

CHAPTER 9: CANCER SCREENING PRACTICES

Cancer screening is the process of undergoing tests or examinations to detect disease in the absence of symptoms. If detected at an early stage, cancer can be treated more effectively, and in the case of cervical and colorectal cancer, prevented from occurring altogether. Recommended guidelines for cancer screening are becoming more individualized, depending on each person's family history, genetics, lifestyle behaviors, and other risk or protective factors. It is more important than ever that clinicians keep abreast of the most current recommendations from professional organizations and groups such as the U.S. Preventive Services Task Force (USPSTF) and the American Cancer Society (ACS) so they are able to respond to patients questions about cancer screening.



National Cancer Screening Recommendations

Lung

In light of recent research findings from the National Lung Screening Trial (NLST), ACS has released interim guidance for people and their doctors regarding the use of low-dose CT scans for the early detection of lung cancer.¹⁴ ACS recommends that heavy smokers and former smokers between the ages of 55 and 74 with no history or symptoms of lung cancer discuss with their doctors the currently known benefits, limits, and risks of lung cancer screening in order to make a shared decision as to whether they should be screened for lung cancer. ACS plans to develop full lung cancer screening guidelines in the future.

The USPSTF concludes that the current evidence is insufficient to recommend for or against screening asymptomatic persons for lung cancer.¹⁵

Colorectal

Several screening tests are used to detect polyps and colorectal cancer, including:

- High-sensitivity fecal occult blood test (FOBT) and fecal immunochemical test (FIT), which detect blood in the stool;
- Flexible sigmoidoscopy, an examination by a physician who uses a short, thin, flexible light to check for polyps and cancer inside the rectum and lower third of the colon; and
- Colonoscopy, an examination by a physician who uses a longer, flexible, lighted tube to check for polyps or cancer inside the rectum and entire colon.

Both the USPSTF and ACS recommend screening for colorectal cancer among adults beginning at age 50 years using annual FOBT, sigmoidoscopy every 5 years combined with high-sensitivity FOBT every 3 years, or colonoscopy every 10 years.¹⁶⁻¹⁷ ACS supports double-contrast barium enema every 5 years or CT colonography every 5 years as additional screening options.

¹⁴ American Cancer Society Interim Guidance on Lung Cancer Screening. Lung Cancer Guidance Workgroup, American Cancer Society. <http://www.cancer.org/acs/groups/content/@editorial/documents/document/acspc-030879.pdf>

¹⁵ Lung Cancer Screening, Topic Page. May 2004. U.S. Preventive Services Task Force. <http://www.uspreventiveservicestaskforce.org/uspstf/uspplung.htm>

¹⁶ U.S. Preventive Services Task Force. Screening for Colorectal Cancer: U.S. Preventive Services Task Force Recommendation Statement. AHRQ Publication 08-05124-EF-3, October 2008.

<http://www.uspreventiveservicestaskforce.org/uspstf08/colocancer/colors.htm>

¹⁷ Smith, RA, Cokkinides V, Brawley OW. Cancer screening in the United States, 2008: A review of current American Cancer Society guidelines and cancer screening issues. 2008. CA Cancer J Clin. 2008;58:161-179.

Breasts

There are three main tests used to screen for breast cancer:

- Mammogram, an x-ray of the breast;
- Clinical breast exam, an examination by a physician or nurse who uses their hands to feel a woman's breasts for lumps or other changes; and
- Breast self-exam, an examination by a woman who uses their hands to feel their own breasts for lumps or other changes.

Mammograms are considered the best method for detecting breast cancer. The USPSTF recommends biennial (every two years) screening mammography for women aged 50 to 74 years, while ACS promotes annual mammograms for women starting at age 40 and continuing for as long as a woman is in good health.¹⁸⁻¹⁹



Cervical

There are two screening tests used to help prevent cervical cancer or detect it early:

- Pap test, which examines cell changes on the cervix that might become cervical cancer if they are not appropriately treated; and
- HPV test, which determines the presence of human papillomavirus, a virus that can cause cell changes on the cervix.

Both the USPSTF and ACS recommend that women aged 21-65 years receive a Pap test every three years or, for women aged 30 to 65 years, receive a Pap test and HPV test every five years.²⁰⁻²¹

Prostate

There are two tests commonly used to screen for prostate cancer:

- Digital rectal exam (DRE), an examination by a doctor or nurse who estimates the size of the prostate and feels for any lumps or other abnormalities; and
- Prostate specific antigen test (PSA), a blood test that measures the level of PSA in the blood.

The USPSTF states that there is insufficient evidence to recommend for or against routine screening for prostate cancer using PSA or DRE.²² The ACS recommends that men have the opportunity to make an informed decision with their physician about whether or not to be screened for prostate cancer.²³

¹⁸ U.S. Preventive Services Task Force. Screening for breast cancer: U.S. Preventive Services Task Force Recommendation Statement. *Ann Intern Med* 2009; 151:716-726.

¹⁹ Smith, RA, Cokkinides V, Brawley OW. Cancer screening in the United States, 2008: A review of current American Cancer Society guidelines and cancer screening issues. 2008. *CA Cancer J Clin*. 2008;58:161-179.

²⁰ Screening for Cervical Cancer, Topic Page. March 2012. U.S. Preventive Services Task Force.

<http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm>

²¹ Screening Guidelines for the Prevention and Early Detection of Cervical Cancer. Published online March 14, 2012 in *CA: A Cancer Journal for Clinicians*. First author: Debbie Saslow, PhD, American Cancer Society, Atlanta, GA.

²² Screening for Prostate Cancer, Topic Page. U.S. Preventive Services Task Force.

<http://www.uspreventiveservicestaskforce.org/uspstf/uspSprca.htm>

²³ Prostate Cancer: Early Detection. American Cancer Society.

<http://www.cancer.org/Cancer/ProstateCancer/MoreInformation/ProstateCancerEarlyDetection/prostate-cancer-early-detection-acs-recommendations>

Melanoma

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of using a whole-body skin exam by a physician or nurse, or patient skin self-exam, for the early detection of melanoma in the adult general population.²⁴ However, the USPSTF does recommend counseling children, adolescents, and young adults aged 10 to 24 years who have fair skin about minimizing their exposure to ultraviolet radiation to reduce risk for skin cancer.²⁵ ACS supports skin exam by a physician during routine cancer-related checkups, in addition to monthly skin self-exams.²⁶

²⁴ 24 U.S. Preventive Services Task Force. Screening for Skin Cancer, Topic Page. February 2009.

<http://www.uspreventiveservicestaskforce.org/uspstf/uspsskca.htm>

²⁵ Moyer VA. Behavioral Counseling to Prevent Skin Cancer: U.S. Preventive Services Task Force Recommendation Statement. *Ann Intern Med.* 2012;157.

²⁶ Skin Cancer Prevention and Early Detection. American Cancer Society.

<http://www.cancer.org/Cancer/CancerCauses/SunandUVExposure/SkinCancerPreventionandEarlyDetection/skin-cancer-prevention-and-early-detection-skin-exams>

Lung Cancer Screening: Discussion with Health Care Providers

In 2015, 16 percent (95% confidence interval: 14.8% to 17.1%) of Kansas adults 18 years and older had ever discussed with their health care providers whether or not to be screened for lung cancer (Table 9-1).

The percentage of Kansans 18 years and older who have ever discussed with their health care providers whether or not to be screened for lung cancer was significantly higher among males (19.0%; 95% confidence interval: 17.3% to 20.7%) as compared to females (12.3%; 95% confidence interval: 10.9% to 13.7%).

The percentage of Kansans who have ever discussed with their health care providers whether or not to be screened for lung cancer was significantly higher among Kansans aged 55 to 80 years (17.0%; 95% confidence interval: 15.8% to 18.3%) as compared to Kansans aged 40 to 54 years (11.6%; 95% confidence interval: 8.7% to 14.5%).

The age-adjusted percentage of Kansans 18 years and older who have ever discussed with their health care providers whether or not to be screened for lung cancer did not differ significantly by race and ethnicity status.

The percentage of Kansans 18 years and older who have ever discussed with their health care providers whether or not to be screened for lung cancer also did not differ significantly by education level and annual household income.

In 2015, the percentage of Kansans 18 years and older who have ever discussed with their health care providers whether or not to be screened for lung cancer was significantly higher among those with health insurance (16.6%; 95% confidence interval: 15.4% to 17.8%) when compared with adults without insurance (8.7%; 95% confidence interval: 5.2% to 12.1%).

In 2015, the percentage of Kansans 18 years and older who have ever discussed with their health care providers whether or not to be screened for lung cancer was significantly higher among Kansans who lived in frontier (20.0%; 95% confidence interval: 14.5% to 25.6%), semi-urban (17.5%; 95% confidence interval: 14.8% to 20.1%) and urban counties (16.4%; 95% confidence interval: 14.7% to 18.0%) as compared to those who resided in rural counties (11.9%; 95% confidence interval: 9.3% to 14.5%).

In Kansas, the percentage of adults 18 years and older who have ever discussed with their health care providers whether or not to be screened for lung cancer was significantly higher among those living with a disability (18.9%; 95% confidence interval: 17.0% to 20.8%) compared to those living without a disability (14.1%; 95% confidence interval: 12.7% to 15.5%).

Table 9-1. Percentage of adults 18 years and older who have discussed with their health care providers whether or not to be screened for lung cancer by selected characteristics, Kansas 2015

Characteristic	Percentage of adults 18 years and older who have discussed with their health care providers whether or not to be screened for lung cancer	95% Confidence Interval		
			to	
Total	15.9%	14.8%	to	17.1%
Gender				
Male	19.0%	17.3%	to	20.7%
Female	12.3%	10.9%	to	13.7%
Age group				
18-39*	-	-	to	-
40-54	11.6%	8.7%	to	14.5%
55-80	17.0%	15.8%	to	18.3%
81 and older	16.1%	12.7%	to	19.5%
Race and Ethnicity (age-adjusted)				
White, Non-Hispanic	14.3%	12.7%	to	15.8%
African American, Non-Hispanic	20.9%	9.1%	to	32.8%
Other/Multi-Race, Non-Hispanic	22.2%	8.3%	to	36.1%
Hispanic	9.4%	3.8%	to	15.0%
Education				
Less than high school	13.3%	9.4%	to	17.2%
High school graduate or G.E.D.	15.3%	13.5%	to	17.1%
Some college	17.5%	15.5%	to	19.6%
College graduate	16.0%	14.1%	to	17.9%
Household Income				
Less than \$15,000	21.1%	16.3%	to	25.9%
\$15,000 to \$24,999	14.6%	11.9%	to	17.3%
\$25,000 to \$34,999	19.0%	15.2%	to	22.8%
\$35,000 to \$49,999	15.2%	12.5%	to	17.9%
\$50,000 or higher	15.6%	13.8%	to	17.5%
Insurance Status				
Insured	16.6%	15.4%	to	17.8%
Uninsured	8.7%	5.2%	to	12.1%
County Population Density				
Frontier	20.0%	14.5%	to	25.6%
Rural	11.9%	9.3%	to	14.5%
Densely-settled rural	14.6%	11.7%	to	17.5%
Semi-urban	17.5%	14.8%	to	20.1%
Urban	16.4%	14.7%	to	18.0%
Disability Status				
Living with a disability	18.9%	17.0%	to	20.8%
Living without a disability	14.1%	12.7%	to	15.5%

*Prevalence estimates are unable to present due to insufficient counts.

Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, Kansas Department of Health and Environment. Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population. See Technical Appendix for details on how prevalence estimates were calculated. County population density peer groups are based on the population for each county in the 2000 population and are defined as follows: Frontier (fewer than 6 persons per square mile), Rural (6 to 19.9 persons per square mile), Densely-Settled Rural (20 to 39.9 persons per square mile), Semi-Urban (40 to 149.9 persons per square mile), and Urban (150 or more persons per square mile).

Colorectal Cancer Screening: Sigmoidoscopy/Colonoscopy

In 2014, 68 percent (95% confidence interval: 66.4% to 68.8%) of Kansas adults 50 years and older had ever had a sigmoidoscopy or colonoscopy (Table 9-2).

The percentage of Kansans 50 years and older who have ever had a sigmoidoscopy or colonoscopy did not differ significantly by gender groups.

The percentage of Kansans who have ever had a sigmoidoscopy or colonoscopy was significantly lower among Kansans aged 50 to 64 years (61.0%; 95% confidence interval: 59.3% to 62.8%) compared to Kansans aged 65 years and older.

The age-adjusted percentage of Kansans 50 years and older who have ever had a sigmoidoscopy or colonoscopy was significantly lower among Hispanics (44.6%; 95% confidence interval: 36.4% to 52.9%) compared to non-Hispanic whites (69.9%; 95% confidence interval: 68.7% to 71.1%) in 2014. No statistically significant differences were observed in screening prevalence among non-Hispanic African Americans 50 years and older (63.9%; 95% confidence interval: 57.4% to 70.3%) as compared to non-Hispanic whites 50 years and older (69.9%; 95% confidence interval: 68.7% to 71.1%).

In 2014, the percentage of Kansans 50 years and older who have ever had a sigmoidoscopy or colonoscopy was significantly higher among college graduates (76.6%; 95% confidence interval: 74.8% to 78.4%) compared to those who attained lower levels of education. The percentage of Kansans 50 years and older who have ever had a sigmoidoscopy or colonoscopy was significantly lower among those whose annual household income was less than \$15,000 (49.1%; 95% confidence interval: 44.3% to 54.0%) compared to those whose annual household income was \$25,000 or higher.

The percentage of Kansans 50 years and older who have ever had a sigmoidoscopy or colonoscopy was significantly higher among those with health insurance (70.2%; 95% confidence interval: 69.0% to 71.4%) when compared with adults without insurance (32.8%; 95% confidence interval: 27.6% to 38.0%), and significantly higher among Kansans who lived in urban counties (71.4%; 95% confidence interval: 69.7% to 73.2%) compared to those who resided in less population-dense counties.

In Kansas, the percentage of adults 50 years and older who have ever had a sigmoidoscopy or colonoscopy was significantly higher among those living with a disability (70.9%; 95% confidence interval: 68.9% to 73.0%) compared to those living without a disability (66.0%; 95% confidence interval: 64.5% to 67.5%).

Table 9-2. Percentage of adults 50 years and older who have ever had a sigmoidoscopy or colonoscopy by selected characteristics, Kansas 2014

Characteristic	Percentage of adults 50 years and older who have ever had a sigmoidoscopy or colonoscopy	95% Confidence Interval		
			to	
Total	67.6%	66.4%	to	68.8%
Gender				
Male	66.4%	64.6%	to	68.3%
Female	68.6%	67.1%	to	70.2%
Age group				
50-64	61.0%	59.3%	to	62.8%
65 and older	76.8%	75.3%	to	78.3%
Race and Ethnicity (age-adjusted)				
White, Non-Hispanic	69.9%	68.7%	to	71.1%
African American, Non-Hispanic	63.9%	57.4%	to	70.3%
Other/Multi-Race, Non-Hispanic	56.6%	49.3%	to	63.9%
Hispanic	44.6%	36.4%	to	52.9%
Education				
Less than high school	51.6%	46.4%	to	56.9%
High school graduate or G.E.D.	62.8%	60.6%	to	64.9%
Some college	69.2%	67.1%	to	71.3%
College graduate	76.6%	74.8%	to	78.4%
Household Income				
Less than \$15,000	49.1%	44.3%	to	54.0%
\$15,000 to \$24,999	59.3%	55.9%	to	62.6%
\$25,000 to \$34,999	65.5%	61.7%	to	69.3%
\$35,000 to \$49,999	68.8%	65.5%	to	72.1%
\$50,000 or higher	74.8%	73.0%	to	76.6%
Insurance Status				
Insured	70.2%	69.0%	to	71.4%
Uninsured	32.8%	27.6%	to	38.0%
County Population Density				
Frontier	59.3%	53.3%	to	65.3%
Rural	62.1%	58.8%	to	65.3%
Densely-settled rural	60.6%	57.4%	to	63.8%
Semi-urban	69.7%	67.0%	to	72.3%
Urban	71.4%	69.7%	to	73.2%
Disability Status				
Living with a disability	70.9%	68.9%	to	73.0%
Living without a disability	66.0%	64.5%	to	67.5%

Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, Kansas Department of Health and Environment. Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population. See Technical Appendix for details on how prevalence estimates were calculated. County population density peer groups are based on the population for each county in the 2000 population and are defined as follows: Frontier (fewer than 6 persons per square mile), Rural (6 to 19.9 persons per square mile), Densely-Settled Rural (20 to 39.9 persons per square mile), Semi-Urban (40 to 149.9 persons per square mile), and Urban (150 or more persons per square mile).

Colorectal Cancer Screening: Fecal Occult Blood Test (FOBT)

In 2014, 13 percent (95% confidence interval: 11.9% to 13.5%) of Kansas adults 50 years and older have had an FOBT in the past two years (Table 9-3).

The percentage of Kansans who have had an FOBT in the past two years did not differ significantly among gender groups.

The percentage of Kansans who have had an FOBT in the past two years was significantly lower among Kansans aged 50 to 64 years (9.1%; 95% confidence interval: 8.1% to 10.1%) compared to Kansans aged 65 years and older (17.6%; 95% confidence interval: 16.3% to 19.0%).

The age-adjusted percentage of Kansans 50 years and older who have had an FOBT in the past two years was significantly lower among Hispanics (5.7%; 95% confidence interval: 1.9% to 9.5%) compared to non-Hispanic whites (13.2%; 95% confidence interval: 12.3% to 14.0%) in 2014. No statistically significant differences were observed in screening prevalence among non-Hispanic African Americans 50 years and older (13.6%; 95% confidence interval: 8.8% to 18.4%) as compared to non-Hispanic whites 50 years and older (13.2%; 95% confidence interval: 12.3% to 14.0%).

In 2014, the percentage of Kansans 50 years and older who have had an FOBT in the past two years did not differ significantly by education level and household income. However, the percentage of Kansans 50 years and older who have had an FOBT in the past two years was significantly higher among those with health insurance (13.2%; 95% confidence interval: 12.3% to 14.0%) when compared with adults without insurance (5.9%; 95% confidence interval: 3.7% to 8.2%).

The percentage of Kansans 50 years and older who have had an FOBT in the past two years was significantly lower among Kansans who lived in urban counties (10.8%; 95% confidence interval: 9.7% to 11.9%) compared to those who resided in frontier and semi-urban counties.

In Kansas, the percentage of adults 50 years and older who have had an FOBT in the past two years was significantly higher among those living with a disability (14.6%; 95% confidence interval: 13.1% to 16.1%) compared to those living without a disability (11.8%; 95% confidence interval: 10.9% to 12.8%).

Table 9-3. Percentage of adults 50 years and older who have had an FOBT in the past two years by selected characteristics, Kansas 2014

Characteristic	Percentage of adults 50 years and older who have had an FOBT in the past two years	95% Confidence Interval		
			to	
Total	12.7%	11.9%	to	13.5%
Gender				
Male	12.9%	11.7%	to	14.2%
Female	12.5%	11.5%	to	13.5%
Age group				
50-64	9.1%	8.1%	to	10.1%
65 and older	17.6%	16.3%	to	19.0%
Race and Ethnicity (age-adjusted)				
White, Non-Hispanic	13.2%	12.3%	to	14.0%
African American, Non-Hispanic	13.6%	8.8%	to	18.4%
Other/Multi-Race, Non-Hispanic	15.0%	9.6%	to	20.4%
Hispanic	5.7%	1.9%	to	9.5%
Education				
Less than high school	12.2%	8.8%	to	15.5%
High school graduate or G.E.D.	12.0%	10.6%	to	13.4%
Some college	13.4%	12.0%	to	14.9%
College graduate	12.8%	11.5%	to	14.1%
Household Income				
Less than \$15,000	15.3%	11.9%	to	18.7%
\$15,000 to \$24,999	14.7%	12.4%	to	17.0%
\$25,000 to \$34,999	16.6%	13.7%	to	19.4%
\$35,000 to \$49,999	12.0%	9.9%	to	14.1%
\$50,000 or higher	10.9%	9.7%	to	12.0%
Insurance Status				
Insured	13.2%	12.3%	to	14.0%
Uninsured	5.9%	3.7%	to	8.2%
County Population Density				
Frontier	16.4%	12.2%	to	20.6%
Rural	12.1%	9.9%	to	14.2%
Densely-settled rural	13.2%	11.2%	to	15.3%
Semi-urban	17.2%	15.0%	to	19.4%
Urban	10.8%	9.7%	to	11.9%
Disability Status				
Living with a disability	14.6%	13.1%	to	16.1%
Living without a disability	11.8%	10.9%	to	12.8%

Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, Kansas Department of Health and Environment. Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population. See Technical Appendix for details on how prevalence estimates were calculated. County population density peer groups are based on the population for each county in the 2000 population and are defined as follows: Frontier (fewer than 6 persons per square mile), Rural (6 to 19.9 persons per square mile), Densely-Settled Rural (20 to 39.9 persons per square mile), Semi-Urban (40 to 149.9 persons per square mile), and Urban (150 or more persons per square mile).

U.S. Preventive Services Task Force Recommendation for Colorectal Cancer Screening

Based on the U.S. Preventive Services Task Force (USPSTF) recommendation for colorectal cancer screening, men and women ages 50-75 years old should have one of the following tests: 1) Annual high-sensitivity fecal occult blood testing (FOBT), 2) Sigmoidoscopy every 5 years combined with high-sensitivity FOBT every 3 years, or 3) Colonoscopy every 10 years.²⁷

In 2014, 65 percent (95% confidence interval: 63.2% to 66.0%) of Kansas adults aged 50-75 years old have met the USPSTF recommendation for colorectal cancer screening (Table 9-4).

The percentage of Kansans aged 50-75 years old who have met the USPSTF recommendation for colorectal screening in 2014 did not differ significantly among gender groups.

The percentage of Kansans aged 50-75 year old who have met the USPSTF recommendation for colorectal screening was significantly lower among Kansans aged 50-64 years (59.5%; 95% confidence interval: 57.7% to 61.2%) compared to Kansans aged 65 years and older (76.2%; 95% confidence interval: 74.3% to 78.1%).

In 2014, the age-adjusted percentage of Kansans aged 50-75 years old who have met the USPSTF recommendation for colorectal screening was significantly lower among Hispanics (39.3%; 95% confidence interval: 31.2% to 47.5%) compared to any other racial subgroups. No statistically significant differences were observed in screening prevalence among non-Hispanic African Americans (59.3%; 95% confidence interval: 51.9% to 66.6%) as compared to non-Hispanic whites (66.5%; 95% confidence interval: 65.1% to 67.9%).

In 2014, the percentage of Kansans aged 50-75 years old who have met the USPSTF recommendation for colorectal screening were significantly lower among those with education level less than high school, followed by those who were high school graduate or G.E.D., and significantly higher among those who graduated from college, followed by those who have reached the education level of some college.

In Kansas, the percentage of Kansans aged 50-75 years old who have met the USPSTF recommendation for colorectal screening were significantly lower among those whose annual household income was less than \$50,000 when compared to those whose annual household income was \$50,000 or more (71.9%; 95% confidence interval: 70.0% to 73.9%). The percentage of Kansans aged 50-75 years old who have met the USPSTF recommendation for colorectal screening was significantly lower among those without health insurance (29.3%; 95% confidence interval: 24.0% to 34.7%) when compared with adults who have insurance (67.7%; 95% confidence interval: 66.3% to 69.1%).

The percentage of Kansans aged 50-75 years old who have met the USPSTF recommendation for colorectal screening was significantly lower among Kansans who lived in frontier, rural, and densely-settled area when compared to those who lived in urban counties (68.2%; 95% confidence interval: 66.2% to 70.2%).

In Kansas, the percentage of adults aged 50-75 years old who have met the USPSTF recommendation for colorectal screening did not differ significantly by disability status.

²⁷ United States Preventive Services Task Force. Colorectal Cancer: Screening. Available at: <http://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/colorectal-cancer-screening>

Table 9-4. Percentage of adults aged 50-75 years old who have met the USPSTF screening recommendation

Characteristic	Percentage of adults 50 years and older who have met the USPSTF screening recommendation	95% Confidence Interval		
			to	
Total	64.6%	63.2%	to	66.0%
Gender				
Male	63.8%	61.6%	to	65.9%
Female	65.5%	63.6%	to	67.3%
Age group				
50-64	59.5%	57.7%	to	61.2%
65 and older	76.2%	74.3%	to	78.1%
Race and Ethnicity (age-adjusted)				
White, Non-Hispanic	66.5%	65.1%	to	67.9%
African American, Non-Hispanic	59.3%	51.9%	to	66.6%
Other/Multi-Race, Non-Hispanic	58.1%	50.2%	to	66.0%
Hispanic	39.3%	31.2%	to	47.5%
Education				
Less than high school	45.0%	38.5%	to	51.4%
High school graduate or G.E.D.	59.2%	56.6%	to	61.8%
Some college	66.1%	63.7%	to	68.6%
College graduate	73.7%	71.6%	to	75.7%
Household Income				
Less than \$15,000	47.3%	41.8%	to	52.9%
\$15,000 to \$24,999	52.5%	48.4%	to	56.6%
\$25,000 to \$34,999	60.3%	55.6%	to	64.9%
\$35,000 to \$49,999	66.0%	62.3%	to	69.7%
\$50,000 or higher	71.9%	70.0%	to	73.9%
Insurance Status				
Insured	67.7%	66.3%	to	69.1%
Uninsured	29.3%	24.0%	to	34.7%
County Population Density				
Frontier	58.2%	51.1%	to	65.3%
Rural	58.7%	55.0%	to	62.4%
Densely-settled rural	57.2%	53.5%	to	61.0%
Semi-urban	66.9%	63.8%	to	70.0%
Urban	68.2%	66.2%	to	70.2%
Disability Status				
Living with a disability	67.1%	64.6%	to	69.6%
Living without a disability	63.6%	61.9%	to	65.3%

Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, Kansas Department of Health and Environment. Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population. See Technical Appendix for details on how prevalence estimates were calculated. County population density peer groups are based on the population for each county in the 2000 population and are defined as follows: Frontier (fewer than 6 persons per square mile), Rural (6 to 19.9 persons per square mile), Densely-Settled Rural (20 to 39.9 persons per square mile), Semi-Urban (40 to 149.9 persons per square mile), and Urban (150 or more persons per square mile).

Breast Cancer Screening among Kansas Women

In 2014, 71 percent (95% confidence interval: 69.7% to 72.5%) of Kansas women aged 40 years and older had a mammogram within the past two years (Table 9-5).

The percentage of women who have had a mammogram within the past two years was significantly lower among Kansas women aged 40 to 49 years (59.1%; 95% confidence interval: 55.5% to 62.7%) compared to women 50 years and older.

The age-adjusted percentage of women aged 40 years and older who have had a mammogram within the past two years was significantly lower among Hispanic (57.4%; 95% confidence interval: 48.5% to 66.2%) compared to the non-Hispanic white subgroups in 2014. No significant differences were seen in screening prevalence among non-Hispanic white and African American women.

In 2014, the percentage of women 40 years and older who have had a mammogram within the past two years was significantly lower among those who did not graduate from high school (53.2%; 95% confidence interval: 46.9% to 59.5%) compared to those who attained higher levels of education. Similarly, the percentage of women 40 years and older who have had a mammogram within the past two years was significantly lower among those whose annual household income was less than \$15,000 (57.3%; 95% confidence interval: 51.8% to 62.8%) compared to those whose annual household income was \$15,000 or higher. However, the percentage of Kansas women 40 years and older who have had a mammogram within the past two years was significantly higher among those with health insurance (73.7%; 95% confidence interval: 72.3% to 75.2%) when compared with adults without insurance (40.5%; 95% confidence interval: 34.6% to 46.4%).

The percentage of women 40 years and older who have had a mammogram within the past two years was significantly lower among women in frontier (61.3%; 95% confidence interval: 53.2% to 69.4%) and rural counties (65.6%; 95% confidence interval: 61.6% to 69.6%) compared to women in semi-urban (73.7%; 95% confidence interval: 70.6% to 76.9%) and urban counties (73.4%; 95% confidence interval: 71.4% to 75.4%).

The percentage of women 40 years and older who have had a mammogram within the past two years did not differ significantly by disability status.

Table 9-5. Percentage of women 40 years and older who have had a mammogram within the past two years by selected characteristics, Kansas 2014

Characteristic	Percentage of women 40 years and older who have had a mammogram within the past two years	95% Confidence Interval		
			to	
Total	71.1%	69.7%	to	72.5%
Age group				
40-49	59.1%	55.5%	to	62.7%
50-64	75.3%	73.2%	to	77.4%
65 and older	74.6%	72.7%	to	76.6%
Race and Ethnicity (age-adjusted)				
White, Non-Hispanic	69.9%	68.2%	to	71.6%
African American, Non-Hispanic	74.1%	67.0%	to	81.3%
Other/Multi-Race, Non-Hispanic	56.2%	47.6%	to	64.9%
Hispanic	57.4%	48.5%	to	66.2%
Education				
Less than high school	53.2%	46.9%	to	59.5%
High school graduate or G.E.D.	69.9%	67.4%	to	72.5%
Some college	71.9%	69.4%	to	74.4%
College graduate	77.2%	75.0%	to	79.3%
Household Income				
Less than \$15,000	57.3%	51.8%	to	62.8%
\$15,000 to \$24,999	61.1%	57.1%	to	65.0%
\$25,000 to \$34,999	68.4%	63.9%	to	72.8%
\$35,000 to \$49,999	72.2%	68.4%	to	76.1%
\$50,000 or higher	78.5%	76.3%	to	80.6%
Insurance Status				
Insured	73.7%	72.3%	to	75.2%
Uninsured	40.5%	34.6%	to	46.4%
County Population Density				
Frontier	61.3%	53.2%	to	69.4%
Rural	65.6%	61.6%	to	69.6%
Densely-settled rural	67.5%	63.7%	to	71.3%
Semi-urban	73.7%	70.6%	to	76.9%
Urban	73.4%	71.4%	to	75.4%
Disability Status				
Living with a disability	69.3%	66.7%	to	71.8%
Living without a disability	72.1%	70.4%	to	73.8%

Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, Kansas Department of Health and Environment. Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population. See Technical Appendix for details on how prevalence estimates were calculated. County population density peer groups are based on the population for each county in the 2000 population and are defined as follows: Frontier (fewer than 6 persons per square mile), Rural (6 to 19.9 persons per square mile), Densely-Settled Rural (20 to 39.9 persons per square mile), Semi-Urban (40 to 149.9 persons per square mile), and Urban (150 or more persons per square mile).

Cervical Cancer Screening

In 2014, 74 percent (95% confidence interval: 72.2% to 75.5%) of Kansas women aged 18 years and older had a Pap test within the past three years (Table 9-6).

The percentage of women who have had a Pap test within the past three years was significantly lower among Kansas women aged 18 to 24 years (47.3%; 95% confidence interval: 41.6% to 53.0%) compared to women aged 25 to 64 years.

The age-adjusted percentage of women 18 years and older who have had a Pap test within the past three years did not differ significantly by racial and ethnic subgroups in 2014.

In 2014, the percentage of women 18 years and older who have had a Pap test within the past three years was significantly lower among those who did not graduate from high school (61.4%; 95% confidence interval: 54.0% to 68.6%) compared to those who attained higher levels of education. Similarly, the percentage of women 18 years and older who have had a Pap test within the past three years was significantly lower among those whose annual household income was less than \$15,000 (61.0%; 95% confidence interval: 54.7% to 67.3%) compared to those whose annual household income was \$35,000 or higher. However, the percentage of Kansas women 18 years and older who have had a Pap test within the past three years was significantly higher among those with health insurance (76.3%; 95% confidence interval: 74.6% to 78.0%) when compared with adults without insurance (63.8%; 95% confidence interval: 58.6% to 68.9%).

The percentage of women 18 years and older who have had a Pap test within the past three years did not differ significantly by county population density or disability status subgroups.

Table 9-6. Percentage of women 18 years and older who have had a Pap test within the past three years by selected characteristics, Kansas 2014

Characteristic	Percentage of women 18 years and older who have had a Pap test within the past three years	95% Confidence Interval		
			to	
Total	73.8%	72.2%	to	75.5%
Age group				
18-24	47.3%	41.6%	to	53.0%
25-34	88.5%	85.5%	to	91.4%
35-44	87.5%	84.8%	to	90.2%
45-64	80.2%	78.0%	to	82.4%
65 and older	53.7%	50.5%	to	56.8%
Race and Ethnicity (age-adjusted)				
White, Non-Hispanic	75.2%	73.7%	to	76.7%
African American, Non-Hispanic	75.9%	69.1%	to	82.7%
Other/Multi-Race, Non-Hispanic	64.4%	57.2%	to	71.6%
Hispanic	70.8%	64.7%	to	76.9%
Education				
Less than high school	61.4%	54.0%	to	68.6%
High school graduate or G.E.D.	67.4%	64.1%	to	70.8%
Some college	69.9%	66.8%	to	72.9%
College graduate	87.9%	86.3%	to	89.5%
Household Income				
Less than \$15,000	61.0%	54.7%	to	67.3%
\$15,000 to \$24,999	68.0%	63.4%	to	72.5%
\$25,000 to \$34,999	69.9%	64.8%	to	75.0%
\$35,000 to \$49,999	76.9%	72.7%	to	81.0%
\$50,000 or higher	86.0%	83.9%	to	88.2%
Insurance Status				
Insured	76.3%	74.6%	to	78.0%
Uninsured	63.8%	58.6%	to	68.9%
County Population Density				
Frontier	68.7%	60.4%	to	77.0%
Rural	66.0%	60.6%	to	71.3%
Densely-settled rural	69.5%	65.2%	to	73.9%
Semi-urban	70.7%	66.5%	to	74.8%
Urban	77.8%	75.6%	to	80.1%
Disability Status				
Living with a disability	69.7%	66.4%	to	73.1%
Living without a disability	75.0%	73.0%	to	76.9%

Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, Kansas Department of Health and Environment. Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population. See Technical Appendix for details on how prevalence estimates were calculated. County population density peer groups are based on the population for each county in the 2000 population and are defined as follows: Frontier (fewer than 6 persons per square mile), Rural (6 to 19.9 persons per square mile), Densely-Settled Rural (20 to 39.9 persons per square mile), Semi-Urban (40 to 149.9 persons per square mile), and Urban (150 or more persons per square mile).

Prostate Cancer Screening

In 2014, about 45 percent (95% confidence interval: 43.0% to 46.6%) of Kansas men aged 40 years and older had a PSA test within the past two years (Table 9-7).

The percentage of men who have had a PSA test within the past two years was significantly lower among Kansas men aged 40 to 49 years (16.4%; 95% confidence interval: 13.4% to 19.3%), followed by the age group of 50-64 (47.8%; 95% confidence interval: 45.1% to 50.5%), and was significantly higher among men aged 65 years and older (66.8%; 95% confidence interval: 64.1% to 69.5%).

The age-adjusted percentage of men aged 40 years and older who have had a PSA test within the past two years was significantly lower among Hispanics (26.0%; 95% confidence interval: 18.1% to 34.0%) when compared with other racial and ethnic subgroups in 2014.

In 2014, the percentage of men aged 40 years and older who have had a PSA test within the past two years was significantly lower among those who did not graduate from high school (24.7%; 95% confidence interval: 18.3% to 31.0%) as compared to those who attained higher levels of education.

The percentage of men aged 40 years and older who have had a PSA test within the past two years was significantly lower among those whose annual household income was less than \$15,000 (%; 95% confidence interval: % to %), followed by those whose annual household income was \$15,000 to \$24,999 (%; 95% confidence interval: % to %), and was relatively higher for those whose annual household income was \$25,000 or higher. Similarly, the percentage of Kansans men aged 40 years and older who have had a PSA test within the past two years was significantly lower among adults without health insurance (17.7%; 95% confidence interval: 13.0% to 22.3%) when compared with those who have insurance (47.8%; 95% confidence interval: 45.9% to 49.7%).

The percentage of men aged 40 years and older who have had a PSA test within the past two years did not differ significantly by county population density or disability status subgroups.

Table 9-7. Percentage of men 40 years and older who have had a PSA test within the past two years by selected characteristics, Kansas 2014

Characteristic	Percentage of men 40 years and older who have had a PSA test within the past two years	95% Confidence Interval		
			to	
Total	44.8%	43.0%	to	46.6%
Age group				
40-49	16.4%	13.4%	to	19.3%
50-64	47.8%	45.1%	to	50.5%
65 and older	66.8%	64.1%	to	69.5%
Race and Ethnicity (age-adjusted)				
White, Non-Hispanic	42.8%	41.1%	to	44.5%
African American, Non-Hispanic	45.5%	35.3%	to	55.6%
Other/Multi-Race, Non-Hispanic	40.7%	32.3%	to	49.2%
Hispanic	26.0%	18.1%	to	34.0%
Education				
Less than high school	24.7%	18.3%	to	31.0%
High school graduate or G.E.D.	43.7%	40.4%	to	46.9%
Some college	47.6%	44.2%	to	50.9%
College graduate	49.6%	46.8%	to	52.4%
Household Income				
Less than \$15,000	19.9%	13.8%	to	25.9%
\$15,000 to \$24,999	32.8%	27.6%	to	37.9%
\$25,000 to \$34,999	44.9%	39.1%	to	50.7%
\$35,000 to \$49,999	48.8%	44.1%	to	53.5%
\$50,000 or higher	49.1%	46.6%	to	51.6%
Insurance Status				
Insured	47.8%	45.9%	to	49.7%
Uninsured	17.7%	13.0%	to	22.3%
County Population Density				
Frontier	54.3%	45.6%	to	63.0%
Rural	49.3%	44.1%	to	54.5%
Densely-settled rural	41.4%	36.8%	to	46.1%
Semi-urban	45.5%	41.5%	to	49.5%
Urban	43.9%	41.3%	to	46.5%
Disability Status				
Living with a disability	46.3%	42.8%	to	49.8%
Living without a disability	44.2%	42.1%	to	46.3%

Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, Kansas Department of Health and Environment. Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population. See Technical Appendix for details on how prevalence estimates were calculated. County population density peer groups are based on the population for each county in the 2000 population and are defined as follows: Frontier (fewer than 6 persons per square mile), Rural (6 to 19.9 persons per square mile), Densely-Settled Rural (20 to 39.9 persons per square mile), Semi-Urban (40 to 149.9 persons per square mile), and Urban (150 or more persons per square mile).

