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Vital Signs: Colorectal Cancer Screening Among Adults Aged 50–75 Years — United States, 2008

ABSTRACT

Background: Colorectal cancer (CRC) remains the second leading cause of cancer deaths in the United States and the leading cause of cancer deaths among nonsmokers. Statistical modeling indicates that, if current trends in health behaviors, screening, and treatment continue, U.S. residents can expect to see a 36% decrease in the CRC mortality rate by 2020, compared with 2000.

Methods: Every 2 years, CDC uses Behavioral Risk Factor Surveillance System data to estimate up-to-date CRC screening prevalence in the United States. Adults aged ≥50 years were considered to be up-to-date with CRC screening if they reported having a fecal occult blood test (FOBT) within the past year or lower endoscopy (i.e., sigmoidoscopy or colonoscopy) within the preceding 10 years. Prevalence was calculated for adults aged 50–75 years based on current U.S. Preventive Services Task Force recommendations.

Results: For 2008, the overall age-adjusted CRC screening prevalence for the United States was 62.9% among adult respondents aged 50–75 years, increased from 51.9% in 2002. Among the lowest screening prevalences were those reported by persons aged 50–59 years (53.9%), Hispanics (49.8%), persons with lower income (47.6%), those with less than a high school education (46.1%), and those without health insurance (35.6%).

Conclusions: CRC screening rates continue to increase in the United States. Underscreening persists for certain racial/ethnic groups, lower socioeconomic groups, and the uninsured.

Implications for Public Health Practice: Health reform is anticipated to reduce financial barriers to CRC screening, but many factors influence CRC screening. The public health and medical communities should use methods, including client and provider reminders, to ensure test completion and receipt of follow-up care. Public health surveillance should be expanded and communication efforts enhanced to help the public understand the benefits of CRC screening.

Despite recent declines in both incidence and mortality, colorectal cancer (CRC) remains the second most common cause of cancer deaths after lung cancer in the United States (*1*) and the leading cause of cancer deaths among nonsmokers.

CDC Vital Signs is a new series of MMWR reports that will announce the latest results for key public health indicators.

In 2006 (the most recent data available), 139,127 people were diagnosed with colorectal cancer, and 53,196 people died (*1*). Screening for colorectal cancer is effective in reducing incidence and mortality by removal of premalignant polyps and through early detection and treatment of cancer (*2*). CRC screening prevalence has improved over the past decade (*3*); however, in 2006, approximately 30% of eligible U.S. residents had never been screened for CRC (*3*). This Vital Signs report updates screening prevalence in the United States using data from the 2008 Behavioral Risk Factor Surveillance System (BRFSS)

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survey for persons aged 50–75 years, based on recommendations for up-to-date CRC screening from the U.S. Preventive Services Task Force (USPSTF) (*4*).

Methods

BRFSS is a state-based, random-digit dialed telephone survey of the civilian, noninstitutionalized adult population that collects information on health risk behaviors, preventive health practices, and health-care access in the United States (*5*). Every 2 years (in even numbered years), respondents aged ≥50 years are asked whether they have ever used a "special kit at home to determine whether the stool contains blood (fecal occult blood test [FOBT])," whether they have ever had a "tube inserted into the rectum to view the colon for signs of cancer or other health problems (sigmoidoscopy or colonoscopy)," and when these tests were last performed. CDC calculated the prevalence of adults who reported having had an FOBT within the past year or lower endoscopy (i.e., sigmoidoscopy or colonoscopy) within the preceding 10 years, as was done in previous reports (*3*). Based on the U.S. Preventive Services Task Force recommended screening age, this analysis was restricted to persons aged 50–75 years (*4*). Data were aggregated across all 50 states and the District of Columbia. Respondents who refused to answer, had a missing answer, or who answered "don't know/not sure" were excluded from analysis of the question.

The median Council of American Survey and Research Organizations (CASRO) response rate was 53.3%, and the median CASRO cooperation rate was 75.0% (*5*). Data were weighted to the age, sex, and racial/ethnic distribution of each state's adult population using intercensal estimates and were age-standardized to the 2008 BRFSS population.

Results

The 2008 BRFSS survey was administered to 414,509 respondents, of whom 201,157 were aged 50–75 years. The overall, age-adjusted combined up-to-date CRC screening (FOBT and lower endoscopy) prevalence for the United States was 62.9% among adult respondents aged 50–75 years (Table). Among the lowest screening prevalences were those reported by persons aged 50–59 years (53.9%), Hispanics (49.8%), persons with lower income (47.6%), those with less than a high school education (46.1%), and those without health insurance (35.6%). Similar patterns were noted for FOBT in the preceding year and for lower endoscopy in the preceding 10 years. The percentage of persons up-to-date with CRC screening ranged from 53.2% in Oklahoma to 74.1% in Massachusetts (Figure 1). States with the highest screening prevalence were concentrated in the northeastern United States. CRC screening increased from 51.9% in 2002 to 62.9% in 2008 (Figure 2). During that period, use of endoscopy increased, while FOBT use declined from 20.9% of CRC screening in 2002 to 14.1% in 2008.

Key Points for the Public

- Over 53,000 U.S. residents die each year from colorectal cancer.
- 1,900 deaths could be prevented each year for every 10% increase in colonoscopy screening.
- Only 36% of men and women without health insurance are up-to-date with colorectal cancer screening.
- Additional information is available at http://www.cdc.gov/vitalsigns.

Conclusions and Comment

The results in this Vital Signs report indicate that the prevalence of up-to-date CRC screening in the United States is continuing to increase. An increase (from 38% in 2000 to 53% in 2008) also has been reported using National Health Interview Survey data (*6*). However, in 2008, certain populations in the United States remained underscreened, including those with lower socioeconomic status, Hispanics, and those without health insurance. Multiple factors might explain these differences, including patient education and income, as well as provider and clinical systems factors. As in previous surveys, the 2008 survey indicated notable geographic differences in CRC screening prevalence. The reasons for these geographic differences remain unknown, but screening capacity, lack of physician availability, and patient factors including income, education, and lack of awareness have been proposed as reasons (*6*).

CRC screening rates continue to increase in the United States. Additional improvements in screening

TABLE. Percentage of respondents aged 50–75 years who reported receiving a fecal occult blood test (FOBT) within 1 year, or a lower endoscopy* within 10 years, by selected characteristices — Behavioral Risk Factor Surveillance System (BRFSS), United States, 2008†

Characteristic	FOBT within 1 yr		Lower endoscopy within 10 yrs		FOBT within 1 yr or lower endoscopy within 10 yrs	
	%	(95% CI§)	%	(95% CI)	%	(95% CI)
Overall	**14.1**	**(13.8–14.4)**	**58.5**	**(58.1–59.0)**	**62.9**	**(62.5–63.3)**
Age group (yrs)						
50–59	11.0	(10.6–11.4)	49.7	(49.0–50.3)	53.9	(53.3–54.5)
60–69	17.0	(16.5–17.6)	66.7	(66.0–67.3)	71.1	(70.5–71.7)
70–75	18.2	(17.4–19.1)	71.4	(70.4–72.3)	75.8	(74.8–76.7)
Sex						
Men	14.6	(14.2–15.1)	59.0	(58.4–59.7)	63.2	(62.6–63.9)
Women	13.6	(13.2–13.9)	58.1	(57.6–58.6)	62.6	(62.0–63.1)
Race						
White	13.8	(13.5–14.1)	59.8	(59.4–60.2)	63.9	(63.5–64.4)
Black	17.2	(16.0–18.6)	56.6	(55.0–58.2)	62.0	(60.5–63.6)
Asian/Pacific Islander	13.5	(11.0–16.6)	51.1	(47.2–55.0)	55.5	(51.6–59.4)
American Indian/Alaska Native	15.1	(12.3–18.3)	50.7	(46.7–54.6)	54.4	(50.4–58.4)
Other	11.8	(9.7–14.1)	43.7	(40.6–46.9)	49.3	(46.1–52.6)
Ethnicity						
Hispanic	12.0	(10.5–13.7)	45.8	(43.6–48.0)	49.8	(47.6–52.0)
Non-Hispanic	14.3	(14.0–14.6)	59.8	(59.4–60.2)	64.2	(63.8–64.6)
Education level						
< High school	11.3	(10.4–12.3)	41.8	(40.1–43.5)	46.1	(44.4–47.8)
High school graduate/GED¶	13.3	(12.8–13.8)	53.3	(52.5–54.0)	58.1	(57.3–58.8)
Some college/tech school	15.0	(14.4–15.6)	59.2	(58.4–60.0)	63.7	(63.0–64.5)
College graduate	14.9	(14.3–15.4)	66.9	(66.3–67.6)	70.6	(70.0–71.3)
Annual household income ($)						
<15,000	11.8	(10.8–12.8)	42.3	(40.7–43.9)	47.6	(46.0–49.3)
15,000–34,999	13.9	(13.2–14.6)	48.9	(48.0–49.8)	54.0	(53.0–54.9)
35,000–49,999	13.7	(13.0–14.4)	57.1	(56.0–58.1)	61.3	(60.2–62.3)
50,000–74,999	14.1	(13.4–14.9)	62.7	(61.7–63.7)	66.5	(65.5–67.4)
≥75,000	15.0	(14.4–15.6)	69.4	(68.6–70.1)	72.9	(72.2–73.6)
Health insurance						
Yes	14.6	(14.3–14.9)	61.3	(60.9–61.8)	65.7	(65.3–66.1)
No	8.9	(7.9–10.1)	31.3	(29.2–33.5)	35.6	(33.4–37.9)

* Sigmoidoscopy or colonoscopy.
† Percentages standardized to the age distribution in the 2008 BRFSS survey.
§ Confidence interval.
¶ General Educational Development certificate.

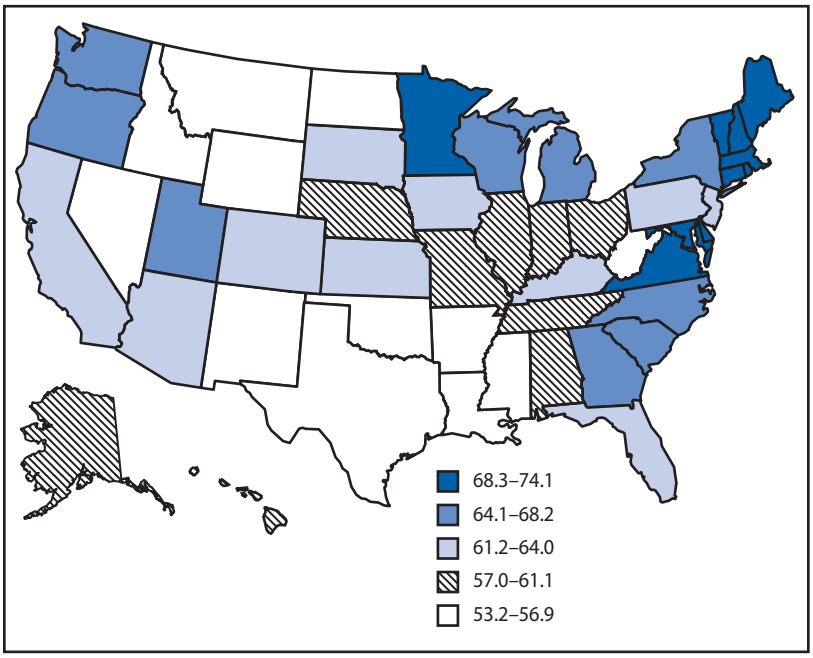
prevalence might have substantive impact on CRC mortality. Statistical modeling indicates that, if current trends in health behaviors, screening, and treatment continue, U.S. residents can expect to see a 36% decrease in the CRC mortality rate by 2020, compared with 2000 (*7*).

Insufficient evidence exists to recommend "one best" test for CRC screening. Several proven, effective tests exist and are recommended by USPSTF, including annual FOBT, sigmoidoscopy every 5 years, and colonoscopy every 10 years (*4*). In addition to maximizing prevalence of CRC screening to reduce morbidity and mortality, ensuring proper follow-up of abnormal results is important to maximize the benefits of screening (*4*).

The findings in this report are subject to at least three limitations. First, 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. Evidence suggests that adults living in wireless-only households tend to be younger and have lower incomes, and are more likely to be members of minority populations, which might result in either underestimates or overestimates. Second, responses are self-reported and not confirmed by review of medical records. Finally, the survey response rate was low, which increases the risk for response bias.

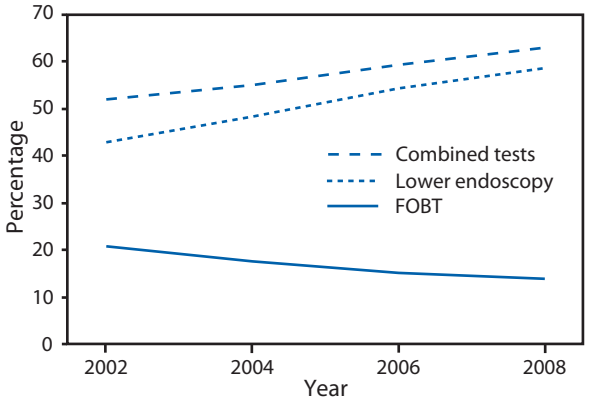
Policy changes in the Patient Protection and Affordable Care Act are expected to remove financial

FIGURE 1. Percentage of respondents aged 50–75 years who reported receiving a fecal occult blood test (FOBT) within 1 year or a lower endoscopy* within 10 years, by state — Behavioral Risk Factor Surveillance System (BRFSS), United States, 2008†



* Sigmoidoscopy or colonoscopy.
† Percentages standardized to the age distribution in the 2008 BRFSS survey.

FIGURE 2. Percentage of respondents aged 50–75 years who reported receiving a fecal occult blood test (FOBT) within 1 year or a lower endoscopy* within 10 years — Behavioral Risk Factor Surveillance System (BRFSS), United States, 2002, 2004, 2006, and 2008†



* Sigmoidoscopy or colonoscopy.
† Percentages standardized to the age distribution in the 2008 BRFSS survey.

barriers to CRC screening by expanding insurance coverage and eliminating cost sharing in Medicare and private plans, but additional barriers remain (*8*). Evidence-based, systems-change interventions, including client and provider reminders to ensure test completion and receipt of follow-up care, have been shown by the *Guide to Community Preventive Services** to increase CRC screening; however, these approaches have not been widely adopted in clinical practice. Physician recommendation remains an important but underutilized facilitator of CRC screening. Improving cancer screening benchmarks in clinical practice should be a high priority for new patient-care improvement models such as the patient-centered medical home (*9*). Case management approaches such as patient navigation models to maximize patient participation and ensure adequate follow-up also appear promising (*10*). Utah has used multiple approaches to improve its CRC screening prevalence. Reported use of CRC endoscopy increased from 32.1% in 1999 to 51.9% in 2005 through the use of small media (e.g., videos, letters, brochures, and flyers) and large media campaigns and by providing CRC screening tests (mainly FOBT) for those who could not afford it.†

CDC's CRC screening program, funded in 2009, places emphasis on population-based approaches to increase CRC screening.§ The program is based on the recommendations of the *Guide to Community Preventive Services*, which has identified evidence-based interventions to increase cancer screening in communities by targeting providers and the general population. Full implementation of these recommendations, including a focus on reaching disadvantaged populations, can achieve the goal of more complete population coverage.

Surveillance of cancer screening and diagnostic activities currently is limited to population surveys and is only collected every other year by BRFSS. Additional surveillance efforts might guide population-based outreach, identify and target unscreened populations, and ensure adequate follow-up (*10*). CDC and state and local health departments should develop and monitor centralized population-based registries of persons eligible for screening, provide appropriate outreach, and ensure adequate follow-up. These registries could be developed to track and promote screening awareness and subsequent utilization through communication media (e.g., telephone, mail, or electronic reminders) or use of peer outreach.

* Additional information available at http://www.thecommunityguide.org/index.html.
† Additional information available at http://health.utah.gov/ucan/partners/pub/pdfs/utahcancerplan080206.pdf.
§ Available at http://www.cdc.gov/cancer/crccp.

Registries of underserved populations, including Medicaid enrollees and those without a regular provider, could be used to promote screening among persons in vulnerable populations at greater risk.

Reported by

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References

1. US Cancer Statistics Working Group. United States cancer statistics: 1999–2006 incidence and mortality web-based report. Atlanta, GA: US Department of Health and Human Services, CDC, and National Cancer Institute; 2010. Available at http://www.cdc.gov/uscs. Accessed June 23, 2010.
2. Winawer SJ, Zauber AG, Ho MN, et al. Prevention of colorectal cancer by colonoscopic polypectomy. The National Polyp Study Workgroup. N Engl J Med 1993;329:1977–81.
3. CDC. Use of colorectal cancer tests—United States, 2002, 2004, and 2006. MMWR 2008;57:253–8.
4. US Preventive Services Task Force. Screening for colorectal cancer. Rockville, MD: Agency for Healthcare Research and Quality; 2008. Available at http://www.ahrq.gov/clinic/uspstf/uspscolo.htm. Accessed June 20, 2010.
5. CDC. Behavioral Risk Factor Surveillance System. Atlanta, GA: US Department of Health and Human Services, CDC; 2010. Available at http://www.cdc.gov/brfss. Accessed June 20, 2010.
6. American Cancer Society. Cancer prevention and early detection facts and figures 2010. Atlanta, GA: American Cancer Society; 2010. Available at http://www.cancer.org/research/cancerfactsfigures/cancerpreventionearlydetectionfactsfigures/index. Accessed July 6, 2010.
7. Edwards BK, Ward E, Kohler BA, et al. Annual report to the nation on the status of cancer, 1975–2006, featuring colorectal cancer trends and impact of interventions (risk factors, screening, and treatment) to reduce future rates. Cancer 2010;116:544–73.
8. The Patient Protection and Affordable Care Act. Pub. L. No. 111-148. Available at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_bills&docid=f:h3590enr.txt.pdf. Accessed June 20, 2010.
9. Wender RC, Altshuler M. Can the medical home reduce cancer morbidity and mortality? Prim Care 2009;36:845–58.
10. New York City Department of Health and Mental Hygiene. A practical guide to increasing screening colonoscopy: proven methods for health care facilities to prevent colorectal cancer deaths. New York, NY: New York City Department of Health and Mental Hygiene; 2006. Available at http://www.nyc.gov/html/doh/downloads/pdf/cancer/cancer-colonoscopy-guide.pdf. Accessed June 20, 2010.

Vital Signs: Breast Cancer Screening Among Women Aged 50–74 Years — United States, 2008

ABSTRACT

Background: Breast cancer remains the second leading cause of cancer deaths for women in the United States. Screening with treatment has lowered breast cancer mortality.

Methods: Every 2 years, CDC uses Behavioral Risk Factor Surveillance System data to estimate mammography prevalence in the United States. Up-to-date mammography prevalence is calculated for women aged 50–74 years who report they had the test in the preceding 2 years.

Results: For 2008, overall, age-adjusted, up-to-date mammography prevalence for U.S. women aged 50–74 years was 81.1%, compared with 81.5% in 2006. Among the lowest prevalences reported were those by women aged 50–59 years (79.9%), persons who did not finish high school (72.6%), American Indian/Alaska Natives (70.4%), those with annual household income <$15,000 (69.4%), and those without health insurance (56.3%). Highest mammography prevalence was among residents of the northeastern United States.

Conclusions: In recent years, mammography rates have plateaued. Critical gaps in screening remain for certain racial/ethnic groups and lower socioeconomic groups, and for the uninsured.

Implications for Public Health Practice: Health-care reform is likely to increase access by increasing insurance coverage and by reducing out-of-pocket costs for mammography screening. Widespread implementation of evidence-based interventions also will be needed to increase screening rates. These include patient and provider reminders to schedule a mammogram, use of small media (e.g., videos, letters, brochures, and flyers), one-on-one education of women, and reduction of structural barriers (e.g., more convenient hours and attention to language, health literacy, and cultural factors).

Breast cancer remains the most commonly diagnosed cancer and the second leading cause of cancer deaths among women in the United States. In 2006 (the most recent data available), approximately 191,410 women were diagnosed with invasive breast cancer, and 40,820 women died (*1*). The incidence and mortality have been declining since 1996 at a rate of approximately 2% per year (*2*), possibly as a result of widespread screening with mammography and the development of more effective therapies (*3*). Mammography use declined slightly in 2004, but rose again in 2006 (*4,5*). This Vital Signs report updates mammography screening prevalence in the United States, using data from the 2008 Behavioral Risk Factor Surveillance System (BRFSS).

Methods

BRFSS is a state-based, random-digit-dialed telephone survey of the civilian, noninstitutionalized adult population that collects information on health risk behaviors, preventive health practices, and health-care access in the United States (*6*). Every 2 years (even numbered years), adult female respondents are asked whether they have ever had a mammogram. Respondents who answer "yes" are then asked how long it has been since their last mammogram. For this report, breast cancer screening prevalence was calculated for women aged 50–74 years based on United States Preventive Services Task Force (USPSTF) recommendations, which considers women to be up-to-date if they received a mammogram in the preceding 2 years (*7*). Respondents who refused to answer, had a missing answer, or answered "don't know/not sure" were excluded.

The median Council of American Survey and Research Organizations (CASRO) response rate was 53.3%, and the median CASRO cooperation rate was 75.0% (*6*). Data were weighted to the age,

sex, and racial and ethnic distribution of each state's adult population using intercensal estimates and were age-standardized to the 2008 BRFSS female population.

Results

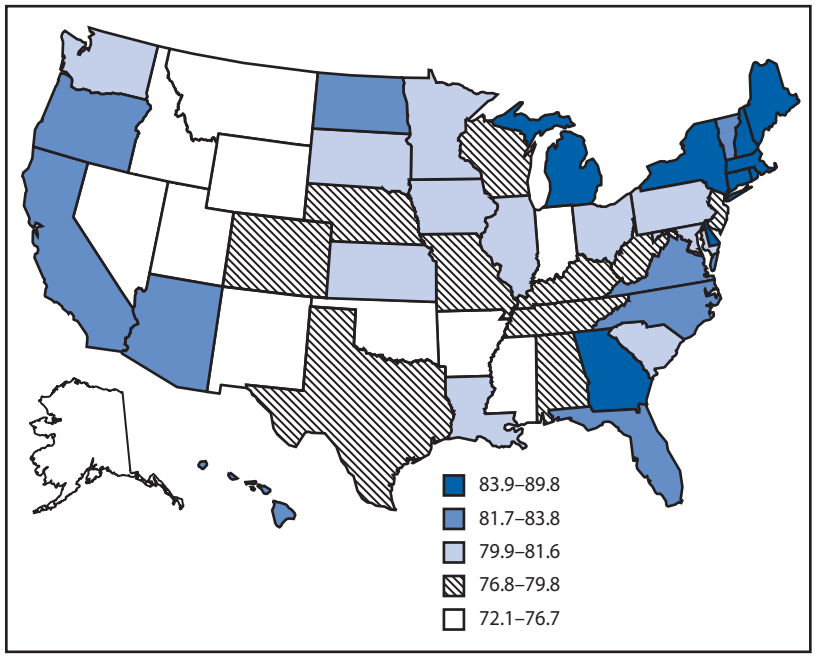
In 2008, the BRFSS survey was administered to 414,509 respondents, of whom 120,095 were women aged 50–74 years. The age-adjusted prevalence of up-to-date mammography for women overall in the United States was 81.1% (Table). Among the lowest prevalences reported were those by women aged 50–59 years (79.9%), persons who did not finish high school (72.6%), American Indian/Alaska Natives (70.4%), those with annual household income <$15,000 (69.4%), and those without health insurance (56.3%). Mammography screening prevalence varied by state, with the highest mammography use in the northeastern United States. Among states, screening prevalence ranged from 72.1% in Nevada to 89.8% in Massachusetts (Figure 1). Nationally, up-to-date mammography screening increased from 77.5% in 1997 to 81.1% in 2008 (Figure 2).

TABLE. Percentage of women aged 50–74 years who reported receiving up-to-date* mammography, by selected characteristics — Behavioral Risk Factor Surveillance System (BRFSS), United States, 2008†

Characteristic	No.	%	(95% CI§)
Total	**117,450**	**81.1**	**(80.7–81.6)**
Age group (yrs)			
50–59	52,421	79.9	(79.2–80.5)
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	82.1	(80.5–83.7)
Asian/Pacific Islander	1,665	80.4	(75.9–84.3)
American Indian/ Alaska Native	1,736	70.4	(65.6–74.7)
Other	2,257	77.0	(73.4–80.3)
Ethnicity			
Hispanic	4,886	81.4	(79.1–83.4)
Non-Hispanic	112,115	81.1	(80.7–81.5)
Education level			
<High school	10,323	72.6	(70.6–74.5)
High school graduate/GED¶	37,975	78.6	(77.8–79.3)
Some college/tech school	32,819	81.1	(80.3–81.8)
College graduate	36,177	86.2	(85.5–86.8)
Annual household income ($)			
<15,000	12,744	69.4	(67.6–71.1)
15,000–34,999	31,678	74.2	(73.2–75.3)
35,000–49,999	16,382	82.0	(80.8–83.0)
50,000–74,999	17,098	84.8	(83.9–85.8)
≥75,000	23,059	87.9	(87.1–88.7)
Health insurance			
Yes	107,780	83.8	(83.4–84.2)
No	9,536	56.3	(53.2–59.5)

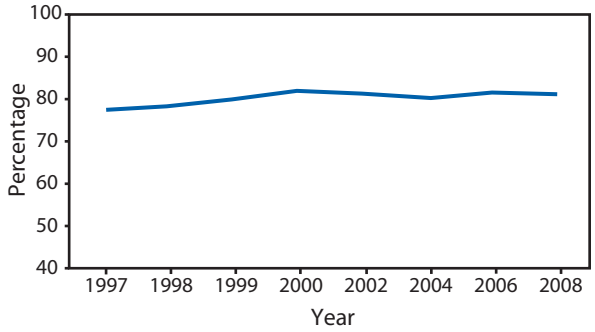
* Within the preceding 2 years.
† Percentages standardized to the age distribution in the 2008 BRFSS survey.
§ Confidence interval.
¶ General Eduction Development certificate.

FIGURE 1. Percentage of women aged 50–74 years who reported receiving up-to-date* mammography, by state — Behavioral Risk Factor Surveillance System (BRFSS), United States, 2008†



* Within the preceding 2 years.
† Percentages standardized to the age distribution in the 2008 BRFSS survey.

FIGURE 2. Percentage of women aged 50–74 years who reported receiving up-to-date* mammography — Behavioral Risk Factor Surveillance System (BRFSS), United States, 1997, 1998, 1999, 2000, 2002, 2004, 2006, and 2008†



* Within the preceding 2 years.
† Percentages standardized to the age distribution in the 2008 BRFSS survey.

Conclusions and Comment

After mammography was shown to be effective in lowering morbidity and mortality from breast cancer in the early 1990s, it was adopted rapidly for the early detection of breast cancer (*3*). However, as this Vital Signs report confirms, mammography utilization has leveled off in the last decade (*4,5*). Other population-based surveys have shown a similar plateau in rates. Results from the 2008 National Health Interview Survey indicate comparable mammography screening for women aged 50–64 and 65–74 years (74.2% and 72.6%, respectively)(*4*).

In 2000, the U.S. Department of Health and Human Services set a *Healthy People 2010* target to increase to 70% the proportion of women aged >40 years who had a mammogram within the past 2 years.* The target was met in 2003 and exceeded by 11 percentage points in 2008. Nonetheless, approximately 7 million eligible women in the United States are not being screened regularly, and they remain at greater risk of death from breast cancer. One recent report estimated that as many as 560 breast cancer deaths could be prevented each year with each 5% increase in mammography (*8*). One successful program that reaches out to minority, low income, uninsured women is the National Breast and Cervical Cancer Early Detection Program.† The program has provided high quality screening, diagnostic and treatment services for the past 20 years.

Mammography utilization is influenced by multiple factors, including patient and provider characteristics, health-care norms, and access to and availability of health-care services. Similar to previous analyses, the analysis in this report found pockets of mammography underscreening among several large U.S. populations. For example, the screening rate varied considerably by geography and was lowest in west-central states, the states with the lowest population densities§ as well as the states with the fewest mammography facilities.¶ A study from Texas highlighted the association between mammography supply and mammography use at the county level. Counties with no mammography units had the lowest mammography utilization (*9*).

The passage of the Patient Protection and Affordability Act should remove the financial barrier to mammography screening by expanding coverage and eliminating cost sharing in Medicare and private plans; however, barriers remain. For example, in 2008 the difference in mammography prevalence between women with and without health insurance was 27.5%. Even among women with health insurance, 16.2% had not received mammography in the preceding 2 years. Similar differences in receipt of mammography by insurance status were noted in a 2009 study (*9*). These findings suggest new roles for public health to improve screening through increased education of women and providers, and through additional targeted outreach to underscreened groups including lower SES, uninsured and select minority groups. Several evidence-based interventions are recommended by the *Guide to Community Preventive Services* to increase mammography screening in communities.** These include sending client reminders to women, using small media (e.g., videos, letters, flyers, and brochures), and reducing structural barriers (e.g., providing more convenient hours and increasing attention to language, health literacy, and cultural factors). Surveillance with targeted outreach, case management, and quality assurance through systems change are productive future roles for public health agencies to improve the delivery of clinical preventive services in the era of health reform.

The findings in this report are subject to at least three limitations. First, because BRFSS is a telephone

Key Points for the Public

- One in five women aged 50–74 is not up-to-date with mammograms.
- Over 40,000 U.S. women die each year from breast cancer.
- 560 deaths can be prevented each year for each 5% increase in mammography.
- Additional information is available at http://www.cdc.gov/vitalsigns.

* Additional information available at http://www.healthypeople.gov.
† Additional information available at http://www.cdc.gov/cancer/nbccedp.
§ Additional information available at http://www.frontierus.org/2000update.htm and http://www.shepscenter.unc.edu/rural/maps/Frontier_counties07.pdf.
¶ Additional information available at http://www.gao.gov/new.items/d06724.pdf.
** Additional information available at http://www.thecommunityguide.org/index.htm.

survey of residential households, only women in households with landline telephones participated; therefore, the results might not be representative of all women. Second, responses are self-reported and not confirmed by review of medical records. Finally, the survey response rate was low, which increases the risk for response bias.

Many factors influence a woman's intent and ability to access screening services, including socioeconomic status, awareness of the benefits of screening, and mammography acceptability and availability (*10*). However, the most common reason women give for not having a mammogram is that no one recommended the test; therefore, health-care providers have the most important role in increasing the prevalence of up-to-date mammography among women in the United States (*10*).

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References

1. US Cancer Statistics Working Group. United States cancer statistics: 1999–2006 incidence and mortality web-based report. Atlanta, GA: US Department of Health and Human Services, CDC, and National Cancer Institute; 2010. Available at: http://www.cdc.gov/uscs. Accessed June 23, 2010.
2. Edwards BK, Ward E, Kohler BA, et al. Annual report to the nation on the status of cancer, 1975–2006, featuring colorectal cancer trends and impact of interventions (risk factors, screening, and treatment) to reduce future rates. Cancer 2010;116:544–73.
3. Berry DA, Cronin KA, Plevritis SK, et al. Cancer Intervention and Surveillance Modeling Network (CISNET) collaborators. Effect of screening and adjuvant therapy on mortality from breast cancer. N Engl J Med 2005 Oct 27;353:1784–92.
4. CDC. Health, United States, 2009: with special feature on medical technology. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics; 2010. Available at http://www.cdc.gov/nchs/data/hus/hus09.pdf. Accessed June 20, 2010.
5. Miller JW, King JB, Ryerson AB, Eheman CR, White MC. Mammography use from 2000 to 2006: state-level trends with corresponding breast cancer incidence rates. Am J Roentgenol 2009;192:352–60.
6. CDC. Behavioral Risk Factor Surveillance System. Atlanta, GA: US Department of Health and Human Services, CDC; 2010. Available at http://www.cdc.gov/brfss. Accessed June 20, 2010.
7. US Preventive Services Task Force. Screening for breast cancer: recommendation statement. Rockville, MD: Agency for Healthcare Research and Quality; 2009. Available at http://www.ahrq.gov/clinic/uspstf09/breastcancer/brcanrs.htm. Accessed June 20, 2010.
8. Farley TA, Dalal MA, Mostashari F, Frieden TR. Deaths preventable in the U.S. by improvements in use of clinical preventive services. Am J Prev Med 2010;38:600–9.
9. Elting LS, Cooksley CD, Bekele BN, et al. Mammography capacity impact on screening rates and breast cancer stage at diagnosis. Am J Prev Med 2009;37:102–8.
10. Schueler KM, Chu PW, Smith-Bindman R. Factors associated with mammography utilization: a systematic quantitative review of the literature. J Womens Health 2008;17:1477–98.