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Health Insurance Status and Clinical Cancer Screenings Among U.S. Adults

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Abstract

Introduction: Health insurance coverage is linked to clinical preventive service use. This study examined cancer screenings among U.S. adults by health insurance status.

Methods: The Behavioral Risk Factor Surveillance System collected data on healthcare access and cancer screenings from 42 states and the District of Columbia in 2014. Data analyses were conducted in 2016. Participants' health insurance status during the preceding 12 months was categorized as adequately insured, underinsured, or never insured. Primary type of insurance coverage was categorized as employer-based or Medicare (aged ≥65 years), self-purchased plan, Medicaid/Medicare (aged <65 years), and other public insurance. Clinical cancer screenings were assessed following the U.S. Preventive Services Task Force recommendations.

Results: Compared with adequately insured adults, underinsured and never insured women were 6% ($p<0.001$) and 41% ($p<0.001$) less likely to receive breast cancer screening, respectively; 1% ($p<0.05$) and 19% ($p<0.001$) less likely to receive cervical cancer screening, respectively; and 3% ($p<0.01$) and 47% ($p<0.001$) less likely to receive colorectal cancer screening, respectively; underinsured and never insured men were 6% ($p<0.001$) and 52% ($p<0.001$) less likely to receive colorectal cancer screening, respectively. Compared with adults with employer-based insurance/Medicare (aged ≥65 years), women with all other types of insurance were less likely to receive breast and cervical cancer screenings; women and men with self-purchased plans were less likely to receive colorectal cancer screening; however, men with other public insurance were more likely to receive colorectal cancer screening.

Conclusions: Disparities in cancer screenings by health insurance status and type of insurance exist among U.S. adults. Greater efforts to increase screening rates and to reduce disparities in cancer screenings are an important strategy to help improve overall population health.

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INTRODUCTION

Cancer remains a major threat to population health and ranks as the second leading cause of death in the U.S.[1] Cancer screenings are essential for early detection and diagnosis of cancers, resulting in improved prognosis and reduced mortality among screened individuals. Health insurance coverage is a strong predictor for receiving cancer screenings. Researchers have shown significantly lower screening rates among adults who are uninsured than those with health insurance coverage.[2,3] Cancer patients who are uninsured are also more likely to present advanced stages of cancer with more elevated metastatic markers.[4,5] Moreover, type of health insurance coverage is associated with receipt of preventive health services. For example, women with public insurance have been found to have a lower mammogram screening rate than those with private insurance or Medicare.[2]

For people with insurance coverage, having low household income, personal financial crisis, or out-of-pocket health expenses for chronic conditions may be a barrier for timely receipt of preventive healthcare services. People experiencing these barriers, often described as being underinsured, are more likely to delay or forgo needed care.[6,7] At present, limited information is available on the cancer screening rates among adults who are underinsured or uninsured or how cancer screening rates may vary by type of insurance individuals have. This study examines the cancer screening rates associated with health insurance status and type of insurance coverage among U.S. adults.

METHODS

Study Population

Data for this study were collected in 2014 through Behavioral Risk Factor Surveillance System (BRFSS) and were analyzed in 2016. The BRFSS is a state-based telephone (both landline and cellular phone) survey conducted annually in all 50 states, the District of Columbia (DC), and participating U.S. territories, among non-institutionalized adults aged ≥18 years. The BRFSS survey design and sampling, data collection, and weights have been described elsewhere.[8,9] The median response rate was 47.0% for the 2014 BRFSS.

Measures

In this study, data from 42 states and DC that implemented both the core questions and an optional module about healthcare access were analyzed.[10] Participants were asked the following questions: (1) *Do you have any kind of health care coverage including health insurance, prepaid plans such as HMOs, government plans such as Medicare, or Indian Health Service?* (2) *In the past 12 months was there any time when you did not have any health insurance or coverage?* (3) *Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?* (4) *Was there a time in the past 12 months when you did not take your medication as prescribed because of cost? Do not include over-the-counter medication*, and (5) *Do you currently have any health care bills that are being paid off over time?* Based on these questions, health insurance status during preceding 12 months was categorized as (1) adequately insured—those who were continuously insured over the past 12 months and had no cost barriers for access to care (cost barriers were

defined as adults who needed to see a doctor or to take prescription medication but could not because of cost, or had to pay off healthcare bills over time[11]); (2) underinsured—those who had insurance coverage but had a gap in coverage or had cost barriers for access to care in the past 12 months; and (3) never insured—those who had no insurance coverage in the past 12 months.

Participants were also asked: *Do you have Medicare?* and *What is the primary source of your health care coverage? Is it a plan purchased through an employer or union (includes plans purchased through another person's employer); a plan that you or another family member buys on your own; Medicare; Medicaid or other state program; TRICARE (formerly CHAMPUS), VA, or Military; Alaska Native, Indian Health Service, Tribal Health Services; or some other source?* Based on these two questions, the type of insurance coverage was categorized as (1) employer-based or Medicare for adults aged ≥65 years; (2) self-purchased plan—a plan that an adult or another family member purchased on their own; (3) Medicaid or Medicare for adults aged <65 years; (4) other public—including TRICARE, Veterans Affairs (VA), or Military, Alaska Native, Indian Health Service, or Tribal Health Services, or some other source; and (5) not insured at the time of interview.

Following the recommendations from the U.S. Preventive Services Task Force,[12] breast cancer screening was defined as women aged 50–74 years who had a mammogram within the past 2 years; cervical cancer screening as women aged 21–65 years with an intact uterus who had a Pap test within the past 3 years; and colorectal cancer screening as adults aged 50–75 years who had a high-sensitivity fecal occult blood test within the past year, or had a colonoscopy within the past 10 years, or had a combination of having a sigmoidoscopy within the past 5 years and a fecal occult blood test within the past 3 years.

Sociodemographic variables included age, sex, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, and other), educational attainment (less than high school graduate, high school graduate/general education diploma, and greater than high school graduate), marital status (married, previously married [i.e., divorced, widowed, or separated], and never married or living with a partner), and federal poverty level (<100%, 100–199%, ≥200%, and unknown). Health-related behavioral risk factors included cigarette smoking status (current smoker, former smoker, and never smoked), leisure-time physical activity (yes/no), and routine checkup (yes/no). Chronic conditions/diseases included BMI (<25.0, 25.0–29.9, ≥30.0 kg/m^2, and unknown), physician-diagnosed diabetes (yes/no), and heart disease (yes/no).

Statistical Analysis

Participants who responded *don't know/not sure*, refused to answer, or had missing responses to any of the above study covariates were excluded from analysis. Weighted prevalence of cancer screenings were estimated by health insurance status and type of insurance coverage. Adjusted prevalence ratios with 95% CIs were estimated by conducting log-linear regression analyses with robust variance estimator while adjusting for study covariates. SAS, version 9.2 and SUDAAN software, version 10.0.1 were used to account for the multistage, complex sampling design.

RESULTS

Of 175,983 women aged 21–75 years and 79,633 men aged 50–75 years who resided in 42 states and DC, those who responded *don't know/not sure*, refused to answer, or had missing answers to any of the study covariates, insurance status variable, or the cancer screening variables were excluded, leaving 155,139 women and 67,034 men eligible for this study (Table 1). The majority of eligible participants were middle-aged (50–59 years), non-Hispanic white, and married, had more than a high school education, had an income of ≥200% the federal poverty level, were currently non-smokers and physically active, and had a routine checkup in the past year. The prevalence of obesity, diabetes, and heart disease was 29.3%, 9.7%, and 4.7%, respectively, for women, and 34.3%, 19.0%, and 14.5%, respectively, for men (Table 1).

The distributions of women aged 21–65 years, women aged 50–75 years, and men aged 50–75 years by insurance status and type of insurance are shown in Figures 1A and 1B. Across these population groups, the majority were adequately insured (56.1%–70.0%) and had employer-based insurance or Medicare (58.5%–72.8%). Approximately 24.2%–34.9% were underinsured, 7.3%–12.6% were not insured at the time of interview, and 4.2%–9.0% were never insured in the past 12 months.

The mammography screening rate was significantly lower in women who were underinsured (74.7%) than those who were adequately insured (82.8%), and was lowest for those who were never insured over the past 12 months (40.2%; Table 2). Similar patterns were found for cervical and colorectal screenings.

After multivariable adjustment, compared with adults who were adequately insured, women who were underinsured and never insured were 6% ($p<0.001$) and 41% ($p<0.001$) less likely to report receiving mammography screening, respectively; 1% ($p<0.05$) and 19% ($p<0.001$) less likely to report receiving a Pap test, respectively; and 3% ($p<0.001$) and 47% ($p<0.001$) less likely to report receiving colorectal cancer screening; men who were underinsured and uninsured were 6% ($p<0.001$) and 52% ($p<0.001$) less likely to receive colorectal cancer screening, respectively (Table 2).

The cancer screening rates varied significantly by type of insurance coverage (Table 2). Compared with adults with employer-based insurance or Medicare (aged ≥65 years), women with other types of insurance were 4%–5% ($p<0.01$) less likely to receive mammography screening and 2%–4% ($p<0.05$) less likely to receive a Pap test; women and men with a self-purchased plan were 6% ($p<0.01$) less likely to receive colorectal cancer screening. In contrast, men with other public insurance were 10% ($p<0.001$) more likely to be screened for colorectal cancer (Table 2).

Further stratified analyses on type of insurance by health insurance status showed that, among adults who were adequately insured, those who had a self-purchased plan were less likely to receive screenings for breast, cervical, and colorectal cancers than adults with employer-based insurance or Medicare (aged ≥65 years) after multiple variable adjustment; men who had other public insurance were 10% more likely to receive colorectal cancer screening than men with employer-based insurance or Medicare (aged ≥65 years; Table 3).

Among adults who were underinsured, compared with adults with employer-based insurance or Medicare (aged ≥65 years), women with all other types of insurance were less likely to receive breast and cervical cancer screenings; both women and men with a self-purchased plan were less likely to receive colorectal cancer screening; men with other public insurance were 10% more likely to receive colorectal cancer screening (Table 3).

DISCUSSION

These results from a large, population-based survey demonstrated that both underinsured and never insured adults over the past 12 months had lower rates of breast, cervical, and colorectal cancer screenings than adults who were adequately insured. The cancer screening rates also differed significantly by type of insurance coverage. Overall, women with employer-based insurance or Medicare (aged ≥65 years) had the highest screening rates for breast and cervical cancers; men with other public insurance had the highest screening rate for colorectal cancer after adjustment for potential confounding factors; these relationships persisted when stratified analyses were conducted by health insurance status, especially among those who were underinsured.

Among adults who lack health insurance coverage, access to preventive care services, including cancer screenings, is limited.[2,3] The current findings reflect this limited access among uninsured adults compared to their insured peers. Specifically, this study found higher cancer screening rates among people who were insured (i.e., either adequately insured or underinsured) than among those who were uninsured over the past 12 months, which is consistent with the findings of previous studies.[2,3] Importantly, this study further demonstrated that, even among adults who were insured at the time of interview, those who did not have continuous insurance coverage during the past 12 months or had financial barriers to needed health care had significantly lower screening rates for cancers. This finding persisted even after accounting for the federal poverty level. A goal of the Affordable Care Act (ACA) is to reduce the number of uninsured Americans and eliminate in-network cost sharing for certain recommended preventive clinical services.[13,14] Consequently, the uninsured rate among adults aged 18–64 years declined significantly from 20.4% in 2013 to 12.8% in 2015.[15] Medicaid expansion was associated with increased access to care (such as increasing the numbers of individuals having a personal physician or usual source of care), decreases in cost-related barriers to care, and increases in healthcare utilization (e.g., diabetes screening).[16–18] Although the uninsured rate has been reduced and the ACA facilitates access to care, especially among those with lower family income, the present study still found that in 2014, 24.2%–34.9% of adults were underinsured and 4.2%–9.0% were never insured over the past 12 months. These findings suggest that more efforts to reduce lapses in insurance coverage and financial barriers to needed health care could contribute to an increase in the number of U.S. adults able to comply with recommended cancer screenings.

Most important, the authors were able to provide estimates of cancer screenings by type of insurance, which helps to fill the knowledge gap in this area. A previous study reported that women with only public insurance were less likely to have a mammogram than women with private insurance and Medicare,[2] which is consistent with the finding of this study.

The authors further found that having employer-based insurance or Medicare was associated with significantly higher cervical cancer screening compared with other types of insurance. This is promising because the majority of adults (58.5%–72.8%) reported they were covered through this type of insurance. Interestingly, this study also found men with other public insurance were 10% more likely to be screened for colorectal cancer than men with employer-based insurance or Medicare (aged ≥65 years). It has been reported that the overall colorectal cancer screening rate was higher (80.4%) among veterans in the National Veterans Health Administration due to systems-based practices to promote screening modalities[19,20] compared with the U.S. population estimate (~60%) for colorectal cancer screening.[3] In the present study, adults with other public insurance included those with VA or other military plans, which may partially explain the higher screening rate for colorectal cancer among men with other public insurance.

Limitations

This study has several limitations. First, BRFSS data are based on self-reports, so these results may be subject to recall and social desirability bias. Second, BRFSS data are collected among non-institutionalized adults—those who were in a nursing home or hospitalized at the time of interview were excluded, which may have resulted in underestimated cancer screening rates. In addition, unlike the never-insured group, the decreases in the likelihood of having cancer screenings among underinsured adults were relatively small (ranging from 1%–6%) compared with adults who were adequately insured. Despite the statistical significances, the clinical significance related to these small decreases remains unknown and needs to be further assessed. Third, in the present study, the purpose of cancer screenings could not be determined, that is, were they being performed for preventive cancer surveillance or for diagnosis of cancers? This information was not available in the BRFSS data. Fourth, information on participants' knowledge on ACA policies, such as eliminating cost sharing for preventive care services given an A or B recommendation by the U.S. Preventive Services Task Force or other types of indirect cost barriers (e.g., missing work), was not collected in the BRFSS, so it was not possible to assess whether the lower cancer screening rates among adults who were underinsured or never insured were due to lack of knowledge of ACA policies or because of cost burden. Finally, the data for this study are from 42 states and DC, so generalizability of the current study results to the U.S. population is limited.

CONCLUSIONS

In summary, this study demonstrated that disparities in cancer screenings by health insurance status and by type of insurance remain a challenge in the U.S. population. Given the multiple benefits of cancer screenings in early detection and diagnosis, better prognosis associated with early diagnosis and treatment, and reduced cancer mortality, greater efforts to increase cancer screening rates and to reduce disparities in cancer screenings are an important strategy to help improve overall population health.

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Drs. Zhao and Okoro had full access to the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis; they also acquired the data and drafted the manuscript. Study concept and design, and analysis and interpretation of data was performed by Zhao. Critical revision of the manuscript for important intellectual content was done by Zhao, Okoro, Li, and Town. Town provided administrative, technical, and material support, and study supervision.

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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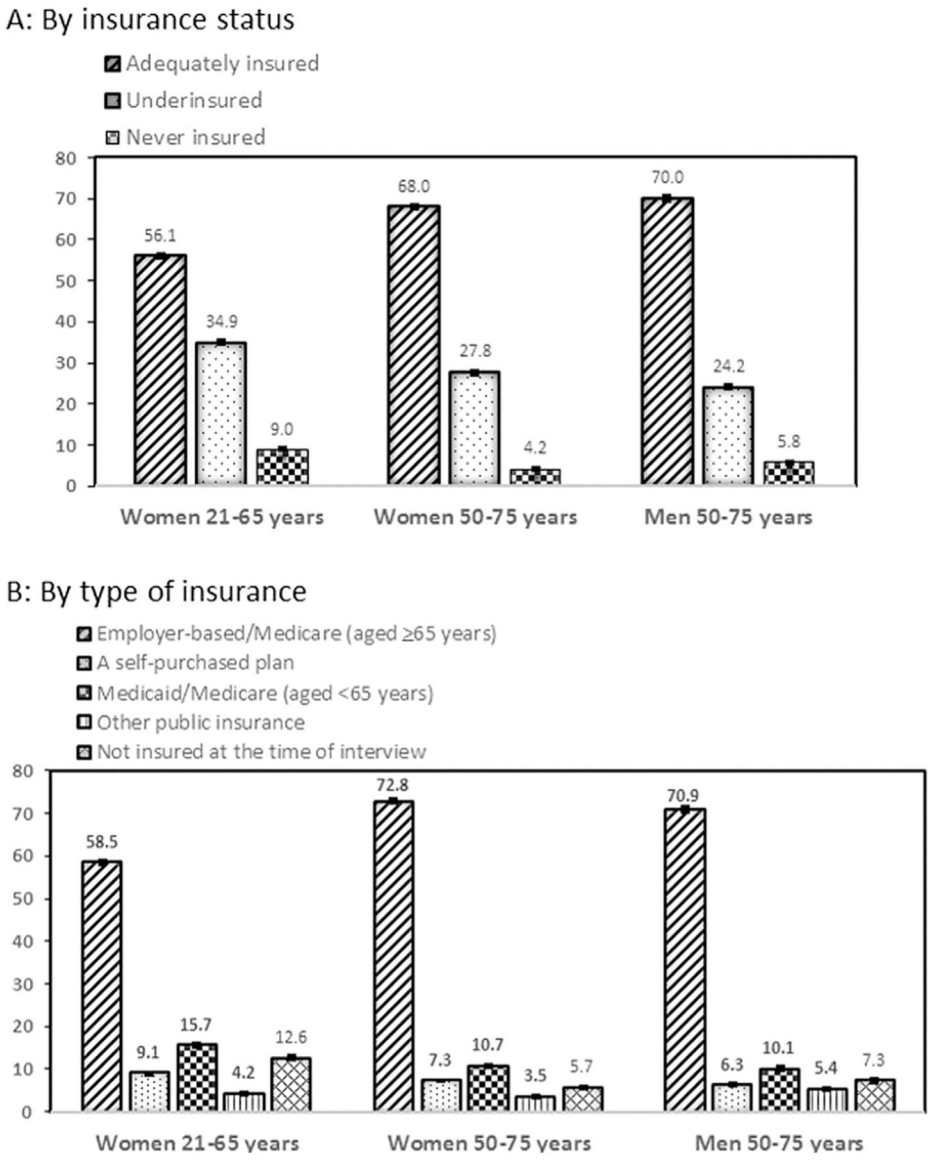

Figure 1.

(A) Proportions of women aged 21–65 years, women aged 50–75 years, and men aged 50–75 years who were adequately insured, underinsured, and never insured in the past 12 months or (B) who reported having the following insurance coverage at the time of interview: employer-based insurance or Medicare (aged ≥65 years), self-purchased plan, Medicaid or Medicare (aged <65 years), other public insurance, or not insured, Behavioral Risk Factor Surveillance System, 2014.

Table 1.

Study Participants' Demographic Characteristics, Health-related Behaviors, and Chronic Conditions, BRFSS, 2014

Characteristic	Women (aged 21–75 years), *n* (%) (N=155,139)	Men (aged 50–75 years), *n* (%) (N=67,034)
Age (years)		
21–29	10,742 (15.0)	
30–39	18,503 (18.3)	
40–49	24,703 (19.1)	
50–59	38,110 (22.2)	26,354 (48.3)
60–69	43,344 (18.0)	28,895 (37.9)
70–75	19,737 (7.4)	11,785 (13.8)
Race/ethnicity		
Non-Hispanic white	124,687 (71.7)	57,716 (79.2)
Non-Hispanic black	15,067 (13.6)	4,508 (11.2)
Hispanic	8,350 (9.1)	2,108 (5.2)
Other	7,035 (5.6)	2,702 (4.4)
Education		
<High school graduate	9,844 (11.3)	4,271 (12.3)
High school graduate/GED	40,768 (26.4)	18,540 (30.1)
>High school graduate	104,527 (62.3)	44,223 (57.6)
Marital status		
Married	86,656 (55.5)	44,678 (69.2)
Previously married	45,219 (22.2)	15,176 (20.7)
Never married/live with a partner	23,264 (22.3)	7,180 (10.2)
Federal poverty level (%)		
<100	17,224 (16.0)	4,085 (8.8)
100–199	33,591 (20.9)	12,729 (19.4)
≥200	82,998 (48.5)	43,388 (60.8)
Unknown	21,326 (14.7)	6,832 (11.0)
Smoking status		
Current smoker	24,572 (18.1)	10,362 (17.8)
Former smoker	39,452 (22.1)	26,430 (38.8)

Characteristic	Women (aged 21–75 years), *n* (%) (N=155,139)	Men (aged 50–75 years), *n* (%) (N=67,034)
Never smoked	91,115 (59.7)	30,242 (43.4)
Leisure-time exercise		
Yes	119,178 (76.0)	52,324 (75.8)
No	35,961 (24.0)	14,710 (24.2)
BMI (kg/m^2)		
<25.0	53,717 (35.3)	14,528 (21.1)
25.0–29.9	44,556 (27.5)	29,625 (43.7)
≥30.0	45,429 (29.3)	22,266 (34.3)
Unknown	11,437 (7.9)	615 (0.9)
Diabetes		
Yes	18,394 (9.7)	12,270 (19.0)
No	136,745 (90.3)	54,764 (81.0)
Heart disease		
Yes	9,157 (4.7)	9,960 (14.5)
No	145,982 (95.3)	57,074 (85.5)
Routine checkup		
Yes	118,446 (74.4)	51,659 (77.0)
No	36,693 (25.6)	15,375 (23.0)

BRFSS, Behavioral Risk Factor Surveillance System; GED, general education diploma.

Table 2.

Unadjusted Prevalence and Adjusted Prevalence Ratios for Cancer Screenings by Health Insurance Status, BRFSS, 2014

	Unadjusted prevalence			
Insurance status	***n***	**% (95% CI)**	***p*-value**	**APR[a] (95% CI)**
Breast cancer screening in women aged 50–74 years	97,735	78.7 (78.2, 79.1)		
By insurance status				
Adequately insured	68,814	82.8 (82.3, 83.3)	<0.001	1.00
Underinsured	25,448	74.7 (73.8, 75.6)		**0.94 (0.93, 0.95)*****
Never insured	3,473	40.2 (37.6, 42.9)		**0.59 (0.56, 0.63)*****
By type of insurance				
Employer-based/Medicare (aged ≥65 years)	72,554	82.2 (81.8, 82.7)	<0.001	1.00
A self-purchased plan	7,046	76.2 (74.4, 77.9)		**0.96 (0.93, 0.98)*****
Medicaid/Medicare (aged <65 years)	9,700	74.4 (72.8, 75.9)		**0.96 (0.94, 0.98)****
Other public insurance[b]	3,380	76.9 (74.3, 79.3)		**0.95 (0.92, 0.98)*****
Not insured at time of interview	4,588	47.3 (44.9, 49.7)		**0.68 (0.65, 0.72)*****
Cervical cancer screening in women aged 21–65 years	92,219	83.6 (83.2, 84.1)		
By insurance status				
Adequately insured	55,654	86.9 (86.3, 87.5)	< 0.001	1.00
Underinsured	29,998	83.9 (83.2, 84.6)		**0.99 (0.98, 1.00)***
Never insured	6,567	63.2 (61.2, 65.1)		**0.81 (0.78, 0.83)*****
By type of insurance				
Employer-based/Medicare (aged ≥65 years)	57,061	88.3 (87.8, 88.8)	< 0.001	1.00
A self-purchased plan	8,806	81.9 (80.2, 83.4)		**0.96 (0.94, 0.98)*****
Medicaid/Medicare (aged <65 years)	12,710	81.3 (80.1, 82.4)		**0.98 (0.96, 1.00)***
Other public insurance[b]	4,165	82.8 (80.1, 85.3)		**0.96 (0.94, 0.99)****
Not insured at time of interview	8,949	68.2 (66.6, 69.8)		**0.85 (0.83, 0.87)*****
Colorectal cancer screening in women aged 50–75 years	97,745	68.5 (68.0, 69.1)		
By insurance status				
Adequately insured	69,350	72.4 (71.8, 73.0)	<0.001	1.00

Insurance status	Unadjusted prevalence *n*	% (95% CI)	*p*-value	APR[a] (95% CI)
Underinsured	25,006	65.1 (64.1, 66.2)		**0.97 (0.95, 0.99)*** **
Never insured	3,389	29.5 (27.0, 32.1)		**0.53 (0.49, 0.58)*** **
By type of insurance				
Employer-based/Medicare (aged ≥65 years)	73,291	72.5 (71.9, 73.1)	<0.001	1.00
A self-purchased plan	6,910	63.6 (61.5, 65.6)		**0.94 (0.91, 0.97)*** **
Medicaid/Medicare (aged <65 years)	9,335	63.4 (61.6, 65.2)		1.01 (0.98, 1.04)
Other public insurance[b]	3,286	67.6 (64.6, 70.5)		1.00 (0.96, 1.04)
Not insured at time of interview	4,463	35.7 (33.3, 38.1)		**0.63 (0.59, 0.68)*** **
Colorectal cancer screening in men aged 50–75 years	67,034	66.0 (65.4, 66.7)		
By insurance status				
Adequately insured	49,956	71.6 (70.9, 72.3)	< 0.001	1.00
Underinsured	14,198	60.2 (58.8, 61.6)		**0.94 (0.92, 0.96)*** **
Never insured	2,880	22.8 (20.1, 25.8)		**0.48 (0.42, 0.54)*** **
By type of insurance				
Employer-based/Medicare (aged ≥65 years)	49,549	71.6 (70.9, 72.3)	< 0.001	1.00
A self-purchased plan	4,560	61.3 (58.9, 63.6)		**0.94 (0.91, 0.98)** **
Medicaid/Medicare (aged <65 years)	5,521	56.1 (53.7, 58.5)		1.01 (0.96, 1.05)
Other public insurance[b]	3,494	72.1 (69.3, 74.6)		**1.10 (1.06, 1.15)*** **
Not insured at time of interview	3,632	26.5 (24.0, 29.2)		**0.55 (0.50, 0.61)*** **

Note: Boldface indicates statistical significance (*p<0.05; **p<0.01; ***p<0.001) compared to the ref groups (i.e., adequately insured or employer-based insurance/Medicare [aged ≥65 years], respectively).

[a]Adjusted for age, race/ethnicity, education, marital status, federal poverty level, current smoking, leisure-time exercise, BMI, physician-diagnosed diabetes and heart disease, and routine checkup visit.

[b]Includes TRICARE (formerly CHAMPUS), VA, or military plan; Alaska Native, Indian Health Service, Tribal Health Services, or some other source. APR, adjusted prevalence ratio; BRFSS, Behavioral Risk Factor Surveillance System; CHAMPUS, Civilian Health and Medical Program of the Uniformed Services; VA, Veterans Affairs.

Table 3.

Unadjusted Prevalence and Adjusted Prevalence Ratios for Cancer Screenings by Type of Insurance, Stratified by Insurance Status, BRFSS, 2014

	Breast cancer screening		Cervical cancer screening		Colorectal cancer screening			
					Women		Men	
Insurance status	**% (95% CI)**	**APR[a] (95% CI)**	**% (95% CI)**	**APR (95% CI)**	**% (95% CI)**	**APR (95% CI)**	**% (95% CI)**	**APR (95% CI)**
Among adults adequately insured								
Employer-based/Medicare (aged ≥65 years)	83.6 (83.1, 84.2)	1.00	88.8 (88.2, 89.4)	1.00	73.8 (73.1, 74.4)	1.00	73.0 (72.3, 73.8)	1.00
A self-purchased plan	79.4 (77.1, 81.5)	**0.97 (0.94, 0.99)***	82.4 (80.1, 84.5)	**0.96 (0.94, 0.98)****	65.9 (63.2, 68.5)	**0.95 (0.91, 0.99)***	64.7 (61.9, 67.4)	**0.96 (0.92, 1.00)***
Medicaid/Medicare (aged <65 years)	78.8 (76.8, 80.8)	0.99 (0.96, 1.02)	82.5 (80.8, 84.1)	1.01 (0.98, 1.04)	64.8 (62.2, 67.3)	1.02 (0.98, 1.06)	60.4 (57.0, 63.8)	1.02 (0.97, 1.08)
Other public insurance[b]	80.7 (77.6, 83.4)	0.97 (0.94, 1.00)	84.4 (80.8, 87.5)	0.98 (0.95, 1.01)	70.5 (66.8, 73.9)	1.02 (0.97, 1.07)	74.9 (71.7, 77.8)	**1.10 (1.05, 1.14)*****
Among adults underinsured								
Employer-based/Medicare (aged ≥65 years)	77.8 (76.7, 78.9)	1.00	87.3 (86.4, 88.1)	1.00	68.4 (67.1, 69.6)	1.00	65.8 (64.0, 67.4)	1.00
A self-purchased plan	71.4 (68.5, 74.2)	**0.95 (0.91, 0.99)***	81.2 (78.8, 83.4)	**0.96 (0.94, 0.99)****	60.1 (56.9, 63.2)	**0.94 (0.89, 0.99)***	55.0 (50.7, 59.2)	**0.91 (0.84, 0.99)***
Medicaid/Medicare (aged <65 years)	69.5 (67.1, 71.8)	**0.95 (0.91, 0.99)***	79.9 (78.2, 81.6)	**0.97 (0.94, 1.00)***	61.8 (59.3, 64.3)	1.01 (0.97, 1.06)	51.6 (48.2, 55.0)	0.98 (0.91, 1.05)
Other public insurance[b]	68.6 (63.8, 73.1)	**0.90 (0.84, 0.97)****	79.9 (75.6, 83.6)	**0.95 (0.90, 0.99)***	61.3 (56.1, 66.3)	0.97 (0.89, 1.05)	63.5 (57.9, 68.7)	**1.10 (1.01, 1.20)***

Note: Boldface indicates statistical significance (*$p \leq 0.05$; **$p < 0.01$; ***$p < 0.001$) compared to the ref group (i.e., employer-based insurance/Medicare [aged ≥65 years]).

[a]Adjusted for age, race/ethnicity, education, marital status, federal poverty level, current smoking, leisure-time exercise, BMI, physician-diagnosed diabetes and heart disease, and routine checkup visit.

[b]Includes TRICARE (formerly CHAMPUS), VA, or military plan; Alaska Native, Indian Health Service, Tribal Health Services, or some other source.

APR, adjusted prevalence ratio; BRFSS, Behavioral Risk Factor Surveillance System; CHAMPUS, Civilian Health and Medical Program of the Uniformed Services; VA, Veterans Affairs.