



# Cancer Data Pages: Cancer Screening

# Introduction

Cancer is a group of more than 100 different diseases that often develop gradually as the result of a complex mix of lifestyle, environment, and genetic factors. People are at higher risk for certain cancers due to factors related to personal behaviors such as: tobacco use, alcohol use, diet, physical inactivity, and overexposure to sunlight. Vaccination with the HPV vaccine prior to exposure to the virus can decrease the risk of certain cancers. Cancer becomes more survivable when found and treated early, which can be accomplished through the use of available cancer screening tests including those for lung, breast, cervical, and colorectal cancers.

The purpose of this report is to present cancer-related data from the Behavioral Risk Factor Surveillance System (BRFSS) about cancer screening and associated disparities.

*Note: Throughout this report, data comparisons presented as “higher,” “lower,” “larger,” “smaller,” “better,” “worse,” or as “significantly different” are all considered statistically significant differences.*

*Confidence intervals were used for statistical comparisons between groups. A confidence interval represents the range in which a parameter estimate would fall which is calculated based on the observed data. For this analysis, we used a 95% confidence interval, meaning that we are 95% confident that the true value of the parameter being examined falls within the specified confidence interval. Statistical significance is assessed by comparing the confidence intervals of different groups. If the confidence intervals from two groups, do not overlap we consider the estimates to be significantly different from one another.*

# Cancer Screening

Screening provides an opportunity to find and treat cancers early, leading to a decrease in overall cancer mortality. Lung, cervical, breast, and colorectal cancers all have established screening guidelines,<sup>1</sup> where the benefits of screening have been determined to outweigh any potential harms.

The following guideline definitions describe how screening data were analyzed in the following slides.

- Cervical Cancer Screening: The method for calculating screening rates was based on 2012 U.S. Preventative Services Task Force (USPSTF) recommendations.\* These calculations include women aged 21-65 years who had a Pap test in the past 3 years and did not have a hysterectomy.
- Breast Cancer Screening: The method for calculating screening rates was based on 2009 USPSTF recommendations. These calculations include women aged 50-74 years who had a mammogram in the past 2 years.
- Colorectal Cancer Screening: The method for calculating screening rates was based on 2008 USPSTF recommendations. These calculations include men and women aged 50-75 years who had either a fecal occult blood test (FOBT) within one year; a sigmoidoscopy within 5 years *AND* a FOBT within 3 years; or a colonoscopy within 10 years.
- Lung Cancer Screening: The 2013 USPSTF guidelines recommend annual low-dose computed tomography for those aged 55-80 with a 30+ pack-year history of smoking (and smoke currently or within the last 15 years). However, there is currently no way to measure the percentage of these individuals that receive annual screening for lung cancer using the BRFSS.

*\*Please see Data Notes at the end of this section, page 56, for more details.*

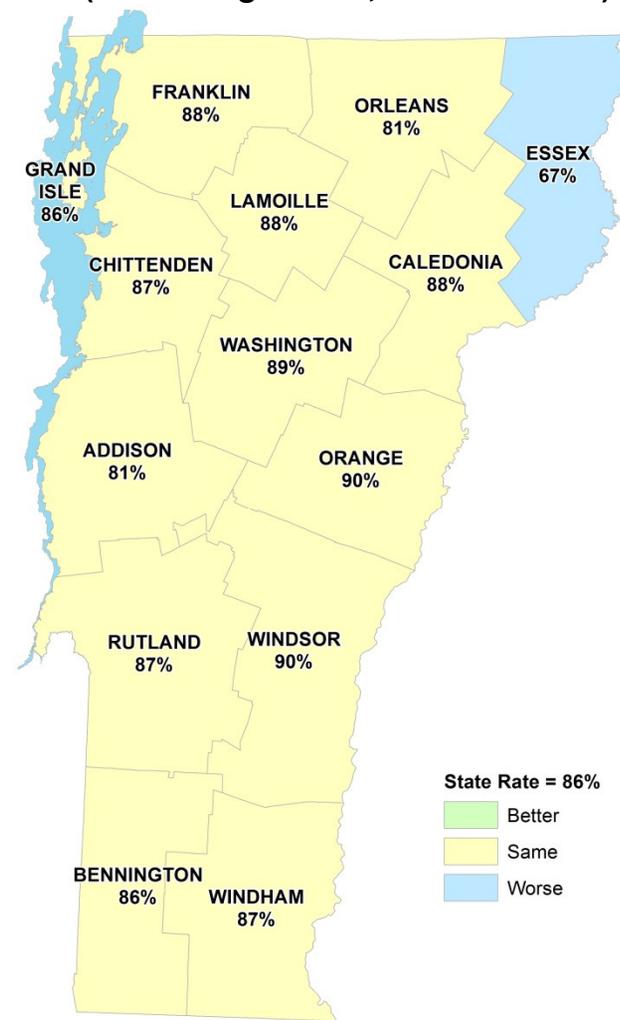
# Cervical Cancer Screening

# Cervical Cancer Screening National, Statewide, and County Rates

Nationally, the cervical cancer screening rate among women aged 21-65 was 82%, which was lower than the 86% screening rate in Vermont (2014).

Most Vermont counties had similar cervical cancer screening rates (2012 and 2014). The exception was Essex County, where the screening rate (67%) was lower than Vermont overall (2012 and 2014).

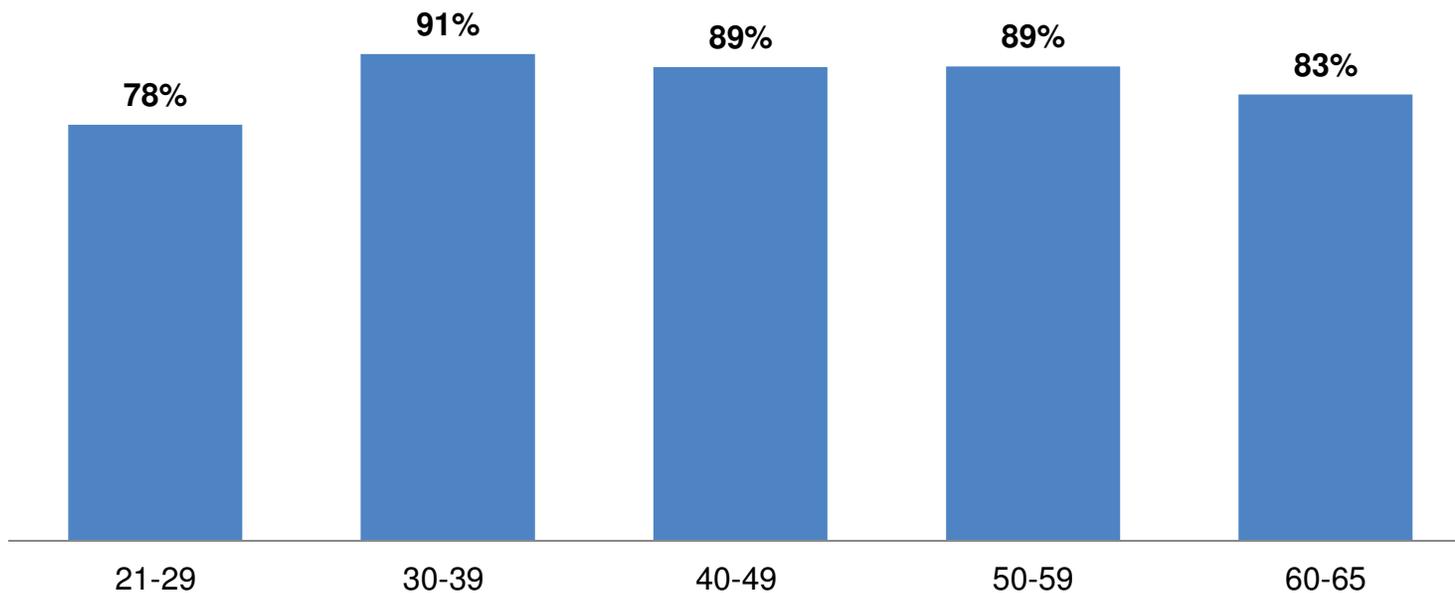
**Cervical Cancer Screening Rates by County  
(Women Age 21-65; 2012 and 2014)**



*Note:* All rates are age adjusted to the 2000 U.S. standard population.

A smaller percentage of Vermont women aged 21-29 received a Pap test in the past three years, compared to those aged 30-59 (2012 and 2014). All other age groups within the USPSTF recommended screening age range were screened at similar rates (2012 and 2014).

### Cervical Cancer Screening Rates By Age

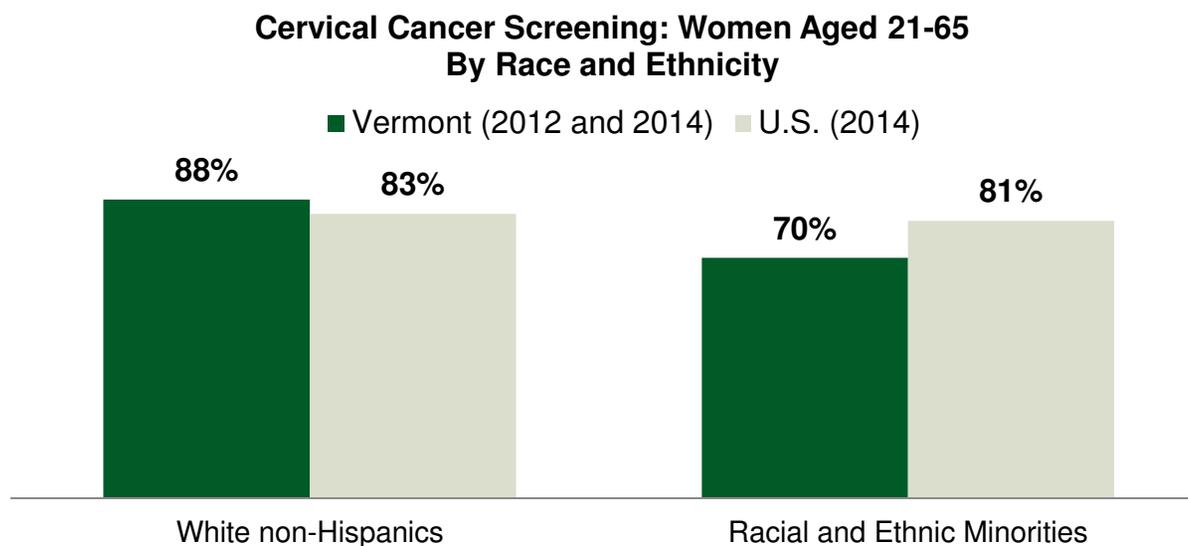


Cervical Cancer Screening

# Racial and Ethnic Minorities

Racial and ethnic minorities in Vermont had a lower cervical cancer screening rate (70%, 2012 and 2014) compared to the U.S. (81%, 2014). White non-Hispanics in Vermont, however, had a higher screening rate (88%, 2012 and 2014) compared to the U.S. (83%, 2014).

In Vermont, the cervical cancer screening rate among racial and ethnic minorities (70%, 2012 and 2014) was lower than among white non-Hispanics (88%, 2012 and 2014).



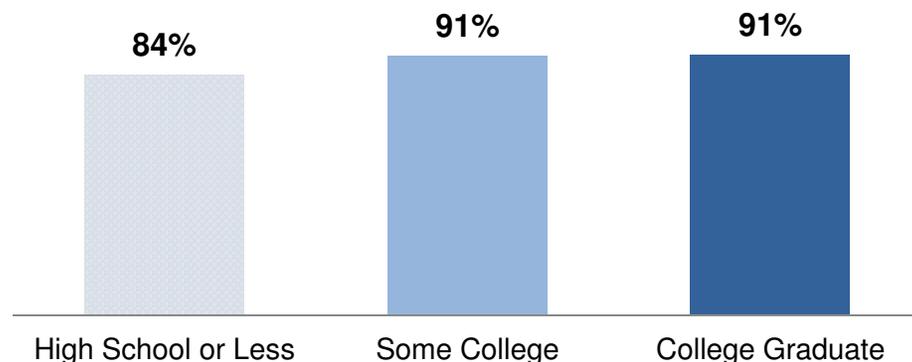
*Note:* All rates are age adjusted to the 2000 U.S. standard population.

## Cervical Cancer Screening Education and Federal Poverty Level

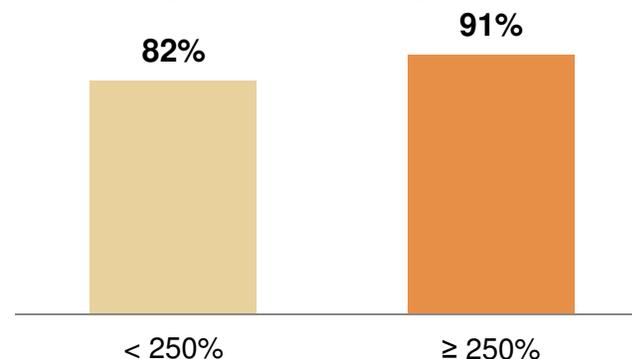
In Vermont, the cervical cancer screening rate for women aged 25-65 was lower among those with a high school education or less than among those that had at least some college education (2012 and 2014).

Vermont women aged 21-65 were less likely to have reported being screened if they were below 250% of the federal poverty level, compared to those at or above 250% of the federal poverty level (2014).

**Cervical Cancer Screening: Women Aged 25-65  
By Educational Attainment (2012 and 2014)**



**Cervical Cancer Screening:  
Women Aged 21-65  
By Federal Poverty Level (2014)**



*Notes:* All rates are age adjusted to the 2000 U.S. standard population.

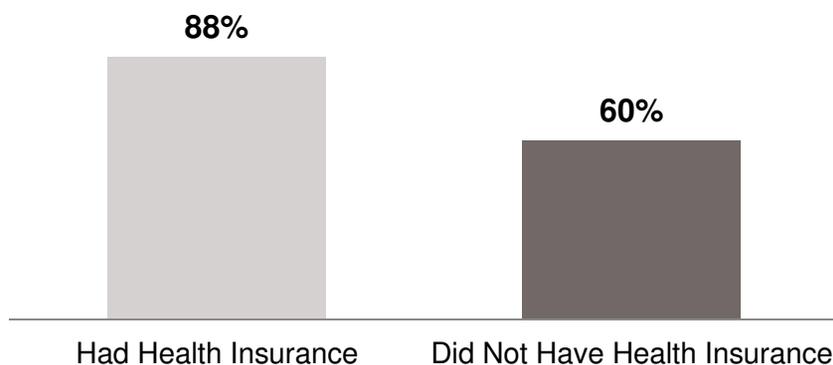
Federal poverty level (FPL) is a federal measure calculated from both annual household income and family size. FPL is used to determine eligibility for government assistance programs. People living below 250% FPL, for example, are still considered low income, often lacking sufficient income to meet basic needs.

# Cervical Cancer Screening Health Care Access

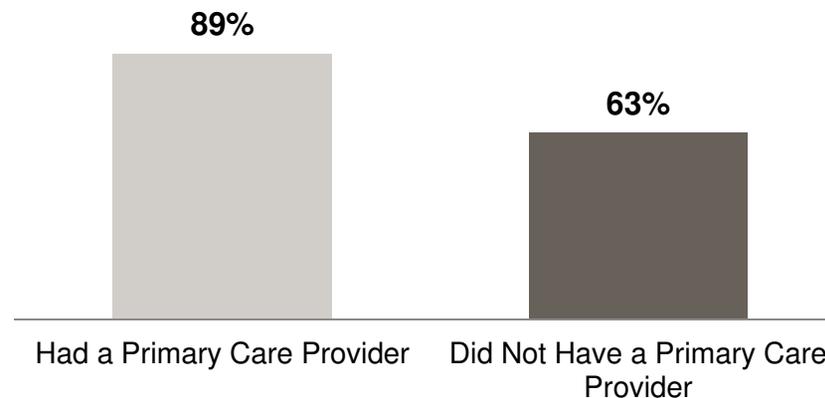
Vermont women aged 21-64 were less likely to have reported receiving cervical cancer screening if they did not have health insurance than if they had health insurance (2012 and 2014).

Similarly, a smaller proportion of Vermont women (aged 21-65) that lacked a primary care provider were screened for cervical cancer compared to those who had a primary care provider (2012 and 2014).

**Cervical Cancer Screening: Women Aged 21-64  
By Health Insurance Status (2012 and 2014)**



**Cervical Cancer Screening: Women Aged 21-65  
By Primary Care Provider (2012 and 2014)**



*Note:* All rates are age adjusted to the 2000 U.S. standard population.

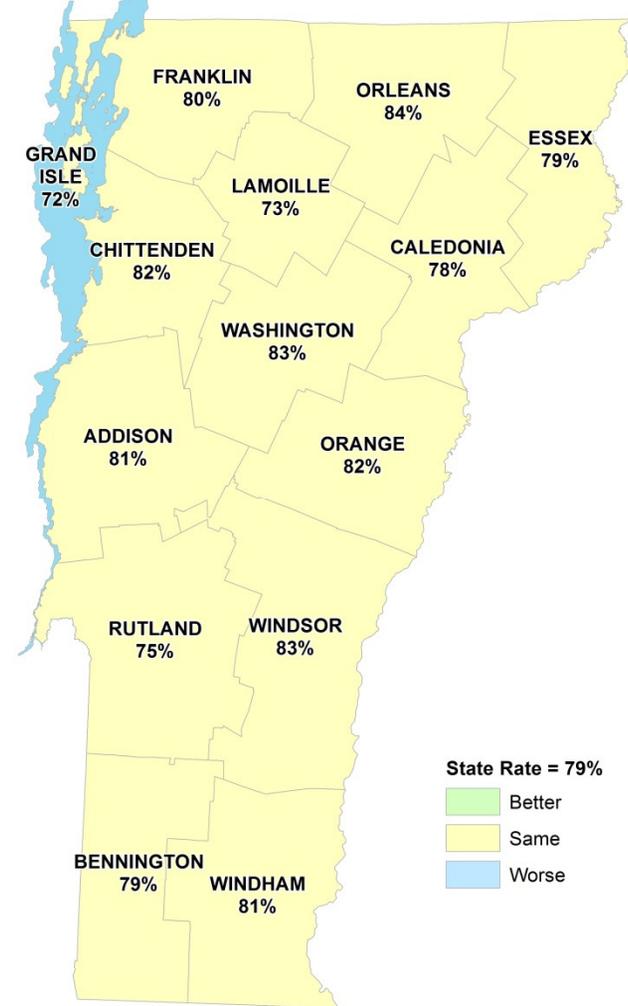
# Breast Cancer Screening

# Breast Cancer Screening National, Statewide, and County Rates

Nationally, the breast cancer screening rate among women aged 50-74 years was 79% (2014). Vermont's screening rate of 79% is identical to the national rate (2014).

Compared to the overall screening rate in Vermont, breast cancer screening rates by county were similar (2012 and 2014).

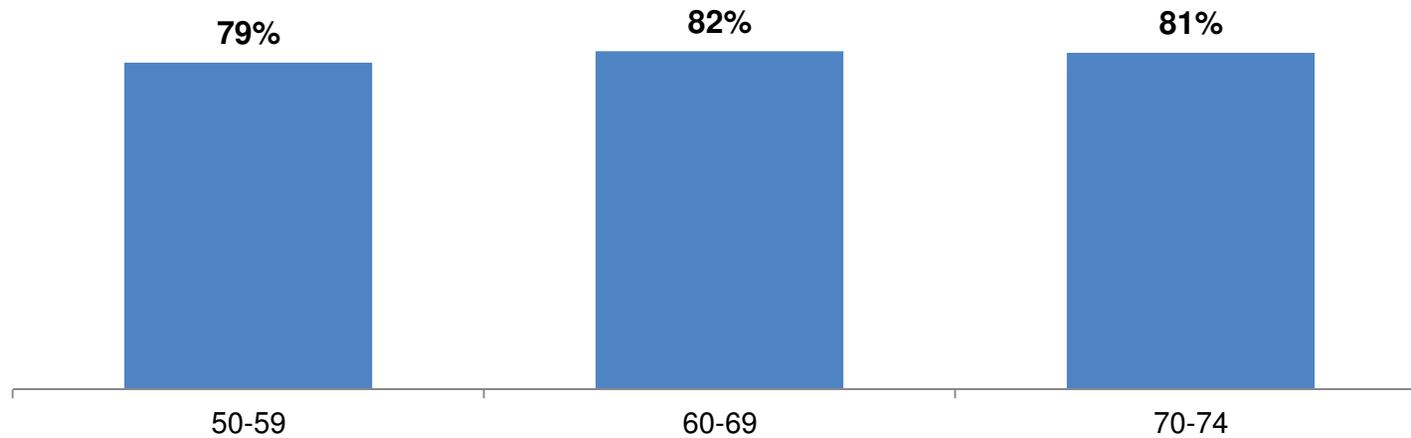
**Breast Cancer Screening Rates by County  
(Women Age 50-74; 2012 and 2014)**



*Note: All rates are age adjusted to the 2000 U.S. standard population.*

There were no differences in breast cancer screening rates between Vermont women of different age groups within the USPSTF recommended screening age range (2012 and 2014).

**Breast Cancer Screening Rates  
By Age (2012 and 2014)**



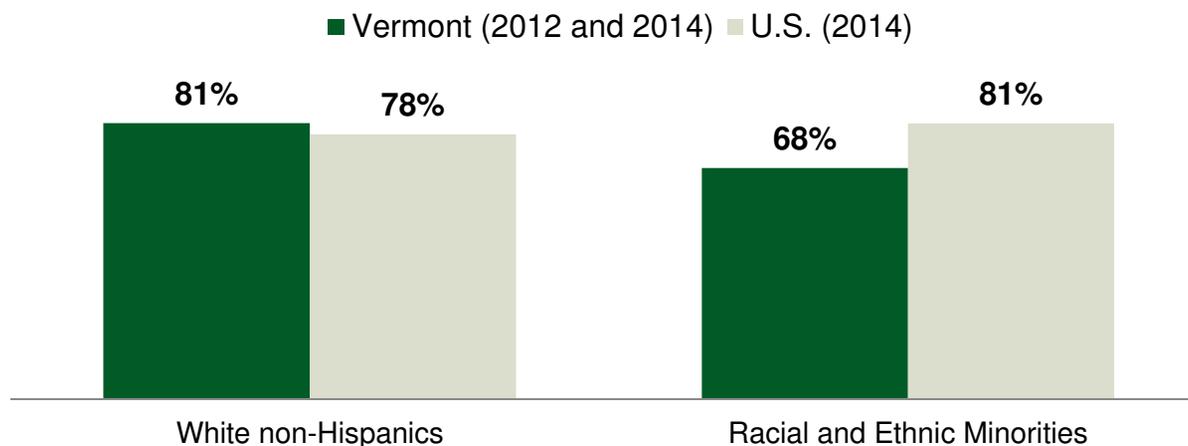
Breast Cancer Screening

# Racial and Ethnic Minorities

Racial and ethnic minorities in Vermont had a lower breast cancer screening rate (68%, 2012 and 2014) compared to racial and ethnic minorities nationally (81%, 2014). White non-Hispanics in Vermont, however, had a higher screening rate (81%, 2012 and 2014) compared to white non-Hispanics nationally (78%, 2014).

In Vermont, breast cancer screening rates were lower among racial and ethnic minorities (68%, 2012 and 2014) than among white non-Hispanics (81%, 2012 and 2014).

**Breast Cancer Screening: Women Aged 50-74  
By Race and Ethnicity**



*Note:* All rates are age adjusted to the 2000 U.S. standard population.

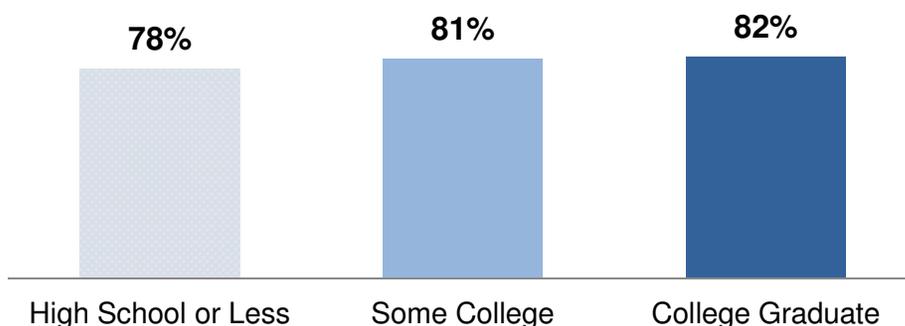
Breast Cancer Screening

# Education and Federal Poverty Level

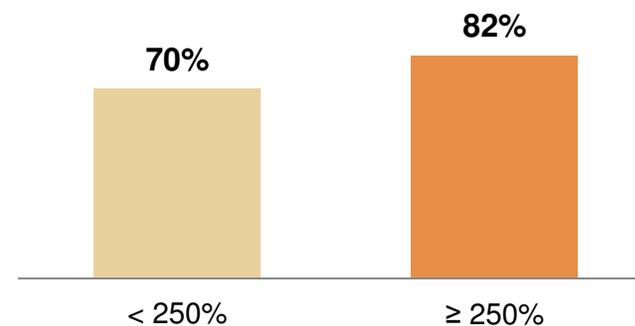
At all levels of educational attainment, a similar percentage of Vermont women met breast cancer screening guidelines (2012 and 2014).

The breast cancer screening rate was lower among those below 250% of the federal poverty level compared to those at or above 250% of the federal poverty level (2014).

**Breast Cancer Screening: Women Aged 50-74  
By Educational Attainment (2012 and 2014)**



**Breast Cancer Screening:  
Women Aged 50-74  
By Federal Poverty Level (2014)**



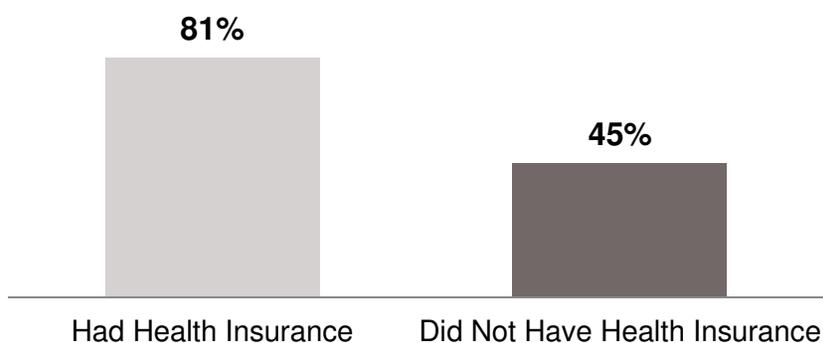
*Notes:* All rates are age adjusted to the 2000 U.S. standard population. Federal poverty level (FPL) is a federal measure calculated from both annual household income and family size. FPL is used to determine eligibility for government assistance programs. People living below 250% FPL, for example, are still considered low income, often lacking sufficient income to meet basic needs.

# Breast Cancer Screening Health Care Access

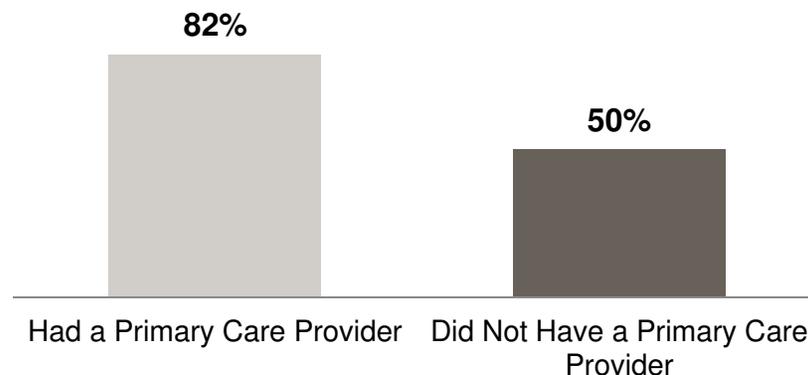
Vermont women aged 50-64 were less likely to have reported being screened for breast cancer if they did not have health insurance than those who had health insurance (2012 and 2014).

Similarly, Vermont women aged 50-74 were less likely to have reported being screened for breast cancer if they did not have a primary care provider compared to those with a primary care provider (2012 and 2014).

**Breast Cancer Screening: Women Aged 50-64  
By Health Insurance Status (2012 and 2014)**



**Breast Cancer Screening: Women Aged 50-74  
By Primary Care Provider (2012 and 2014)**



*Note:* Rates for screening by primary care provider are age adjusted to the 2000 U.S. standard population.

# Colorectal Cancer Screening

*Note: Data for colorectal cancer screening are presented among those who met the screening guidelines overall and by the specific screening test types (i.e. colonoscopy and fecal occult blood test (FOBT)).*

Colorectal Cancer Screening

# National, Statewide, and County Rates

Nationally, the colorectal cancer screening rate among men and women aged 50-75 years is 66% (2014). Vermont had a higher screening rate of 71% (2014).

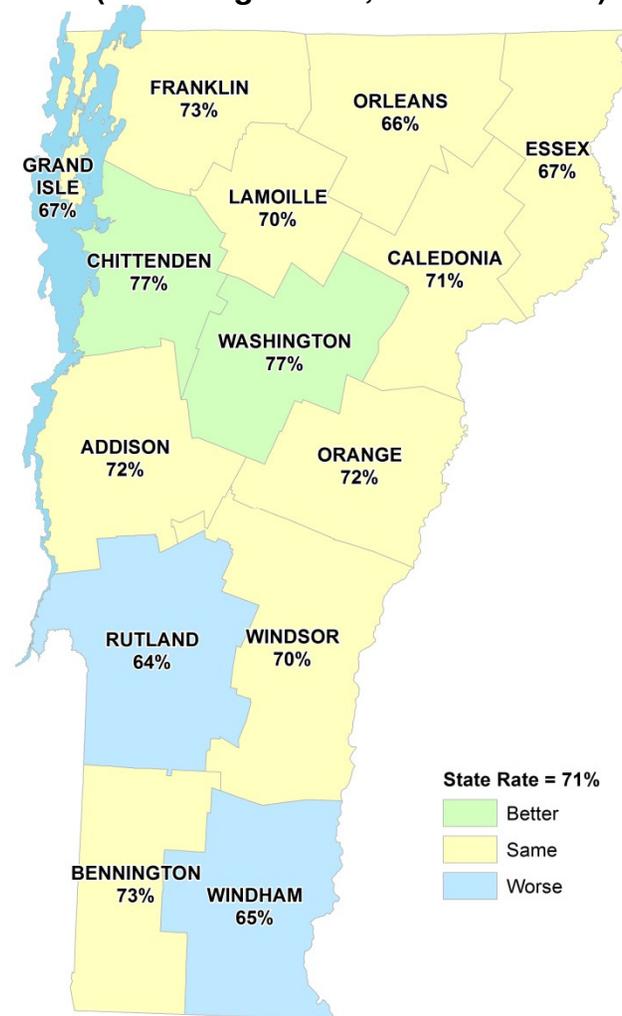
When broken down by the specific colorectal cancer screening tests, of the Vermont men and women aged 50-75, 6% had a FOBT in the past year, less than 1% had a sigmoidoscopy in the past five years *and* a FOBT in the past three years, and 68% had a colonoscopy in the past 10 years (2014). This is different compared to the breakdown by type of screening nationally, where 10% had a FOBT in the past year, 1% had a sigmoidoscopy in the past five years *and* a FOBT in the past three years, and 63% had a colonoscopy in the past 10 years (2014).

People who lived in Rutland and Windham Counties were less likely to have been screened for colorectal cancer (64% and 65%, respectively) than the state as a whole (2012 and 2014). However, people in Chittenden and Washington Counties were more likely to have been screened for colorectal cancer (both 77%) than the state overall (2012 and 2014). All other counties were similar to the state rate (2012 and 2014).

Colorectal cancer screening test type by county cannot be analyzed as the numbers are too small for accurate evaluation.

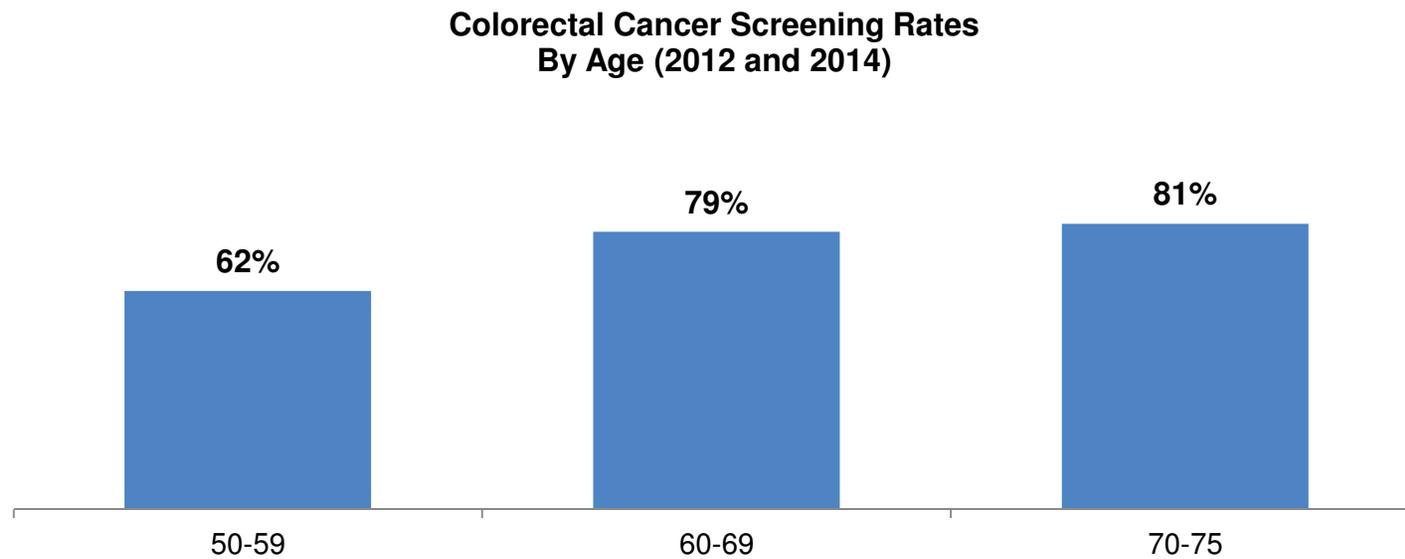
*Note:* All rates are age adjusted to the 2000 U.S. standard population.

**Colorectal Cancer Screening Rates by County  
(Adults Age 50-75; 2012 and 2014)**



# Colorectal Cancer Screening Age

A smaller percentage of Vermont men and women aged 50-59 were screened for colorectal cancer compared to those aged 60-75 (2012 and 2014). The USPSTF recommends colorectal cancer screening for all men and women aged 50-75.

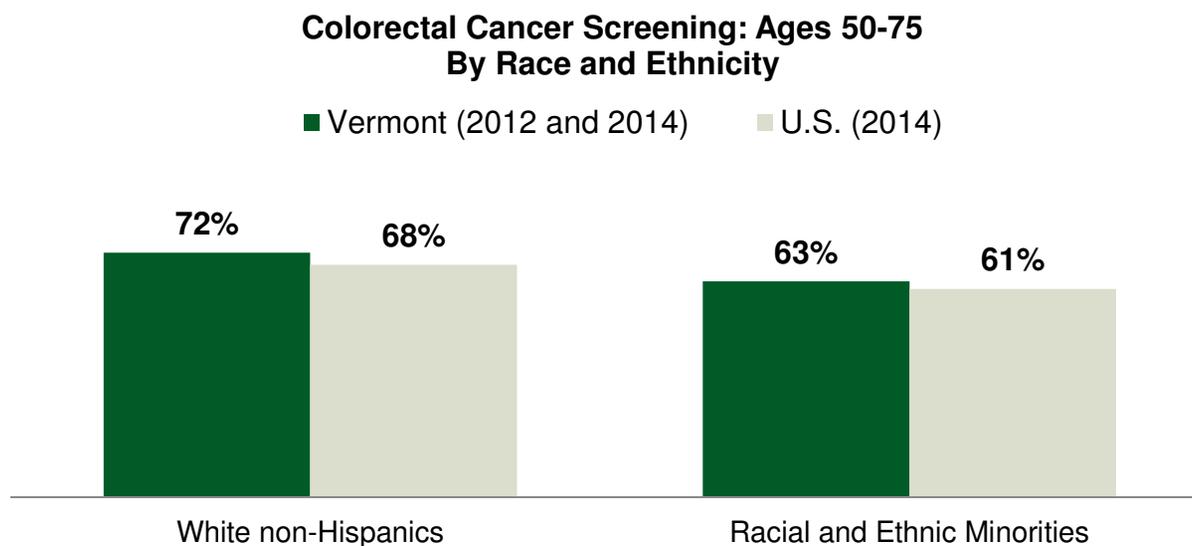


Colorectal Cancer Screening

# Racial and Ethnic Minorities

Racial and ethnic minorities in Vermont had a similar colorectal cancer screening rate (63%, 2012 and 2014) compared to the U.S. (61%, 2014). However, white non-Hispanics in Vermont had a higher screening rate (72%, 2012 and 2014) than the U.S. (68%, 2014).

In Vermont, colorectal cancer screening rates were lower among racial and ethnic minorities (63%, 2012 and 2014) than among white non-Hispanics (72%, 2012 and 2014).



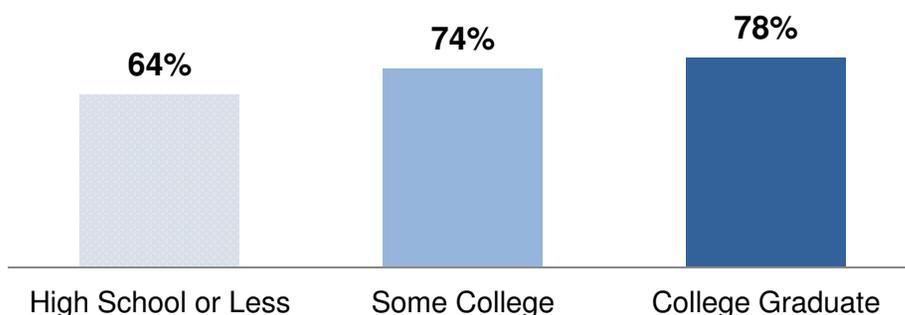
*Note:* All rates are age adjusted to the 2000 U.S. standard population.

## Colorectal Cancer Screening Education and Federal Poverty Level

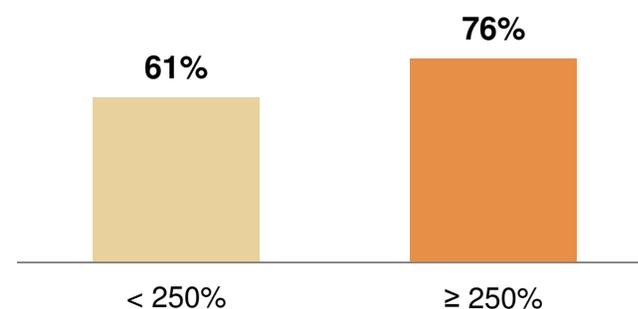
A smaller percentage of Vermonters with a high school diploma or less met the colorectal cancer screening guidelines, compared to those who had some college or were college graduates (2012 and 2014).

The colorectal cancer screening rate was also lower among those at less than 250% of the federal poverty level compared to those at or above 250% of the federal poverty level (2014).

**Colorectal Cancer Screening: Ages 50-75  
By Educational Attainment (2012 and 2014)**



**Colorectal Cancer Screening:  
Ages 50-75  
Federal Poverty Level (2014)**



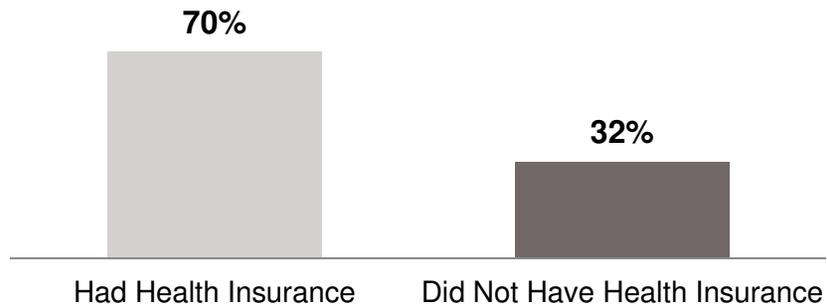
*Notes:* All rates are age adjusted to the 2000 U.S. standard population. Federal poverty level (FPL) is a federal measure calculated from both annual household income and family size. FPL is used to determine eligibility for government assistance programs. People living below 250% FPL, for example, are still considered low income, often lacking sufficient income to meet basic needs.

## Colorectal Cancer Screening Health Care Access

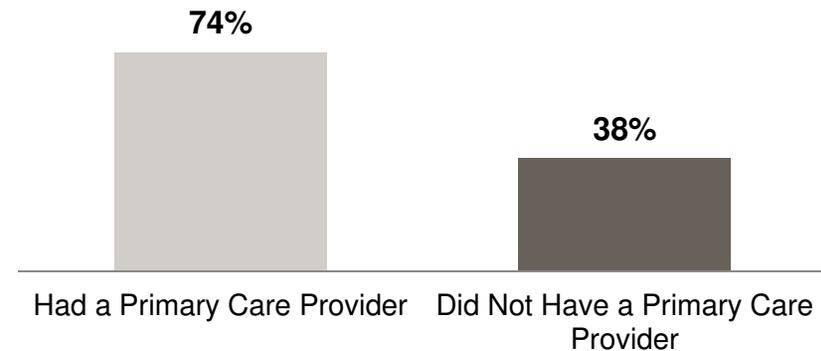
Among Vermonters aged 50-64, the colorectal cancer screening rate was lower among those without health insurance than those with health insurance (2012 and 2014).

The colorectal cancer screening rate was also lower among those aged 50-75 that did not have a primary care provider, compared to those that did (2012 and 2014).

**Colorectal Cancer Screening: Ages 50-64  
By Health Insurance Status (2012 and 2014)**



**Colorectal Cancer Screening: Ages 50-75  
By Primary Care Provider (2012 and 2014)**



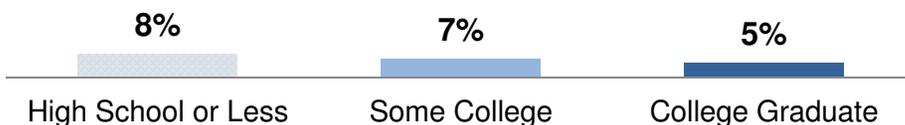
*Note:* Rates for screening by primary care provider are age adjusted to the 2000 U.S. standard population.

# Annual Fecal Occult Blood Test by Education and Federal Poverty Level

A higher percentage of Vermont men and women aged 50-75 years with a high school degree or less had a fecal occult blood test (FOBT) in the past year than those with a college degree (2012 and 2014).

FOBT screening rates were similar among people below 250% of the federal poverty level as compared to those at or above 250% of the federal poverty level (2014).

**FOBT in Past Year: Ages 50-75  
By Educational Attainment (2012 and 2014)**



**FOBT in Past Year: Ages 50-75  
By Federal Poverty Level (2014)**



*Notes:* All rates are age adjusted to the 2000 U.S. standard population. Federal poverty level (FPL) is a federal measure calculated from both annual household income and family size. FPL is used to determine eligibility for government assistance programs. People living below 250% FPL, for example, are still considered low income, often lacking sufficient income to meet basic needs.

Colorectal Cancer Screening

# Annual Fecal Occult Blood Test by Health Care Access

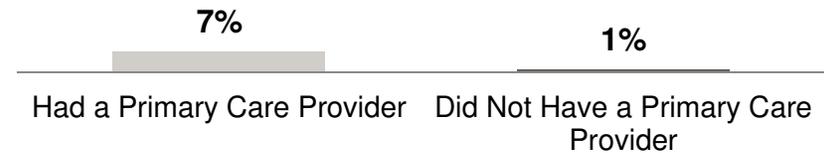
The percentage of Vermonters under age 65 who had a fecal occult blood test (FOBT) in the past year was similar between those insured and those uninsured (2012 and 2014).

Vermonters aged 50-75 were more likely to have reported having a fecal occult blood test (FOBT) in the past year if they had a primary care provider than if they did not (2012 and 2014).

**FOBT in Past Year: Ages 50-64  
By Health Insurance Status (2012 and 2014)**



**FOBT in Past Year: Ages 50-75  
By Primary Care Provider (2012 and 2014)**



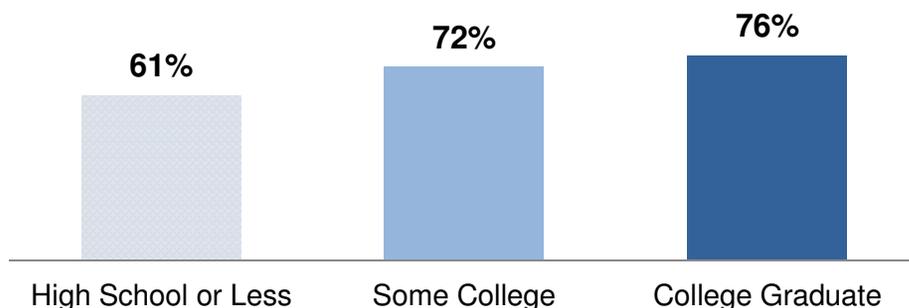
*Note:* Rates for screening by primary care provider are age adjusted to the 2000 U.S. standard population.

# Colonoscopy in Past 10 Years by Education and Federal Poverty Level

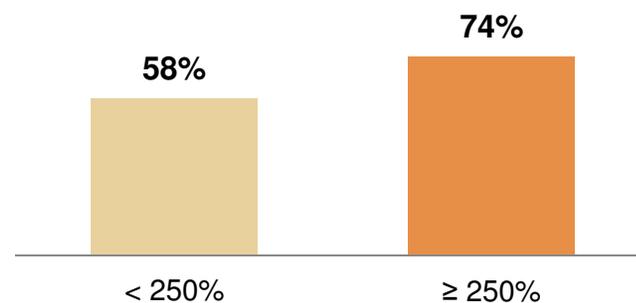
A smaller percentage of Vermonters with a high school diploma or less education reported having a colonoscopy in the past 10 years compared to those with some college or a college degree (2012 and 2014).

Those below 250% of the federal poverty level were less likely to have reported having had a colonoscopy in the past 10 years, compared to those at or above 250% of the federal poverty level (2014).

**Colonoscopy in Past 10 Years: Ages 50-75  
By Educational Attainment (2012, 2014)**



**Colonoscopy in Past 10 Years:  
Ages 50-75  
By Federal Poverty Level (2014)**



*Notes:* All rates are age adjusted to the 2000 U.S. standard population. Federal poverty level (FPL) is a federal measure calculated from both annual household income and family size. FPL is used to determine eligibility for government assistance programs. People living below 250% FPL, for example, are still considered low income, often lacking sufficient income to meet basic needs.

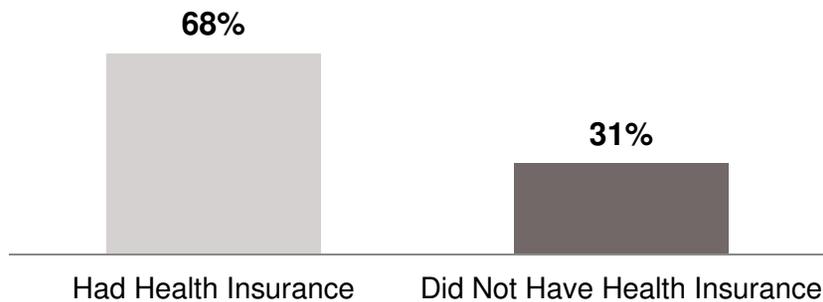
Colorectal Cancer Screening

# Colonoscopy in Past 10 Years by Health Care Access

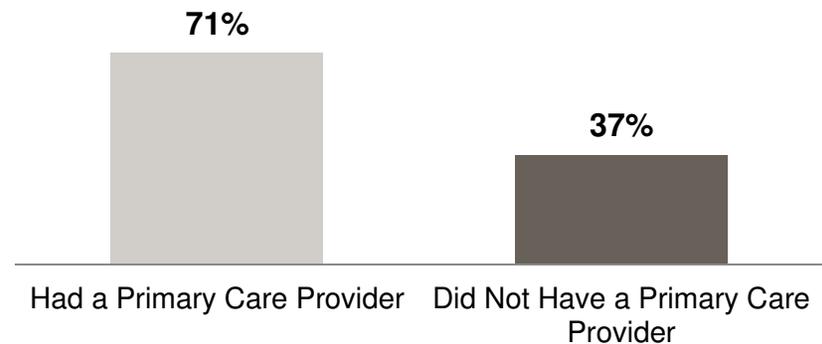
Vermonters aged 50-64 were more than twice as likely to have reported having a colonoscopy in the past 10 years if they had health insurance than if they did not have health insurance (2012 and 2014).

Similarly, Vermonters aged 50-75 were more likely to have reported having a colonoscopy in the past 10 years if they had a primary care provider than if they did not (2012 and 2014).

**Colonoscopy in Past 10 Years: Ages 50-64  
By Health Insurance Status (2012 and 2014)**



**Colonoscopy in Past 10 Years: Ages 50-75  
By Primary Care Provider (2012 and 2014)**



*Note:* Rates for screening by primary care provider are age adjusted to the 2000 U.S. standard population.

# Cancer Screening Data Notes

**\* Note on Cervical Cancer Guidelines:** Analyses within this report about cervical cancer screening do not capture the alternate choice of co-testing, which includes an HPV and a Pap test every five years for women aged 30 to 65 years.

**Behavioral Risk Factor Surveillance System (BRFSS):** Vermont tracks risk behaviors using this telephone survey of adults. The results are used to plan, support, and evaluate health promotion and disease prevention programs. Since 1990, Vermont, along with the 49 other states and three territories, has participated in the BRFSS with the Centers for Disease Control and Prevention (CDC). Over 7,000 Vermonters are randomly and anonymously selected and called annually. An adult (18 or older) in the household is asked a uniform set of questions. The results are weighted to represent the adult population of the state.

**Health Insurance:** Comparisons between those with and without health insurance are always limited to those below age 65 since all Americans above age 65 are eligible for health insurance via Medicare.

**Education:** Comparisons among those with different levels of education are always limited to those aged 25 and older since many adults under age 25 are in the process of obtaining additional education.

**Federal poverty level (FPL)** is a federal measure calculated from both annual household income and family size. FPL is used to determine eligibility for government assistance programs. People living below 250% FPL, for example, are still considered low income, often lacking sufficient income to meet basic needs.

**Age Adjustment:** Measures from BRFSS and YRBS are adjusted for age only if they are Healthy Vermonters 2020 goals. Age adjustment groupings come from those determined by Healthy People 2020.

**Confidence Intervals used for statistical comparisons:** A confidence interval represents the range in which a parameter estimate could fall which is calculated based on the observed data. For this analysis, we used a 95% confidence interval, meaning that we are 95% confident that the true value of the parameter being examined falls within the specified confidence interval. Statistical significance is assessed by comparing the confidence intervals of different groups. If the confidence intervals from two groups, such as that for the state and a specific county, do not overlap we consider the estimates to be significantly different from one another.

**Acknowledgement:** This publication was supported by Grant/Cooperative Agreement Number U58/DP003911 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.