from the Behavioral Risk Factor Surveillance System. This report provides stage-specific cancer incidence rates and screening prevalence by demographic characteristics and U.S. state.

Results: Approximately half of colorectal and cervical cancer cases and one third of breast cancer cases were diagnosed at a late stage of disease. Incidence rates of late-stage cancer differed by age, race/ethnicity, and state. Incidence rates of late-stage colorectal cancer increased with age and were highest among black men and women. Incidence rates of late-stage breast cancer were highest among women aged 60–79 years and black women. Incidence rates of late-stage cervical cancer were highest among women aged 50–79 years and Hispanic women. The percentage of persons who received recommended screening differed by age, race/ethnicity, and state.

Interpretation: Differences in late-stage cancer incidence rates might be explained partially by differences in screening use.

Public Health Action: The findings in this report emphasize the need for ongoing population-based surveillance and reporting to monitor late-stage cancer incidence trends. Screening can identify colorectal, cervical, and breast cancers in earlier and more treatable stages of disease. Multiple factors, including individual characteristics and health behaviors as well as provider and clinical systems factors, might account for why certain populations are underscreened. Cancer control planners, including comprehensive cancer-control programs, can use late-stage cancer incidence and screening prevalence data to identify populations that would benefit from interventions to increase screening utilization and to monitor performance of early detection programs.

Introduction

Population-based screening for cancer requires screening persons who might be at risk for but do not display symptoms of a particular cancer (*1*). Effective cancer screening reduces, through early detection and treatment, disease-associated morbidity and mortality (*2–4*). Screening also helps prevent cancer by detecting precancerous lesions (e.g., colorectal adenomatous polyps and cervical intraepithelial neoplasia) that can be removed. Based on systematic reviews of the evidence of the benefits and harms and assessments of the net benefit of screening, the U.S. Preventive Services Task Force (USPSTF) recommends population-based screening for colon and rectum cancer, female breast cancer, and uterine cervix cancer (*5*). Sponsored by the Agency for Healthcare Research and Quality, USPSTF is an independent panel of experts in prevention and primary care that systematically reviews the

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scientific evidence of the effectiveness of clinical preventive services, including screening for cancer, and develops recommendations for these services. USPSTF grades the strength of evidence as follows: "A" (strongly recommends), "B" (recommends), "C" (offers no recommendation for or against), "D" (recommends against), or "I" (finds insufficient evidence to recommend for or against) (5).

Progress against cancer can be measured by reductions in cancer mortality and also by trends in detecting cancer at earlier and more treatable stages of disease (6). Surveillance information about the stage of cancer at diagnosis is useful because it in part reflects prevalence and quality of screening (7).

Colorectal cancer is the third most commonly diagnosed cancer in both men and women in the United States (8). Incidence increases with age and is higher among men than among women and among blacks than among whites (9). The 5-year survival rate for persons who received a diagnosis of localized colorectal cancer is 91%, compared with 70% for regional-stage cancer and 11% for distant-stage cancer* (10). Studies of colorectal cancer show that black men and women are more likely to receive a diagnosis of late-stage disease than men and women in other racial/ethnic populations (11,12). Colorectal cancer incidence rates have been decreasing since 1985, most markedly during 1998–2005, partially as a result of increases in screening (8). Screening for colorectal cancer has been proven to reduce mortality through detection of adenomatous polyps before they progress to cancer as well as detection of early-stage cancer (2,13). USPSTF recommends that men and women of average risk begin regular colorectal cancer screening at age 50 years with any of three tests: a fecal occult blood test (FOBT) every year, a flexible sigmoidoscopy every 5 years, or a colonoscopy every 10 years (2,14). This is an "A" recommendation. The willingness of adults to utilize these tests depends on multiple factors, including individual disease risk, personal preference, and physician recommendation (15). Colorectal cancer screening rates are lower among persons aged 50–59 years, those with less education, and recent immigrants (13,16). Additionally, insurance coverage and geographic distance from a screening facility might affect a person's decision to obtain screening (15,16).

Breast cancer is the most commonly diagnosed cancer in women and a leading cause of premature mortality (8). The 5-year survival rate for women who receive a diagnosis of localized breast cancer is 98%, compared with 84% for regional stage and 23% for distant stage (10). Mammography can detect breast cancer at an early stage, when treatment is most effective (3). The incidence of female breast cancer increased from

1980-1999, due in part to the increased detection of localized disease and small (≤2 cm) tumors by mammography, the use of which more than doubled during this period (17). Since 1999, breast cancer incidence has decreased, partially because the use of mammography has stabilized and screening in the 1980s and 1990s had detected many undiagnosed prevalent cases, and because after 2002 many women stopped using hormone replacement therapy (17). Widespread use of screening and advances in treatment have resulted in substantial reductions in breast cancer mortality (18). USPSTF recommends biennial screening mammography for women aged 50–74 years (19). This is a "B" recommendation. The lowest prevalence of recommended breast cancer screening is among women who lack health insurance, Asian/Pacific Islander (API) and American Indian/Alaska Native (AI/AN) women, and recent immigrants (20,21).

The dramatic decrease in cervical cancer incidence and mortality since the mid-20th century has been termed one of the nation's foremost health success stories (22). This decrease is attributed to the convergence of three factors: an innovative breakthrough (the Pap test), public health promotion of the Pap test to women and to providers, and the routine use of the Pap test in primary-care practice (22). Although dramatic declines in cervical cancer mortality have occurred, nearly all cervical cancer cases could be prevented, and this cancer still ranks in the top 10 diagnosed cancers for black, AI/AN and Hispanic women and the 13th most common cancer among all women (8). Survival after cervical cancer diagnosis depends on stage at diagnosis; the 5-year survival rate for women who have localized disease is 92%, compared with 58% for regional disease and 17% for distant disease (10). Cervical cancer is diagnosed at a later stage more often in women aged ≥50 years, black women, and women who have not had a Pap test during the preceding 5 years (23,24). The Pap test detects cervical cancer and precancerous lesions (4). USPSTF recommends that women begin screening for cervical cancer with the Pap test within 3 years of onset of sexual activity or at age 21 years (whichever comes first) and be screened with three consecutive normal annual Pap tests and then at least every 3 years up to age 64 years (25). This is an "A" recommendation. Because the primary cause of cervical cancer is infection with certain types of human papillomavirus (HPV), HPV testing has been advanced as an alternative or adjunct to primary Pap screening. The USPSTF concluded in 2003 that the evidence was insufficient to recommend for or against the routine use of HPV testing as a primary screening for cervical cancer; this is an "I" recommendation (25). Prevalence of screening using the Pap test is lowest among women who lack health insurance, women with specific health risks such as smoking or being

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* A localized cancer is one that is confined to the primary site, a regional cancer is one that has spread directly beyond the primary site or to regional lymph nodes, and a distant cancer is one that has spread to other organs.

overweight or obese, women aged ≥65 years, API women, and recent immigrants (*21,26,27*).

This report provides incidence rates for late-stage cancers of the colon and rectum in men and women aged ≥50 years, of the breast in women aged ≥50 years, and of the cervix in women aged ≥20 years on the basis of data from cancer registries affiliated with CDC's National Program of Cancer Registries (NPCR) and the National Cancer Institute (NCI)'s Surveillance, Epidemiology, and End Results (SEER) program. This report also presents prevalence of recommended screening for these cancers based on data from the Behavioral Risk Factor Surveillance System (BRFSS), a state-based, ongoing telephone survey of adults aged ≥18 years (*28*).

Methods

Late-Stage Cancer Incidence

Data on new cases of invasive cancer diagnosed during 2004–2006 were obtained from population-based cancer registries affiliated with CDC's NPCR and NCI's SEER program. Combined, these programs cover all of the U.S. population and provide the best source of information on population-based cancer incidence for the nation. All participating cancer registries are members of the North American Association of Central Cancer Registries (NAACCR), a professional organization that establishes uniform data standards for cancer registration, trains cancer registry personnel, and certifies population-based cancer registries. CDC and NCI, in collaboration with NAACCR, maintain the U.S. Cancer Statistics (USCS) website, which contains the official federal statistics on cancer incidence from each registry that met data-quality criteria (*29*). Cancer registries demonstrated that cancer incidence data were of high quality by meeting six USCS publication criteria (*29*): 1) case ascertainment is ≥90% complete, 2) ≤5% of cases are ascertained solely on the basis of a death certificate, 3) ≤3% of cases are missing information on sex, 4) ≤3% of cases are missing information on age, 5) ≤5% of cases are missing information on race, and 6) ≥97% of the registry's records passed a set of single-field and inter-field computerized edits that test the validity and logic of data components. CDC analyzed data reported to NPCR as of January 31, 2009, and data reported to SEER as of November 2008. A total of 49 registries that met the data-quality criteria for every year during 2004–2006 were included in this analysis. These registries cover approximately 96% of the U.S. population, including 96% of the U.S. white population, 99% of the U.S. black population, 89% of the U.S. AI/AN population, 98% of the U.S. API population, and 96% of the U.S. Hispanic population.

Sites for incident cancers were coded according to the International Classification of Diseases (ICD) for Oncology (ICD-O) edition in use at the time of diagnosis, converted to the third edition coding (*30*): colon and rectum (C18–20, 26.0), breast (C50), and cervix (C53). Clinical and pathologic tumor characteristics such as size, multiplicity, depth of invasion and extension to regional or distant tissues, involvement of regional lymph nodes, and distant metastases were collected and classified using Collaborative Stage, a system used routinely by cancer registries (*31*). Collaborative Stage is used to derive three different staging systems, including SEER Summary Stage 2000, which characterizes cancers as localized, regional, distant, or unknown stage (*31*). Late-stage cancers include regional or distant stage. SEER Summary Stage is used to indicate prognosis, compare temporal trends, measure the success of cancer control efforts, and evaluate screening programs (*31*).

Population estimates used in the SEER*Stat software (available at http://seer.cancer.gov/seerstat) were a modified version of the annual time series of July 1 county population estimates by age, sex, and race/ethnicity produced by the U.S. Census Bureau (*32*). Modifications incorporated bridged single-race estimates that were derived from multiple-race categories in the 2000 Census (*33*). For most states, population estimates as of July 1 of each year were used to calculate annual incidence rates because these estimates are presumed to reflect the average population of a defined geographic area for a calendar year. However, certain county population estimates were adjusted to account for populations displaced along the Gulf Coast of Louisiana, Alabama, Mississippi, and Texas in fall 2005 by hurricanes Katrina and Rita (*32*). National total population estimates were not affected by these adjustments. Other specific modifications included using additional local information to estimate the native Hawaiian population accurately and to derive population estimates for a newly created county in Colorado (*32*). The modified county-level population estimates, summed to the state and national level, were used as denominators in rate calculations (*32*).

Average annual incidence rates per 100,000 persons were age-adjusted to the 2000 U.S. standard population by the direct method (*34*). Incidence rates were limited to age ≥50 years for colorectal and breast cancer and age ≥20 years for cervical cancer. Incidence rates were calculated for all races and ethnicities combined and for each of five major racial/ethnic populations (white, black, AI/AN, API, and Hispanic). Information regarding race and Hispanic ethnicity were collected separately. Hispanic ethnicity includes men and women from all race categories identified as Hispanic. Cancer registry data for AI/AN cases were linked with Indian Health Service (IHS) enrollment records to decrease the number of AI/AN persons who were misclassified as nonnative (*35*). The NAACCR Hispanic

Identification Algorithm was applied to Hispanic ethnicity data to reduce misclassification of Hispanic persons as being of unknown ethnicity (*36*). Late-stage incidence rates were examined by age, race/ethnicity, and state. Corresponding 95% confidence intervals (CIs) were calculated as modified gamma intervals (*37*) and are presented to allow for comparisons among rates (*38*). For stability and reliability, rates were not reported if the numerator was fewer than 16 observations. All rate calculations were performed using SEER*Stat. Figures depict the geographic variability of age-adjusted incidence rates of late-stage cancer and percentage of cancers diagnosed at late stage by state, using quintiles as cutpoints.

Cancer Screening Prevalence

In 2008, BRFSS was conducted in all 50 states, the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands (*28*). BRFSS uses a multistage sampling design based on random-digit-dialing methods to select a representative sample from the non-institutionalized adult population aged ≥18 years in each state and territory. Details on methodology, random sampling procedures, design, and reliability and validity of measures used in BRFSS have been described previously (*39,40*). According to the Council of American Survey and Research Organizations guidelines, the median 2008 BRFSS cooperation rate (the proportion of all respondents interviewed of all eligible units in which a respondent was selected and actually contacted) was 75% and ranged from 59% to 88% among states (*41*). Questions on screening tests for colorectal, breast and cervical cancer were included in the core questionnaire in 2008 (*42*). Adult respondents were asked a series of questions about colorectal cancer screening including whether they had ever used a FOBT and if so, how long it had been since their most recent test and whether they had ever had a sigmoidoscopy or colonoscopy and if so, which procedure it was and how long it had been since their most recent exam. Recommended colorectal cancer screening was defined as having had a FOBT in the preceding year, a flexible sigmoidoscopy in the preceding 5 years, or a colonoscopy in the preceding 10 years. Adult female respondents were asked whether they had ever had a mammogram and how long it had been since their most recent mammogram. Current recommended breast cancer screening was defined as having had a mammogram in the preceding 2 years. Adult female respondents were asked whether they had ever had a Pap test and how long it had been since their most recent Pap test. Current recommended cervical cancer screening was defined as having had a Pap test in the preceding 3 years. Populations were restricted to the ages recommended for screening by USPSTF: ages 50–75 years for colorectal cancer screening, ages 50–74 years for breast cancer screening, and ages 21–64 years for cervical cancer screening.

Percentages and exact CIs were weighted to the age, sex, racial, and ethnic distribution of the state's adult population according to the sampling design and age-adjusted to the 2000 U.S. standard population. Figures depict the geographic variability of age-adjusted estimated prevalence of cancer screening by state using quintiles as cutpoints.

Results

Colon and Rectum Cancer

During 2004–2006, a total of 99,205 late-stage colon and rectum cancer cases (rate: 94.2 per 100,000 men) were diagnosed in men aged ≥50 years in the United States (Table 1). Incidence rates increased with increasing age, from 40.9 among men aged 50–59 years to 182.9 among men aged ≥80 years. Incidence rates were highest among black men (114.0), followed by white (92.6), Hispanic (85.1), API (72.1), and AI/AN men (59.9). Incidence rates were lowest among AI/AN men aged 50–59 years (30.7) and highest among black men aged ≥80 years (192.9). State-specific late-stage colon and rectum incidence rates ranged from 67.5 to 125.1 and were highest in Alaska, Delaware, Illinois, Iowa, Kentucky, Louisiana, Nebraska, New Jersey, North Dakota, and Pennsylvania (range: 105.0–125.1) (Figure 1). Among all men, approximately half of colon and rectum cancers were late-stage (Table 1). This percentage decreased with increasing age, from 53.8% among men aged 50–59 years to 46.6% among men aged ≥80 years, primarily as a result of an increase in the number of unstaged cancers (rather than as a result of an increase in the number of localized cancers). The percentage of late-stage cancers was lowest for white men. AI/AN men aged 50–59 years had the highest percentage of late-stage cancers (61.5%). The percentage of late-stage cancers varied by state (range: 43%–57%) (Figure 2).

Overall, 61.9% of men aged 50–75 years reported recommended colorectal cancer screening in 2008 (Table 2). This percentage was lower for men aged 50–59 years (52.6%) and for men who were AI/AN (53.0%), API (50.7%), and Hispanic (46.5%). The percentage of men in each state who reported receiving recommended colorectal cancer screening varied (range: 51.3%–74.7%) (Figure 3) and was highest in Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, Michigan, New Hampshire, Rhode Island, and Vermont (range: 66.2%–74.7%).

During 2004–2006, a total of 97,588 late-stage colon and rectum cancer cases (rate: 70.4 per 100,000 women) were diagnosed in women aged ≥50 years in the United States (Table 3). Incidence rates increased with increasing age, from 30.4 among women aged 50–59 years to 150.6 among women aged ≥80 years. Incidence rates were highest among black women (85.6),

followed by white (68.6), Hispanic (60.2), API (57.2), and AI/AN (48.9) women. Incidence rates were lowest in AI/AN women aged 50–59 years (24.0) and highest among white women aged ≥80 years (151.0). Among states, late-stage colon and rectum incidence rates varied (range: 51.0–86.5) and were highest in Connecticut, Delaware, Illinois, Iowa, Kentucky, Louisiana, Maine, Nebraska, New Jersey, and Pennsylvania (range: 74.7–86.5) (Figure 4). Among all women, approximately half of colon and rectum cancers were late-stage (Table 3). This percentage decreased with increasing age, from 54.1% among women aged 50–59 years to 47.7% among women aged ≥80 years, as a result of an increase in the number of localized cancers up to age 79 years and an increase in the number of unstaged cancers in persons aged ≥80 years. The percentage of late-stage cancers was lowest (50.9%) for white women. AI/AN women aged 50–59 years had the highest percentage of late-stage cancers (60.5%). The percentage of late-stage cancers varied by state (range: 45%–58%) (Figure 5).

Overall, 62.0% of women aged 50–75 years reported recommended colorectal cancer screening in 2008 (Table 4). This percentage was lower for women aged 50–59 years (53.6%) and for women who were AI/AN (53.9%), API (56.4%), and Hispanic (51.0%). The percentage of women in each state who reported recommended colorectal cancer screening varied (range: 48.6%–72.5%) (Figure 6) and was highest in Connecticut, Delaware, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, Rhode Island, Vermont, and Virginia (range: 68.2%–72.5%).

Breast Cancer

During 2004–2006, a total of 147,430 late-stage breast cancer cases (rate: 108.5 cases per 100,000 women) were diagnosed in women aged ≥50 years in the United States (Table 5). Incidence rates were lowest among women aged 50–59 years (93.0), highest among women aged 60–69 (119.2) and 70–79 (123.9) years, and intermediate among women aged ≥80 years (109.7). Incidence rates were highest among black women (124.3), followed by white (107.6), Hispanic (87.8), API (67.1), and AI/AN (61.4) women. Incidence rates were lowest in AI/AN women aged 50–59 years (48.8) and highest among black women aged 70–79 years (140.5). Among states, late-stage breast cancer incidence rates ranged from 92.2 to 132.1 and were highest in Alabama, the District of Columbia, Kansas, Louisiana, Mississippi, New Jersey, Oklahoma, Pennsylvania, Tennessee, and Washington (range: 115.0–132.1) (Figure 7). Among all women, approximately a third of breast cancers were late-stage (Table 5). This percentage decreased with increasing age, from 38.4% among women aged 50–59 years to 29.3% among women aged ≥80 years, because of an increase in the

number of localized cancers in women up to age 79 years and an increase in the number of unstaged cancers in women aged ≥80 years. The percentage of late-stage cancers was lowest for white women (32.7%) and highest for black women (42.4%). Black women aged 50–59 years had the highest percentage of late-stage cancers (46.4%). Among states, the percentage of breast cancers that were late-stage varied by state (range: 27%–41%) (Figure 8).

Overall, 81.2% of women aged 50–74 years reported receiving recommended breast cancer screening in 2008 (Table 6). This percentage was lower only for women who were AI/AN (70.4%). The percentage of women in each state who reported receiving recommended breast cancer screening varied (range: 72.1%–89.8%) (Figure 9) and was highest in Connecticut, Delaware, the District of Columbia, Georgia, Maine, Massachusetts, Michigan, New Hampshire, New York, and Rhode Island (range: 83.9%–89.8%).

Cervical Cancer

During 2004–2006, a total of 16,947 late-stage cervical cancer cases (5.2 per 100,000 women) were diagnosed in women aged ≥20 years in the United States (Table 7). Incidence rates were lowest among women aged 20–29 years (0.8), highest among women aged 50–79 years (range: 7.2–7.9), and intermediate among women aged 30–49 years or ≥80 years (4.1–6.3). Incidence rates were highest among Hispanic women (8.4), followed by black (7.8), API (5.2), white (4.9), and AI/AN (4.4) women. Incidence rates were lowest in white women aged 20–29 years (0.8) and highest among black women aged 70–79 years (15.1). Among states, late-stage cervical cancer incidence rates ranged from 3.0–8.3 and were highest in Arkansas, the District of Columbia, Illinois, Kentucky, Louisiana, Mississippi, Nevada, New Mexico, and Oklahoma (6.1–8.3) (Figure 10). Among all women, 47% of cervical cancers were late-stage (Table 7). This percentage was lowest among women aged 20–29 years (23.1%). The percentage of late-stage cancers was lowest for Hispanic women (45.9%) and highest for black women (52.8%). Among states, this percentage varied (range: 34%–53%) (Figure 11).

Overall, 87.6% of women aged 21–64 years had recommended cervical cancer screening in 2008 (Table 8). This percentage was lower for women who were aged ≥50 years (range: 83.1–86.0%), AI/AN (82.9%), and API (80.3%). The percentage of women in each state who had recommended cervical cancer screening varied (range: 81.0%–92.6%) (Figure 12) and was highest in Delaware, the District of Columbia, Maine, Massachusetts, Minnesota, New Hampshire, North Carolina, Rhode Island, Vermont, and Virginia (range: 90.3–92.6%).

Discussion

Interpretation of Screening-Amenable Cancer Incidence and Cancer Screening Prevalence

This report presents a snapshot of the situation in the United States using the most recent available estimates of late-stage cancer incidence (2004–2006) and screening prevalence (2008). During 2004–2006, approximately half of colorectal and cervical cancers and one third of breast cancers in the United States were diagnosed at a regional or distant stage, when treatment is not as effective and survival is worse compared with cancers diagnosed at a localized stage.

Examining both the rate and percentage of late-stage cancer is useful. Rates measure absolute burden of disease, which is useful for program planning. The rate of late-stage cancer provides some information about the overall (all stages combined) rate, the magnitude of which reflects the impact of underlying risk factors. Percentages measure proportionate burden of disease, which is helpful in comparing rates on different scales, such as by age. The percentage of late-stage cancer measures the proportion of cancers not detected at earlier, more treatable stage of disease, i.e., cancers that might have been detected with timely and effective screening. A high percentage of late-stage cancer may indicate, among other factors, low population-based screening rates.

Black men and women tended to have both higher rates of late-stage cancers and higher percentage of late-stage cancers than other racial/ethnic groups. AI/AN, API, and Hispanic men and women had lower rates but higher percentage of late-stage colorectal and female breast cancer than whites. Hispanic women had the highest rate of late-stage cervical cancer but the lowest percentage diagnosed at late-stage. The percentage of late-stage breast and colorectal cancers decreased with age, probably reflecting patterns of increasing use of colorectal and breast cancer screening with age. In contrast, the percentage of late-stage cervical cancers increased with women's age, which might reflect, in part, lower use of Pap tests.

The incidence rate and percentage of late-stage cancer varied by state. Unlike geographic patterns of heart disease and stroke incidence, which are highest in the South, mostly reflecting higher prevalence of cigarette smoking and hypertension (43), geographic patterns differed for each cancer site, reflecting differing importance of underlying demographic characteristics (e.g., age) and lifestyle behaviors (e.g., cigarette smoking, obesity, and screening use). Lifestyle behaviors that increase colorectal cancer risk include obesity, physical inactivity, excessive alcohol consumption, a diet high in red or processed meat and cigarette smoking (8,23). Lifestyle behaviors that increase breast cancer risk include being overweight or obese after menopause, using hormone replacement therapy, being physically inactive, and consuming more than one alcoholic drink a day (23). Lifestyle behaviors that increase cervical cancer risk include HPV infection and cigarette smoking (23,24). The prevalence of these lifestyle behaviors vary by state (28).

Population-based screenings for colorectal, breast and cervical cancer are proven interventions for decreasing the incidence and mortality from these cancers (2–4). However, millions of adults in the United States do not receive recommended screening for colorectal cancer (16), breast cancer (20), or cervical cancer (26). In this report, only 62% of adults met recommended screening guidelines for colorectal cancer; this percentage varied from 49% to 75% among states. Hispanic, AI/AN, and API men and women were less likely to receive colorectal cancer screening than white or black men and women. In this report, 81% of adult women aged 50–74 years had a mammogram during the preceding 2 years; this percentage varied from 72% to 90% among states. Similar to other reports, the lowest prevalence was among AI/AN women (20). In this report, 88% of women aged ≥21–64 years had received a Pap test during the preceding 3 years; this percentage varied by age and race/ethnicity and from 81% to 93% by state.

Limitations

The findings in this report are subject to at least five limitations. First, although these cancer incidence data covered 96% of the U.S. population and are the most inclusive study of the U.S. population, high-quality incidence data were not available from Arizona or Wisconsin. Second, data for AI/ANs are underreported in cancer registries (44). Linkage with external sources of information such as IHS enrollment records improved the quality of AI/AN data in this study (35); however, because IHS serves only federally recognized tribes, these data do not fully represent all AI/ANs, especially those in state-recognized tribes or those who do not seek care from IHS. Third, BRFSS collects self-reported use of screening tests that are not validated and respondents might not accurately recall the length of time since their most recent screening test and might either over-report or under-report the use of the screening test. In addition, respondents are not asked whether the test was used as a screening or diagnostic tool. Fourth, because BRFSS is a telephone survey of residential households, only adults in households with landline telephones are represented; therefore the results might not be representative of the U.S. population. Finally, the survey response rate was low, which increases the risk for response bias.

Public Health Action

The findings in this report emphasize the need for ongoing population-based surveillance and reporting to monitor cancer incidence trends. Cancer-control planners, including comprehensive cancer-control programs, can use cancer incidence and screening prevalence data to identify populations that would benefit from targeted screening interventions to realize the maximum benefits of cancer screening. The geographic pattern of late-stage cancers vary by cancer type. High rates of late-stage incidence of screening-amenable cancers might reflect in part demographic patterns, the ineffectiveness of screening programs (e.g., not reaching enough of the population, not reaching those at highest risk, or technical problems with the screening tests), or problems with quality of follow-up for abnormal screening test results. States might find it helpful to compare their demographic data with the national data presented in this report or with data from other states to determine the extent to which these factors might play a role.

Screening for colorectal, breast, and cervical cancer can identify cancer in earlier and more treatable stages of disease. Multiple factors, including individual characteristics and health behaviors as well as provider and clinical systems factors, influence why certain populations are underscreened. Identifying which men and women do not receive recommended screening is an important step in reducing cancer mortality. For example, screening rates are lower for men and women with low income, without health insurance, and without access to care and vary by age, education, race/ethnicity, and recent immigration (*45*). Even among men and women with health insurance, 34% had not received a FOBT during the preceding year or a lower endoscopy during the preceding 10 years (*16*), and 16% of women had not received mammography during the preceding 2 years (*20*). Social and economic disparities, lack of awareness of the need for screening, lack of physician recommendation, and lack of insurance coverage, are major factors in the underuse of cancer screening (*15,26,46*).

Screening rates also differ by type of cancer. This variation may be due to factors previously discussed as well as the length of time since the test was first developed and used as a screening tool, recommendation of the test as a clinical preventive service, and inclusion of the test as a health insurance benefit. Mandated health insurance coverage of screening tests vary by state (*21*). Screening rates are highest for the Pap test (88% in this report) which was introduced in the 1940s and quickly integrated into routine clinical practice (*22*). Screening rates for mammography (81% in this report) nearly doubled from 1987 to 1992; USPSTF guidelines were published in 1989 and private insurance coverage and Medicare benefits were mandated shortly after (*17,45*). Screening rates are lowest for

colorectal cancer screening (62% in this report), tests for which were developed and recommended later than those for breast and cervical cancer screening (*2,8*). Screening rates seem to have plateaued for cervical and breast cancer screening (*26*) but are increasing steadily for colorectal cancer screening (*16*).

The U.S. Task Force on Community Preventive Services identified three primary strategies to increase screening rates: increasing community demand (*47*), increasing community access (*48*), and increasing provider delivery (*49*). The *Community Guide* recommended interventions such as patient reminder systems, small media (e.g., videos, letters, flyers, and brochures), one-on-one provider interactions, reducing structural barriers (e.g., providing more convenient hours and increasing attention to language, health literacy, and cultural factors), reducing financial barriers, and use of provider assessment and feedback to increase screening (*50*). These recommendations are echoed in the 2010 National Institute of Health panel on enhancing use and quality of colorectal cancer screening, which advised the elimination of financial barriers and implementation of proven interventions such as patient reminder systems and one-on-one provider interactions (*51*).

One program that is using these recommended strategies successfully to improve access to breast and cervical cancer screening and diagnostic services is the National Breast and Cervical Cancer Early Detection Program (NBCCEDP). NBCCEDP has provided these services to low-income, uninsured, and underinsured women for the preceding 20 years (*52*) and is the only national organized screening program in the United States. The program provides free or low-cost mammography and Pap tests to women with low income or without adequate health insurance in all 50 states, the District of Columbia, 12 tribes and tribal organizations, and five U.S. territories. NBCCEDP has program standards for timeliness and completeness of follow-up for abnormal screening tests and treatment initiation after precancer or cancer diagnosis. Funded programs are required to collect data on screening test characteristics and follow-up for all women who receive services paid for by the program. A recent study examining the timeliness and completeness of follow-up showed that the majority of women screened by NBCCEDP received appropriate and timely diagnostic follow-up and initiated treatment (*53*). An estimated 8%–11% of U.S. women of screening age are eligible to receive NBCCEDP services; approximately 14.3% of eligible women are screened for breast cancer (*52*), and 9% are screened for cervical cancer (*54*). Many states have augmented these federal funds to expand the population of uninsured women that they can reach (*55*); however, recent economic constraints on state, tribal, and territorial program funding have resulted in reduced services (*56,57*).

A program that emphasizes population-based approaches to increase screening is the Colorectal Cancer Control Program established recently by the CDC (*58*). This program provides funding to 25 states and four tribal organizations to promote colorectal cancer screening using evidence-based strategies recommended by the Task Force on Community Preventive Services and to provide colorectal cancer screening and follow-up care to low-income men and women aged 50–64 years who are underinsured or uninsured for screening (*59*).

The potential benefit of screening is realized only when it results in a timely diagnosis of disease that then is treated effectively (*60*). Quality of follow-up of abnormal screening tests is recognized increasingly as an important aspect of cancer screening (*61*). Patients with low income or who belong to certain racial/ethnic groups have longer delays in receiving appropriate diagnostic and treatment services following an abnormal screening test; however, many of these disparities can be explained by differences in health-care use and health-care setting, as well as by lack of adequate health insurance (*62–65*). Facilitating cancer screening (*66*) should be a focus of emerging practice-based quality-improvement demonstration systems such as the patient-centered medical home (*67*). Screening registries, such as the Breast Cancer Surveillance Consortium (*68*), can be used to track the screening process and monitor the quality, timeliness, and completeness of follow-up of abnormal screening tests as well as entry into treatment services (*69*). To address disparities in the receipt of timely and quality diagnostic services, programs that offer services such as case management or patient navigation to assist persons in accessing follow-up and treatment appear promising (*70,71*).

After determining the extent to which factors might affect the incidence of late-stage diagnoses and screening rates, States might find it helpful to determine the next steps for appropriate interventions. Comprehensive cancer control is an integrated and coordinated approach for reducing the burden of cancer incidence, morbidity, and mortality through a continuum of services including prevention, early detection, treatment, survivorship, and palliation (*72*). A key part of this is promoting recommended cancer screening guidelines using culturally-sensitive interventions and ensuring that evidence-based screening tests and treatments are available and accessible. Because this is accomplished most effectively at the local and state level, CDC's National Comprehensive Cancer Control Program (*72*) provides financial support and technical assistance to all 50 states, the District of Columbia, seven tribes and tribal organizations, and seven U.S. Associated Pacific Islands/territories to develop and implement a coordinated cancer-control plan. Cancer-control planners can use several online resources to discover the source of disparities in cancer incidence and cancer screening and to identify the most effective, evidence-based interventions to increase screening adherence. Cancer Control P.L.A.N.E.T. (Plan, Link, Act, Network with Evidence-based Tools) (http://cancercontrolplanet.cancer.gov) provides tools to assess the cancer and/or risk factor burden within a state, identify potential partners, understand research findings and recommendations, access evidence-based programs and products, and find guidelines for planning and evaluation. State Cancer Profiles (http://statecancerprofiles.cancer.gov/index.html) integrates surveillance into cancer control planning by characterizing the cancer and risk factor burden in geographic and demographic groups. U.S. Cancer Statistics (http://apps.nccd.cdc.gov/uscs/) presents high-quality cancer incidence and mortality statistics for the United States for 1999–2006. The Guide to Community Preventive Services (http://www.thecommunityguide.org/cancer/index.html) summarizes the effectiveness of population-based interventions so that cancer-control planners can choose the programs and policies that are right for their communities.

Health Care Reform

On March 23, 2010, the Patient Protection and Affordable Care Act (P.L. 111–148) became law (*73*). This act requires private health insurers and Medicare to cover recommended clinical preventive services graded "A" or "B" by USPSTF, including the screening tests described in this report, at no cost to insured patients (*74*). In addition, private insurers will be required to provide mammograms at no cost to women aged ≥40 years. This law expands the Medicaid state option to provide clinical preventive services recommended with a rating of "A" or "B" by USPSTF and increases the federal medical assistance percentage (FMAP) by one percentage point in states that eliminate cost sharing for these services. In addition, the law substantially expands Medicaid eligibility to persons, including nonpregnant childless adults, with incomes ≤133% of the federal poverty level (FPL) and optional coverage for those with incomes >133% of FPL. The law also expands private insurance coverage through employer mandates and tax credits for health insurance benefits and subsidies for persons to purchase insurance through state-based exchanges.

Ensuring coverage of recommended cancer screening, in part by removing financial barriers, is a critical first step in increasing the number of persons in the United States who receive these services. An important next step is ensuring appropriate and timely follow-up of abnormal screening tests (*71*) which requires a systematic approach to follow-up and surveillance (*75*). Systematic screening programs have been implemented in some managed care settings (*76*) and in programs such as the NBCCEDP (*52*) and the Colorectal Cancer Control Program (*58*) and could be applied across the U.S. population. The

development of population-based registries of persons eligible for screening, for example, the Breast Cancer Surveillance Consortium (*69*), would help define the population eligible for screening and identify opportunities for targeted outreach to disparate populations. By working collaboratively, public health authorities can promote quality improvement and systems change interventions to assure evidence-based screening practice in clinical settings. The complexity of adequate follow-up testing after abnormal screening tests underscores the importance of public health authorities continuing to facilitate and ensure appropriate diagnostic testing and treatment thorough surveillance and case management of those persons who screen positive.

Acknowledgments

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FIGURE 1. Rate* of late-stage colorectal cancer among men aged ≥50 years — United States,[†] 2004–2006
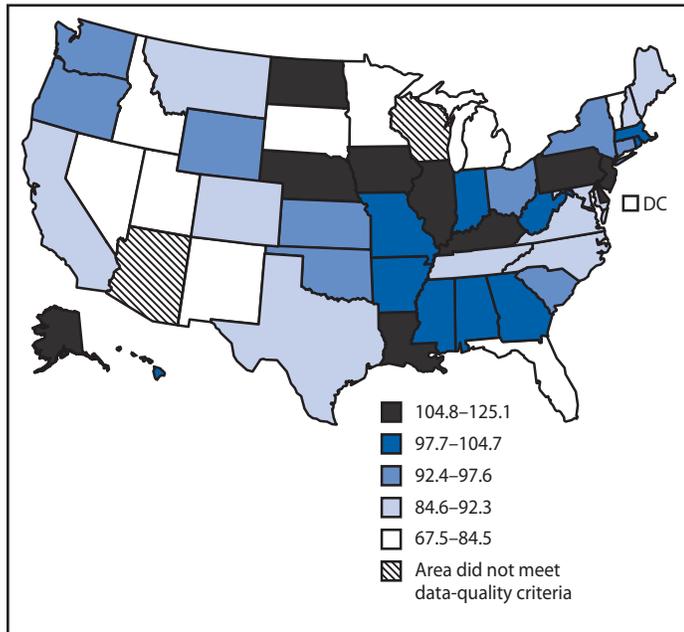
104.8–125.1
97.7–104.7
92.4–97.6
84.6–92.3
67.5–84.5
Area did not meet data-quality criteria

Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard population.
[†] Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (29).

FIGURE 2. Percentage of colorectal cancers diagnosed at late stage among men aged ≥50 years — United States,* 2004–2006
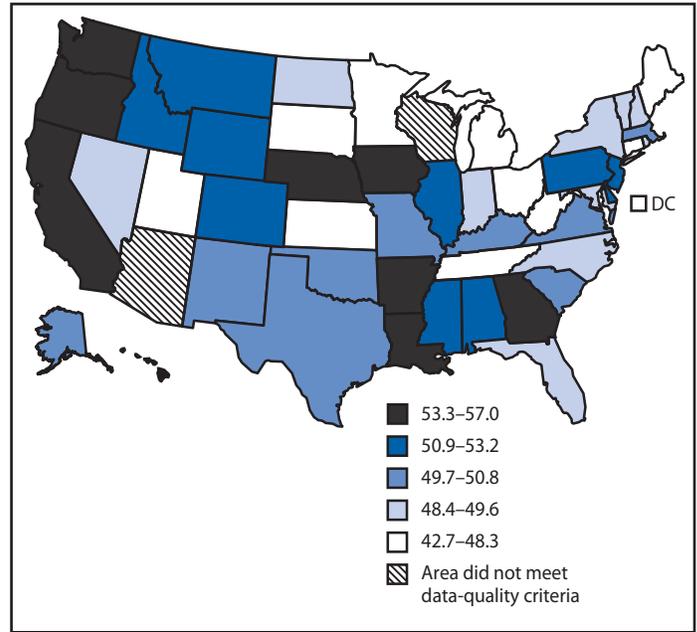
53.3–57.0
50.9–53.2
49.7–50.8
48.4–49.6
42.7–48.3
Area did not meet data-quality criteria

Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (29).

FIGURE 3. Percentage of men aged 50–75 years who had recommended colorectal cancer screening* — Behavioral Risk Factor Surveillance System, United States, 2008

66.2–74.7
63.1–66.1
59.8–63.0
56.0–59.7
51.3–55.9
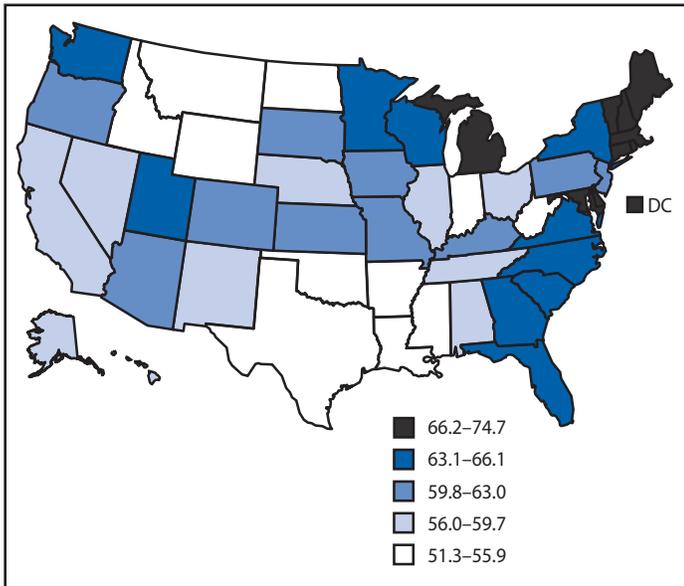
* Determined by having met the U.S. Preventive Services Task Force recommendation of having a fecal occult blood test in the past year, a flexible sigmoidoscopy in the past 5 years, or a colonoscopy in the preceding 10 years (14).

FIGURE 4. Rate* of late-stage colorectal cancer among women aged ≥50 years — United States,[†] 2004–2006
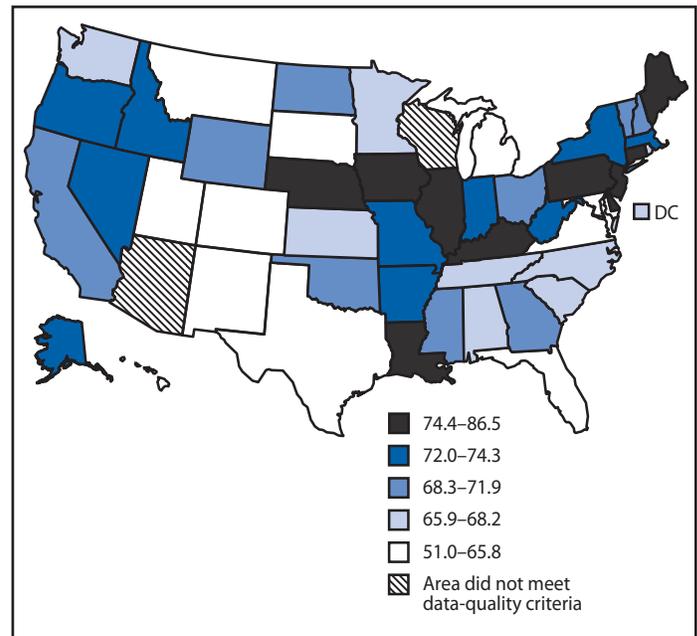
74.4–86.5
72.0–74.3
68.3–71.9
65.9–68.2
51.0–65.8
Area did not meet data-quality criteria

Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard population.
[†] Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (29).

FIGURE 5. Percentage of colorectal cancers diagnosed at late stage among women aged ≥50 years — United States,* 2004–2006

Legend:
- 52.6–58.1
- 51.4–52.5
- 50.7–51.3
- 49.1–50.6
- 44.6–49.0
- Area did not meet data-quality criteria
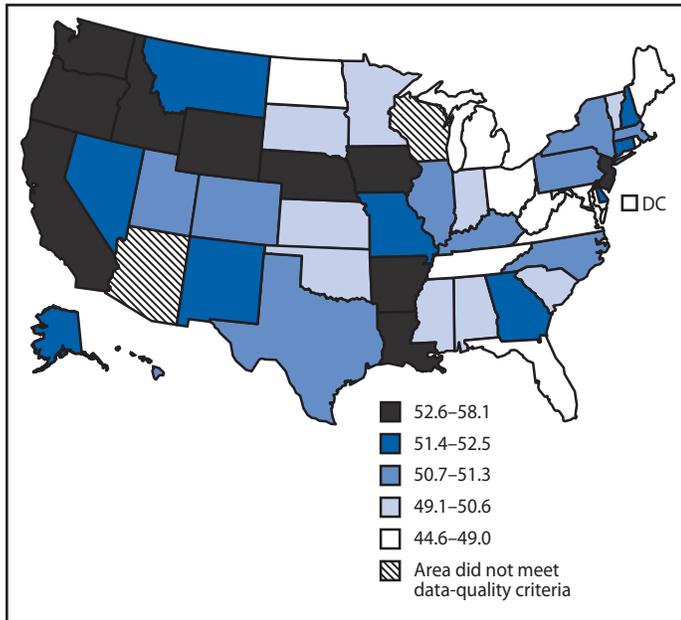
Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (*29*).

FIGURE 6. Percentage of women aged 50–75 years who had recommended colorectal cancer screening* — Behavioral Risk Factor Surveillance System, United States, 2008

Legend:
- 67.2–72.5
- 63.7–67.1
- 60.5–63.6
- 55.7–60.4
- 48.6–55.6
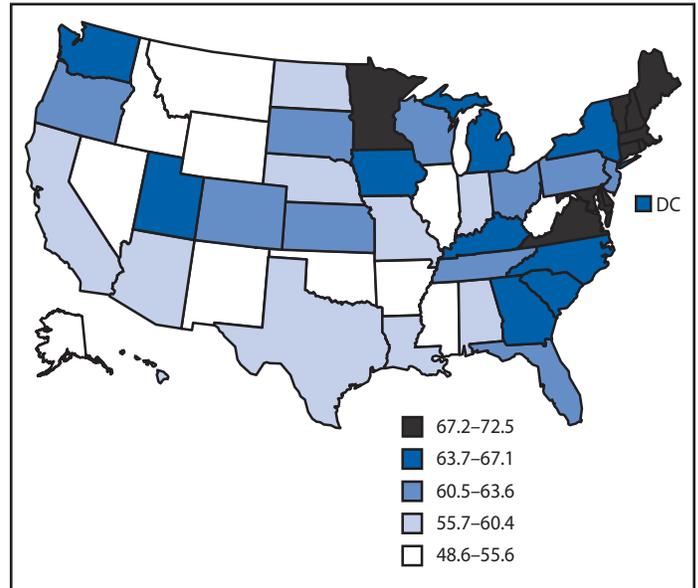
* Determined by having met the U.S. Preventive Services Task Force recommendation of having a fecal occult blood test in the past year, a flexible sigmoidoscopy in the past 5 years, or a colonoscopy in the preceding 10 years (*14*).

FIGURE 7. Rate* of late-stage invasive female breast cancer among women aged ≥50 years — United States,† 2004–2006
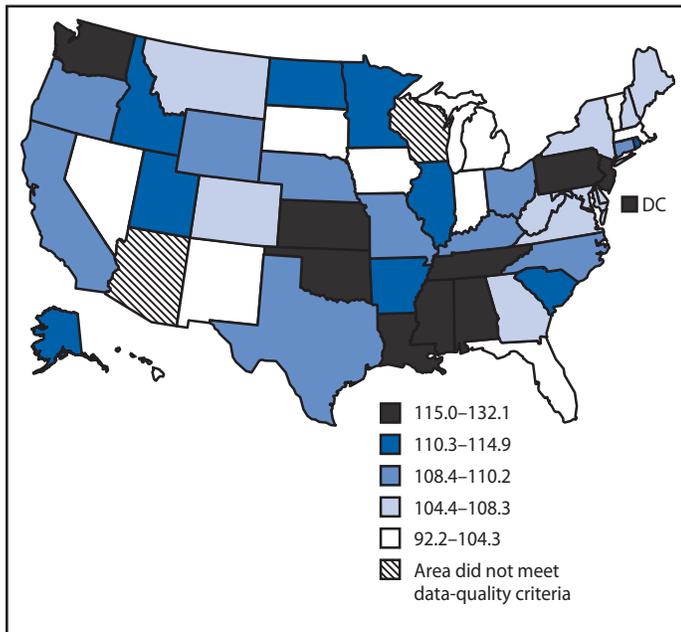
Legend:
- 115.0–132.1
- 110.3–114.9
- 108.4–110.2
- 104.4–108.3
- 92.2–104.3
- Area did not meet data-quality criteria

Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard population.
† Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (*29*).

FIGURE 8. Percentage of breast cancers diagnosed at late stage among women aged ≥50 years — United States,* 2004–2006
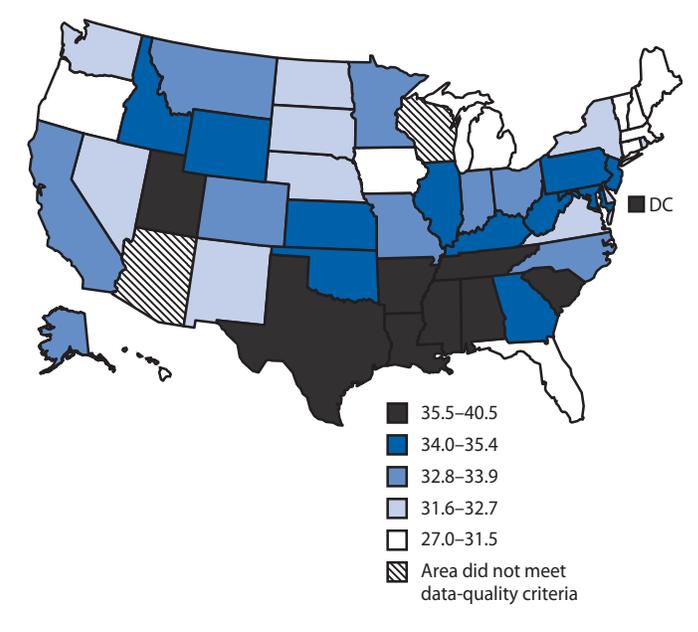
Legend:
- 35.5–40.5
- 34.0–35.4
- 32.8–33.9
- 31.6–32.7
- 27.0–31.5
- Area did not meet data-quality criteria

Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (*29*).

FIGURE 9. Percentage of women aged 50–74 years who had recommended breast cancer screening* — Behavioral Risk Factor Surveillance System, United States, 2008

Legend:
- 83.9–89.8
- 81.7–83.8
- 79.9–81.6
- 76.8–79.8
- 72.1–76.7
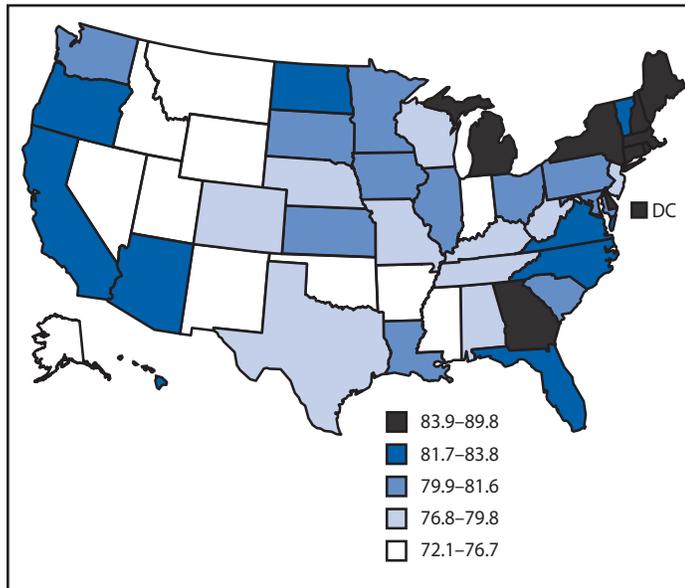
* Determined by having met the U.S. Preventive Services Task Force recommendation of having had a mammogram in the preceding 2 years (*19*).

FIGURE 10. Rate* of late-stage invasive cervical cancer among women aged ≥20 years — United States,[†] 2004–2006
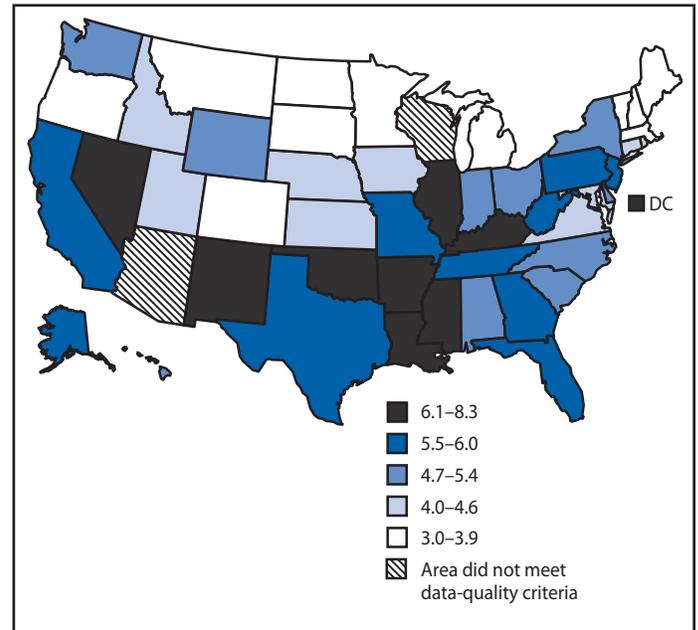
Legend:
- 6.1–8.3
- 5.5–6.0
- 4.7–5.4
- 4.0–4.6
- 3.0–3.9
- Area did not meet data-quality criteria

Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard population.
[†] Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (*29*).

FIGURE 11. Percentage of cervical cancers diagnosed at late stage among women aged ≥20 years — United States,* 2004–2006
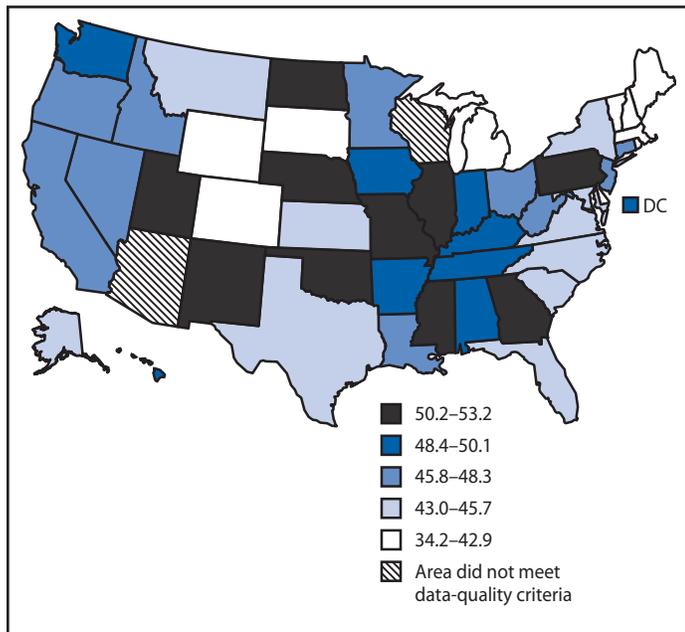
Legend:
- 50.2–53.2
- 48.4–50.1
- 45.8–48.3
- 43.0–45.7
- 34.2–42.9
- Area did not meet data-quality criteria

Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (*29*).

FIGURE 12. Percentage of women aged 21–64 years who had recommended cervical cancer screening* — Behavioral Risk Factor Surveillance System, United States, 2008

Legend:
- 89.9–92.6
- 88.5–89.8
- 87.0–88.4
- 85.2–86.9
- 81.0–85.1
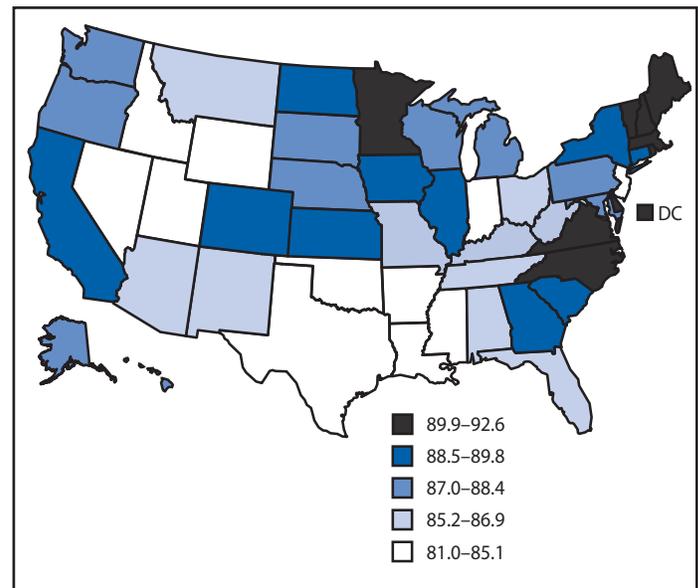
* Determined by having met the U.S. Preventive Services Task Force recommendation of having had a Pap test in the preceding 3 years (*25*).

TABLE 1. Invasive colorectal cancer incidence,* men aged ≥50 years, by stage, age, and race/ethnicity — United States,† 2004–2006

Age group at diagnosis (yrs)	Overall			Late (Regional + Distant)§			
	No.	Rate	(95% CI)	No.	Rate	(95% CI)	%
All races/ethnicities							
≥50	196,476	188.3	(187.5–189.2)	99,205	94.2	(93.6–94.8)	50.5
50–59	40,296	76.0	(75.3–76.7)	21,680	40.9	(40.3–41.4)	53.8
60–69	54,018	174.3	(172.8–175.8)	28,321	91.3	(90.2–92.3)	52.4
70–79	59,889	301.6	(299.2–304.0)	29,510	148.6	(146.9–150.3)	49.3
≥80	42,273	393.9	(390.2–397.7)	19,694	182.9	(180.3–185.5)	46.6
White							
≥50	168,442	185.4	(184.5–186.3)	84,770	92.6	(91.9–93.2)	50.3
50–59	32,584	72.7	(71.9–73.5)	17,572	39.2	(38.6–39.7)	53.9
60–69	45,383	169.9	(168.3–171.4)	23,737	88.7	(87.6–89.9)	52.3
70–79	52,397	299.1	(296.5–301.7)	25,790	147.2	(145.4–149.0)	49.2
≥80	38,078	395.1	(391.2–399.1)	17,671	182.7	(180.0–185.5)	46.4
Black							
≥50	19,977	217.0	(213.9–220.2)	10,677	114.0	(111.7–116.3)	53.5
50–59	5,551	100.4	(97.8–103.1)	3,109	56.2	(54.3–58.3)	56.0
60–69	6,199	218.3	(212.9–223.8)	3,424	120.2	(116.2–124.4)	55.2
70–79	5,294	334.4	(325.4–343.6)	2,710	170.7	(164.3–177.3)	51.2
≥80	2,933	396.1	(381.9–410.7)	1,434	192.9	(183.0–203.2)	48.9
American Indian/Alaska Native							
≥50	782	117.9	(109.2–127.2)	414	59.9	(53.8–66.5)	52.9
50–59	218	49.8	(43.4–56.9)	134	30.7	(25.7–36.3)	61.5
60–69	270	124.0	(109.6–139.8)	142	64.2	(54.0–75.8)	52.6
70–79	195	183.5	(158.5–211.3)	89	83.6	(67.0–103.0)	45.6
≥80	99	216.2	(175.6–263.5)	49	106.3	(78.6–140.8)	49.5
Asian/Pacific Islander							
≥50	5,046	135.1	(131.3–139.1)	2,710	72.1	(69.3–75.0)	53.7
50–59	1,268	57.0	(53.9–60.3)	698	31.4	(29.1–33.8)	55.0
60–69	1,531	126.6	(120.3–133.1)	824	68.1	(63.6–73.0)	53.8
70–79	1,403	214.5	(203.4–226.1)	741	113.0	(105.0–121.4)	52.8
≥80	844	274.4	(256.1–293.6)	447	144.7	(131.6–158.8)	53.0
Hispanic							
≥50	11,721	163.2	(160.1–166.4)	6,222	85.1	(82.9–87.4)	53.1
50–59	3,080	67.5	(65.1–69.9)	1,675	36.7	(35.0–38.5)	54.4
60–69	3,531	156.6	(151.5–161.9)	1,975	87.5	(83.7–91.4)	55.9
70–79	3,347	267.6	(258.6–276.8)	1,760	140.8	(134.2–147.5)	52.6
≥80	1,763	313.1	(298.5–328.1)	812	143.5	(133.8–153.8)	46.1

TABLE 1. (*Continued*) Invasive colorectal cancer incidence,* men aged ≥50 years, by stage, age, and race/ethnicity — United States,[†] 2004–2006

Age group at diagnosis (yrs)	Localized[§]			Regional[§]			Distant[§]			Unstaged		
	No.	Rate	(95% CI)	No.	Rate	(95% CI)	No.	Rate	(95% CI)	No.	Rate	(95% CI)
All races/ethnicities (continued)												
≥50	80,911	77.7	(77.1–78.2)	64,655	61.7	(61.2–62.2)	34,550	32.5	(32.2–32.8)	16,356	16.4	(16.2–16.7)
50–59	16,078	30.3	(29.9–30.8)	13,499	25.5	(25.0–25.9)	8,181	15.4	(15.1–15.8)	2,538	4.8	(4.6–5.0)
60–69	22,159	71.6	(70.7–72.6)	18,114	58.4	(57.6–59.3)	10,207	32.8	(32.2–33.5)	3,537	11.4	(11.0–11.8)
70–79	25,777	129.8	(128.2–131.4)	19,711	99.3	(97.9–100.7)	9,799	49.3	(48.3–50.3)	4,600	23.2	(22.5–23.9)
≥80	16,897	156.8	(154.5–159.2)	13,331	123.7	(121.6–125.8)	6,363	59.2	(57.7–60.6)	5,681	54.2	(52.8–55.6)
White												
≥50	70,150	77.3	(76.8–77.9)	55,896	61.3	(60.8–61.8)	28,874	31.3	(30.9–31.6)	13,522	15.5	(15.3–15.8)
50–59	13,093	29.2	(28.7–29.7)	11,091	24.7	(24.3–25.2)	6,481	14.4	(14.1–14.8)	1,919	4.3	(4.1–4.5)
60–69	18,849	70.7	(69.7–71.7)	15,377	57.6	(56.6–58.5)	8,360	31.2	(30.5–31.9)	2,797	10.5	(10.1–10.9)
70–79	22,775	130.0	(128.3–131.7)	17,372	99.2	(97.7–100.7)	8,418	48.0	(47.0–49.1)	3,832	21.9	(21.2–22.6)
≥80	15,433	159.5	(157.0–162.1)	12,056	124.6	(122.4–126.8)	5,615	58.2	(56.7–59.7)	4,974	52.9	(51.4–54.4)
Black												
≥50	7,364	79.9	(78.0–81.8)	6,282	67.6	(65.9–69.4)	4,395	46.4	(45.0–47.9)	1,932	23.1	(22.0–24.2)
50–59	2,028	36.7	(35.1–38.3)	1,768	32.0	(30.5–33.5)	1,341	24.3	(23.0–25.6)	414	7.5	(6.8–8.2)
60–69	2,288	80.8	(77.6–84.2)	1,998	70.3	(67.2–73.4)	1,426	50.0	(47.4–52.7)	486	17.1	(15.7–18.7)
70–79	2,051	129.6	(124.0–135.3)	1,647	103.6	(98.6–108.8)	1,063	67.1	(63.1–71.3)	531	34.0	(31.2–37.1)
≥80	997	134.2	(126.0–142.8)	869	117.0	(109.3–125.1)	565	75.9	(69.7–82.4)	501	68.9	(63.0–75.2)
American Indian/Alaska Native												
≥50	288	44.3	(39.0–50.2)	246	36.4	(31.7–41.7)	168	23.5	(19.8–27.7)	80	13.7	(10.7–17.3)
50–59	68	15.5	(12.1–19.7)	78	17.8	(14.1–22.3)	56	12.8	(9.7–16.7)	16	3.6	(2.1–5.9)
60–69	104	48.5	(39.6–58.8)	79	35.6	(28.1–44.4)	63	28.6	(21.9–36.6)	24	11.3	(7.2–16.8)
70–79	85	80.3	(64.1–99.5)	58	55.2	(41.8–71.4)	31	28.4	(19.3–40.4)	21	19.6	(12.1–30.1)
≥80	31	67.8	(46.0–96.5)	31	67.1	(45.5–95.4)	18	39.2	(23.2–62.2)	19	42.1	(25.3–65.8)
Asian/Pacific Islander												
≥50	2,022	53.8	(51.4–56.3)	1,797	48.3	(46.0–50.7)	913	23.8	(22.3–25.5)	314	9.2	(8.2–10.3)
50–59	515	23.2	(21.2–25.3)	447	20.1	(18.3–22.0)	251	11.3	(9.9–12.8)	55	2.5	(1.9–3.2)
60–69	617	51.0	(47.1–55.2)	538	44.5	(40.8–48.5)	286	23.6	(20.9–26.5)	90	7.4	(6.0–9.1)
70–79	584	89.5	(82.4–97.1)	498	76.1	(69.5–83.1)	243	36.9	(32.4–41.9)	78	12.0	(9.5–15.0)
≥80	306	99.1	(88.3–110.9)	314	101.5	(90.5–113.4)	133	43.2	(36.2–51.3)	91	30.5	(24.6–37.5)
Hispanic												
≥50	4,481	62.6	(60.7–64.6)	4,054	55.9	(54.1–57.7)	2,168	29.3	(28.0–30.6)	1,018	15.5	(14.5–16.5)
50–59	1,168	25.6	(24.1–27.1)	1,072	23.5	(22.1–24.9)	603	13.2	(12.2–14.3)	237	5.2	(4.6–5.9)
60–69	1,318	58.6	(55.4–61.8)	1,279	56.7	(53.6–59.9)	696	30.8	(28.5–33.1)	238	10.6	(9.3–12.0)
70–79	1,317	105.2	(99.6–111.1)	1,144	91.8	(86.5–97.3)	616	49.0	(45.2–53.0)	270	21.6	(19.1–24.4)
≥80	678	119.9	(111.0–129.4)	559	98.9	(90.8–107.5)	253	44.6	(39.3–50.5)	273	49.6	(43.9–55.9)

Abbreviation: CI = confidence interval.
Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard population; 95% confidence intervals were calculated as modified gamma intervals (*37*).
[†] Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (*29*).
[§] A localized cancer is one that is confined to the primary site, a regional cancer is one that has spread directly beyond the primary site or to regional lymph nodes, and a distant cancer is one that has spread to other organs.

TABLE 2. Number and percentage of men who received recommended colorectal cancer screening* — Behavioral Risk Factor Surveillance System, United States, 2008

Demographic	Men		
	No.	%	(95% CI)
Overall	71,456	61.9	(61.3–62.6)
Age at screening (yrs)			
50–59	33,226	52.6	(51.6–53.6)
60–69	28,753	71.3	(70.3–72.2)
70–75	10,109	75.5	(73.9–76.9)
Race			
White	63,442	63.1	(62.4–63.8)
Black	4,328	62.0	(59.3–64.5)
American Indian/Alaska Native	1,145	53.0	(47.0–59.0)
Asian/Pacific Islander	1,156	50.7	(44.9–56.4)
Ethnicity			
Hispanic	2,607	46.5	(42.9–50.1)
Non–Hispanic	69,122	63.4	(62.7–64.0)

Abbreviation: CI = confidence interval.

* Determined by having met the U.S. Preventive Services Task Force recommendation of having a fecal occult blood test in the preceding year, a flexible sigmoidoscopy in the preceding 5 years or a colonoscopy in the preceding 10 years (*14*).

TABLE 3. Invasive colorectal cancer incidence* among women aged ≥50 years, by stage, age, and race/ethnicity — United States,† 2004–2006

Age group at diagnosis (yrs)	Overall			Late (Regional + Distant)§			
	No.	Rate	(95% CI)	No.	Rate	(95% CI)	%
All races/ethnicities							
≥50	191,283	137.3	(136.7–137.9)	97,588	70.4	(69.9–70.8)	51.0
50–59	31,344	56.2	(55.6–56.9)	16,968	30.4	(30.0–30.9)	54.1
60–69	40,625	116.6	(115.5–117.8)	21,838	62.6	(61.8–63.5)	53.8
70–79	56,139	215.4	(213.6–217.2)	28,664	110.0	(108.7–111.3)	51.1
≥80	63,175	315.0	(312.5–317.4)	30,118	150.6	(148.9–152.4)	47.7
White							
≥50	161,416	133.8	(133.1–134.4)	82,193	68.6	(68.1–69.0)	50.9
50–59	23,910	51.9	(51.2–52.5)	13,097	28.4	(27.9–28.9)	54.8
60–69	32,916	111.8	(110.6–113.0)	17,693	60.0	(59.1–60.9)	53.8
70–79	47,971	212.5	(210.6–214.5)	24,442	108.4	(107.0–109.7)	51.0
≥80	56,619	316.0	(313.4–318.6)	26,961	151.0	(149.2–152.8)	47.6
Black							
≥50	22,144	162.5	(160.4–164.7)	11,690	85.6	(84.1–87.2)	52.8
50–59	5,490	82.7	(80.6–85.0)	2,990	45.0	(43.4–46.7)	54.5
60–69	5,800	154.8	(150.8–158.8)	3,186	85.0	(82.0–88.0)	54.9
70–79	5,976	241.1	(235.0–247.3)	3,159	127.4	(123.0–132.0)	52.9
≥80	4,878	307.0	(298.4–315.7)	2,355	148.6	(142.6–154.7)	48.3
American Indian/Alaska Native							
≥50	713	90.5	(83.8–97.7)	392	48.9	(44.1–54.2)	55.0
50–59	185	39.7	(34.2–45.9)	112	24.0	(19.8–28.9)	60.5
60–69	197	83.3	(72.0–95.8)	110	46.5	(38.1–56.0)	55.8
70–79	208	158.5	(137.6–181.6)	105	80.2	(65.5–97.1)	50.5
≥80	123	156.1	(129.6–186.3)	65	82.5	(63.6–105.2)	52.8
Asian/Pacific Islander							
≥50	4,966	104.3	(101.4–107.3)	2,726	57.2	(55.0–59.4)	54.9
50–59	1,222	47.7	(45.1–50.5)	653	25.4	(23.5–27.4)	53.4
60–69	1,241	89.1	(84.2–94.2)	714	51.2	(47.5–55.1)	57.5
70–79	1,416	158.2	(150.1–166.7)	775	86.5	(80.5–92.8)	54.7
≥80	1,087	231.5	(218.0–245.7)	584	124.2	(114.3–134.7)	53.7
Hispanic							
≥50	10,047	110.8	(108.6–113.0)	5,504	60.2	(58.6–61.8)	54.8
50–59	2,342	49.2	(47.3–51.3)	1,378	29.0	(27.5–30.5)	58.8
60–69	2,645	99.9	(96.2–103.8)	1,474	55.6	(52.8–58.5)	55.7
70–79	2,828	169.1	(162.9–175.4)	1,524	91.1	(86.6–95.8)	53.9
≥80	2,232	236.9	(227.2–247.0)	1,128	119.8	(112.9–127.0)	50.5

See page 18 for footnotes.

TABLE 3. (*Continued*) Invasive colorectal cancer incidence* among women aged ≥50 years, by stage, age, and race/ethnicity — United States,[†] 2004–2006

Age group at diagnosis (yrs)	Localized[§]			Regional[§]			Distant[§]			Unstaged		
	No.	Rate	(95% CI)	No.	Rate	(95% CI)	No.	Rate	(95% CI)	No.	Rate	(95% CI)
All races/ethnicities (*continued*)												
≥50	76,406	55.2	(54.8–55.6)	64,569	46.5	(46.2–46.9)	33,019	23.8	(23.6–24.1)	17,289	11.7	(11.5–11.9)
50–59	12,449	22.4	(22.0–22.8)	10,593	19.0	(18.6–19.4)	6,375	11.4	(11.1–11.7)	1,927	3.5	(3.3–3.6)
60–69	16,472	47.4	(46.6–48.1)	14,126	40.6	(39.9–41.2)	7,712	22.1	(21.6–22.6)	2,315	6.7	(6.4–6.9)
70–79	23,683	90.9	(89.7–9.02)	19,441	74.6	(73.5–75.6)	9,223	35.4	(34.7–36.2)	3,792	14.5	(14.0–15.0)
≥80	23,802	119.2	(117.7–120.7)	20,409	102.1	(100.7–103.5)	9,709	48.5	(47.5–49.5)	9,255	45.1	(44.2–46.1)
White												
≥50	64,900	54.2	(53.8–54.6)	54,971	45.8	(45.4–46.2)	27,222	22.8	(22.5–23.0)	14,323	11.0	(10.8–11.2)
50–59	9,481	20.6	(20.2–21.0)	8,224	17.8	(17.4–18.2)	4,873	10.6	(10.3–10.9)	1,332	2.9	(2.7–3.1)
60–69	13,449	45.7	(45.0–46.5)	11,536	39.2	(38.5–39.9)	6,157	20.8	(20.3–21.4)	1,774	6.0	(5.8–6.3)
70–79	20,389	90.3	(89.1–91.6)	16,705	74.0	(72.9–75.1)	7,737	34.3	(33.6–35.1)	3,140	13.9	(13.4–14.4)
≥80	21,581	121.0	(119.4–122.6)	18,506	103.7	(102.2–105.2)	8,455	47.3	(46.3–48.3)	8,077	44.0	(43.0–45.0)
Black												
≥50	8,319	61.1	(59.8–62.4)	7,014	51.5	(50.3–52.7)	4,676	34.1	(33.2–35.1)	2,135	15.8	(15.1–16.5)
50–59	2,122	32.0	(30.6–33.4)	1,762	26.6	(25.3–27.8)	1,228	18.5	(17.5–19.6)	378	5.7	(5.1–6.3)
60–69	2,240	59.8	(57.4–62.4)	1,947	51.9	(49.7–54.3)	1,239	33.0	(31.2–34.9)	374	10.0	(9.0–11.1)
70–79	2,345	94.6	(90.8–98.5)	1,959	79.0	(75.6–82.6)	1,200	48.4	(45.7–51.2)	472	19.1	(17.4–20.9)
≥80	1,612	101.9	(97.0–107.0)	1,346	85.0	(80.5–89.7)	1,009	63.6	(59.7–67.7)	911	56.5	(52.8–60.3)
American Indian/Alaska Native												
≥50	270	34.5	(30.4–39.0)	250	31.9	(27.9–36.2)	142	17.1	(14.3–20.3)	51	7.1	(5.2–9.3)
50–59	67	14.4	(11.2–18.3)	62	13.3	(10.2–1.07)	50	10.7	(8.0–14.2)	¶	¶	¶
60–69	76	32.2	(25.3–40.3)	71	30.2	(23.5–38.1)	39	16.3	(11.6–22.3)	¶	¶	¶
70–79	87	66.2	(53.0–81.7)	73	55.6	(43.6–70.0)	32	24.6	(16.8–34.7)	16	12.1	(6.9–19.7)
≥80	40	50.9	(36.3–69.3)	44	55.7	(40.4–74.8)	21	26.8	(16.6–41.0)	18	22.7	(13.4–35.9)
Asian/Pacific Islander												
≥50	1,934	40.4	(38.6–42.3)	1,893	39.8	(38.0–41.6)	833	17.4	(16.2–18.6)	306	6.7	(6.0–7.6)
50–59	499	19.6	(17.9–21.3)	456	17.8	(16.2–19.5)	197	7.7	(6.6–8.8)	70	2.8	(2.2–3.5)
60–69	474	34.0	(31.0–37.3)	476	34.2	(31.2–37.4)	238	17.1	(15.0–19.4)	53	3.8	(2.8–5.0)
70–79	579	64.7	(59.5–70.2)	564	63.0	(57.9–68.4)	211	23.5	(20.4–26.9)	62	7.0	(5.4–9.0)
≥80	382	81.4	(73.4–90.0)	397	84.4	(76.3–93.2)	187	39.7	(34.2–45.9)	121	26.0	(21.6–31.0)
Hispanic												
≥50	3,649	40.2	(38.9–41.5)	3,632	40.0	(38.7–41.3)	1,872	20.2	(19.3–21.1)	894	10.4	(9.7–11.1)
50–59	823	17.3	(16.1–18.5)	837	17.6	(16.4–18.8)	541	11.4	(10.4–12.4)	141	3.0	(2.5–3.5)
60–69	1,016	38.4	(36.1–40.8)	986	37.2	(34.9–39.6)	488	18.4	(16.8–20.2)	155	5.9	(5.0–6.9)
70–79	1,072	64.1	(60.3–68.0)	1,032	61.7	(58.0–65.6)	492	29.3	(26.8–32.1)	232	13.9	(12.2–15.8)
≥80	738	78.4	(72.8–84.3)	777	82.5	(76.8–88.5)	351	37.3	(33.5–41.4)	366	38.7	(34.8–42.9)

Abbreviation: CI = confidence interval.
Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard population; 95% confidence intervals were calculated as modified gamma intervals (*37*).
[†] Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (*29*).
[§] A localized cancer is one that is confined to the primary site, a regional cancer is one that has spread directly beyond the primary site or to regional lymph nodes, and a distant cancer is one that has spread to other organs
[¶] Data not reported when case count is <16.

TABLE 4. Number and percentage of women who received recommended colorectal cancer screening* — Behavorial Risk Factor Surveillance System, United States, 2008

Demographic	Women		
	No.	%	(95% CI)
Overall	114,422	62.0	(61.5–62.5)
Age at screening (yrs)			
50–59	51,685	53.6	(52.8–54.4)
60–69	45,707	68.8	(68.0–69.6)
70–75	17,735	73.9	(72.7–75.0)
Race			
White	99,513	62.9	(62.4–63.4)
Black	9,437	61.0	(59.1–62.9)
American Indian/Alaska Native	1,684	53.9	(49.1–58.7)
Asian/Pacific Islander	1,621	56.4	(51.2–61.5)
Ethnicity			
Hispanic	4,704	51.0	(48.3–53.8)
Non-Hispanic	109,996	63.0	(62.5–63.5)

Abbreviation: CI = confidence interval.
* Determined by having met the U.S. Preventive Services Task Force recommendation of having a fecal occult blood test in the preceding year, a flexible sigmoidoscopy in the preceding 5 years, or a colonoscopy in the preceding 10 years (*14*).

TABLE 5. Invasive breast cancer incidence* among women aged ≥50 years, by stage, age, and race/ethnicity — United States,[†] 2004–2006

Age group at diagnosis (yrs)	Overall			Late (Regional + Distant)[§]			
	No.	Rate	(95% CI)	No.	Rate	(95% CI)	%
All races/ethnicities							
≥50	439,142	323.0	(322.0–323.9)	147,430	108.5	(108.0–109.1)	33.6
50–59	134,412	241.8	(240.5–243.1)	51,583	93.0	(92.2–93.8)	38.4
60–69	124,753	355.6	(353.6–357.6)	41,903	119.2	(118.1–120.4)	33.6
70–79	105,742	407.1	(404.6–409.5)	32,168	123.9	(122.6–125.3)	30.4
≥80	74,235	373.8	(371.1–376.5)	21,776	109.7	(108.3–111.2)	29.3
White							
≥50	380,420	328.4	(327.3–329.4)	124,252	107.6	(107.0–108.2)	32.7
50–59	111,851	243.5	(242.0–244.9)	41,827	91.2	(90.4–92.1)	37.4
60–69	107,764	363.3	(361.1–365.5)	35,326	118.9	(117.6–120.1)	32.8
70–79	93,679	417.1	(414.4–419.8)	27,771	123.7	(122.3–125.2)	29.6
≥80	67,126	378.7	(375.9–381.6)	19,328	109.1	(107.6–110.7)	28.8
Black							
≥50	41,843	295.7	(292.8–298.5)	17,757	124.3	(122.4–126.1)	42.4
50–59	15,675	236.4	(232.7–240.1)	7,279	109.8	(107.3–112.3)	46.4
60–69	12,029	319.6	(313.9–325.3)	5,037	133.6	(130.0–137.4)	41.9
70–79	8,840	355.9	(348.5–363.4)	3,490	140.5	(135.9–145.3)	39.5
≥80	5,299	334.9	(325.9–344.1)	1,951	123.4	(118.0–129.0)	36.8
American Indian/Alaska Native							
≥50	1,489	172.1	(163.2–181.4)	544	61.4	(56.2–67.0)	36.5
50–59	562	120.7	(110.9–131.1)	227	48.8	(42.7–55.6)	40.4
60–69	477	197.0	(179.7–215.6)	171	70.7	(60.4–82.2)	35.8
70–79	295	223.5	(198.7–250.6)	91	68.5	(55.1–84.2)	30.8
≥80	155	198.1	(168.1–232.0)	55	70.3	(52.9–91.6)	35.5
Asian/Pacific Islander							
≥50	10,563	199.4	(195.6–203.3)	3,598	67.1	(64.9–69.4)	34.1
50–59	4,620	180.8	(175.6–186.1)	1,714	67.2	(64.0–70.4)	37.1
60–69	3,130	221.6	(213.9–229.5)	1,005	71.0	(66.6–75.5)	32.1
70–79	1,948	216.1	(206.6–225.9)	601	66.8	(61.5–72.3)	30.9
≥80	865	183.4	(171.3–196.0)	278	59.0	(52.3–66.4)	32.1
Hispanic							
≥50	23,305	238.1	(235.0–241.3)	8,739	87.8	(85.9–89.7)	37.5
50–59	9,045	190.2	(186.3–194.1)	3,770	79.3	(76.8–81.8)	41.7
60–69	7,032	264.0	(257.9–270.3)	2,579	96.6	(92.9–100.4)	36.7
70–79	4,901	291.4	(283.3–299.7)	1,649	98.0	(93.3–102.9)	33.6
≥80	2,327	247.3	(237.4–257.6)	741	78.8	(73.2–84.7)	31.8

TABLE 5. (*Continued*) Invasive breast cancer incidence* among women aged ≥50 years, by stage, age, and race/ethnicity — United States,[†] 2004–2006

Age group at diagnosis (yrs)	Localized[§]			Regional[§]			Distant[§]			Unstaged		
	No.	Rate	(95% CI)	No.	Rate	(95% CI)	No.	Rate	(95% CI)	No.	Rate	(95% CI)
All races/ethnicities (*continued*)												
≥50	270,898	199.9	(199.1–200.6)	124,308	91.6	(91.1–92.1)	23,122	16.9	(16.7–17.1)	20,812	14.6	(14.4–14.8)
50–59	78,682	141.3	(140.4–142.3)	44,758	80.7	(80.0–81.5)	6,825	12.2	(12.0–12.5)	4,146	7.5	(7.2–7.7)
60–69	78,532	224.0	(222.5–225.6)	35,539	101.1	(100.1–102.2)	6,364	18.1	(17.7–18.6)	4,317	12.3	(12.0–12.7)
70–79	68,981	265.6	(263.6–267.6)	26,634	102.6	(101.4–103.8)	5,534	21.3	(20.7–21.9)	4,593	17.6	(17.1–18.1)
≥80	44,703	226.1	(224.0–228.2)	17,377	87.6	(86.3–88.9)	4,399	22.1	(21.5–22.8)	7,756	38.0	(37.1–38.8)
White												
≥50	238,740	206.6	(205.8–207.5)	105,272	91.4	(90.8–91.9)	18,980	16.3	(16.0–16.5)	17,426	14.1	(13.9–14.3)
50–59	66,787	145.2	(144.1–146.3)	36,546	79.8	(79.0–80.6)	5,281	11.5	(11.2–11.8)	3,236	7.0	(6.8–7.3)
60–69	68,926	232.5	(230.8–234.3)	30,109	101.3	(100.2–102.5)	5,217	17.6	(17.1–18.0)	3,511	11.9	(11.5–12.3)
70–79	61,994	276.0	(273.9–278.2)	23,148	103.1	(101.8–104.5)	4,623	20.6	(20.0–21.2)	3,914	17.3	(16.8–17.9)
≥80	41,033	232.6	(230.3–234.8)	15,469	87.4	(86.0–88.8)	3,859	21.7	(21.0–22.4)	6,765	37.0	(36.1–37.9)
Black												
≥50	21,845	155.2	(153.1–157.3)	14,356	100.1	(98.5–101.8)	3,401	24.1	(23.3–25.0)	2,241	16.2	(15.6–16.9)
50–59	7,831	118.1	(115.5–120.7)	6,033	91.0	(88.7–93.3)	1,246	18.8	(17.7–19.8)	565	8.5	(7.8–9.3)
60–69	6,479	172.3	(168.1–176.5)	4,095	108.6	(105.3–112.0)	942	25.1	(23.5–26.7)	513	13.6	(12.5–14.9)
70–79	4,890	196.8	(191.3–202.4)	2,724	109.7	(105.6–113.9)	766	30.9	(28.7–33.1)	460	18.6	(16.9–20.4)
≥80	2,645	168.0	(161.7–174.6)	1,504	95.2	(90.5–100.2)	447	28.2	(25.7–31.0)	703	43.4	(40.3–46.8)
American Indian/Alaska Native												
≥50	840	97.8	(91.0–104.9)	457	51.0	(46.3–56.1)	87	10.4	(8.3–12.9)	105	12.9	(10.5–15.7)
50–59	308	66.1	(58.9–73.9)	198	42.6	(36.9–49.0)	29	6.2	(4.2–8.9)	27	5.8	(3.8–8.5)
60–69	272	112.3	(99.3–126.6)	142	58.5	(49.3–69.1)	29	12.1	(8.1–17.5)	34	14.0	(9.7–19.6)
70–79	184	139.9	(120.4–161.7)	75	55.9	(43.9–70.1)	16	12.6	(7.2–20.5)	20	15.1	(9.2–23.3)
≥80	76	97.3	(76.6–121.9)	42	53.8	(38.7–72.8)	¶	¶	¶	24	30.5	(19.5–45.4)
Asian/Pacific Islander												
≥50	6,691	126.8	(123.7–129.9)	3,121	58.0	(55.9–60.1)	477	9.1	(8.3–10.0)	274	5.5	(4.9–6.2)
50–59	2,810	109.9	(105.9–114.0)	1,507	59.1	(56.1–62.1)	207	8.1	(7.0–9.3)	96	3.7	(3.0–4.6)
60–69	2,053	145.6	(139.3–152.0)	876	61.8	(57.8–66.1)	129	9.1	(7.6–10.8)	72	5.1	(4.0–6.4)
70–79	1,304	144.6	(136.8–152.6)	511	56.6	(51.8–61.8)	90	10.1	(8.1–12.4)	43	4.8	(3.5–6.4)
≥80	524	110.7	(101.4–120.6)	227	48.2	(42.1–54.9)	51	10.8	(8.1–14.2)	63	13.6	(10.5–17.5)
Hispanic												
≥50	13,411	137.9	(135.6–140.3)	7,461	74.5	(72.8–76.2)	1,278	13.3	(12.5–14.0)	1,155	12.4	(11.7–13.2)
50–59	4,936	103.8	(100.9–106.7)	3,326	69.9	(67.6–72.4)	444	9.3	(8.5–10.2)	339	7.1	(6.4–7.9)
60–69	4,157	156.4	(151.6–161.2)	2,191	82.1	(78.7–85.6)	388	14.5	(13.1–16.1)	296	11.1	(9.9–12.4)
70–79	3,003	178.5	(172.2–185.0)	1,377	81.8	(77.5–86.3)	272	16.2	(14.3–18.2)	249	14.9	(13.1–16.9)
≥80	1,315	139.8	(132.4–147.6)	567	60.4	(55.5–65.5)	174	18.5	(15.8–21.4)	271	28.7	(25.4–32.3)

Abbreviation: CI = confidence interval.
Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Rates are per 100,000 and age–adjusted to the 2000 U.S. Standard population; 95% confidence intervals were calculated as modified gamma intervals (*37*).
[†] Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (*29*).
[§] A localized cancer is one that is confined to the primary site, a regional cancer is one that has spread directly beyond the primary site or to regional lymph nodes, and a distant cancer is one that has spread to other organs.
¶ Data not reported when case count is <16.

TABLE 6. Number and percentage of women aged 50–74 years who received recommended breast cancer screening* — Behavioral Risk Factor Surveillance System, United States, 2008

Demographic	Women		
	No.	%	(95% CI)
Overall	**116,708**	**81.2**	**(80.7–81.6)**
Age at screening (yrs)			
50–59	52,421	79.9	(79.3–80.5)
60–69	46,711	82.4	(81.8–83.0)
70–74	18,318	82.7	(81.7–83.7)
Race			
White	101,245	81.4	(81.0–81.8)
Black	9,805	82.2	(80.5–83.7)
American Indian/Alaska Native	1,736	70.4	(65.6–74.8)
Asian/Pacific Islander	1,665	80.4	(75.9–84.3)
Ethnicity			
Hispanic	4,886	81.4	(79.1–83.4)
Non-Hispanic	112,115	81.1	(80.7–81.5)

Abbreviation: CI = confidence interval.

* Determined by having met the U.S. Preventive Services Task Force recommendation of having had a mammogram in the past 2 years (*19*).

TABLE 7. Invasive cervical cancer incidence* among women aged ≥20 years, by stage, age, and race/ethnicity — United States,† 2004–2006

Age group at diagnosis (yrs)	Overall			Late (Regional + Distant)§			
	No.	Rate	(95% CI)	No.	Rate	(95% CI)	%
All races/ethnicities							
≥20	36,076	11.4	(11.2–11.5)	16,947	5.2	(5.1–5.3)	47.0
20–29	1,982	3.5	(3.3–3.6)	458	0.8	(0.7–0.9)	23.1
30–39	7,501	12.8	(12.5–13.1)	2,408	4.1	(4.0–4.3)	32.1
40–49	9,588	14.6	(14.3–14.9)	4,183	6.3	(6.1–6.5)	43.7
50–59	7,045	12.8	(12.5–13.1)	4,011	7.2	(7.0–7.5)	57.0
60–69	4,715	13.4	(13.0–13.8)	2,769	7.9	(7.6–8.2)	58.8
70–79	3,129	12.1	(11.7–12.5)	1,897	7.3	(7.0–7.6)	60.6
≥80	2,116	10.6	(10.2–11.1)	1,221	6.2	(5.8–6.5)	57.7
White							
≥20	27,932	10.9	(10.7–11.0)	12,949	4.9	(4.8–4.9)	46.4
20–29	1,591	3.6	(3.4–3.8)	353	0.8	(0.7–0.9)	22.2
30–39	6,073	13.3	(13.0–13.6)	1,909	4.2	(4.0–4.4)	31.5
40–49	7,381	14.0	(13.7–14.3)	3,142	5.9	(5.7–6.1)	42.6
50–59	5,410	11.9	(11.6–12.2)	3,111	6.8	(6.6–7.1)	57.5
60–69	3,570	12.0	(11.6–12.4)	2,112	7.1	(6.8–7.4)	59.2
70–79	2,286	10.2	(9.8–10.6)	1,394	6.2	(5.9–6.6)	61.0
≥80	1,621	9.1	(8.7–9.6)	928	5.2	(4.9–5.6)	57.3
Black							
≥20	5,694	14.7	(14.3–15.0)	3,003	7.8	(7.5–8.1)	52.8
20–29	262	2.9	(2.6–3.3)	86	1.0	(0.8–1.2)	32.8
30–39	947	11.1	(10.4–11.9)	374	4.4	(4.0–4.9)	39.6
40–49	1,519	16.9	(16.1–17.8)	780	8.7	(8.1–9.3)	51.4
50–59	1,147	17.3	(16.3–18.3)	678	10.2	(9.5–11.0)	59.1
60–69	828	22.0	(20.5–23.5)	484	12.8	(11.7–14.0)	58.5
70–79	606	24.4	(22.5–26.5)	374	15.1	(13.6–16.7)	61.7
≥80	385	24.2	(21.9–26.8)	227	14.3	(12.5–16.3)	59.0
American Indian/Alaska Native							
≥20	240	8.9	(7.8–10.1)	113	4.4	(3.6–5.3)	47.3
20–29	22	3.3	(2.1–5.0)	¶	¶	¶	**
30–39	63	10.8	(8.3–13.8)	19	3.3	(2.0–5.1)	30.2
40–49	67	10.7	(8.3–13.6)	33	5.3	(3.6–7.4)	49.3
50–59	40	8.6	¶	24	5.2	(3.3–7.7)	60.0
60–69	27	10.9	¶	18	7.3	(4.3–11.6)	66.7
70–79	¶	¶	¶	¶	¶	¶	**
≥80	¶	¶	¶	¶	¶	¶	**
Asian/Pacific Islander							
≥20	1,532	10.5	(10.0–11.0)	742	5.2	(4.9–5.6)	48.4
20–29	34	1.0	(0.7–1.4)	¶	¶	¶	**
30–39	236	6.2	(5.5–7.1)	79	2.1	(1.7–2.6)	33.5
40–49	448	13.5	(12.3–14.8)	189	5.7	(4.9–6.6)	42.2
50–59	330	12.9	(11.6–14.4)	167	6.5	(5.6–7.6)	50.6
60–69	229	16.2	(14.2–18.4)	135	9.6	(8.0–11.3)	59.0
70–79	174	19.3	(16.6–22.4)	109	12.2	(10.0–14.7)	62.6
≥80	81	17.1	(13.6–21.3)	52	11.0	(8.2–14.4)	64.2
Hispanic							
≥20	5,632	17.2	(16.8–17.7)	2,585	8.4	(8.0–8.7)	45.9
20–29	388	3.8	(3.5–4.2)	102	1.0	(0.8–1.2)	26.3
30–39	1,384	14.8	(14.0–15.6)	476	5.1	(4.7–5.6)	34.4
40–49	1,591	21.1	(20.1–22.2)	722	9.6	(8.9–10.3)	45.4
50–59	1,022	21.5	(20.2–22.9)	557	11.7	(10.8–12.7)	54.5
60–69	639	24.0	(22.2–25.9)	376	14.1	(12.7–15.6)	58.8
70–79	403	23.9	(21.6–26.4)	227	13.5	(11.8–15.4)	56.3
≥80	205	21.8	(18.9–25.0)	125	13.3	(11.1–15.8)	61.0

See page 24 for footnotes.

TABLE 7. (*Continued*) Invasive cervical cancer incidence* among women aged ≥20 years, by stage, age, and race/ethnicity — United States,[†] 2004–2006

Age group at diagnosis (yrs)	Localized[§]			Regional[§]			Distant[§]			Unstaged		
	No.	Rate	(95% CI)	No.	Rate	(95% CI)	No.	Rate	(95% CI)	No.	Rate	(95% CI)
All races/ethnicities (continued)												
≥20	16,298	5.3	(5.2–5.4)	13,003	4.0	(4.0–4.1)	3,944	1.2	(1.2–1.2)	2,808	0.9	(0.8–0.9)
20–29	1,307	2.3	(2.2–2.4)	388	0.7	(0.6–0.7)	70	0.1	(0.1–0.2)	215	0.4	(0.3–0.4)
30–39	4,632	7.9	(7.7–8.1)	2,018	3.5	(3.3–3.6)	390	0.7	(0.6–0.7)	455	0.8	(0.7–0.9)
40–49	4,931	7.5	(7.3–7.8)	3,284	5.0	(4.8–5.1)	899	1.4	(1.3–1.4)	467	0.7	(0.6–0.8)
50–59	2,579	4.7	(4.5–4.9)	2,956	5.3	(5.2–5.5)	1,055	1.9	(1.8–2.0)	453	0.8	(0.7–0.9)
60–69	1,544	4.4	(4.2–4.6)	2,026	5.8	(5.5–6.0)	743	2.1	(2.0–2.3)	398	1.1	(1.0–1.3)
70–79	864	3.3	(3.1–3.6)	1,413	5.4	(5.2–5.7)	484	1.9	(1.7–2.0)	367	1.4	(1.3–1.6)
≥80	441	2.2	(2.0–2.4)	918	4.6	(4.3–4.9)	303	1.5	(1.4–1.7)	453	2.2	(2.0–2.4)
White												
≥20	12,955	5.2	(5.2–5.3)	9,902	3.7	(3.7–3.8)	3,047	1.1	(1.1–1.2)	2,011	0.7	(0.7–0.8)
20–29	1,075	2.4	(2.3–2.6)	294	0.7	(0.6–0.7)	59	0.1	(0.1–0.2)	162	0.4	(0.3–0.4)
30–39	3,835	8.4	(8.1–8.7)	1,594	3.5	(3.3–3.7)	315	0.7	(0.6–0.8)	325	0.7	(0.6–0.8)
40–49	3,917	7.5	(7.2–7.7)	2,460	4.6	(4.5–4.8)	682	1.3	(1.2–1.4)	316	0.6	(0.5–0.7)
50–59	1,982	4.4	(4.2–4.6)	2,269	5.0	(4.8–5.2)	842	1.8	(1.7–2.0)	315	0.7	(0.6–0.8)
60–69	1,186	4.0	(3.8–4.2)	1,556	5.2	(5.0–5.5)	556	1.9	(1.7–2.0)	269	0.9	(0.8–1.0)
70–79	627	2.8	(2.6–3.0)	1,044	4.7	(4.4–5.0)	350	1.6	(1.4–1.7)	265	1.2	(1.0–1.3)
≥80	333	1.9	(1.7–2.1)	685	3.9	(3.6–4.2)	243	1.4	(1.2–1.6)	359	2.0	(1.8–2.2)
Black												
≥20	2,181	5.5	(5.3–5.7)	2,274	5.9	(5.6–6.1)	729	1.9	(1.8–2.1)	506	1.3	(1.2–1.5)
20–29	149	1.7	(1.4–2.0)	79	0.9	(0.7–1.1)	¶	¶	¶	27	0.3	(0.2–0.4)
30–39	502	5.9	(5.4–6.4)	313	3.7	(3.3–4.1)	61	0.7	(0.6–0.9)	69	0.8	(0.6–1.0)
40–49	641	7.2	(6.6–7.7)	610	6.8	(6.2–7.3)	170	1.9	(1.6–2.2)	97	1.1	(0.9–1.3)
50–59	394	6.0	(5.4–6.6)	502	7.6	(6.9–8.3)	176	2.7	(2.3–3.1)	75	1.1	(0.9–1.4)
60–69	256	6.8	(6.0–7.7)	329	8.7	(7.8–9.7)	155	4.1	(3.5–4.8)	87	2.3	(1.9–2.9)
70–79	157	6.3	(5.4–7.4)	265	10.7	(9.4–12.1)	109	4.4	(3.6–5.3)	75	3.0	(2.4–3.8)
≥80	82	5.2	(4.1–6.5)	176	11.1	(9.5–12.9)	51	3.2	(2.4–4.2)	76	4.7	(3.7–5.9)
American Indian/Alaska Native												
≥20	112	3.9	(3.2–4.7)	92	3.5	(2.8–4.3)	21	0.8	(0.5–1.3)	¶	¶	¶
20–29	16	2.4	(1.4–3.9)	¶	¶	¶	¶	¶	¶	¶	¶	¶
30–39	41	7.0	(5.0–9.5)	18	3.1	(1.8–4.9)	¶	¶	¶	¶	¶	¶
40–49	33	5.3	(3.6–7.4)	25	4.0	(2.6–5.9)	¶	¶	¶	¶	¶	¶
50–59	¶	¶	¶	19	4.1	(2.5–6.4)	¶	¶	¶	¶	¶	¶
60–69	¶	¶	¶	16	6.4	(3.7–10.5)	¶	¶	¶	¶	¶	¶
70–79	¶	¶	¶	¶	¶	¶	¶	¶	¶	¶	¶	¶
≥80	¶	¶	¶	¶	¶	¶	¶	¶	¶	¶	¶	¶
Asian/Pacific Islander												
≥20	710	4.7	(4.3–5.1)	609	4.3	(4.0–4.7)	133	0.9	(0.8–1.1)	80	0.6	(0.4–0.7)
20–29	20	0.6	(0.4–0.9)	¶	¶	¶	¶	¶	¶	¶	¶	¶
30–39	148	3.9	(3.3–4.6)	69	1.8	(1.4–2.3)	¶	¶	¶	¶	¶	¶
40–49	241	7.3	(6.4–8.2)	152	4.6	(3.9–5.4)	37	1.1	(0.8–1.5)	18	0.5	(0.3–0.9)
50–59	141	5.5	(4.7–6.5)	137	5.4	(4.5–6.3)	30	1.2	(0.8–1.7)	22	0.9	(0.5–1.3)
60–69	79	5.5	(4.4–6.9)	109	7.8	(6.4–9.4)	26	1.8	(1.2–2.7)	¶	¶	¶
70–79	59	6.5	(4.9–8.4)	88	9.8	(7.8–12.0)	21	2.4	(1.5–3.6)	¶	¶	¶
≥80	22	4.7	(2.9–7.0)	46	9.7	(7.1–13.0)	¶	¶	¶	¶	¶	¶
Hispanic												
≥20	2,644	7.5	(7.2–7.8)	2,122	6.8	(6.5–7.1)	463	1.5	(1.4–1.7)	402	1.3	(1.2–1.5)
20–29	244	2.4	(2.1–2.7)	80	0.8	(0.6–1.0)	22	0.2	(0.1–0.3)	42	0.4	(0.3–0.6)
30–39	824	8.8	(8.2–9.4)	410	4.4	(4.0–4.9)	66	0.7	(0.5–0.9)	83	0.9	(0.7–1.1)
40–49	799	10.6	(9.9–11.4)	597	8.0	(7.3–8.6)	125	1.7	(1.4–2.0)	70	0.9	(0.7–1.2)
50–59	397	8.4	(7.5–9.2)	456	9.6	(8.7–10.5)	101	2.1	(1.7–2.6)	68	1.4	(1.1–1.8)
60–69	222	8.3	(7.3–9.5)	303	11.4	(10.1–12.7)	73	2.7	(2.2–3.5)	41	1.5	(1.1–2.1)
70–79	119	7.0	(5.8–8.4)	184	10.9	(9.4–12.6)	43	2.6	(1.9–3.5)	57	3.4	(2.5–4.4)
≥80	39	4.2	(3.0–5.7)	92	9.8	(7.9–12.0)	33	3.5	(2.4–4.9)	41	4.4	(3.1–5.9)

Abbreviation: CI = confidence interval.
Source: CDC's National Program of Cancer Registries (NPCR) and the National Cancer Surveillance, Epidemiology, and End Results (SEER) program.
* Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard population; 95% confidence intervals were calculated as modified gamma intervals (*37*).
[†] Data from NPCR and SEER registries meet U.S. Cancer Statistics publication criteria for 2004–2006 and cover approximately 96.1% of the U.S. population (*29*).
[§] A localized cancer is one that is confined to the primary site, a regional cancer is one that has spread directly beyond the primary site or to regional lymph nodes, and a distant cancer is one that has spread to other organs.
[¶] Data not reported when case count <16.
** Statistic could not be calculated.

TABLE 8. Number and percentage of women who received recommended cervical cancer screening* — Behavioral Risk Factor Surveillance System, United States, 2008

Demographic	Women		
	No.	%	(95% CI)
Overall	129,008	87.6	(87.2–87.9)
Age at screening (yrs)			
21–29	14,551	87.2	(86.0–88.2)
30–39	29,421	90.7	(90.1–91.3)
40–49	34,759	87.8	(87.2–88.4)
50–59	36,034	86.0	(85.3–86.6)
60–64	15,223	83.1	(82.0–84.3)
Race			
White	105,937	88.0	(87.6–88.4)
Black	12,137	88.8	(87.6–89.8)
American Indian/Alaska Native	2,464	82.9	(79.2–86.0)
Asian/Pacific Islander	3,380	80.3	(77.4–83.0)
Ethnicity			
Hispanic	10,013	87.3	(85.9–88.5)
Non-Hispanic	119,646	87.6	(87.2–88.0)

Abbreviation: CI = confidence interval.
* Determined by having met the U.S. Preventive Services Task Force recommendation of having had a Pap test in the preceding 3 years (*25*).