

# **Maryland Cancer Screening and Risk Behaviors Report, 2010**

**An Analysis of Behavioral Risk Factor  
Surveillance System Data**

**Cigarette Restitution Fund Program  
Cancer Prevention, Education, Screening, and  
Treatment Program**

**Center for Cancer Prevention and Control  
Maryland Department of Health and Mental Hygiene**

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**Dedication**

We dedicate this report to the staff working at the local programs throughout Maryland. Without their tireless efforts to promote education about cancer screening and prevention among all Marylanders and their work to screen uninsured and low-income individuals, the results highlighted in this report would not be possible.

**Acknowledgments**

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**Citation**

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## **List of Acronyms**

ACS	American Cancer Society
BMI	body mass index
BRFSS	Behavioral Risk Factor Surveillance System
CASRO	Council of American Survey Research Organizations
CATI	computer-assisted telephone interview
CBE	clinical breast exam
CCPC	Center for Cancer Prevention and Control
CDC	Centers for Disease Control and Prevention
CI	confidence interval
CPEST	Cancer Prevention, Education, Screening, and Treatment
CRC	colorectal cancer
CRF	Cigarette Restitution Fund
CT	computerized tomographic
DCBE	double contrast barium enema
DHMH	Department of Health and Mental Hygiene
DRE	digital rectal exam
FDR	first-degree relative
FIT	fecal immunochemical test
FOBT	fecal occult blood test
GED	General Equivalency Diploma
GI	gastrointestinal
HCP	health care provider
HP 2010	Healthy People 2010
HP 2020	Healthy People 2020
MRI	magnetic resonance imaging
MSC	melanoma skin cancer
MSG	Genesys – Marketing Systems Group
NCCN	National Comprehensive Cancer Network
NIAAA	National Institute on Alcohol Abuse and Alcoholism
NMSC	non-melanoma skin cancer
PSA	prostate-specific antigen
RDD	random-digit dialing
SPF	sun protection factor
USPSTF	U.S. Preventive Services Task Force
UV	ultraviolet

## **Maryland Cancer Screening and Risk Behaviors Report, 2010 Highlights**

With the beginning of a new decade and the release of the Healthy People (HP) 2020 objectives, it remains of great importance to continue measuring the factors which decrease cancer mortality, namely cancer screening, lifestyle factors, and access to health care. As the nation strives to decrease health disparities and strives for health equity, it is important to examine these factors by socio-economic factors (including sex, race, education, and area of residence) to determine groups which require greater attention and the areas of need. The purpose of this report is to analyze data collected from the 2010 Behavioral Risk Factor Surveillance System (BRFSS) survey and to report on the prevalence of self-reported cancer screening tests in Maryland, smoking and alcohol intake, diet and physical activity, and measures of access to health care and their relationship to cancer screening.

### Survey Sample and Demographics

- In 2010, BRFSS was successful in completing interviews with 9,185 Maryland residents age 18 years and older, of which 73% were white, 20% were black/African American, and 7% were of other races or reported they were Hispanic.
- Women made up 63% of the sample.
- Approximately 54% of the respondents were age 40-64 years.
- 16% of respondents reported an annual household income of less than \$25,000.
- 93% of respondents completed at least a high school education.
- The results of the survey are weighted to the Maryland population by age, sex, and race.

### Self-reported Cancer Screening in Maryland

Colorectal cancer (CRC) screening, among adults age 50 years and older

- 43% reported ever having a fecal occult blood test (FOBT) and 72% reported ever having a sigmoidoscopy or colonoscopy.
- 71% of adults 50 years and older reported being up-to-date with CRC screening with FOBT in the past year, sigmoidoscopy in the past 5 years, or colonoscopy in the past 10 years.
  - There was no significant difference by race.

Prostate cancer screening, among men age 40 years and older without a history of prostate cancer

- 66% reported ever having a prostate-specific antigen (PSA) test and 47% reported having a PSA test in the past year.
  - There was no significant difference by race.
  - Men age 65-74 years reported the highest prevalence of PSA testing in the past year.

Breast cancer screening, among women age 40 years and older

- 93% reported ever having a mammogram and 80% reported having a mammogram in the past 2 years.
  - There was no significant difference by race, for mammogram in the past 2 years.

Cervical cancer screening, among women age 18 years and older who have not had a hysterectomy

- 94% reported ever having a Pap test and 86% reported having a Pap test in the past 3 years.
  - A higher proportion of black women had a Pap test in the past 3 years than white women or women of other races.

Oral cancer screening, among adults age 18 years and older

- 42% reported ever having an oral cancer screening exam and 31% reported having an oral cancer screening exam in the past year.
  - A higher proportion of whites reported having the oral cancer exam in the past year compared to blacks and persons of other races.

### Sun Exposure Prevention in Maryland

Among adults age 18 years and older, 4% reported they do not go out in the sun. Of the remaining adults, when outdoors for an hour or more on a sunny day

- 33% always or nearly always use a sunscreen lotion of an SPF rating of 15 or higher.
- 25% always or nearly always wear a hat with a broad brim.
- 22% always or nearly always wear protective clothing like a long sleeve shirt or long pants.

### Access to Health Care

Health insurance, among adults age 18 years and older

- 89% reported having health insurance.
  - This measure was higher among whites compared to blacks and persons of other races.
  - Having health insurance was higher among adults who had at least some college education.

Having a personal doctor or health care provider, among adults 18 years and older

- 85% reported having at least one person they think of as their personal doctor or health care provider.
  - This measure was higher among whites compared to blacks and persons of other races.
  - Having a personal doctor was highest among those who had a college degree.

Visiting a doctor in the last 12 months for a routine checkup, among adults 18 years and older

- 78% reported having a routine checkup in the past 12 months
  - This measure was higher among blacks compared to whites and persons of other races.
  - Having a personal doctor was highest among those age 65 years and older.
  - There was no difference by education level.



#### Access to health care and cancer screening

- Having access to health care as measured by having health insurance, having a personal doctor, and having a routine checkup in the past year was significantly positively associated with having up-to-date cancer screening.

#### Lifestyle Factors

##### Current cigarette smoking, among adults age 18 years and older

- 15% of adults reported they are current cigarette smokers
  - This was highest among black men and those under the age of 65 years.
  - As education increased the proportion of smokers decreased.

##### High-risk alcohol consumption, among adults age 18 years and older

- 16% of adults reported high-risk alcohol consumption (for men, high-risk drinking is defined as either consuming more than 14 drinks per week or engaging in binge drinking [five or more drinks at one occasion] and for women, high-risk drinking is defined as either consuming more than seven drinks per week or engaging in binge drinking [four or more drinks at one occasion]).
  - High-risk alcohol consumption was higher among whites compared to blacks.
  - High-risk alcohol consumption decreased with increasing age.

#### Strengths and Limitations of the BRFSS 2010

##### Strengths of the BRFSS survey include:

- The BRFSS is a population-based sample, weighted to the Maryland population.
- The BRFSS has a large sample size and gathers information from adults age 18 years and older.

##### Limitations of the BRFSS include:

- Only persons who lived in residences were included in the survey; the institutionalized population was not included in the survey.
- Responses are self-reported and are not verified by clinical chart review.



## Chapter 1. Introduction

This report contains information on cancer screening and behavioral risk factors in Maryland, as analyzed from the Behavioral Risk Factor Surveillance System (BRFSS) survey conducted in 2010. In its mission to reduce the burden of cancer in Maryland, the Surveillance and Evaluation Unit of the Center for Cancer Prevention and Control (CCPC) at the Maryland Department of Health and Mental Hygiene (DHMH) has been monitoring these very important aspects of cancer control, primarily through the Maryland Cancer Surveys from 2002-2008 and now through analysis of the BRFSS survey.

While deaths from cancer account for almost a quarter of all Maryland deaths, cancer mortality has shown a steady decline in recent years. For the period 1989-1993, Maryland had the fifth highest cancer mortality rate among the fifty states and the District of Columbia.<sup>1</sup> For the period 2004-2008, Maryland's cancer mortality rate dropped to the 20<sup>th</sup> position.<sup>2</sup> This decline has been the result of great efforts in the State to promote risk reduction (e.g., smoking prevention and cessation and excess sun exposure prevention), encouraging age-appropriate cancer screening tests to detect pre-malignant lesions and early cancers (when they are more easily treated and cured), and by recent advances in cancer treatment.

It is believed that only 5-10% of cancer cases result from inherited genetic factors, while 90-95% are the result of lifestyle or environmental factors.<sup>3</sup> Tobacco and alcohol use, infections, and radiation exposure are known risk factors for cancer. Factors such as consuming a diet that is low in fruits and vegetables and high in red meat, lack of regular physical activity, and obesity have been implicated as risk factors for cancer. Primary prevention, undertaking an action to decrease the risk of developing cancer, includes behaviors aimed at smoking cessation, decreasing alcohol use, and decreasing exposure to sunlight and other sources of radiation. Secondary prevention, undertaking an action to detect cancer when it is in its earliest, most treatable stage, includes cancer screening for colorectal, prostate, breast, cervical, oral, and skin cancer.

Measuring the proportion of Maryland residents who engage in cancer screening and healthy behaviors and determining the factors associated with those behaviors (by sex, race, age, education, and health care access) will allow better targeting of groups at risk for interventions. With a greater emphasis on preventive behaviors and cancer screening, the age-adjusted cancer incidence and mortality rates will continue to decline.

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<sup>1</sup> SEER Cancer Statistics Review 1973-1993. National Cancer Institute. Bethesda, MD. Available at [http://seer.cancer.gov/csr/1973\\_1993/](http://seer.cancer.gov/csr/1973_1993/). Last accessed July 2, 2012.

<sup>2</sup> Howlander N, Noone AM, Krapcho M, Neyman N, Aminou R, Waldron W, Altekruse SF, Kosary CL, Ruhl J, Tatalovich Z, Cho H, Mariotto A, Eisner MP, Lewis DR, Chen HS, Feuer EJ, Cronin KA, Edwards BK (eds). SEER Cancer Statistics Review, 1975-2008, National Cancer Institute. Bethesda, MD, [http://seer.cancer.gov/csr/1975\\_2008/](http://seer.cancer.gov/csr/1975_2008/), based on November 2010 SEER data submission, posted to the SEER web site, 2011. Available at [http://seer.cancer.gov/csr/1975\\_2008/sections.htm](http://seer.cancer.gov/csr/1975_2008/sections.htm). Last accessed July 2, 2012.

<sup>3</sup> Anand P, Kunnumakara AB, Sundaram C, et al. Cancer is a preventable disease that requires major lifestyle changes. *Pharm Res.* 2008;25(9):2097-2116. Available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2515569/?tool=pubmed>. Last accessed July 2, 2012.



## **Chapter 2. Methodology**

The Behavioral Risk Factor Surveillance System (BRFSS) is an annual state-based system of health surveys funded by the Centers for Disease Control and Prevention (CDC).<sup>1</sup> In Maryland, the survey is overseen by the Family Health Administration at the Maryland Department of Health and Mental Hygiene (DHMH). It is a population-based random-digit-dial (RDD) survey, using disproportionate stratified sampling.<sup>2</sup> The BRFSS is administered to adults, age 18 years and older, residing in private households and focuses on behavioral risk factors, preventive health measures, and health care access. The Maryland data from the 2010 BRFSS is available on the BRFSS website from the CDC.<sup>3</sup>

### **Sampling and Technical Information**

The sampling scheme for BRFSS can be found on the BRFSS website at [http://www.cdc.gov/brfss/technical\\_infodata/surveydata/2010.htm](http://www.cdc.gov/brfss/technical_infodata/surveydata/2010.htm).<sup>4</sup> A pool of 87,720 landline telephone numbers were provided by Genesys – Market Systems Group (MSG) for Maryland. Telephone numbers are divided into two groups, or strata, and are sampled separately. Within each stratum, there are the high-density (listed one-plus) and medium-density (unlisted one-plus) blocks. Each ‘block’ of telephone numbers consists of one hundred consecutive phone numbers that contain the same area code, prefix, and first two digits of the suffix and all possible combinations of the last two digits. Telephone numbers that come from hundred blocks with at least one listed household telephone number are put in either the high-density stratum (listed one-plus blocks) or medium-density stratum (unlisted one-plus blocks). The two strata provide a probability sample of all households in Maryland with landline telephones, such that each household has an equal chance of being selected for the survey. A small number of cell phone interviews (259) were conducted and are included in the dataset for analysis.

### **Data Collection**

The survey was administered by Abt SRBI, a research firm with offices in Bethesda, Maryland, using computer-assisted telephone interview (CATI) technology. To reach a final disposition for each telephone number, up to 15 calling attempts were made on various days of the week and at different times of the day. If someone answered the telephone, the number was confirmed to be a residential phone number. Non-residential numbers were ineligible. If the interviewer determined that there was only one person age 18 years or older living in the household, he or she was invited to participate in the survey. If two or more age-eligible persons lived there, one was randomly selected to be interviewed. An anonymous questionnaire was administered, lasting approximately 20 minutes. In 2010, interviewers asked questions about a variety of topics including demographics, cancer screening, chronic disease, health risk factors, and access to health care. The Council of American Survey Research Organizations (CASRO) response rate, defined as Completed Interviews/(Known Eligible + Presumed Eligible), was 56.0%.

## Questionnaire

Questions analyzed for this report focused on cancer screening, health care access, and preventive and lifestyle behaviors. The complete questionnaire can be found at: [http://www.marylandbrfss.org/pdf/MD\\_BRFSS\\_Questionnaire\\_2010.pdf](http://www.marylandbrfss.org/pdf/MD_BRFSS_Questionnaire_2010.pdf).

## Data Analysis

A final weight was assigned to each respondent according to the BRFSS weighting protocol.<sup>5</sup> Pre-stratification weighting was based on the sampling probability among six strata, residential telephone sampling among the two density strata of phone numbers (listed one-plus and not listed one-plus), the number of adults age 18 years and older in the respondent's household, and the inverse of the number of residential telephone numbers in each household. Post-stratification weights were calculated so that the responses represented the Maryland population 18 years and older for age, race, and sex. The data was not age-adjusted to the 2000 United States standard population.

Respondents were asked to report their ethnicity as either Hispanic or non-Hispanic and their race as one or more of the following: white; black or African American; Asian; Native Hawaiian or Other Pacific Islander; American Indian or Alaska Native; or Other. Because of small numbers, people who reported their race as something different from white or black/African American or reported more than one race, or reported their ethnicity as Hispanic, regardless of race, were grouped together as people of "other race."

For all demographic variables except income, there were a small number of responses of 'Don't know/not sure' and 'Refused'; these responses were set to 'missing' and are excluded from the tabulated frequencies. An exception is for reported annual household income, where the categories of 'Don't know/not sure,' and 'Refused' are included in the tabulations. In the stratified results tables, urban or rural area of residence was determined by self-reported county of residence, where urban counties included Anne Arundel, Baltimore, Carroll, Harford, Howard, Montgomery, and Prince George's counties, and Baltimore City; rural counties included the remaining 16 counties in Southern and Western Maryland and on the Eastern Shore. For 172 respondents who did not report their county, county was imputed based on telephone number. The ages of the respondents were grouped into six categories; 18-29 years; 30-39 years; 40-49 years; 50-64 years; 65-74 years, and 75 years and older. Education levels were combined into four categories: less than high school; high school graduate or General Equivalency Diploma (GED); some college (1-3 years) or technical school; and college graduate or higher. Reported annual household income categories were grouped into 7 categories: <\$25,000; \$25,000-<\$35,000; \$35,000-<\$50,000; \$50,000-<\$75,000; \$75,000 or greater; don't know or not sure; and refused. Results in the tables are based on the number of respondents that answered a question.

'Current smokers' were defined as those who smoked at least 100 cigarettes or more in their entire life and, at the time of the survey, smoked every day or some days. 'Former smokers' were those who smoked at least 100 cigarettes in their life but were not smoking

cigarettes at the time of the survey. ‘Never smokers’ were those who smoked less than 100 cigarettes in their life or who had never smoked.

Alcohol consumption was categorized according to use in the last 30 days, as high-risk drinking, low-risk drinking, or non-drinkers. For women, high-risk drinking was defined as having more than seven drinks a week or engaging in binge drinking (having four or more drinks on one occasion). High-risk drinking for men was defined as consuming more than 14 drinks a week or engaging in binge drinking (having five or more drinks on one occasion.) Low-risk drinking was defined as reporting alcohol consumption in the last 30 days but did not meet the criteria for high-risk drinking. Non-drinkers reported zero alcohol consumption in the last 30 days.

Weekly physical activity performance and daily fruit and vegetable intake were examined using measures already calculated in the BRFSS dataset. Respondents were considered to be physically active if, by their responses, they participated in 30 minutes of moderate physical activity five or more times a week or 20 minutes of vigorous physical activity three or more times a week. Daily fruit and vegetable intake was calculated by summing the responses from questions about daily or weekly consumption of fruits, fruit juice, green salads, and vegetables. Respondents were considered to eat five or more servings of fruits and vegetables daily if, by their responses, their calculated fruit and vegetable intake was five servings or higher.

Statistical analyses were performed with weighted data using SAS Version 9.2. Unless otherwise stated, results in the tables of the report have the following values:

- ‘N’ is the number of people in the sample who responded to a survey question;
- ‘n’ is the number of people answering “yes” to that question or having that characteristic;
- ‘Sample %’ is the unweighted percent of the sample that had that characteristic;
- ‘wt %’ (weighted percent) is the percent of the Maryland population based on the weighted sample who answered ‘Yes’ to the question or had that characteristic; and
- ‘95% CI’ is the 95% confidence interval around the weighted percent.

All percentages are based on the number of respondents answering the question and exclude missing values, ‘Don’t know/not sure’ and ‘Refused’ answers (except for income as previously described). In the tables, the heading ‘P-value’ gives the measure of statistical significance. Using standard convention, p-values < 0.05 are considered to be statistically significant. (P-values which are  $\geq 0.05$  but less than 0.10 are considered to have marginal significance and p-values  $\geq 0.10$  are considered to be not statistically significant.) If a statistically significant difference is present for a given characteristic and there are more than two levels of that characteristic (for instance, the four levels of education), a statistically significant difference is present between at least two levels of that characteristic, but not necessarily between every pairwise comparison among the levels. When reviewing the tables, it is important to remember that, while a difference may be statistically significant, the clinical or practical importance of the difference may not be significant.

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<sup>1</sup> Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System, About the BRFSS. Atlanta, Georgia: U.S. Department of Health and Human Services. Available at <http://www.cdc.gov/brfss/about.htm>. Last accessed July 2, 2012.

<sup>2</sup> Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System, Operational and User's Guide, Version 3.0. Atlanta, Georgia: U.S. Department of Health and Human Services. Available at <http://ftp.cdc.gov/pub/Data/Brfss/userguide.pdf>. Last accessed July 2, 2012.

<sup>3</sup> Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System, Annual Survey Data. Atlanta, Georgia: U.S. Department of Health and Human Services. Available at [http://www.cdc.gov/brfss/technical\\_infodata/surveydata.htm](http://www.cdc.gov/brfss/technical_infodata/surveydata.htm). Last accessed July 2, 2012.

<sup>4</sup> Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System, Annual Survey Data, 2010 BRFSS Overview. Atlanta, Georgia: U.S. Department of Health and Human Services. Available at [http://www.cdc.gov/brfss/technical\\_infodata/surveydata/2010.htm](http://www.cdc.gov/brfss/technical_infodata/surveydata/2010.htm). Last accessed July 2, 2012.

<sup>5</sup> Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System. Technical Information and Data. BRFSS Weighting Formula. Atlanta, GA. U.S. Department of Health and Human Services. Available at [http://www.cdc.gov/brfss/technical\\_infodata/weighting.htm](http://www.cdc.gov/brfss/technical_infodata/weighting.htm). Last accessed July 2, 2012.



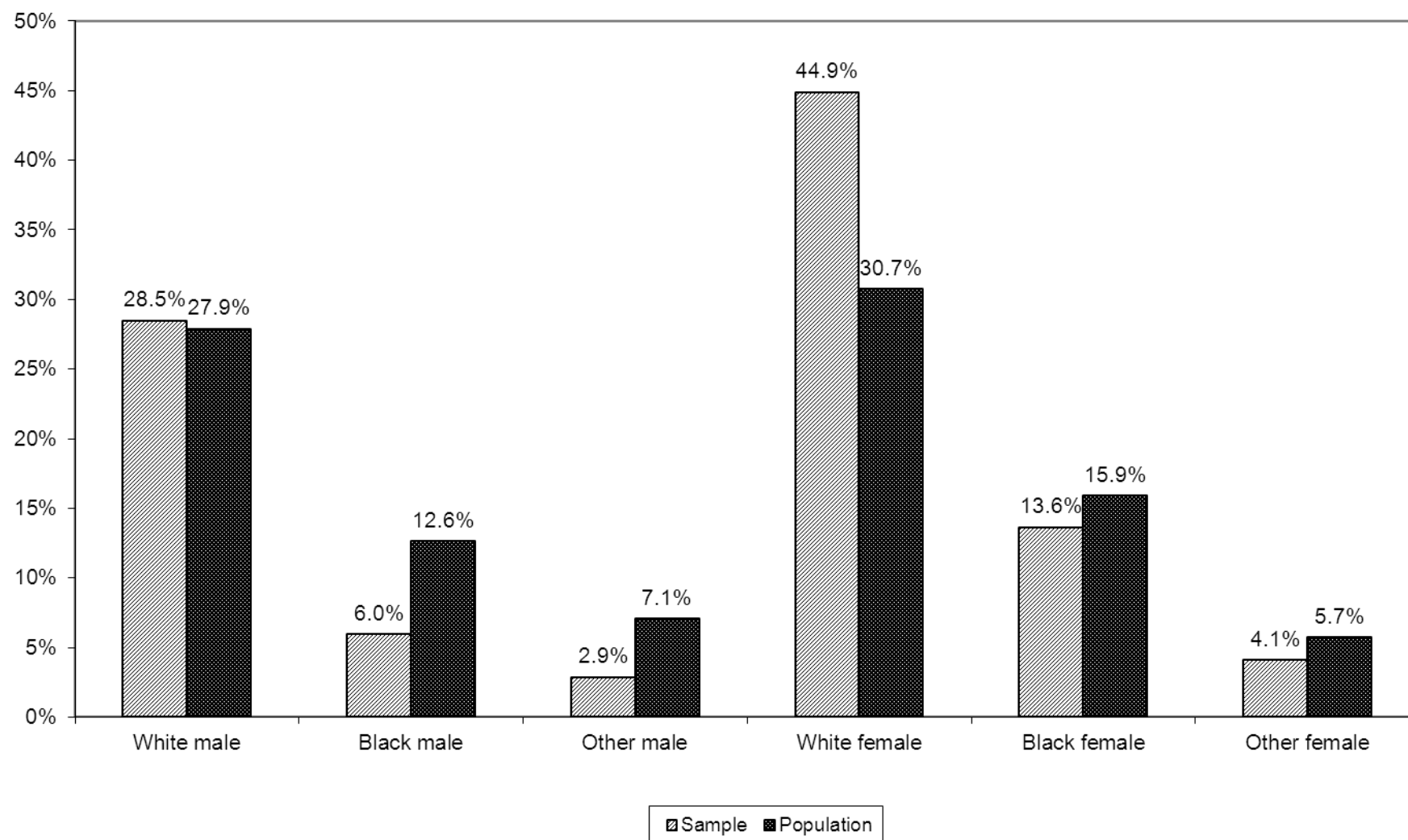
### **Chapter 3. The Survey Sample**

The responses from 9,185 people are included in this analysis. The sample is weighted by the Centers for Disease Control and Prevention (CDC) to be representative of the Maryland population. Table 3-1 shows the sample and weighted percentages for the respondents by demographic characteristics. The term “black” is used in the report to represent people who called their race African American or black. In the analysis, “other” race refers to people who called their race something different from white or black, and includes Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, multi-race and people who reported their ethnicity as Hispanic. Whites comprised 73.4% of the sample, blacks made up 19.6%, and other races comprised 7.0% of the sample (Asians comprised 1.9%, Native Hawaiians or other Pacific Islanders made up 0.2%, American Indians or Alaska Natives made up 0.5%, other responses comprised 1.7% of the sample and Hispanics made up 2.7%). Whites are weighted to 58.6%, blacks are weighted to 28.5%, and people of other races are weighted to 12.8%. Women made up 62.7% of the sample and are weighted to 52.4%.

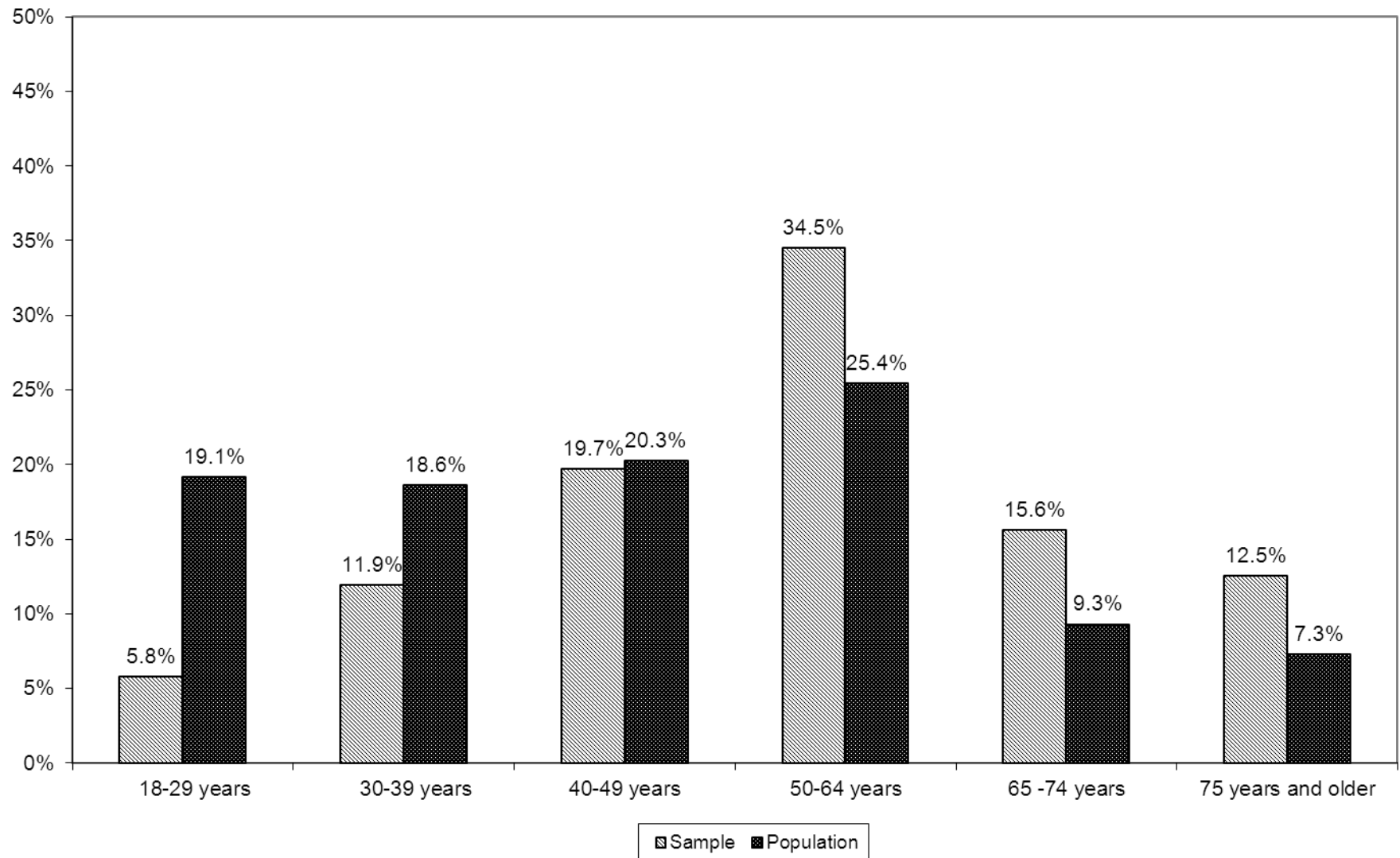
Figures 3-1 and 3-2 compare the race/gender groups and the age groups of the survey respondents to their weighted percents. White women made up 44.9% of the sample, whereas they account for 30.7% of the Maryland population (Figure 3-1). Black men made up 6.0% of the sample and are weighted to match 12.6% of the population. People age 75 years and older made up 12.5% of the sample, and are weighted to 7.3% of the population (Figure 3-2).

The number of people who were surveyed in each jurisdiction, by gender and race, is shown in Table 3-2.

**Figure 3-1. Comparison of the 2010 BRFSS Survey Sample to Maryland's Population by Race and Gender, among Adults Age 18 Years and Older**



**Figure 3-2. Comparison of the 2010 BRFSS Survey Sample to Maryland's Population by Age Group, among Adults Age 18 Years and Older**



**TABLE 3-1. DEMOGRAPHICS OF THE SURVEY SAMPLE, AGE 18 YEARS AND OLDER,  
WEIGHTED\* TO THE MARYLAND POPULATION**

Selected Characteristic	Sample N	Sample %	wt %	95% CI
<b>Geographic location (N=9185)</b>				
Urban	4908	53.4%	77.7%	76.6-78.7%
Rural	4277	46.6%	22.3%	21.3-23.4%
<b>Gender (N=9185)</b>				
Male	3429	37.3%	47.6%	46.0-49.2%
Female	5756	62.7%	52.4%	50.8-54.0%
<b>Age (N=9051)</b>				
18-29 years	522	5.8%	19.1%	17.3-21.0%
30-39 years	1077	11.9%	18.6%	17.3-19.9%
40-49 years	1783	19.7%	20.3%	19.1-21.4%
50-64 years	3121	34.5%	25.4%	24.2-26.6%
65 -74 years	1413	15.6%	9.3%	8.6-9.9%
75 years and older	1135	12.5%	7.3%	6.7-7.9%
<b>Race (N=9048)</b>				
White	6642	73.4%	58.6%	57.0-60.3%
African American or Black	1773	19.6%	28.5%	27.0-30.1%
Asian	171	1.9%	3.4%	2.8-4.1%
Native Hawaiian/Other Pacific Islander	19	0.2%	0.3%	0.2-0.5%
American Indian/Alaska Native	43	0.5%	0.6%	0.3-0.9%
Other/multiracial/no preferred race	158	1.7%	2.9%	2.1-3.7%
Hispanic	242	2.7%	5.6%	4.6-6.5%
<b>Gender and Race (N=9048)</b>				
White male	2579	28.5%	27.9%	26.5-29.3%
Black male	539	6.0%	12.6%	11.3-14.0%
Other male	261	2.9%	7.1%	5.9-8.3%
White female	4063	44.9%	30.7%	29.4-32.1%
Black female	1234	13.6%	15.9%	14.8-17.0%
Other female	372	4.1%	5.7%	5.0-6.5%
<b>Marital Status (N=9120)</b>				
Married	5158	56.6%	58.5%	56.9-60.2%
Divorced	1244	13.6%	8.8%	8.1-9.5%
Widowed	1141	12.5%	6.0%	5.5-6.5%
Separated	251	2.8%	2.3%	1.9-2.7%
Never married	1169	12.8%	22.0%	20.2-23.8%
Partner of unmarried couple	157	1.7%	2.4%	1.9-2.9%

Selected Characteristic	Sample N	Sample %	wt %	95% CI
<b>Education (N=9138)</b>				
Grade 8 or less	152	1.7%	1.4%	1.1-1.8%
Grades 9-11	481	5.3%	4.9%	4.1-5.7%
High school grad or GED	2544	27.8%	26.1%	24.6-27.6%
College 1-3 years	2196	24.0%	25.3%	23.8-26.7%
College graduate or more	3765	41.2%	42.3%	40.7-43.8%
<b>Employment Status (N=9146)</b>				
Employed for Wages	4689	51.3%	58.6%	57.0-60.2%
Self Employed	631	6.9%	6.7%	5.9-7.4%
Unemployed > 1 year	241	2.6%	3.7%	2.8-4.6%
Unemployed < 1 year	224	2.4%	3.8%	3.1-4.6%
Homemaker	439	4.8%	4.3%	3.8-4.8%
Student	107	1.2%	3.9%	2.9-4.9%
Retired	2429	26.6%	15.9%	15.0-16.7%
Unable to work	386	4.2%	3.2%	2.7-3.6%
<b>Household Income (N=9159)</b>				
Less than \$10,000	216	2.4%	1.9%	1.5-2.4%
\$10,000-<\$15,000	253	2.8%	2.0%	1.5-2.4%
\$15,000-<\$20,000	402	4.4%	4.2%	3.4-4.9%
\$20,000-<\$25,000	616	6.7%	6.0%	5.2-6.8%
\$25,000-<\$35,000	809	8.8%	8.0%	7.1-8.9%
\$35,000-<\$50,000	980	10.7%	9.6%	8.7-10.5%
\$50,000-<\$75,000	1263	13.8%	13.8%	12.7-14.9%
\$75,000 or greater	3178	34.7%	38.8%	37.3-40.4%
Don't know/not sure	518	5.7%	6.9%	5.9-7.8%
Refused	924	10.1%	8.9%	8.0-9.8%

Sample N - respondents in the sample with that characteristic

Sample % - percent in the sample with that characteristic

\* Weighted to the Maryland population by age, gender, and race

**TABLE 3-2. TOTAL NUMBER AND PERCENT OF PEOPLE INTERVIEWED IN EACH JURISDICTION, BY GENDER AND RACE**

			Gender				Race					
	Total		Males		Females		Whites		Blacks		Other	
Jurisdiction	n	%	n	%	n	%	n	%	n	%	n	%
<b>Allegany</b>	264	2.9%	94	2.7%	170	3.0%	248	3.7%	5	0.3%	8	1.3%
<b>Anne Arundel</b>	602	6.6%	235	6.9%	367	6.4%	502	7.6%	56	3.2%	41	6.5%
<b>Baltimore City</b>	534	5.8%	141	4.1%	393	6.8%	196	3.0%	299	16.9%	28	4.4%
<b>Baltimore</b>	1,054	11.5%	390	11.4%	664	11.5%	758	11.4%	213	12.0%	65	10.3%
<b>Calvert</b>	244	2.7%	90	2.6%	154	2.7%	201	3.0%	30	1.7%	11	1.7%
<b>30-39 years</b>	197	2.1%	86	2.5%	111	1.9%	159	2.4%	27	1.5%	7	1.1%
<b>Carroll</b>	235	2.6%	92	2.7%	143	2.5%	217	3.3%	8	0.5%	5	0.8%
<b>Cecil</b>	270	2.9%	116	3.4%	154	2.7%	241	3.6%	15	0.8%	9	1.4%
<b>Charles</b>	349	3.8%	135	3.9%	214	3.7%	206	3.1%	109	6.1%	28	4.4%
<b>Dorchester</b>	183	2.0%	65	1.9%	118	2.1%	127	1.9%	39	2.2%	11	1.7%
<b>Frederick</b>	577	6.3%	225	6.6%	352	6.1%	488	7.3%	43	2.4%	35	5.5%
<b>Garrett</b>	208	2.3%	72	2.1%	136	2.4%	200	3.0%	1	0.1%	5	0.8%
<b>Harford</b>	280	3.0%	112	3.3%	168	2.9%	241	3.6%	27	1.5%	9	1.4%
<b>Howard</b>	342	3.7%	128	3.7%	214	3.7%	255	3.8%	40	2.3%	41	6.5%
<b>Kent</b>	138	1.5%	51	1.5%	87	1.5%	114	1.7%	19	1.1%	4	0.6%
<b>Montgomery</b>	1,065	11.6%	414	12.1%	651	11.3%	753	11.3%	124	7.0%	169	26.7%
<b>Prince George's</b>	796	8.7%	279	8.1%	517	9.0%	184	2.8%	521	29.4%	76	12.0%
<b>Queen Anne's</b>	295	3.2%	126	3.7%	169	2.9%	275	4.1%	13	0.7%	5	0.8%
<b>St. Mary's</b>	286	3.1%	127	3.7%	159	2.8%	229	3.4%	38	2.1%	14	2.2%
<b>Somerset</b>	128	1.4%	49	1.4%	79	1.4%	93	1.4%	31	1.7%	3	0.5%
<b>Talbot</b>	278	3.0%	98	2.9%	180	3.1%	233	3.5%	31	1.7%	11	1.7%
<b>Washington</b>	408	4.4%	143	4.2%	265	4.6%	379	5.7%	8	0.5%	19	3.0%
<b>Wicomico</b>	284	3.1%	93	2.7%	191	3.3%	211	3.2%	55	3.1%	16	2.5%
<b>Worcester</b>	168	1.8%	68	2.0%	100	1.7%	132	2.0%	21	1.2%	13	2.1%



## Chapter 4. Colorectal Cancer Screening

Cancer of the colon and rectum (referred to as colorectal cancer, or CRC) is the third most common cancer (excluding non-melanoma skin cancer) among men in Maryland, behind prostate and lung cancer, and the third most common cancer in women behind female breast and lung cancer. In 2008, there were 2,460 newly diagnosed cases of CRC in Maryland. In that year, CRC was the second leading cause of cancer deaths among both men and women in Maryland, accounting for a total of 964 deaths statewide.<sup>1</sup> For the period 2004-2008, Maryland had the 17<sup>th</sup> highest mortality rate for CRC among the 50 states and the District of Columbia.<sup>2</sup> Colorectal cancer was chosen as one of the seven cancers targeted for intervention by the Cigarette Restitution Fund Program (CRFP) because of its incidence and mortality in Maryland and because CRC is amenable to prevention through screening and early detection.

The most commonly used screening tests for detecting pre-malignant lesions (i.e., benign adenomas) and invasive CRC are the fecal occult blood test (FOBT), the fecal immunochemical test (FIT), sigmoidoscopy, and colonoscopy (sigmoidoscopy and colonoscopy are both “lower gastrointestinal [GI] optical endoscopies”). The radiologic procedure, computerized tomographic (CT) colonography or ‘virtual colonoscopy’ may be used as an alternative to optical colonoscopy for select patients. More recently, a DNA stool test has been developed which identifies abnormal genes in cancer cells shed in the stool.

Hidden (occult) blood in the stool is often an early warning sign of colorectal disease, including CRC. There are two types of home testing kits used to detect small amounts of blood in the stool. The older FOBT is a guaiac-based test that detects peroxidase activity found in hemoglobin. However, in addition to detecting human hemoglobin, the FOBT test can also detect animal hemoglobin in the stool (from consumption of red meat), which can potentially lead to false-positive results. A newer, more sensitive test for detecting blood in the stool is the FIT, which is specific for human hemoglobin. Health care providers (HCPs) may recommend either of these home tests to their patients for CRC screening. In the home tests, a person smears a small amount of stool on a card for 2 or 3 successive days, and mails the card to a laboratory for analysis.

Sigmoidoscopy and colonoscopy are tests in which the large bowel is examined with an endoscope, a narrow, lighted tube that is inserted in the rectum. During a sigmoidoscopy, only the lower third of the colon (closest to the rectum) is examined; during a colonoscopy the entire colon is examined. These tests are generally referred to as “lower gastrointestinal (GI) endoscopy.”

For people at average risk for developing CRC, the American Cancer Society (ACS) recommends one of the following screening modalities to find both cancer and pre-cancerous lesions:<sup>3</sup>

- Sigmoidoscopy every 5 years or
- Colonoscopy every 10 years or
- CT colonography (virtual colonoscopy) every 5 years
- Double contrast barium enema (DCBE) every 5 years

Tests that detect primarily cancerous lesions and need to be followed by a colonoscopy if the results are positive include:

- FOBT or FIT every year
- DNA stool test (interval uncertain)

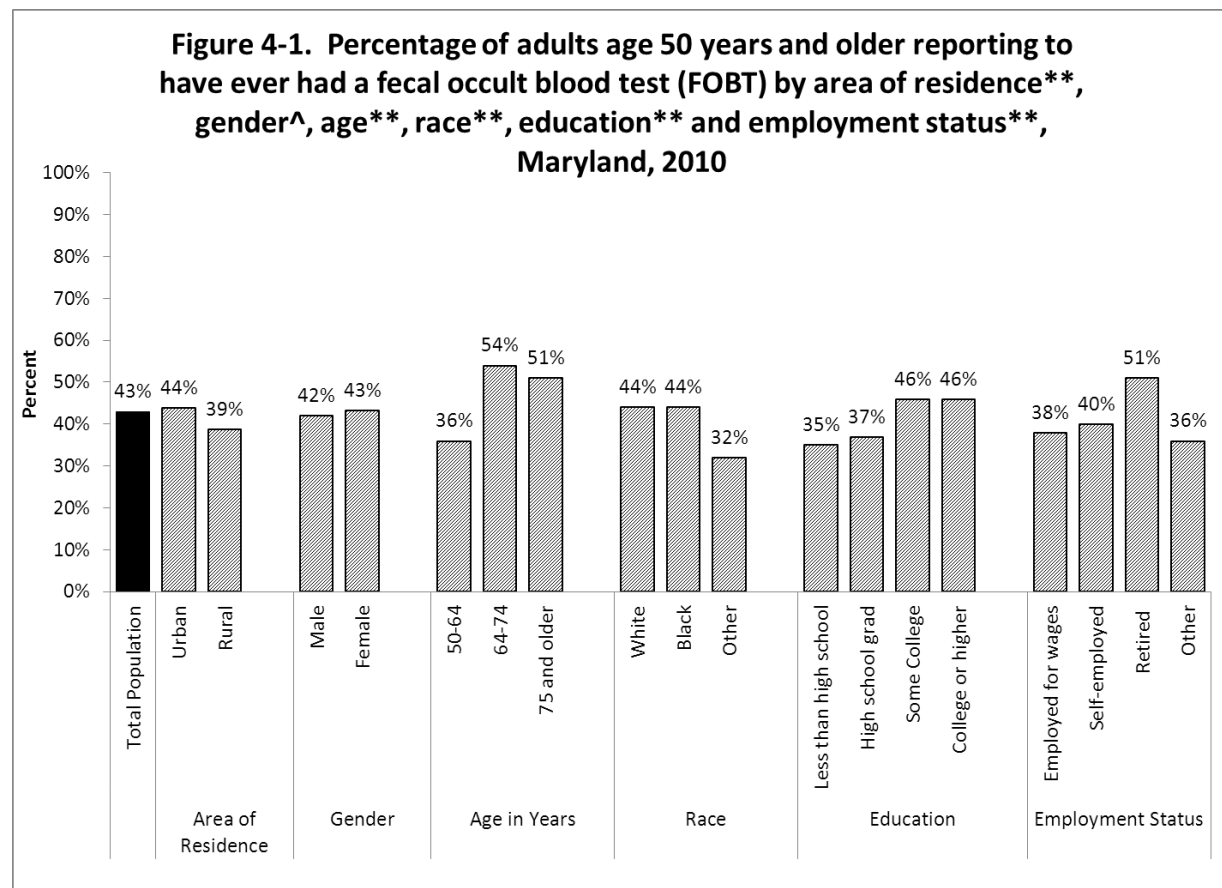
Although the ACS recommendations include double contrast barium enema (DCBE), CT colonography, and DNA stool test as screening options for CRC, these methods are not recommended by the United States Preventive Services Task Force (USPSTF) as first-line screening tests. These tests were not included in the BRFSS questionnaire.



## CRC Screening with FOBT (Figure 4-1 and Table 4-1)

The BRFSS results for prevalence of CRC screening for fecal occult blood are presented for Maryland adults age 50 years and older.

- Forty-three percent (43%) have ever performed a home FOBT.
- Prevalence of screening with FOBT was significantly higher among persons age 65-74 years (54%) and 75 years and older (51%), compared to those age 50-64 years (36%).
- A lower proportion of persons of other race (32%) reported to have ever had an FOBT compared to whites (44%) or blacks (44%).
- The proportion of people that have ever had an FOBT was higher among adults with at least some college education or more compared to those with a high school education or less.



\*\* p-value < 0.05

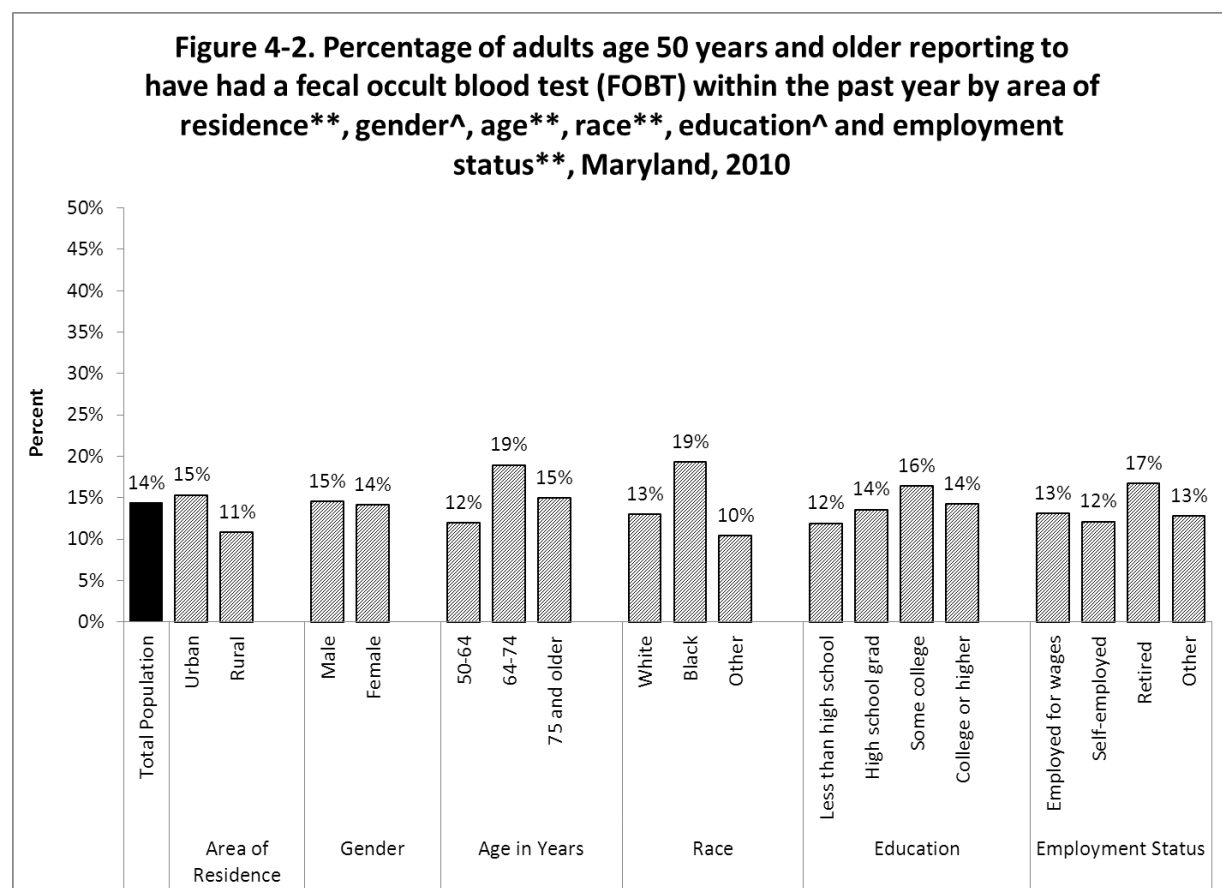
\* 0.05 ≤ p-value < 0.1

^ p-value ≥ 0.1

## CRC Screening with FOBT within the Past Year (Figure 4-2 and Table 4-1)

According to the ACS, if the home FOBT is the primary test being used for CRC screening, the test should be performed each year.

- Fourteen percent (14%) of Maryland adults age 50 years and older said they have performed a home FOBT in the past year.
- Adults age 65-74 years (19%) were significantly more likely to have performed a home FOBT in the past year than those age 50-64 years (12%) and 75 years and older (15%).
- Blacks (19%) were more likely to have had an FOBT in the past year than whites (13%) or persons of other race (10%).
- There was no significant difference by education level.



\*\* p-value < 0.05

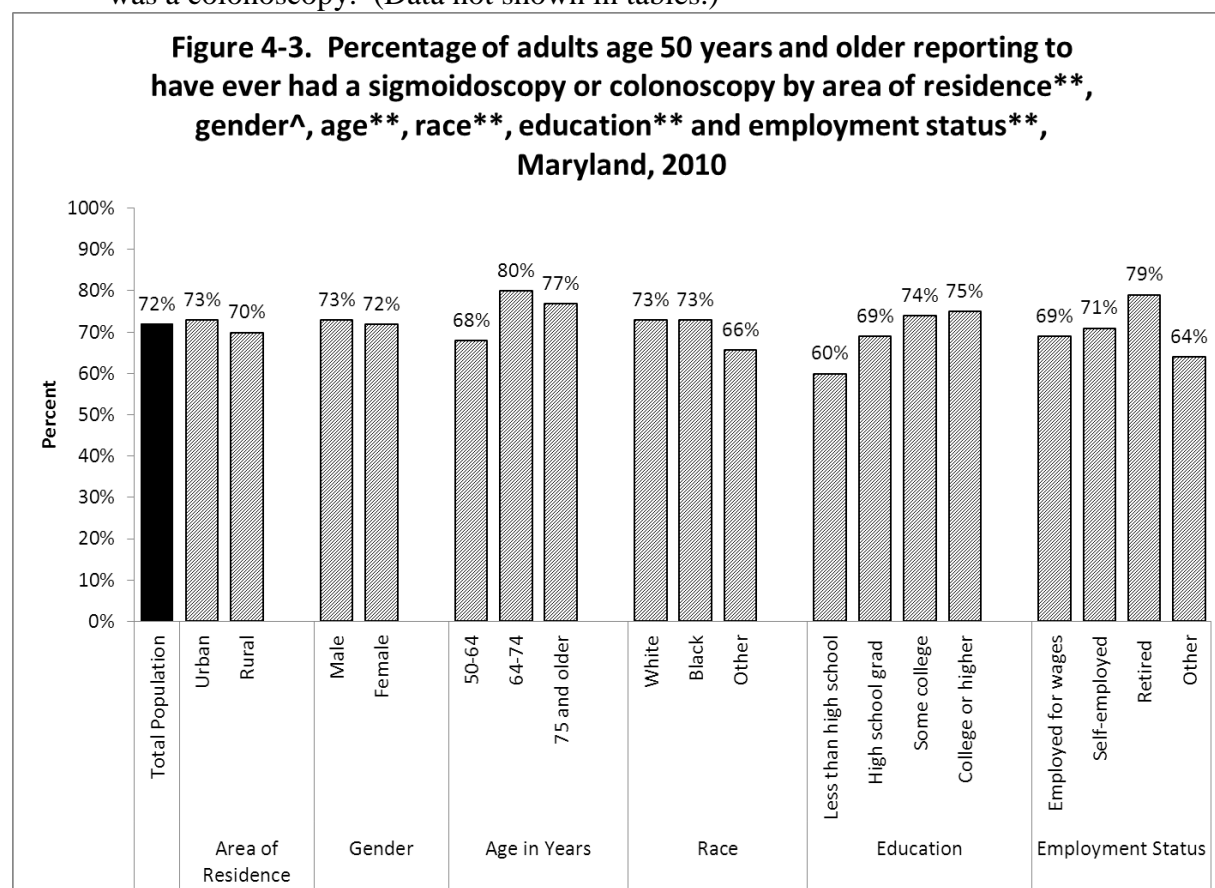
\* 0.05 ≤ p-value < 0.1

^ p-value ≥ 0.1

# CRC Screening with Lower GI Endoscopy (Sigmoidoscopy or Colonoscopy) (Figure 4-3 and Table 4-2)

The BRFSS results for prevalence of CRC screening with lower GI endoscopy are presented for Maryland adults age 50 years and older.

- Seventy-two percent (72%) reported that they have ever had a lower GI endoscopy.
- Adults age 50-64 years (68%) were less likely to report ever having a lower GI endoscopic examination than those age 65-74 years (80%) and 75 years and older (77%).
- While there was no statistically significant difference among men by race, only 57% of women of other race reported ever having a lower GI endoscopy compared to white women (72%) and black women (76%).
- The proportion of adults reporting ever having a lower GI endoscopy was higher among those with at least some college education or higher compared to those with a high school education or less.
- Of those reporting they had ever had lower GI endoscopy, the vast majority of people (over 98%) knew which test they had received most recently. Of those who could name their test, 5% reported their most recent exam was a sigmoidoscopy and 95% replied it was a colonoscopy. (Data not shown in tables.)



\*\* p-value < 0.05

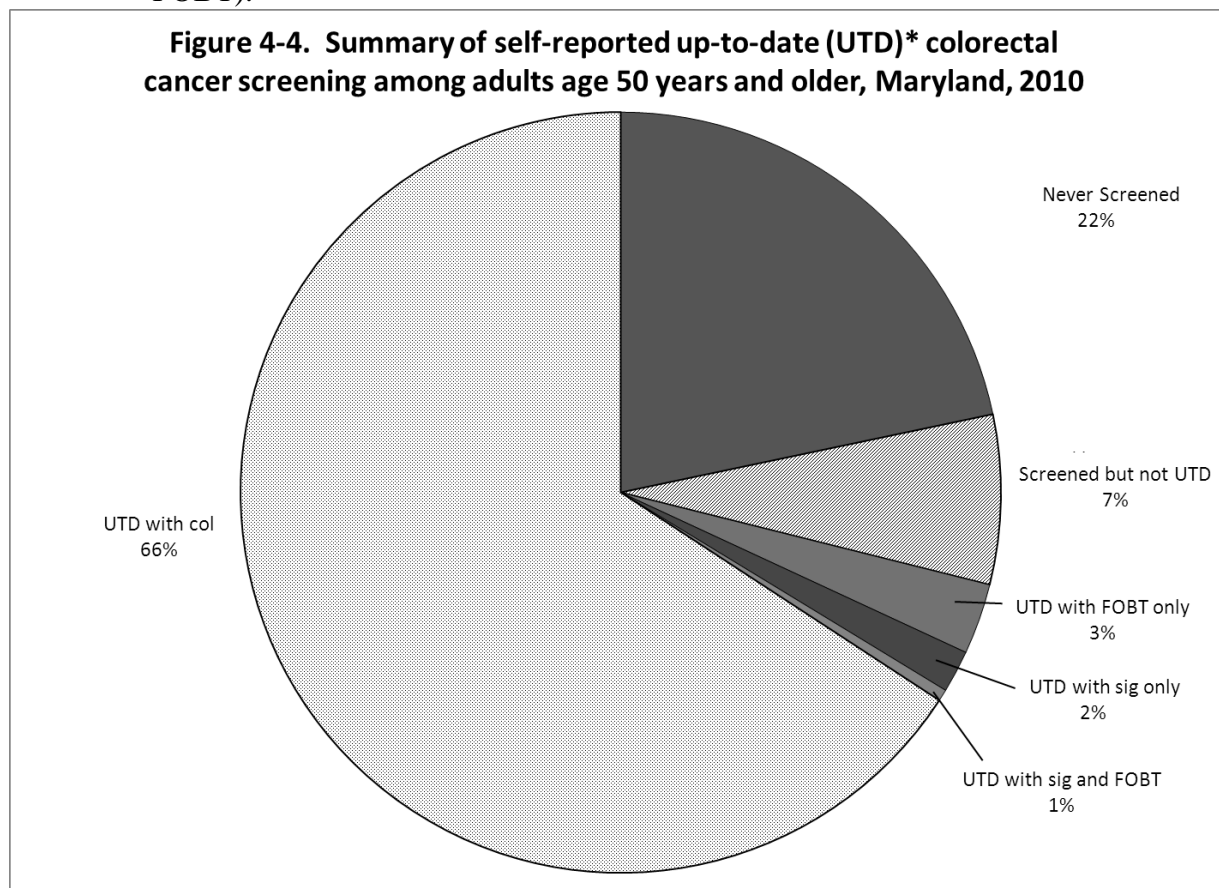
\* 0.05 ≤ p-value < 0.1

^ p-value ≥ 0.1

### Up-to-Date with CRC Screening Guidelines (Figure 4-4 and Table 4-2)

The following is a summary of CRC screening frequency reported in the BRFSS survey.

- Twenty-two percent (22%) of Marylanders age 50 years and older reported never being screened by FOBT, sigmoidoscopy, or colonoscopy.
- Seven percent (7%) have been tested with either FOBT and/or sigmoidoscopy or colonoscopy, but are not up-to-date by ACS guidelines.
- Of those who were up-to-date with CRC testing
  - 3% were up-to-date with FOBT only;
  - 2% were up-to-date with sigmoidoscopy only;
  - 1% had an FOBT in the past year and a sigmoidoscopy in the past 5 years; and
  - 66% had a colonoscopy within the past 10 years (with or without ever having an FOBT).



\* UTD for CRC screening tests as defined by the ACS guidelines: colonoscopy within the past 10 years, sigmoidoscopy within the past 5 years, or FOBT with the past year.

### Healthy People (HP) Objectives

The HP 2010 CRC screening goals for adults age 50 years and older were for 33% to have had an FOBT in the past 2 years<sup>4</sup> and for 50% to have ever had a sigmoidoscopy.<sup>5</sup> By 2010, there was a definite shift by Marylanders away from FOBT and sigmoidoscopy to colonoscopy for CRC screening, as evidenced by Figure 4-4. The HP 2020 goal for CRC screening is to increase

to 70.5% the proportion of adults age 50-75 years who have CRC screening based on recent guidelines.<sup>6</sup> According to the 2010 BRFSS, Maryland achieved this goal with 71% of adults age 50-75 years reporting up-to-date CRC screening with colonoscopy within the past 10 years, sigmoidoscopy within the past 5 years, or FOBT within the past year.

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<sup>1</sup> Maryland Department of Health and Mental Hygiene. Cigarette Restitution Fund Program Cancer Report 2011. Baltimore, MD; December 2011. Available at [http://fha.dhmmh.maryland.gov/cancer/SitePages/surv\\_data-reports.aspx](http://fha.dhmmh.maryland.gov/cancer/SitePages/surv_data-reports.aspx)

<sup>2</sup> Surveillance, Epidemiology, and End Results (SEER) Program ([www.seer.cancer.gov](http://www.seer.cancer.gov)) SEER\*Stat Database: Mortality - All COD, Aggregated With State, Total U.S. (1969-2008), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released October 2011. Underlying mortality data provided by NCHS ([www.cdc.gov/nchs](http://www.cdc.gov/nchs)).

<sup>3</sup> American Cancer Society, Cancer Detection Guidelines. Available at [http://www.cancer.org/docroot/PED/content/PED\\_2\\_3X\\_ACS\\_Cancer\\_Detection\\_Guidelines\\_36.asp?sitearea=PED](http://www.cancer.org/docroot/PED/content/PED_2_3X_ACS_Cancer_Detection_Guidelines_36.asp?sitearea=PED). Last accessed July 2, 2012.

<sup>4</sup> U.S. Department of Health and Human Services. Healthy People 2010 Midcourse Review: Cancer. Washington, DC; 2006. Available at <http://www.healthypeople.gov/2010/data/midcourse/html/default.htm>. Last accessed July 2, 2012.

<sup>5</sup> U.S. Department of Health and Human Services. Healthy People 2010. Understanding and Improving Health. Vol. I. Cancer. Washington, DC; November 2000. Available at <http://www.healthypeople.gov/2010/Document/HTML/Volume1/03Cancer.htm>. Last accessed July 2, 2012.

<sup>6</sup> U.S. Department of Health and Human Services. Healthy People 2020. Topics & Objectives. Cancer. Available at <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=5>. Last accessed July 2, 2012.

**TABLE 4-1. FECAL OCCULT BLOOD TESTING (FOBT),  
AMONG ADULTS AGE 50 YEARS AND OLDER**

	Ever had an FOBT					Had an FOBT in the past year				
Selected Characteristic	N	n	wt %	95% CI	Stat Sig	N	n	wt %	95% CI	Stat Sig
<b>Total Population</b>	5500	2414	43%	41-45%		5500	762	14%	13-16%	
<b>Area of Residence</b>					**					**
Urban	2835	1301	44%	42-46%		2835	453	15%	14-17%	
Rural	2665	1113	39%	37-41%		2665	309	11%	9-12%	
<b>Gender</b>					^					^
Male	2022	852	42%	39-45%		2022	287	15%	13-17%	
Female	3478	1562	43%	41-45%		3478	475	14%	13-16%	
<b>Age</b>					**					**
50-64 years	3032	1118	36%	34-39%		3032	360	12%	11-14%	
64-74 years	1378	740	54%	51-58%		1378	235	19%	16-22%	
75 years and older	1090	556	51%	47-55%		1090	167	15%	13-18%	
<b>Race</b>					**					**
White	4280	1896	44%	42-46%		4280	548	13%	12-14%	
Black	901	407	44%	40-48%		901	173	19%	16-23%	
Other	255	94	32%	25-39%		255	32	10%	6-15%	
<b>Gender and Race</b>					**					**
White male	1610	667	42%	39-45%		1610	207	13%	11-15%	
Black male	283	136	46%	39-53%		283	64	21%	16-27%	
Other male	106	42	35%	23-47%		106	12	9%	3-16%	
White female	2670	1229	45%	43-48%		2670	341	13%	11-14%	
Black female	618	271	43%	38-48%		618	109	18%	14-22%	
Other female	149	52	29%	21-37%		149	20	12%	6-17%	
<b>Education</b>					**					^
Less than high school	441	173	35%	29-41%		441	58	12%	8-16%	
High school grad or GED	1647	677	37%	34-40%		1647	220	14%	11-16%	
College 1-3 years	1292	585	46%	42-49%		1292	185	16%	14-19%	
College grad or higher	2106	977	46%	43-49%		2106	299	14%	12-16%	
<b>Employment Status</b>					**					**
Employed for wages	2112	802	38%	35-41%		2112	262	13%	11-15%	
Self-employed	349	137	40%	33-47%		349	41	12%	8-17%	
Retired	2319	1197	51%	48-53%		2319	369	17%	15-19%	
Other	714	276	36%	31-41%		714	89	13%	9-16%	
<b>Household Income</b>					^					^
<\$25,000	1041	432	38%	34-42%		1041	143	14%	11-17%	
\$25,000-<\$35,000	526	246	46%	41-52%		526	73	13%	10-17%	
\$35,000-<\$50,000	639	281	42%	37-47%		639	96	17%	13-21%	
\$50,000-<\$75,000	739	318	45%	40-49%		739	101	17%	13-20%	
\$75,000 or greater	1620	701	43%	40-46%		1620	215	13%	11-15%	
Don't know/not sure	338	162	44%	36-51%		338	40	12%	7-17%	
Refused	597	274	43%	38-48%		597	94	16%	12-20%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

**TABLE 4-2. SIGMOIDOSCOPY AND COLONOSCOPY SCREENING AND UP-TO-DATE COLORECTAL CANCER TESTING, AMONG ADULTS AGE 50 YEARS AND OLDER**

	Ever had a sigmoidoscopy or colonoscopy					Up-to-date with FOBT in the last year, sigmoidoscopy in the past 5 years, or colonoscopy in the past 10 years				
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
<b>Total Population</b>	5502	3996	72%	71-74%		5496	3901	71%	69-72%	
<b>Area of Residence</b>					**					*
Urban	2848	2099	73%	71-75%		2837	2034	71%	69-73%	
Rural	2654	1897	70%	68-72%		2659	1867	69%	67-71%	
<b>Gender</b>					^					^
Male	2021	1478	73%	71-76%		2013	1441	71%	69-74%	
Female	3481	2518	72%	70-74%		3483	2460	70%	68-72%	
<b>Age</b>					**					**
50-64 years	3037	2084	68%	66-70%		3035	2065	68%	66-70%	
64-74 years	1378	1109	80%	78-83%		1377	1093	79%	76-82%	
75 years and older	1087	803	77%	74-80%		1084	743	71%	68-75%	
<b>Race</b>					^					*
White	4285	3120	73%	71-75%		4273	3024	70%	69-72%	
Black	900	662	73%	69-77%		904	662	74%	70-77%	
Other	254	167	66%	58-73%		256	171	65%	57-72%	
<b>Gender and Race</b>					**					^
White male	1609	1182	74%	71-77%		1600	1143	71%	69-74%	
Black male	283	195	70%	63-76%		285	204	72%	66-79%	
Other male	106	79	74%	63-85%		106	76	68%	57-80%	
White female	2676	1938	72%	70-74%		2673	1881	70%	67-72%	
Black female	617	467	76%	71-80%		619	458	75%	71-79%	
Other female	148	88	57%	48-67%		150	95	61%	52-71%	
<b>Education</b>					**					**
Less than high school	434	252	60%	53-66%		438	248	57%	50-64%	
High school grad or GED	1645	1132	69%	66-72%		1643	1111	68%	65-72%	
College 1-3 years	1291	967	74%	71-78%		1295	952	73%	69-76%	
College grad or higher	2118	1636	75%	73-78%		2106	1583	74%	71-76%	
<b>Employment Status</b>					**					**
Employed for wages	2118	1493	69%	66-72%		2114	1483	69%	66-72%	
Self-employed	351	245	71%	65-77%		349	240	68%	62-75%	
Retired	2309	1794	79%	77-81%		2310	1715	76%	73-78%	
Other	718	459	64%	59-69%		718	459	64%	59-69%	
<b>Household Income</b>					**					**
<\$25,000	1038	662	64%	59-68%		1041	650	63%	59-68%	
\$25,000-<\$35,000	527	376	70%	64-75%		522	359	67%	61-72%	
\$35,000-<\$50,000	641	476	73%	68-78%		637	475	74%	70-79%	
\$50,000-<\$75,000	739	557	74%	70-79%		739	545	73%	69-78%	
\$75,000 or greater	1631	1245	75%	72-78%		1624	1224	74%	71-77%	
Don't know/not sure	336	235	73%	66-80%		338	222	66%	58-73%	
Refused	590	445	74%	70-79%		595	426	70%	65-74%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

Maryland Cancer Screening and Risk Behaviors, 2010





## Chapter 5. Prostate Cancer Screening

Cancer of the prostate is the most common cancer (excluding non-melanoma skin cancer) among men in Maryland, accounting for 4,425 cases in 2008. It is the second leading cause of statewide cancer deaths among men after lung cancer. In 2008, there were 535 deaths from prostate cancer reported in Maryland.<sup>1</sup> Maryland had the 8<sup>th</sup> highest mortality rate for prostate cancer among the 50 states and the District of Columbia for the period 2004-2008.<sup>2</sup>

Serum prostate-specific antigen (PSA), a blood test, and digital rectal exam (DRE) are the two tests most commonly used to screen for prostate cancer. Whether men should be screened for prostate cancer and the age at which to begin screening are controversial issues. There is no Healthy People 2020 objective for prostate cancer screening. At the time of the survey, guidelines from several professional groups, as noted below, recommended that health care providers (HCPs) discuss the risks and benefits of prostate cancer screening with their patients prior to beginning testing so a shared informed decision can be made.

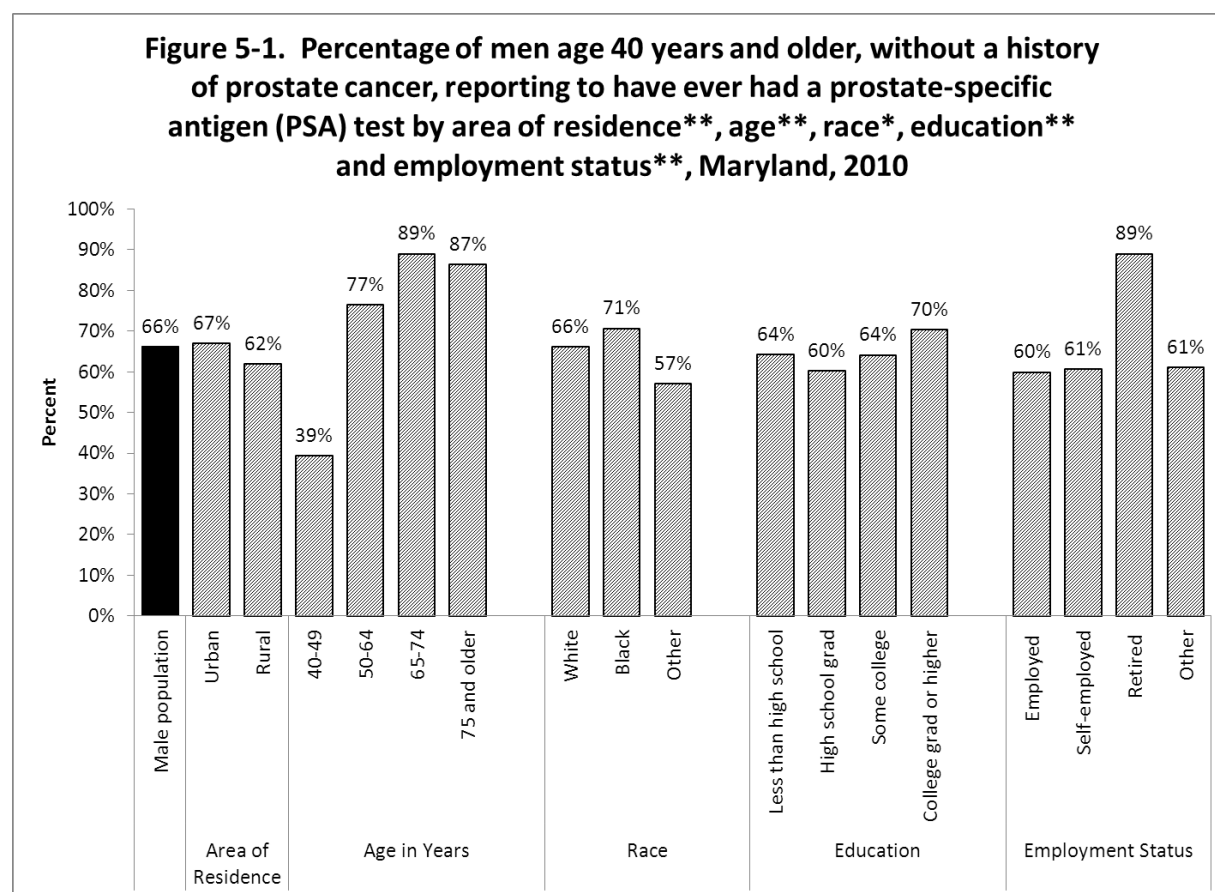
- The American Cancer Society (ACS) suggests that HCPs begin discussing the benefits, risks and uncertainties of prostate cancer screening with men beginning at age 50 years who have at least 10 years of life expectancy.<sup>3</sup>
  - For men at high risk (e.g., blacks and men who have a first degree relative (FDR) diagnosed with prostate cancer before the age of 65), the ACS recommends that HCPs begin discussing testing at age 45 years.<sup>4</sup>
  - For men at even higher risk (e.g., multiple FDRs diagnosed with prostate cancer before age 65 years), the ACS recommends beginning the discussion of prostate screening options at the age of 40 years.
  - If a man chooses to be tested, the ACS provides updated guidance for HCPs who will then need to provide guidance to their patients.
- The United States Preventive Services Task Force (USPSTF) recommended *against* screening men age 75 years and older for prostate cancer.<sup>5</sup> The USPSTF also stated that there is insufficient evidence to assess the balance of harms and benefits of routine screening for prostate cancer in men younger than age 75 years and recommends that before the PSA test is performed, clinicians discuss “the potential but uncertain benefits and the known harms of prostate cancer screening and treatment.”
- The American Urological Association recommends that patients should be “informed of known risks and potential benefits” of the early detection of prostate cancer and that early detection should be offered to men age 40 years and older, among men with a life expectancy of more than 10 years.<sup>6</sup>

In summary, at the time of the survey several health professional groups recommended that a man and his HCP discuss the pros and cons of screening and make a shared decision before a man chooses to undergo testing. The age at which to begin the discussion varied. However since that time, in May 2012, the USPSTF now recommends *against* using the PSA test for prostate cancer screening, citing the harms outweigh the benefits.<sup>7</sup>

## Self-Reported Prostate Cancer Screening Tests among Maryland Men Age 40 Years and Older, Without a History of Prostate Cancer

Prostate Cancer Screening with PSA Test (Figure 5-1 and Table 5-1).

- Sixty-six percent (66%) of men reported ever having a PSA test.
- The prevalence of ever having a PSA test was statistically significantly different across age groups and was higher in older age groups. Men age 40-49 years reported the lowest prevalence of PSA testing (39%) compared to men age 50-64 years (77%), age 65-74 years (89%), and age 75 years and older (87%).
- Black men had the highest prevalence of PSA testing (71%) compared to white men (66%) and men of other race (57%), though these differences were not statistically significantly different.
- A significantly higher proportion of men (67%) living in urban areas reported having a PSA test compared to men living in rural areas (62%).



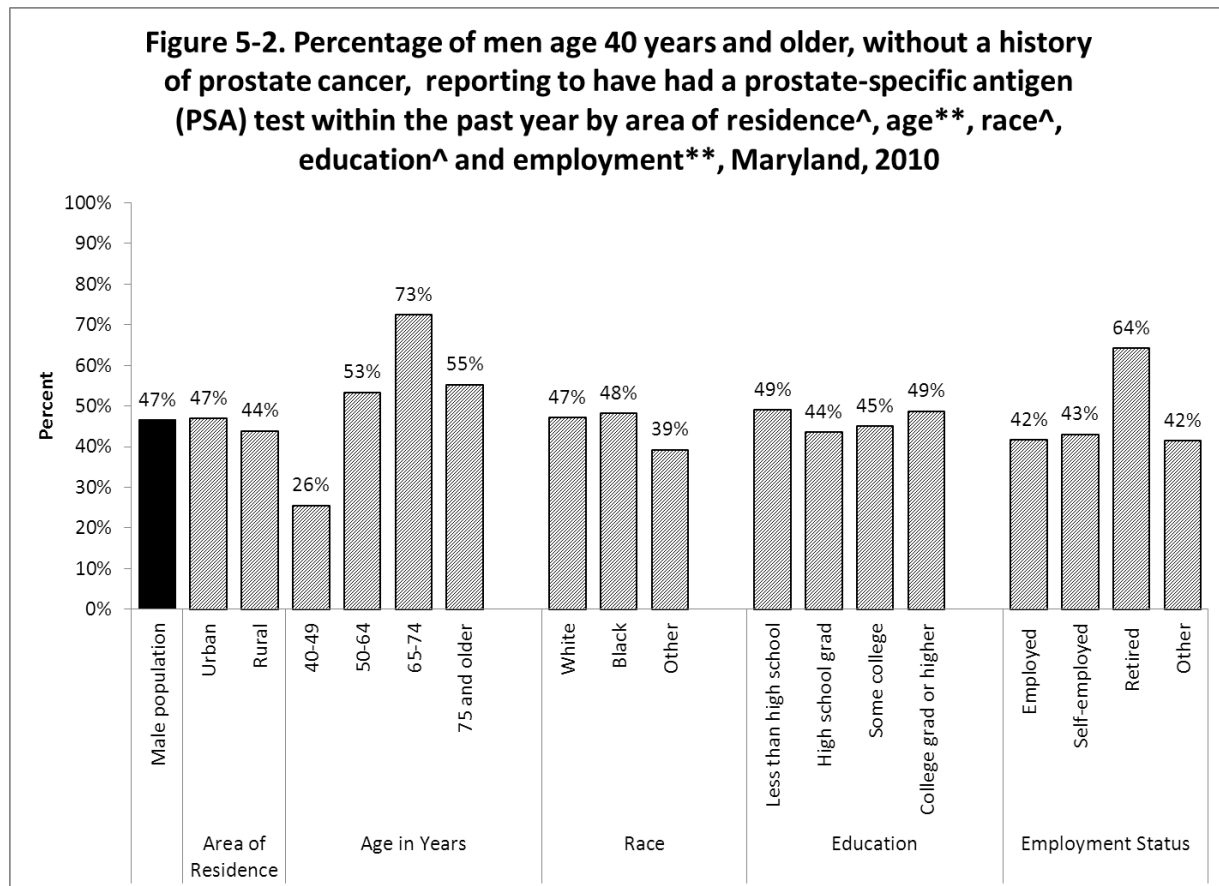
\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

^ p-value ≥ 0.1

## Prostate Cancer Screening with PSA Test within the Past Year (Figure 5-2 and Table 5-1)

- Forty-seven percent (47%) of men, age 40 years and older without a history of prostate cancer, reported having a PSA test within the past year prior to the survey.
- The prevalence of PSA testing within the preceding year was statistically significantly different across age groups. Men age 65-74 years had the highest prevalence of PSA testing within the last year (73%), followed by men age 75 years and older (55%), 50-64 years (53%), and age 40-49 years (26%).
- The prevalence of testing in the past year was not statistically significantly different by area of residence, race, or education.



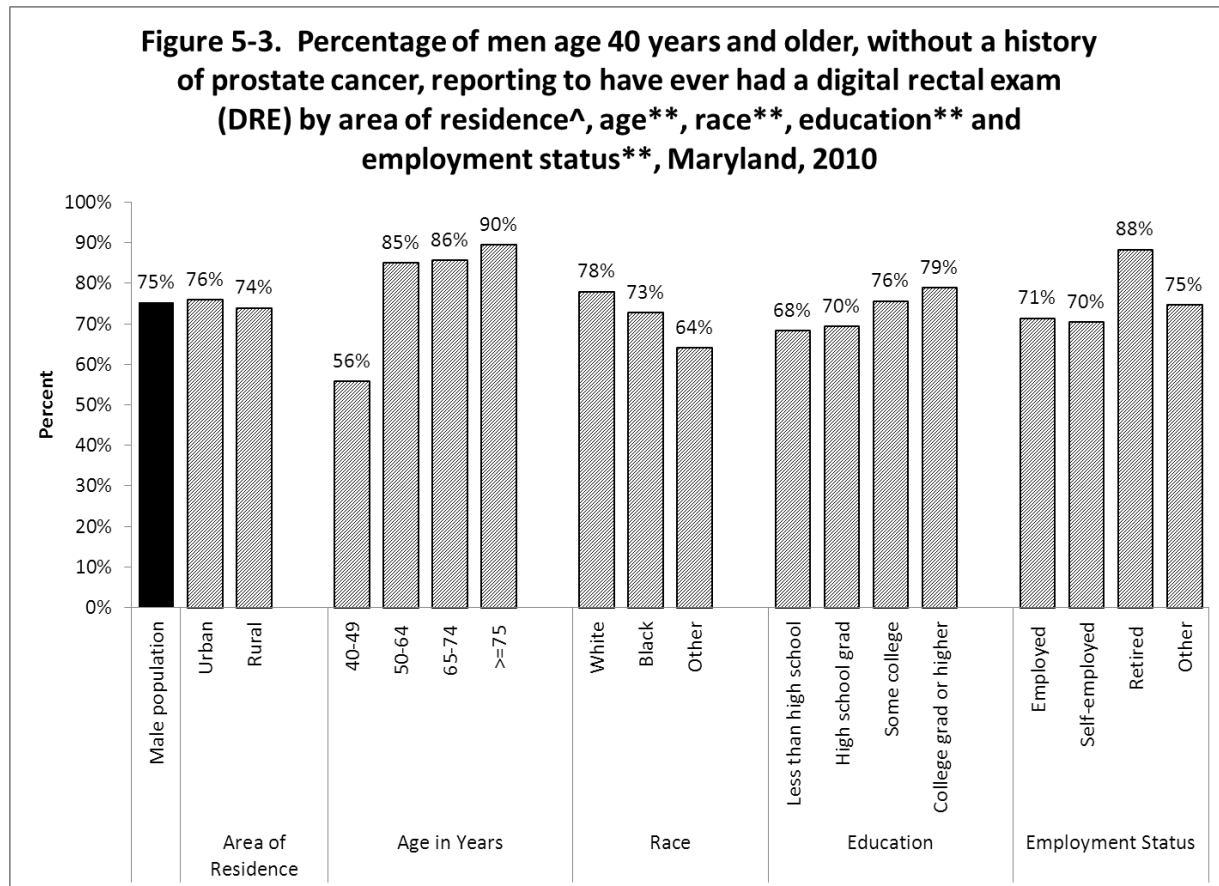
\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

### Prostate Cancer Screening with DRE (Figure 5-3 and Table 5-2)

- Seventy-five percent (75%) of men age 40 years and older without a history of prostate cancer reported ever having a DRE.
- There was a statistically significant difference between age groups. Men age 40-49 years reported the lowest prevalence of ever having a DRE (56%), compared to men age 50-64 years (85%), 65-74 years (86%), and 75 years and older (90%).
- The prevalence of ever having a DRE was lowest among men of other race (64%) compared to white men (78%).



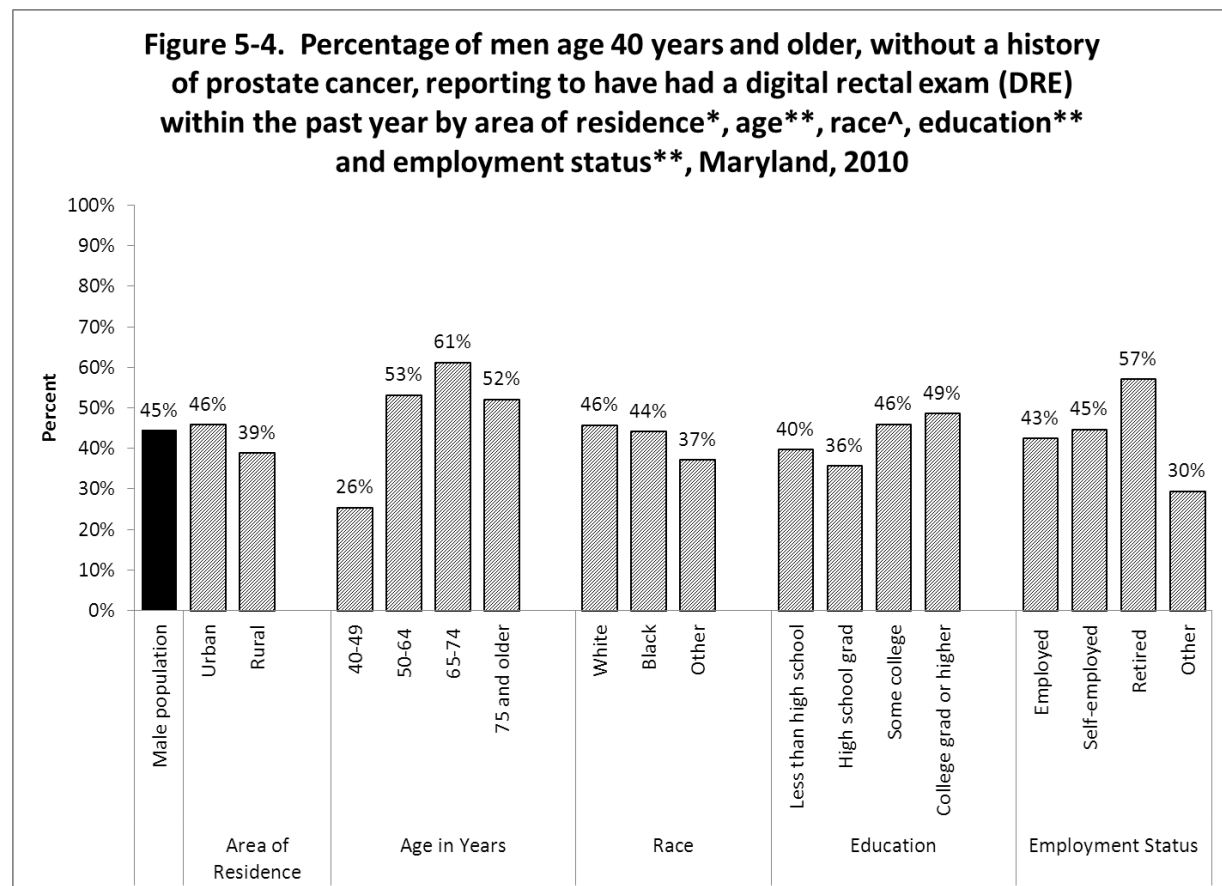
\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

Prostate Cancer Screening with DRE within the Past Year (Figure 5-4 and Table 5-2)

- Forty-five percent (45%) of men age 40 years and older without a history of prostate cancer reported having a DRE in the past year.
- The lowest prevalence of screening by DRE in the past year was found to be among men age 40-49 years (26%), compared to men age 50-64 years (53%), 65-74 years (61%) and 75 years and older (52%).
- There was no significant difference by race.
- Thirty-five percent (35%) reported they had received both a PSA test and a DRE in the past year (data not shown in tables).



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

^ p-value ≥ 0.1

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<sup>1</sup> Maryland Department of Health and Mental Hygiene. Cigarette Restitution Fund Program Cancer Report 2011. Baltimore, MD; December 2011. Available at [http://fha.dhmmh.maryland.gov/cancer/SitePages/surv\\_data-reports.aspx](http://fha.dhmmh.maryland.gov/cancer/SitePages/surv_data-reports.aspx).

<sup>2</sup> Surveillance, Epidemiology, and End Results (SEER) Program ([www.seer.cancer.gov/](http://www.seer.cancer.gov/)) SEER\*Stat Database: Mortality - All COD, Aggregated With State, Total U.S. (1969-2008), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released October 2011. Underlying mortality data provided by NCHS ([www.cdc.gov/nchs/](http://www.cdc.gov/nchs/)).

<sup>3</sup> Smith RA, Cokkimides V, Brooks D, Saslow D, Brawley OW. Cancer Screening in the United States, 2010: A Review of Current American Cancer Society Guidelines and Cancer Screening Issues. *CA Cancer J Clin* 2010;60:99-119. Available at <http://onlinelibrary.wiley.com/doi/10.3322/caac.20063/pdf>. Last accessed July 2, 2012.

<sup>4</sup> American Cancer Society. Detailed guide: Prostate Cancer “What are the Risk Factors for Prostate Cancer?” Available at <http://www.cancer.org/cancer/prostatecancer/detailedguide/prostate-cancer-risk-factors>. Last accessed July 2, 2012.

<sup>5</sup> U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality. *Screening for Prostate Cancer*, Topic Page. August 2008. Available at <http://www.uspreventiveservicestaskforce.org/uspstf08/prostate/prostaters.htm>. Last accessed July 2, 2012.

<sup>6</sup> Greene K, Albertsen P, Babaian R, Carter H, Gann P, Han M, et al. Prostate specific antigen best practice statement: 2009 update. *J Urol*. 2009;182(5):2232-2241. Available at <http://www.auanet.org/content/media/psa09.pdf>. Last accessed July 2, 2012.

<sup>7</sup> U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality. *Screening for Prostate Cancer*. Current Recommendation. Available at <http://www.uspreventiveservicestaskforce.org/prostatecancerscreening.htm>. Last accessed July 2, 2012.

**TABLE 5-1. PROSTATE CANCER SCREENING WITH PROSTATE-SPECIFIC ANTIGEN (PSA) TEST,  
AMONG MEN AGE 40 YEARS AND OLDER**

Selected Characteristic	Ever had a PSA					Had a PSA in the past year				
	N	n	wt %	95% CI	Stat Sig	N	n	wt %	95% CI	Stat Sig
<b>Male Population</b>	2482	1727	66%	64-69%		2482	1241	47%	44-49%	
<b>Area of Residence</b>					**					^
Urban	1263	895	67%	64-71%		1263	642	47%	44-51%	
Rural	1219	832	62%	59-66%		1219	599	44%	41-48%	
<b>Age</b>					**					**
40-49 years	648	242	39%	35-44%		648	155	26%	21-30%	
50-64 years	1080	825	77%	73-80%		1080	590	53%	49-57%	
65-74 years	454	413	89%	84-94%		454	336	73%	67-78%	
75 years and older	300	247	87%	82-91%		300	160	55%	48-62%	
<b>Race</b>					*					^
White	1930	1338	66%	63-69%		1930	971	47%	44-50%	
Black	372	275	71%	65-77%		372	192	48%	42-55%	
Other	150	96	57%	47-67%		150	64	39%	30-49%	
<b>Education</b>					**					^
Less than high school	184	114	64%	54-75%		184	82	49%	38-60%	
High school grad or GED	645	408	60%	55-66%		645	305	44%	38-49%	
College 1-3 years	526	365	64%	58-70%		526	255	45%	39-51%	
College grad or higher	1117	838	70%	67-74%		1117	598	49%	45-53%	
<b>Employment Status</b>					**					**
Employed for wages	1292	799	60%	56-64%		1292	570	42%	38-45%	
Self-employed	240	161	61%	52-69%		240	112	43%	35-51%	
Retired	709	619	89%	86-92%		709	457	64%	60-69%	
Other	239	147	61%	52-70%		239	101	42%	33-50%	
<b>Household Income</b>					**					**
<\$25,000	328	203	55%	47-64%		328	139	36%	28-44%	
\$25,000-<\$35,000	188	133	69%	58-79%		188	103	51%	41-62%	
\$35,000-<\$50,000	251	187	72%	65-80%		251	141	53%	44-61%	
\$50,000-<\$75,000	340	240	69%	62-75%		340	163	47%	40-54%	
\$75,000 or greater	1064	731	65%	61-68%		1064	525	45%	42-49%	
Don't know/not sure	72	53	66%	50-82%		72	37	46%	31-61%	
Refused	239	180	76%	69-83%		239	133	56%	48-64%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

Maryland Cancer Screening and Risk Behaviors, 2010

**TABLE 5-2. PROSTATE CANCER SCREENING WITH DIGITAL RECTAL EXAM (DRE),  
AMONG MEN AGE 40 YEARS AND OLDER**

Selected Characteristic	Ever had a DRE					Had a DRE in the past year				
	N	n	wt %	95% CI	Stat Sig	N	n	wt %	95% CI	Stat Sig
<b>Male Population</b>	2555	1994	75%	73-78%		2555	1184	45%	42-47%	
<b>Area of Residence</b>	^					**				
Urban	1288	1016	76%	73-79%		1288	629	46%	43-49%	
Rural	1267	978	74%	70-77%		1267	555	39%	36-42%	
<b>Age</b>	**					**				
40-49 years	671	387	56%	51-61%		671	168	26%	21-30%	
50-64 years	1117	932	85%	82-88%		1117	580	53%	49-57%	
65-74 years	463	405	86%	81-91%		463	283	61%	55-67%	
75 years and older	304	270	90%	85-94%		304	153	52%	45-59%	
<b>Race</b>	**					^				
White	1992	1583	78%	76-80%		1992	942	46%	43-49%	
Black	374	282	73%	67-79%		374	167	44%	38-51%	
Other	157	105	64%	54-74%		157	60	37%	28-47%	
<b>Education</b>	**					**				
Less than high school	190	125	68%	59-78%		190	67	40%	29-50%	
High school grad or GED	667	481	70%	64-75%		667	270	36%	31-41%	
College 1-3 years	540	426	76%	71-81%		540	256	46%	40-52%	
College grad or higher	1148	958	79%	76-82%		1148	588	49%	45-52%	
<b>Employment Status</b>	**					**				
Employed for wages	1336	993	71%	68-75%		1336	577	43%	39-46%	
Self-employed	244	185	70%	62-79%		244	120	45%	37-53%	
Retired	728	641	88%	85-92%		728	401	57%	52-62%	
Other	245	173	75%	68-82%		245	85	30%	22-37%	
<b>Household Income</b>	**					**				
<\$25,000	338	238	66%	58-75%		338	123	28%	21-34%	
\$25,000-<\$35,000	192	139	66%	56-77%		192	86	40%	30-50%	
\$35,000-<\$50,000	257	216	83%	77-89%		257	136	53%	45-61%	
\$50,000-<\$75,000	359	285	75%	68-81%		359	165	44%	38-51%	
\$75,000 or greater	1089	878	78%	75-81%		1089	537	48%	44-52%	
Don't know/not sure	73	51	65%	50-81%		73	28	33%	19-46%	
Refused	247	187	76%	68-83%		247	109	46%	38-54%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 < p-value < 0.10

^ p-value > 0.10

Maryland Cancer Screening and Risk Behaviors, 2010



## **Chapter 6. Women's Health: Breast and Cervical Cancer Screening**

Female breast cancer is the most common reportable cancer and the second leading cause of cancer deaths (after lung cancer) among Maryland women.<sup>1</sup> In 2008, breast cancer accounted for 4,333 newly diagnosed cases and 825 deaths among Maryland women.<sup>2</sup> Among the 50 states and the District of Columbia, Maryland women ranked 5<sup>th</sup> highest in breast cancer mortality rate for the period 2004-2008.<sup>3</sup>

In 2008, there were 200 new cases and 79 deaths from cervical cancer in Maryland.<sup>2</sup> During the period 2004-2008, Maryland ranked 24<sup>th</sup> highest in mortality rate for cervical cancer among the 50 states and the District of Columbia.<sup>3</sup> Cervical cancer incidence and mortality rates in Maryland, as a whole, are higher among black women than white women.<sup>1</sup>

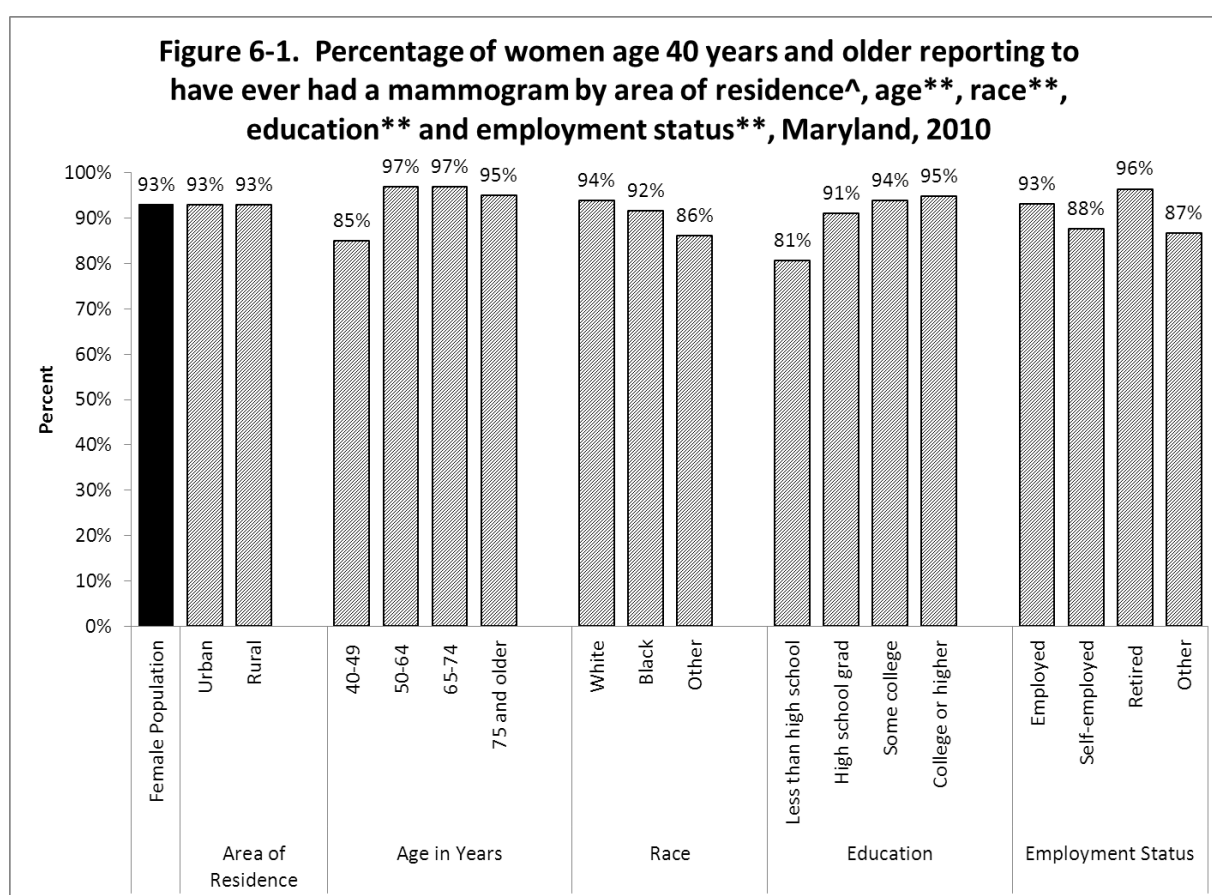
### **6.1 Breast Cancer Screening**

Depending on a woman's age, mammography and clinical breast exam (CBE) are the two procedures recommended for breast cancer screening by the American Cancer Society (ACS).<sup>4</sup> As of December 2009, the United States Preventive Services Task Force (USPSTF) recommends screening mammography every 2 years for women age 50-74 years, which raised the previously recommended age to begin screening at age 40 years.<sup>5</sup> The USPSTF also reports that the current evidence is insufficient to assess the additional benefits and harms of CBE beyond screening mammography in women age 40 years or older. However, the ACS guidelines have not been modified, which recommend that women begin having a yearly mammogram and a CBE at age 40 years, and women between the ages of 20 and 39 years undergo a CBE every 3 years.<sup>6</sup> In 2007, the ACS began recommending that women at increased risk for breast cancer (based on specific criteria related to family history, genetic tendency, and clinical history) undergo additional breast screening with magnetic resonance imaging (MRI) as an adjunct to mammography.<sup>7</sup>

## Breast Cancer Screening with Mammography (Figure 6-1 and Table 6-1)

Among Maryland women age 40 years and older,

- Ninety-three percent (93%) reported having ever had a mammogram. Although overall prevalence of breast cancer screening is high, the proportion of women ever having a mammogram was statistically significantly lower among those age 40-49 years compared to older age groups.
- Women of other race (86%) were significantly less likely to have ever had a mammogram than white women (94%); black women reported slightly lower prevalence (92%), but were not statistically different from white women.
- Only 81% of women with less than a high school education reported ever having had a mammogram compared to greater than 90% of women in all other education groups.



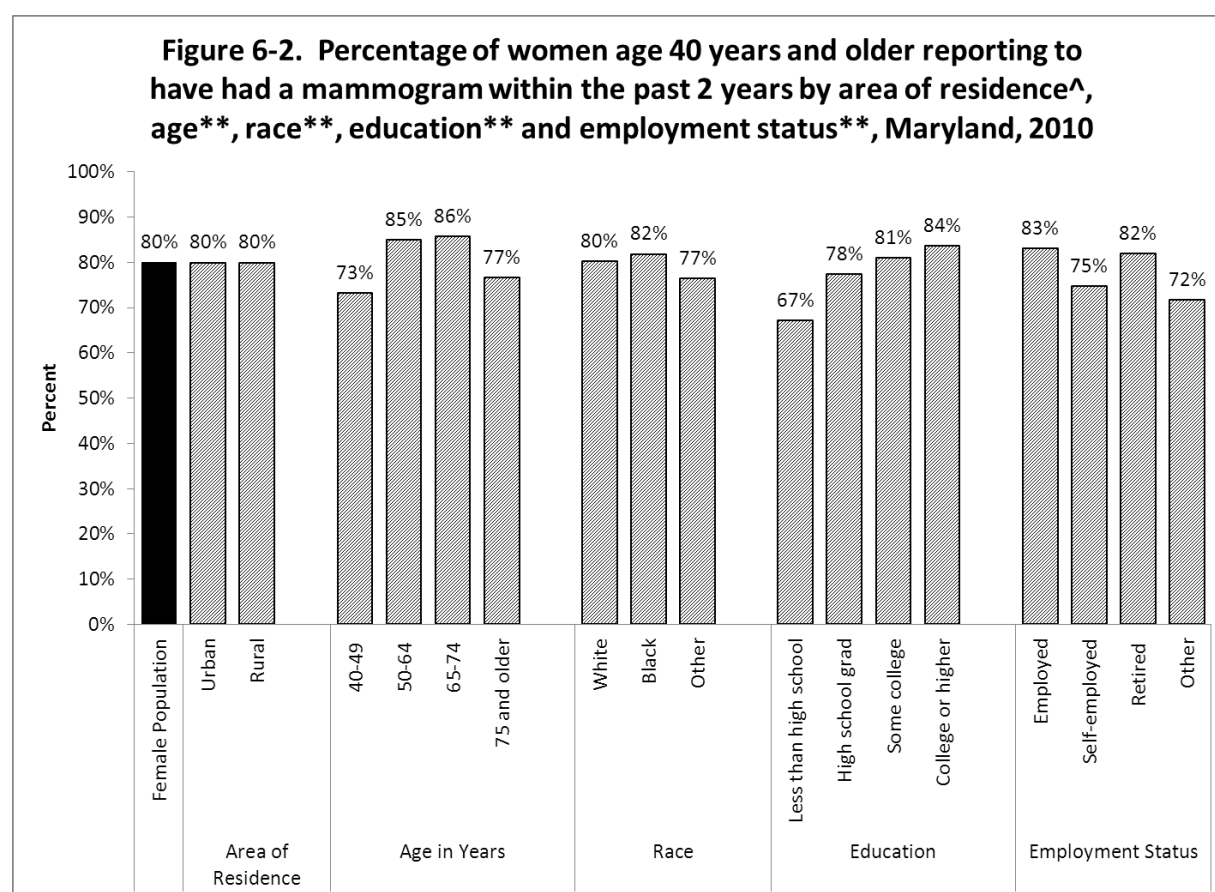
\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

## Breast Cancer Screening with Mammography within the Past 2 Years (Figure 6-2 and Table 6-2)

- Eighty percent (80%) of women age 40 years and older surveyed reported having a mammogram in the past 2 years.
- Statistically significantly lower rates of mammogram screening within the past 2 years were found among:
  - Women age 40-49 years (73%) and 75 years and older (77%), compared to 50-64 years (85%) and 65-74 years (86%);
  - Women with less than a high school education (67%) and high school graduates (78%) compared to women with college degrees or higher (84%); and
  - Women who reported their employment status as “other” (72%), compared to those employed for wages (83%) or retired (82%).



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

## Healthy People (HP) Objectives for Breast Cancer Screening

HP 2010 established a target of increasing to 70% the proportion of women age 40 years and older who have received a mammogram within the preceding 2 years.<sup>8</sup> HP 2020 revised the target to increase the proportion of women age 50-74 years who have had breast cancer screening based on guidelines to 81.1%;<sup>9</sup> USPSTF recommends that guideline to be biennial (every two years) mammograms. In 2010, 85.3% of Maryland women age 50-74 years reported having had a mammogram in the past 2 years (data not shown in tables).

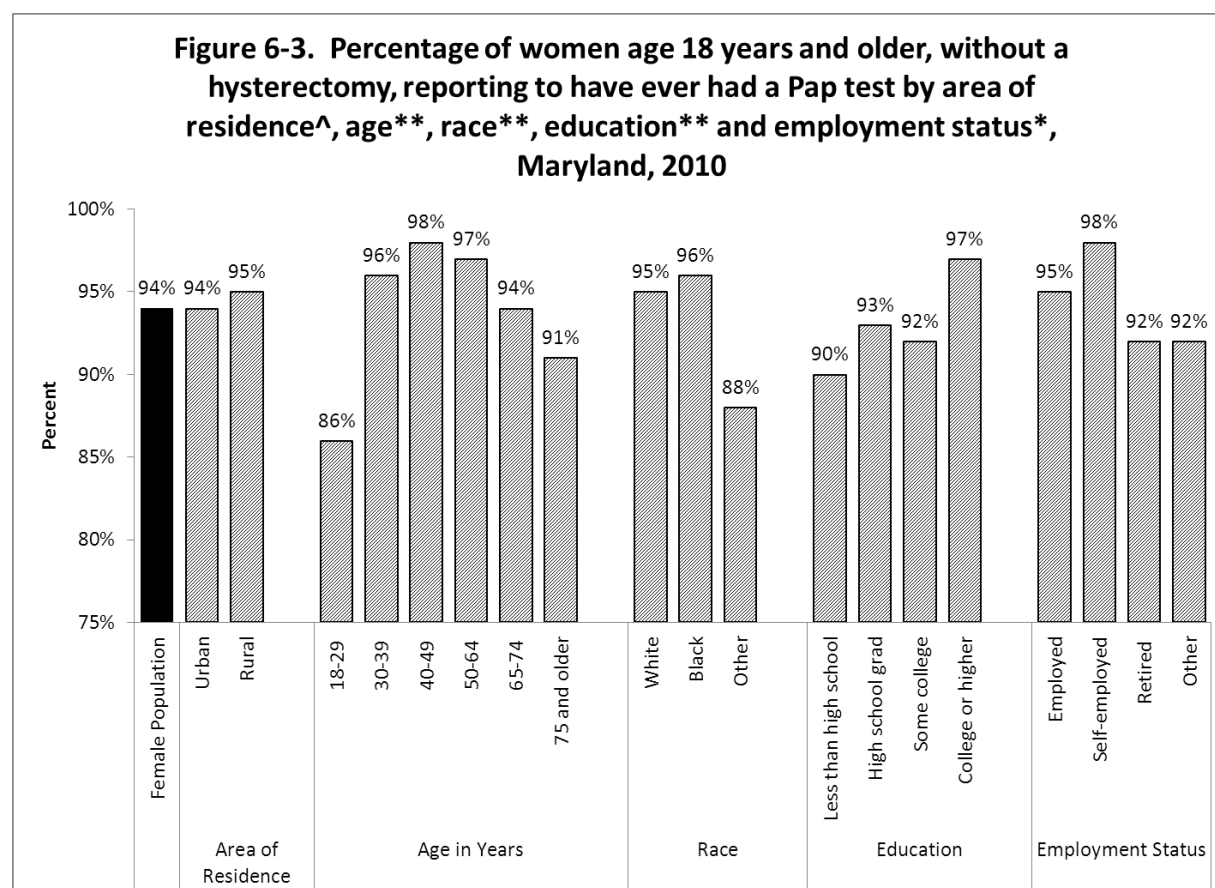
## **6.2 Cervical Cancer Screening**

Cervical cytology (or the Pap test) is the screening test that is recommended for the early detection of pre-malignant and malignant changes of the cervix. The ACS recommends that women begin cervical cancer screening 3 years after becoming sexually active and no later than age 21 years, and that screening should be done every year with the regular Pap test or every 2 years using the newer liquid-based Pap test.<sup>10</sup> Beginning at age 30 years, women who have had three negative Pap test results in a row and have no other risk factors may get screened every 2 to 3 years. Also, according to ACS guidelines, women age 70 years or older who have had three or more negative Pap tests in a row and no abnormal Pap test results in the past 10 years may choose to stop having cervical cancer screening. At the time of the survey, the USPSTF strongly recommended screening for cervical cancer in women who have been sexually active and have a cervix. They recommended against routinely screening women older than age 65 years for cervical cancer if they have had adequate recent screening with normal Pap test and are not otherwise at high risk for cervical cancer.<sup>11</sup> Screening is not helpful in women who do not have a cervix as a result of a complete hysterectomy (removal of the uterus and cervix) for a benign condition. However, women who had a hysterectomy but still have an intact cervix are advised to continue being screened according to the guidelines. In March 2012, the USPSTF revised the recommendation and now recommends screening for cervical cancer in women ages 21 to 65 years with cytology (Pap smear) every 3 years or, for women ages 30 to 65 years who want to lengthen the screening interval, screening with a combination of cytology and human papillomavirus (HPV) testing every 5 years.<sup>12</sup>

## Cervical Cancer Screening with a Pap Test (Figure 6-3 and Table 6-2)

The following section highlights findings related to cervical cancer screening among Maryland women age 18 years and older, who have not had a hysterectomy.

- Ninety-four percent (94%) of Maryland women reported ever having a Pap test. There was no statistically significant difference in cervical cancer screening prevalence by geographical residence.
- Women age 18-29 years reported a statistically significantly lower prevalence of ever having a Pap test (86%) compared to women in all other age groups, except the oldest age group, age 75 years and older (91%).
- Women of other race (88%) reported lower prevalence of ever having had a Pap test compared to white (95%) or black (96%) women.
- Sixty-eight percent (68%) of women had a Pap test within the past year. (Data not shown in tables.)



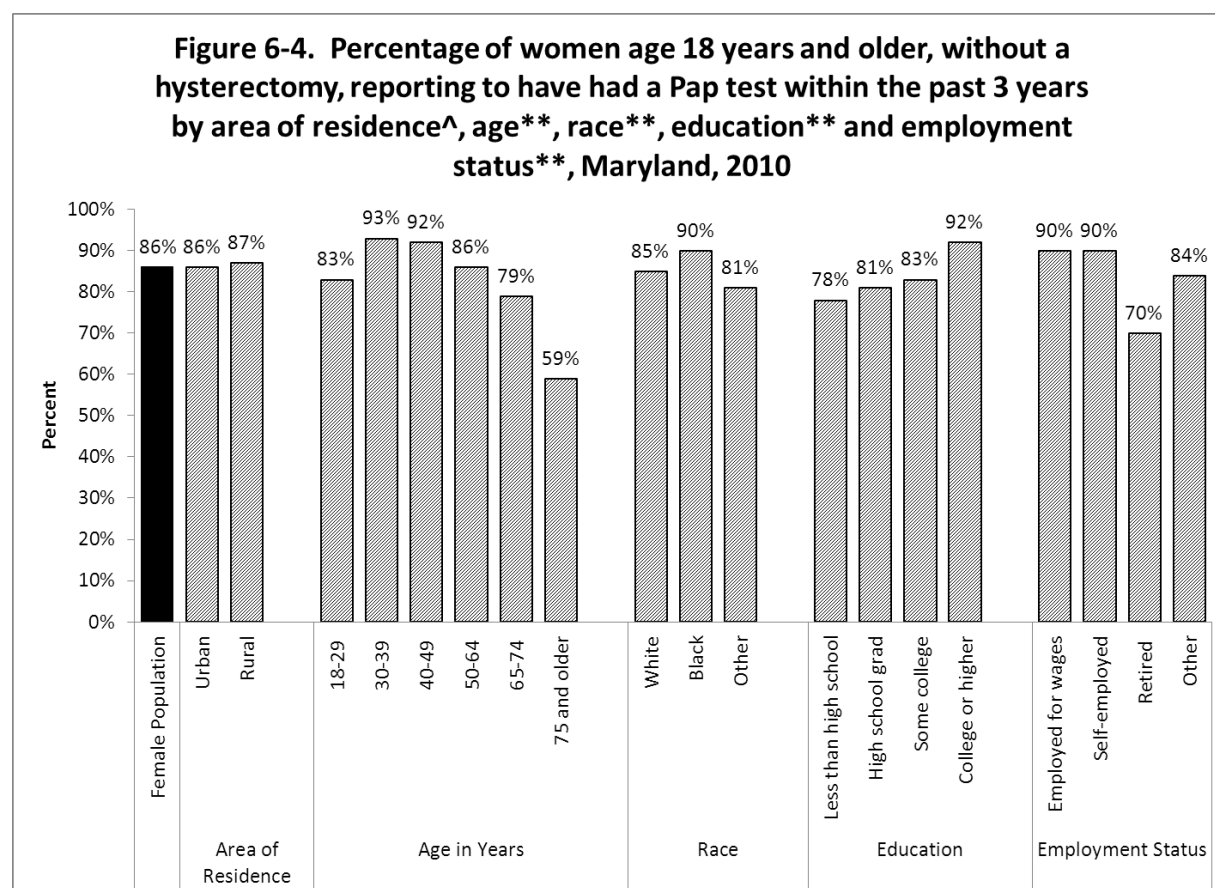
\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

## Cervical Cancer Screening with a Pap Test within the Past 3 Years (Figure 6-4 and Table 6-2)

- Eighty-six percent (86%) of Maryland women age 18 years and older, who have not had a hysterectomy, had a Pap test within the past 3 years.
- The prevalence of having a Pap test in the past 3 years was statistically significantly lower among:
  - Women age 65 years and older (compared to women age 30-64 years),
  - White women and women of other race compared to black women;
  - Those with less than a college degree (compared to women with a college degree or higher).



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

## Healthy People Objectives for Cervical Cancer Screening

The HP 2010 target for cervical cancer screening was to increase to 90% the proportion of women age 18 years and older who reported having had a Pap test within the past 3 years. HP 2020 revised this goal to be 93% of women, age 21-65 years, who have not had a hysterectomy.<sup>13</sup> In 2010, 90.2% of Maryland women age 21-65 years reported having had a Pap test within the past 3 years, missing this HP 2020 objective (data not shown in tables).

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- <sup>1</sup> Maryland Department of Health and Mental Hygiene. Maryland Comprehensive Cancer Control Plan, July 2011. Available at <http://fha.maryland.gov/cancer/cancerplan/publications.cfm>. Last accessed March 14, 2012.
- <sup>2</sup> Maryland Department of Health and Mental Hygiene. Cigarette Restitution Fund Program Cancer Report 2011. Baltimore, MD; December 2011. Available at [http://fha.dhmdh.maryland.gov/cancer/SitePages/surv\\_data-reports.aspx](http://fha.dhmdh.maryland.gov/cancer/SitePages/surv_data-reports.aspx).
- <sup>3</sup> Surveillance, Epidemiology, and End Results (SEER) Program ([www.seer.cancer.gov/](http://www.seer.cancer.gov/)) SEER\*Stat Database: Mortality - All COD, Aggregated With State, Total U.S. (1969-2008), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released October 2011. Underlying mortality data provided by NCHS ([www.cdc.gov/nchs/](http://www.cdc.gov/nchs/)).
- <sup>4</sup> American Cancer Society. Can breast cancer be found early? Available at <http://www.cancer.org/cancer/breastcancer/detailedguide/breast-cancer-detection>. Last accessed July 2, 2012.
- <sup>5</sup> U.S. Preventive Services Task Force. Screening for Breast Cancer. December 2009. Available at <http://www.ahrq.gov/clinic/uspstf/uspstfbrca.htm>. Last accessed July 2, 2012.
- <sup>6</sup> Smith RA, Cokkinides V, Brooks D, Saslow D, Shah M, Brawley OW. Cancer Screening in the United States, 2011: A Review of Current American Cancer Society Guidelines and Cancer Screening Issues. *CA Cancer J Clin*. 2011;61(1):8-30. Available at <http://onlinelibrary.wiley.com/doi/10.3322/caac.20096/pdf>. Last accessed July 2, 2012.
- <sup>7</sup> Saslow D, Boetes C, Burke W, et al. American Cancer Society Guidelines for Breast Screening with MRI as an Adjunct to Mammography. *CA Cancer J Clin*. 2007;57:75-89. Available at <http://onlinelibrary.wiley.com/doi/10.3322/canjclin.57.2.75/pdf>. Last accessed July 2, 2012.
- <sup>8</sup> U.S. Department of Health and Human Services. Healthy People 2010. Vol. I. Cancer.; November 2000. Available at [http://www.healthypeople.gov/2010/Document/HTML/Volume1/03Cancer.htm#\\_Toc490540737](http://www.healthypeople.gov/2010/Document/HTML/Volume1/03Cancer.htm#_Toc490540737). Last accessed July 2, 2012.
- <sup>9</sup> U.S. Department of Health and Human Services. Healthy People 2020. Topics & Objectives. Cancer. Available at <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=5>. Last accessed July 2, 2012.
- <sup>10</sup> American Cancer Society. Cancer prevention and early detection. Facts and figures 2011. Available at <http://www.cancer.org/acs/groups/content/@epidemiologysurveillance/documents/document/acspc-029459.pdf>. Last accessed July 2, 2012.
- <sup>11</sup> US Preventive Services Task Force. Screening for Cervical Cancer: Recommendations and Rationale. *Am Fam Physician*. 2003 Apr 15;67(8):1759-1766. Available at <http://www.aafp.org/afp/2003/0415/p1759.html>. Last accessed July 2, 2012.
- <sup>12</sup> US Preventive Services Task Force, 2003. Screening for Cervical Cancer. Available at <http://www.ahrq.gov/CLINIC/uspstf/uspstfcerv.htm>. Last accessed July 2, 2012.
- <sup>13</sup> See footnote 9.

**TABLE 6-1. BREAST CANCER SCREENING WITH MAMMOGRAM,  
AMONG WOMEN AGE 40 YEARS AND OLDER**

	Ever had a mammogram					Had a mammogram in the past 2 years				
Selected Characteristic	N	n	wt %	95% CI	Stat Sig	N	n	wt %	95% CI	Stat Sig
<b>Female Population</b>	4554	4285	93%	92-94%		4554	3707	80%	79-82%	
<b>Area of Residence</b>					^					^
Urban	2433	2288	93%	91-94%		2433	1982	80%	78-82%	
Rural	2121	1997	93%	91-94%		2121	1725	80%	78-82%	
<b>Age</b>					**					**
40-49 years	1058	916	85%	82-88%		1058	781	73%	70-77%	
50-64 years	1891	1834	97%	95-98%		1891	1620	85%	83-87%	
65-74 years	861	835	97%	95-98%		861	740	86%	83-89%	
75 years and older	744	700	95%	94-97%		744	566	77%	73-81%	
<b>Race</b>					**					^
White	3380	3193	94%	93-95%		3380	2742	80%	78-82%	
Black	887	833	92%	89-95%		887	750	82%	78-85%	
Other	238	212	86%	80-92%		238	177	77%	70-83%	
<b>Education</b>					**					**
Less than high school	327	286	81%	72-89%		327	224	67%	59-76%	
High school grad or GED	1363	1268	91%	89-93%		1363	1082	78%	74-81%	
College 1-3 years	1135	1072	94%	92-96%		1135	926	81%	78-84%	
College grad or higher	1719	1649	95%	93-96%		1719	1466	84%	82-86%	
<b>Employment Status</b>					**					**
Employed for wages	2031	1911	93%	92-95%		2031	1703	83%	81-85%	
Self-employed	256	238	88%	79-97%		256	205	75%	65-84%	
Retired	1509	1451	96%	95-98%		1509	1234	82%	79-85%	
Other	754	681	87%	83-90%		754	563	72%	67-76%	
<b>Household Income</b>					**					**
<\$25,000	866	785	88%	85-91%		866	624	69%	64-73%	
\$25,000-<\$35,000	447	409	88%	83-92%		447	353	76%	70-81%	
\$35,000-<\$50,000	505	489	94%	90-98%		505	431	80%	75-85%	
\$50,000-<\$75,000	587	562	95%	93-97%		587	497	83%	79-87%	
\$75,000 or greater	1375	1312	95%	94-97%		1375	1194	87%	84-89%	
Don't know/not sure	302	286	94%	90-98%		302	225	75%	69-82%	
Refused	472	442	90%	84-96%		472	383	80%	74-86%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

Maryland Cancer Screening and Risk Behaviors, 2010



**TABLE 6-2. CERVICAL CANCER SCREENING WITH PAP TESTING,  
AMONG WOMEN AGE 18 YEARS AND OLDER**

	Ever had a Pap test					Had a Pap test in past 3 years				
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
<b>Female Population</b>	4022	3856	94%	93-96%		4022	3397	86%	84-88%	
<b>Area of Residence</b>					<b>^</b>					<b>^</b>
Urban	2253	2164	94%	92-96%		2253	1919	86%	84-88%	
Rural	1769	1692	95%	94-97%		1769	1478	87%	85-89%	
<b>Age</b>					<b>**</b>					<b>**</b>
18-29 years	270	245	86%	80-92%		270	232	83%	76-89%	
30-39 years	626	607	96%	94-98%		626	576	93%	91-95%	
40-49 years	898	876	98%	97-99%		898	821	92%	90-94%	
50-64 years	1273	1240	97%	96-98%		1273	1116	86%	84-89%	
65-74 years	499	476	94%	91-97%		499	388	79%	74-83%	
75 years and older	393	351	91%	88-95%		393	209	59%	52-65%	
<b>Race</b>					<b>**</b>					<b>**</b>
White	2868	2769	95%	94-97%		2868	2408	85%	83-87%	
Black	805	771	96%	94-98%		805	705	90%	87-92%	
Other	292	266	88%	82-94%		292	239	81%	75-88%	
<b>Education</b>					<b>**</b>					<b>**</b>
Less than high school	193	169	90%	83-97%		193	130	78%	70-86%	
High school grad or GED	1056	1000	93%	89-96%		1056	821	81%	77-85%	
College 1-3 years	995	954	92%	88-96%		995	838	83%	79-87%	
College grad or higher	1765	1722	97%	96-98%		1765	1600	92%	90-93%	
<b>Employment Status</b>					<b>*</b>					<b>**</b>
Employed for wages	2156	2100	95%	93-97%		2156	1954	90%	88-92%	
Self-employed	249	245	98%	96-100%		249	221	90%	86-95%	
Retired	870	803	92%	90-95%		870	601	70%	66-74%	
Other	736	698	92%	89-96%		736	612	84%	80-88%	
<b>Household Income</b>					<b>**</b>					<b>**</b>
<\$25,000	631	586	94%	91-97%		631	452	80%	75-84%	
\$25,000-<\$35,000	369	354	96%	94-99%		369	289	82%	76-87%	
\$35,000-<\$50,000	414	405	98%	96-100%		414	363	89%	86-93%	
\$50,000-<\$75,000	582	560	96%	94-98%		582	514	89%	86-93%	
\$75,000 or greater	1383	1359	96%	94-98%		1383	1290	92%	90-94%	
Don't know/not sure	243	213	77%	66-88%		243	162	65%	54-76%	
Refused	400	379	93%	88-98%		400	327	83%	78-89%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

Maryland Cancer Screening and Risk Behaviors, 2010



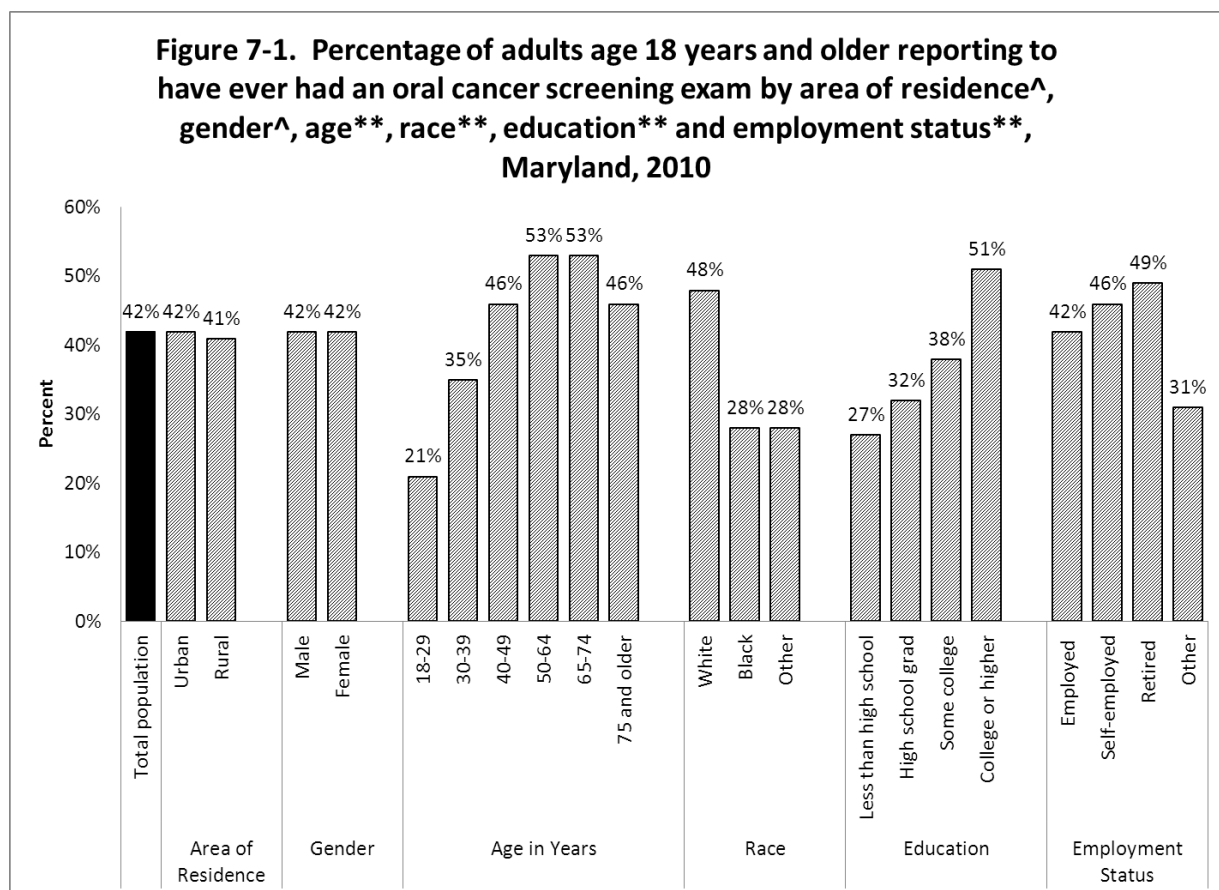
## **Chapter 7. Oral Cancer Screening**

Oral cancer develops in the oral cavity or in the pharynx. Tobacco use (smoking cigarettes, pipes, or cigars and using smokeless tobacco) and heavy alcohol use are the greatest risk factors for developing oral cancer. In 2008, there were 610 new cases and 142 deaths from oral cancer among Maryland residents. In Maryland, men had higher oral cancer incidence and mortality rates than women; incidence rates were lower among blacks than among whites, while mortality rates were higher among blacks than among whites.<sup>1</sup> Among the 50 states and the District of Columbia, Maryland ranked 21<sup>st</sup> highest for oral cancer mortality during 2004-2008.<sup>2</sup>

The American Cancer Society (ACS) recommends that in routine checkups, health care providers (HCP) examine the mouths and throats of their patients to screen for oral cancer.<sup>3</sup> The screening examination for oral cancer consists of visual inspection of the oral cavity and pharynx (mouth and throat) for lesions or discolorations, and feeling the oral structures (such as the tongue) for masses. This exam can be performed by a dentist or dental hygienist during a routine dental examination or by a physician, nurse practitioner, or physician's assistant during a physical exam. Because of evidence showing increased incidence of tongue and tonsil cancers from years 1973 to 2001 in young adults age 20-44 years, we examined self-reported oral cancer screening prevalence in Maryland adults age 18 years and older.<sup>4</sup>

## Oral Cancer Screening Exam (Figure 7-1 and Table 7-1)

- Among Marylanders age 18 years and older, 42% reported they have ever had an oral cancer screening exam.
- Statewide, a statistically significant difference in prevalence of ever having an oral cancer screening exam was seen among the following groups:
  - Adults age 30-39 years (35%) and age 18-29 years (21%) reported lower prevalence of screening compared to those in the older age groups.
  - Lower prevalence of oral cancer screening was reported among blacks (28%) and those of other race (28%) compared to whites (48%).
  - Prevalence of oral cancer screening was highest among those who had completed college or higher (51%), compared to the other education levels.



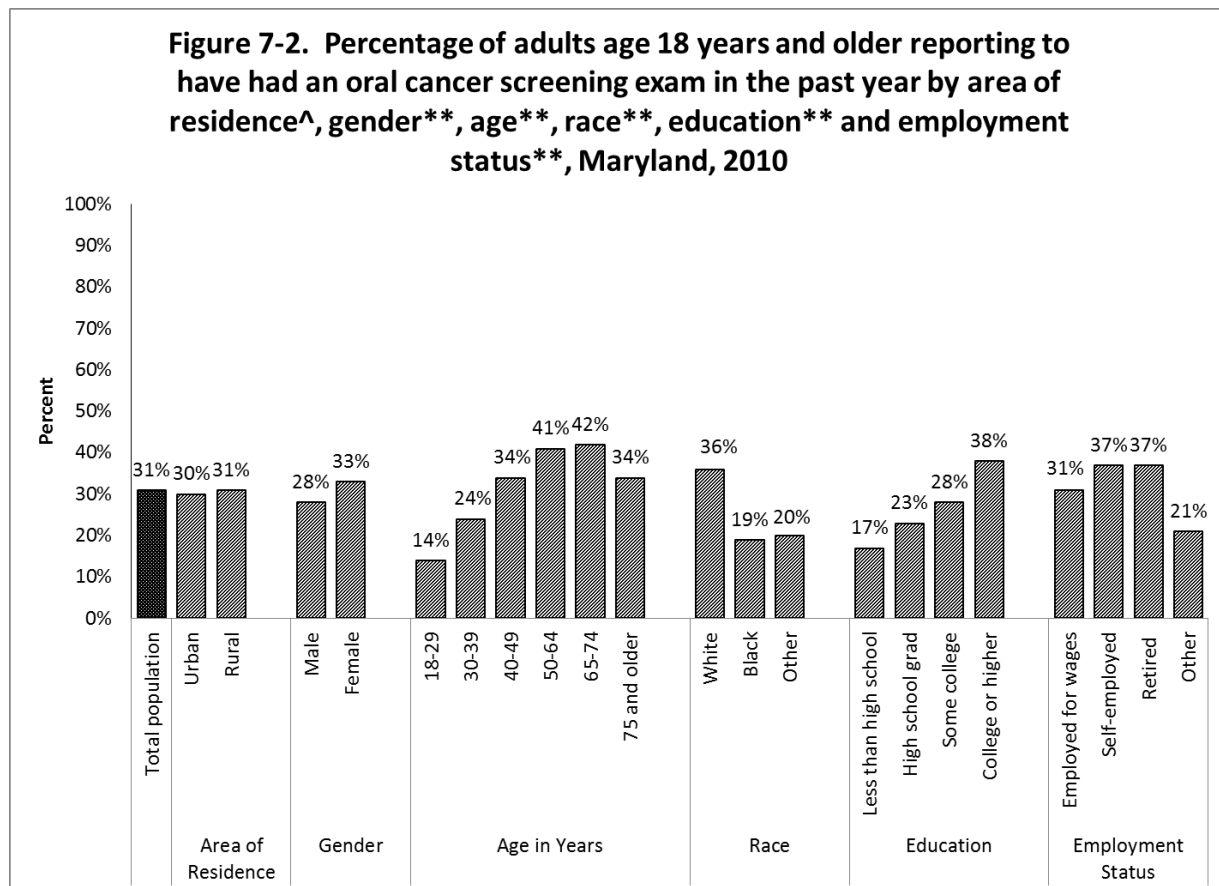
\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

## Oral Cancer Screening Exam within the Past Year (Figure 7-2 and Table 7-1)

- Thirty-one percent (31%) of Marylanders age 18 years and older reported having had an oral cancer screening exam within the past year.
- Differences in the prevalence of having oral cancer screening within the past year were seen based on gender, age, race, level of education, employment status, and income level:
  - Oral cancer screening in the past year was lowest among adults age 18-29 years (14%) and 30-39 years (24%).
  - Lower prevalence of screening was reported among blacks (19%) and persons of other race (20%) compared to whites (36%).
  - White women (42%) reported the highest prevalence of oral cancer screening in the last year compared to any other race and gender group.
  - Persons with less than a high school education (17%), high school graduates (23%) and some college (28%) had significantly lower prevalence of oral cancer screening in the past year than persons with a college degree or higher (38%).



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

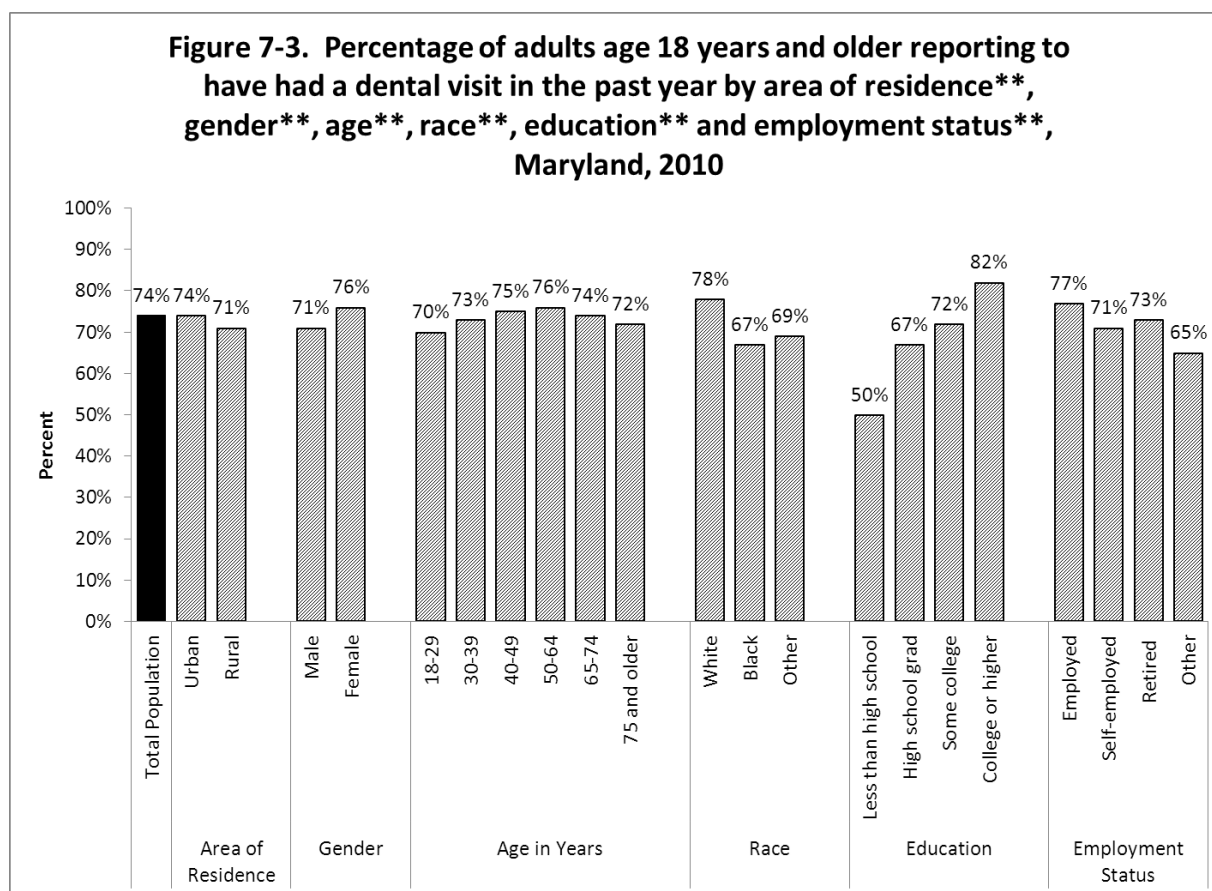
<sup>^</sup> p-value ≥ 0.1

### Access to Dental Care and Oral Cancer Screening (Figure 7-3 and Table 7-2)

Among Marylanders age 18 years and older who reported having had an oral cancer screening exam, 75% reported that the examination was performed by a dentist or dental specialist, 11% by a dental hygienist, and 13% by a physician. This highlights the importance of routine dental visits as a predictor of oral cancer screening. The HP 2020 has set a target to increase to 49% the proportion of children, adolescents and adults (all ages) who use the oral care system in the past year.<sup>5</sup>

Among Marylanders age 18 years and older,

- Seventy-four percent (74%) reported that they had visited a dentist or dental clinic in the past year for any reason.
- The prevalence of reporting dental visits in the past year was statistically significantly lower among:
  - Blacks and persons of other race compared to whites,
  - Persons with some college or less compared to those with a college degree or higher.



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

^ p-value ≥ 0.1

While 74% of Marylanders have visited a dentist in the past year (for any reason) and 78% had a routine check-up with a health care provider in the past year, only 32% of survey respondents reported having an oral cancer screening exam in that time. It is not known whether these dental visits in the past year were for acute care or for preventive care (visits which are more likely to include an oral cancer exam). Alternatively, dental providers may be performing oral cancer screening and not discussing the exam or its results with their patients.

The association between prevalence of oral cancer screening and number of years since the last dental visit was evaluated (data not shown in tables):

- Forty-eight percent (48%) of people who visited a dentist in the past year reported they have ever had an oral cancer screening exam, compared to 22% who saw a dentist 1 or more years before.
- Of the people who visited a dentist in the past year for any reason, only 40% reported receiving an oral cancer exam in the past year.

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<sup>1</sup> Maryland Department of Health and Mental Hygiene. Cigarette Restitution Fund Program Cancer Report 2011. Baltimore, MD; December 2011.

Available at [http://fha.dhmdh.maryland.gov/cancer/SitePages/surv\\_data-reports.aspx](http://fha.dhmdh.maryland.gov/cancer/SitePages/surv_data-reports.aspx).

<sup>2</sup> Surveillance, Epidemiology, and End Results (SEER) Program ([www.seer.cancer.gov/](http://www.seer.cancer.gov/)) SEER\*Stat Database: Mortality - All COD, Aggregated With State, Total U.S. (1969-2008), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released October 2011. Underlying mortality data provided by NCHS ([www.cdc.gov/nchs/](http://www.cdc.gov/nchs/)).

<sup>3</sup> American Cancer Society. Oral Cancer. 2007. Available at <http://www.cancer.org/acs/groups/content/@nho/documents/document/oralcancerpdf.pdf>. Last accessed July 2, 2012.

<sup>4</sup> Shiboski CH, Schmidt BL, Jordan RCK. Tongue and tonsil carcinoma: Increasing trends in the U.S. population ages 20-44 years. *Cancer* 2005;103(9):1843-9.

<sup>5</sup> U.S. Department of Health and Human Services. Healthy People 2020. Topics & Objectives. Oral Health. Available at <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=32>. Last accessed 7/2/2012.

TABLE 7-1. ORAL CANCER SCREENING, AMONG ADULTS AGE 18 YEARS AND OLDER

	Ever had an oral cancer screening exam					Had an oral cancer screening exam in the past year				
Selected Characteristic	N	n	wt %	95% CI	Stat Sig	N	n	wt %	95% CI	Stat Sig
<b>Total Population</b>	4255	2051	42%	39-44%		4255	1564	31%	29-33%	
<b>Area of Residence</b>					^					^
Urban	2275	1085	42%	39-45%		2275	813	30%	28-33%	
Rural	1980	966	41%	38-45%		1980	751	31%	29-34%	
<b>Gender</b>					^					**
Male	1595	754	42%	38-45%		1595	548	28%	25-32%	
Female	2660	1297	42%	39-44%		2660	1016	33%	30-35%	
<b>Age</b>					**					**
18-29 years	231	54	21%	14-27%		231	39	14%	9-19%	
30-39 years	463	179	35%	30-41%		463	134	24%	20-29%	
40-49 years	847	401	46%	41-50%		847	301	34%	30-38%	
50-64 years	1465	796	53%	50-57%		1465	620	41%	37-44%	
65-74 years	644	357	53%	48-58%		644	276	42%	37-47%	
75 years and older	536	236	46%	41-52%		536	176	34%	29-39%	
<b>Race</b>					**					**
White	3135	1691	48%	45-51%		3135	1311	36%	34-38%	
Black	797	241	28%	23-33%		797	164	19%	15-23%	
Other	275	98	28%	22-35%		275	71	20%	14-26%	
<b>Gender and Race</b>					**					**
White male	1227	615	45%	41-49%		1227	447	30%	27-34%	
Black male	239	89	37%	29-46%		239	62	26%	18-34%	
Other male	112	41	25%	15-35%		112	32	17%	10-25%	
White female	1908	1076	51%	48-55%		1908	864	42%	38-45%	
Black female	558	152	22%	17-27%		558	102	15%	11-19%	
Other female	163	57	31%	22-40%		163	39	23%	15-30%	
<b>Education</b>					**					**
Less than high school	293	68	27%	18-36%		293	47	17%	10-23%	
High school grad or GED	1189	474	32%	27-36%		1189	353	23%	19-27%	
College 1-3 years	969	460	38%	33-43%		969	346	28%	24-32%	
College grad or higher	1791	1043	51%	48-54%		1791	813	38%	35-41%	
<b>Employment Status</b>					**					**
Employed for wages	2159	1076	42%	39-45%		2159	840	31%	28-34%	
Self-employed	318	172	46%	38-55%		318	135	37%	29-45%	
Retired	1142	568	49%	46-53%		1142	424	37%	33-40%	
Other	629	233	31%	25-37%		629	164	21%	17-26%	
<b>Household Income</b>					**					**
<\$25,000	692	182	20%	15-25%		692	113	13%	8-18%	
\$25,000-<\$35,000	361	148	36%	28-44%		361	104	21%	15-27%	
\$35,000-<\$50,000	444	230	44%	37-50%		444	170	31%	25-36%	
\$50,000-<\$75,000	604	309	42%	36-48%		604	241	32%	27-37%	
\$75,000 or greater	1501	871	51%	47-54%		1501	701	39%	36-42%	
Don't know/not sure	229	103	34%	24-45%		229	71	23%	15-32%	
Refused	424	208	43%	35-50%		424	164	31%	25-37%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value &lt; 0.05

\* 0.05 ≤ p-value &lt; 0.10

^ p-value ≥ 0.10



TABLE 7-2. DENTAL VISITS IN THE PAST YEAR, AMONG ADULTS AGE 18 YEARS AND OLDER

	Visited a dentist or dental clinic in the past year for any reason				
Selected Characteristic	N	n	wt %	95% CI	Stat Sig
<b>Total Population</b>	9107	6833	74%	72-75%	
<b>Area of Residence</b>					**
Urban	4870	3753	74%	73-76%	
Rural	4237	3080	71%	69-73%	
<b>Gender</b>					**
Male	3398	2479	71%	68-73%	
Female	5709	4354	76%	75-78%	
<b>Age</b>					*
18-29 years	517	364	70%	65-75%	
30-39 years	1073	790	73%	69-76%	
40-49 years	1778	1360	75%	72-77%	
50-64 years	3103	2420	76%	74-78%	
65-74 years	1397	1020	74%	71-77%	
75 years and older	1110	769	72%	68-75%	
<b>Race</b>					**
White	6594	5122	78%	76-79%	
Black	1751	1176	67%	64-71%	
Other	628	428	69%	63-74%	
<b>Gender and Race</b>					**
White male	2559	1919	74%	72-77%	
Black male	532	346	65%	60-71%	
Other male	258	175	66%	58-75%	
White female	4035	3203	81%	79-83%	
Black female	1219	830	69%	66-73%	
Other female	370	253	72%	66-78%	
<b>Education</b>					**
Less than high school	619	275	50%	44-57%	
High school grad or GED	2506	1676	67%	64-70%	
College 1-3 years	2184	1665	72%	68-75%	
College grad or higher	3753	3181	82%	80-84%	
<b>Employment Status</b>					**
Employed for wages	4673	3721	77%	75-79%	
Self-employed	627	491	71%	65-77%	
Retired	2387	1722	73%	70-75%	
Other	1381	869	65%	61-69%	
<b>Household Income</b>					**
<\$25,000	1453	744	53%	48-57%	
\$25,000-<\$35,000	802	517	59%	53-65%	
\$35,000-<\$50,000	977	722	71%	67-76%	
\$50,000-<\$75,000	1261	1048	78%	74-82%	
\$75,000 or greater	3173	2734	84%	82-86%	
Don't know/not sure	501	312	64%	57-71%	
Refused	914	734	77%	72-82%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value &lt; 0.05

\* 0.05 ≤ p-value &lt; 0.10

^ p-value ≥ 0.10



## **Chapter 8. Methods to Prevent Sun Exposure**

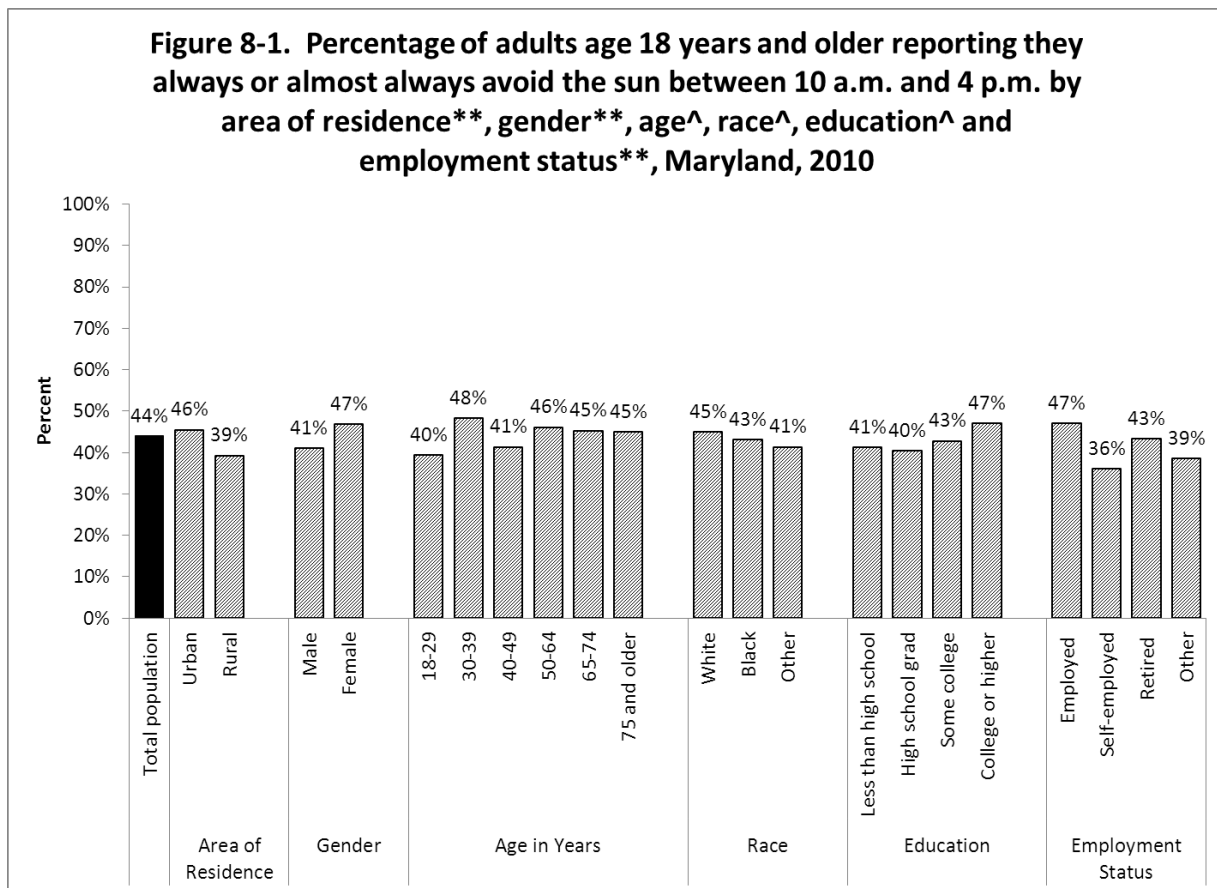
Skin cancer, including non-melanoma (squamous and basal cell cancers) and melanoma skin cancer, is the most common form of cancer in the United States. While rarely fatal, it is estimated that over 2 million people will be diagnosed with non-melanoma skin cancer (NMSC) in 2011 in the United States.<sup>1</sup> It is estimated that over 70,000 people will be diagnosed with the much more serious melanoma skin cancer (MSC) and that almost 9,000 deaths will be attributed to the cancer.<sup>2</sup> In Maryland, there were 1,270 cases of MSC and 153 deaths from the disease in 2008.<sup>3</sup>

There is solid evidence that exposure to sun and other ultraviolet (UV) radiation is associated with increased risk of NMSC. There is fair evidence that MSC is associated with intermittent acute sun exposure which results in sunburns and that exposure in childhood and adolescence may be more important.<sup>4</sup> Based on these associations it is generally recommended that people reduce their exposure to UV radiation by avoiding the sun between the hours of 10 a.m. and 4 p.m.; wearing sun-protective clothing when exposed to sunlight; using sunscreen with a sun-protective factor (SPF) of 15 or higher; and avoiding artificial sources of UV light.<sup>5</sup> This survey assessed how frequently people report that they adopted these recommended behaviors.

Four percent (4%) of adults age 18 years and older reported they do not go out in the sun. Behaviors for sun prevention are presented for the remaining population at risk of sun exposure.

Limiting Sun Exposure between the Hours of 10 a.m. to 4 p.m. (Figure 8-1 and Table 8-1)

- Forty-four percent (44%) of adults at risk reported they always or almost always limit their exposure to the sun between 10 a.m. and 4 p.m.
- This was statistically higher among urban residents (46%) compared to rural residents (39%) and among women (47%) compared to men (41%).
- There was no statistically significant difference by age, race, or education status.



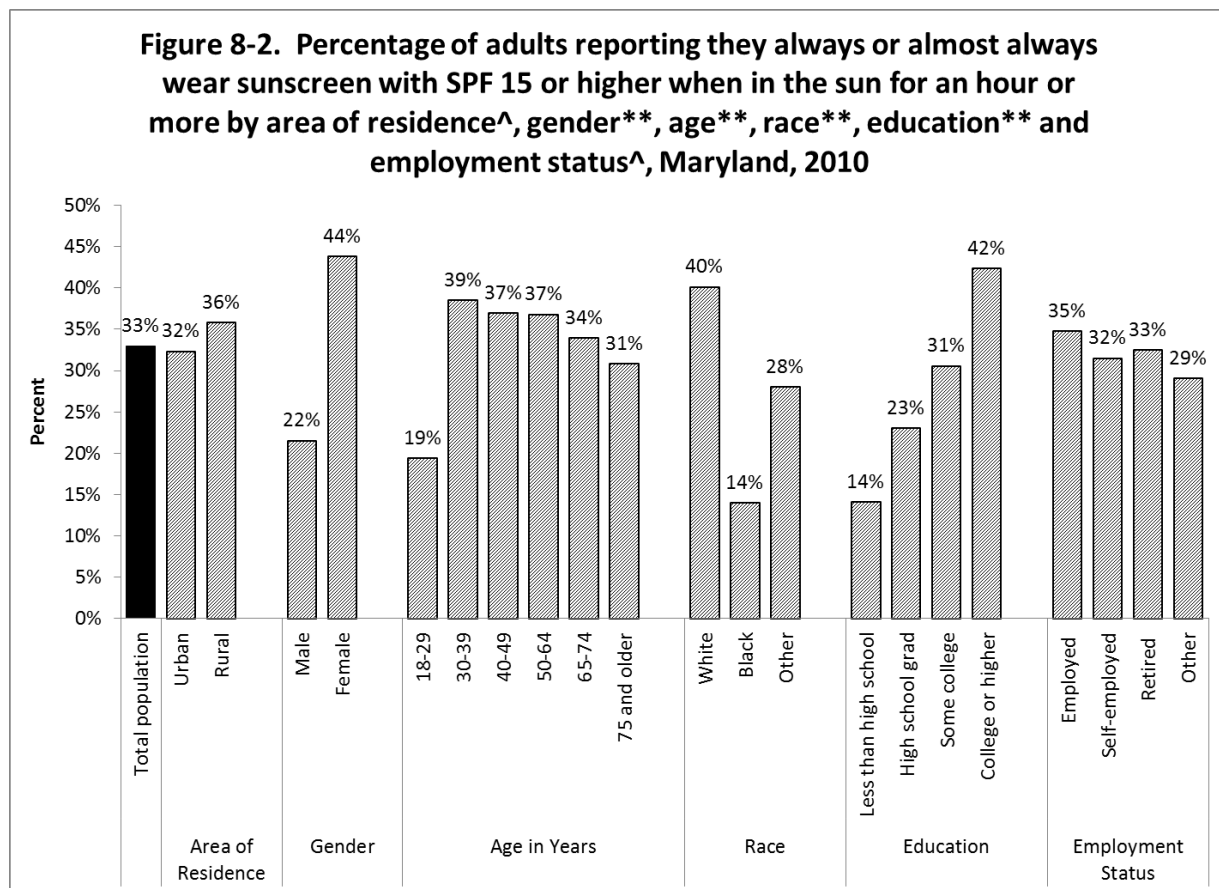
\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

^ p-value ≥ 0.1

## Using Sunscreen with a Sun Protective Factor (SPF) of 15 or More (Figure 8-2 and Table 8-1)

- Thirty-three percent (33%) of adults at risk reported that they always or almost always use sun sunscreen with an SPF of 15 or greater when outdoors for an hour or more on a sunny day.
- This was statistically higher among women (44%) than men (22%), among whites (40%) and people other race (28%) compared to blacks (14%). Sunscreen use was highest among white women and women of other race.
- Sunscreen use was lowest among adults age 18-29 years (compared to other age groups).
- Sunscreen use increased with increasing education level.



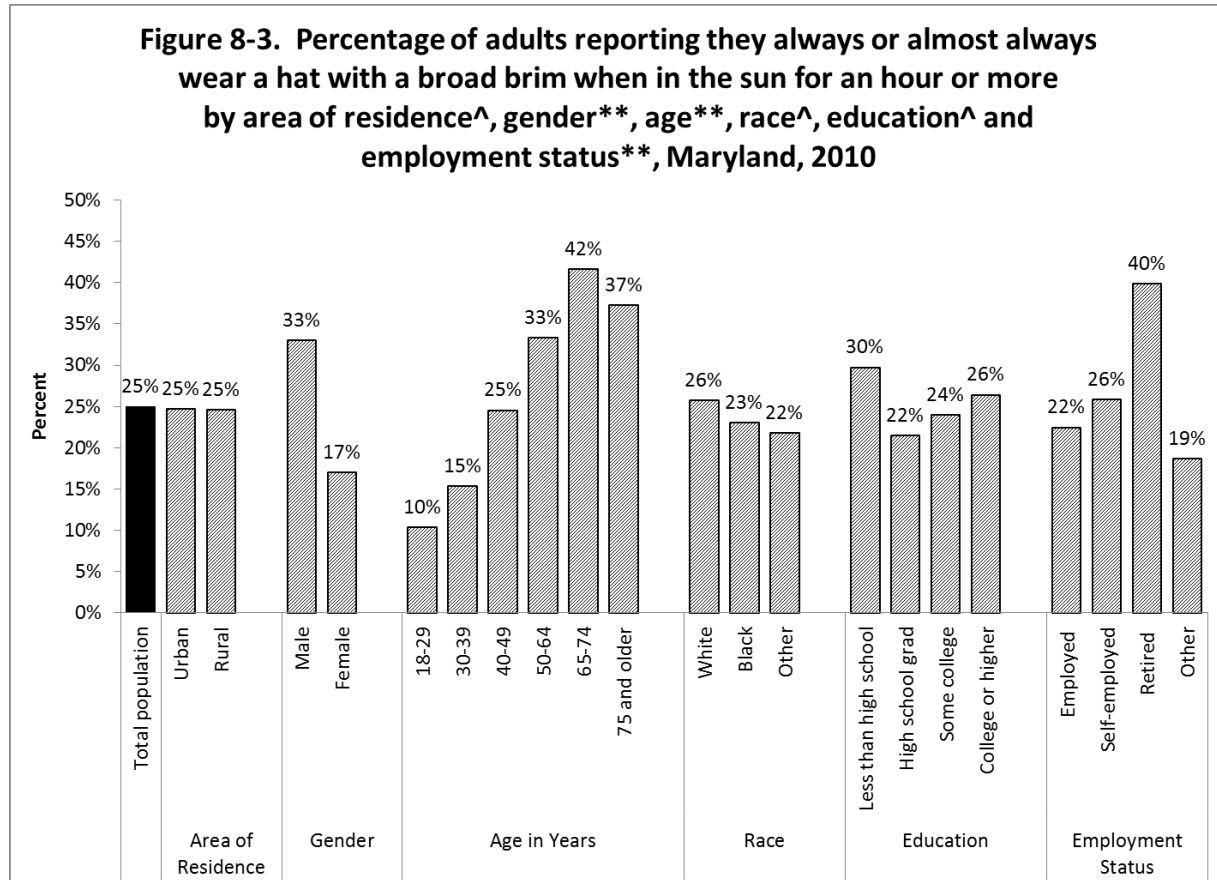
\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

### Wearing a Hat with a Broad Brim (Figure 8-3 and Table 8-2)

- Twenty-five percent (25%) of adults at risk reported that they always or almost always wear a broad brimmed hat when outdoors for an hour or more on a sunny day.
- This was statistically higher among men (33%) than women (17%), especially higher among white and black men.
- Broad brimmed hat use generally increased with increasing age.
- It was also highest among adults who reported their employment status as retired.



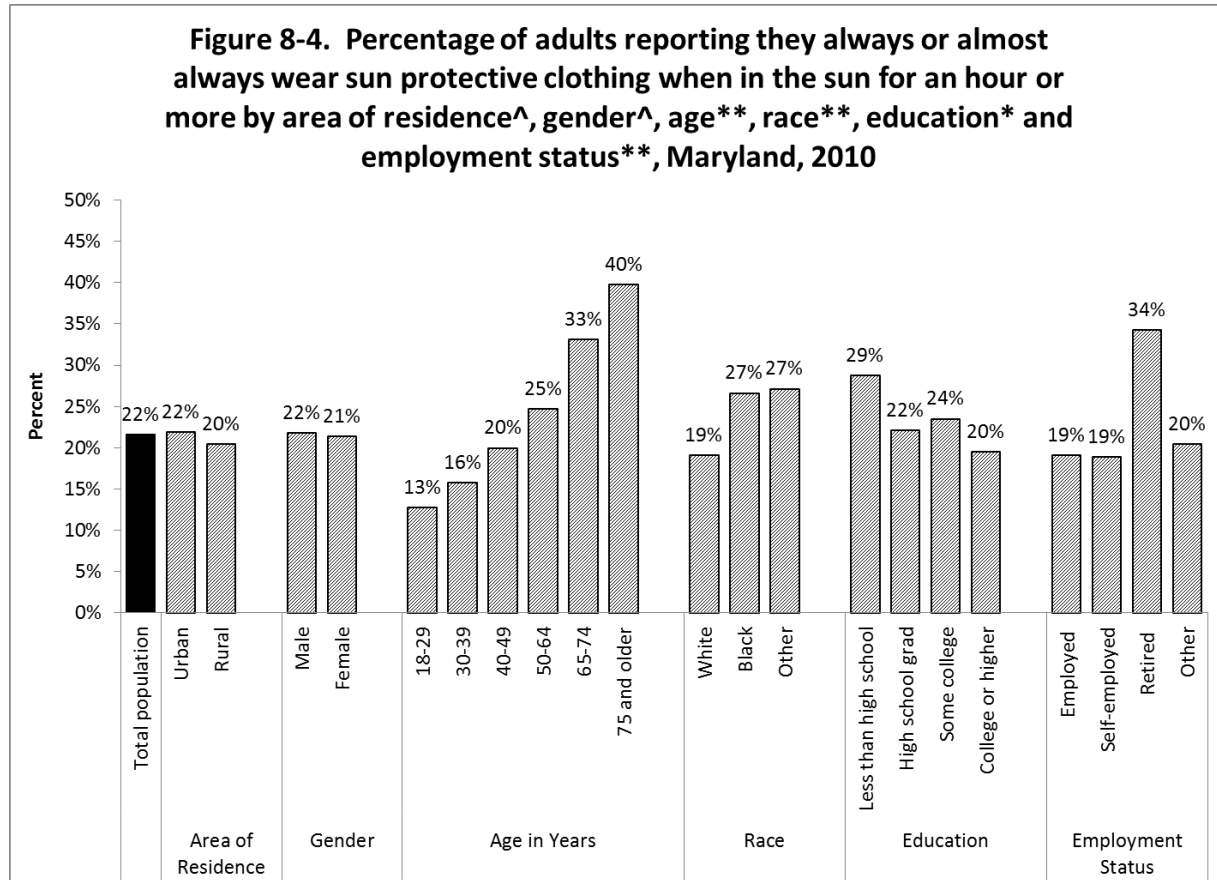
<sup>\*\*</sup> p-value < 0.05

<sup>\*</sup> 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

## Wearing Protective Clothing such as Long Sleeves or Long Pants (Figure 8-4 and Table 8-2)

- Only 22% of adults reported that they always or almost always wear protective clothing when outdoors for an hour or more on a sunny day.
- The use of protective clothing was highest among adults age 50 years and older.
- The use of protective clothing was lowest among whites compared to blacks and people of other races.
- It was highest among adults who reported their employment status as retired.



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

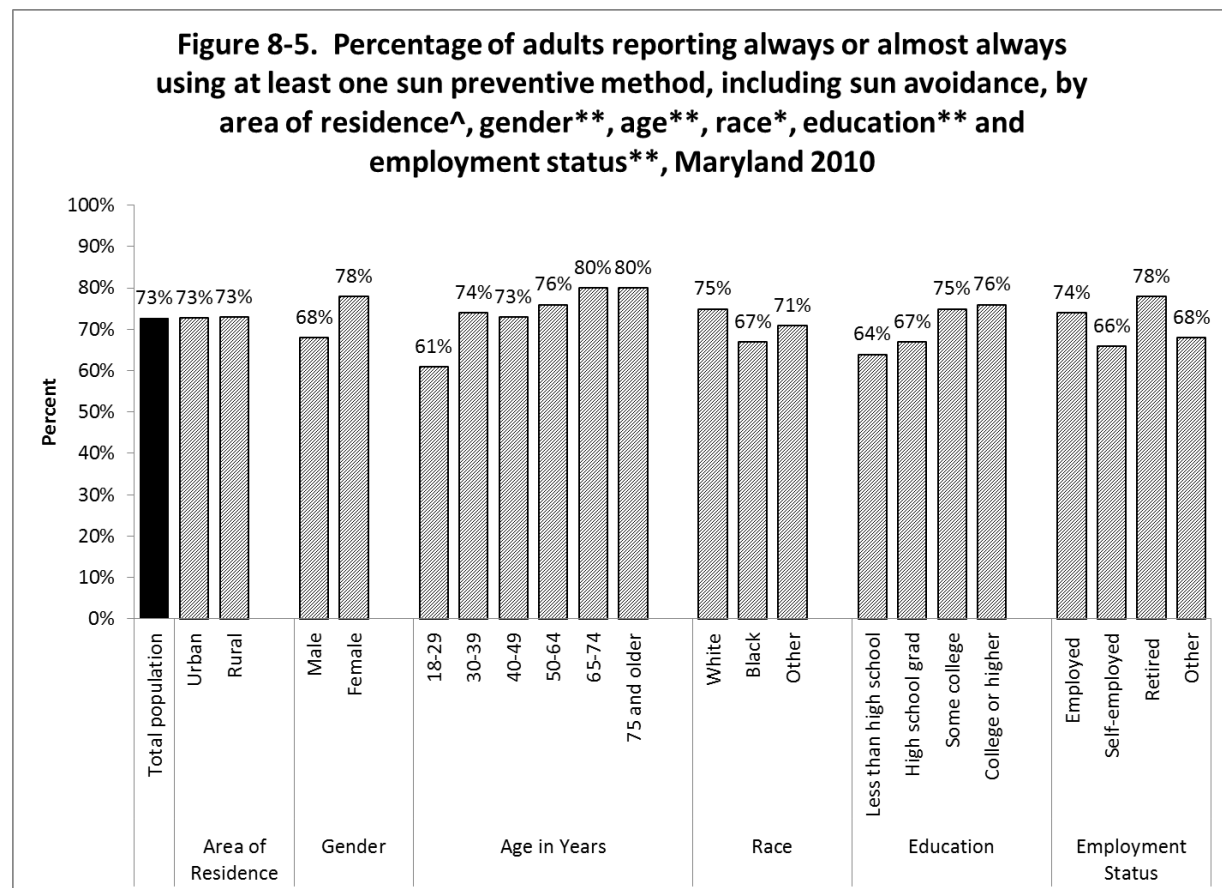
## Healthy People (HP) 2020

One of the objectives of HP 2020 is to increase the proportion of adults *age 18 years and older* who follow sun protective measures that may reduce the risk of sun cancer to 80.1% from a baseline of 72.8%.<sup>6</sup>

### Using at Least One Sun Protective Measure (Figure 8-5 and Table 8-3)

Defining protective measures as not going out in the sun, limiting sun exposure between 10 a.m. and 4 p.m., using sunscreen with a sun protective factor of at least 15, wearing a broad brimmed hat, and wearing protective clothing;

- Seventy-three percent (73%) of adults reported that they always or almost always use least one sun protective measure.
- This was statistically higher among women (77%) than men (68%); especially higher among white women and women of other race.
- The use of at least one sun protective measure was lowest among adults age 18-29 years compared to the other age groups.
- The use of a sun protective measure was highest among adults with at least some college education.



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1



- 
- <sup>1</sup> American Cancer Society. Skin Cancer Facts. Available at <http://www.cancer.org/Cancer/CancerCauses/SunandUVEposure/skin-cancer-facts>. Last accessed July 2, 2012.
- <sup>2</sup> American Cancer Society. *Cancer Facts & Figures 2011*. Atlanta: American Cancer Society; 2011. Available at <http://www.cancer.org/acs/groups/content/@epidemiologysurveillance/documents/document/acspc-029771.pdf>. Last accessed July 2, 2012.
- <sup>3</sup> Maryland Department of Health and Mental Hygiene. Cigarette Restitution Fund Program Cancer Report 2011. Baltimore, MD; December 2011. Available at [http://fha.dhmdh.maryland.gov/cancer/SitePages/surv\\_data-reports.aspx](http://fha.dhmdh.maryland.gov/cancer/SitePages/surv_data-reports.aspx).
- <sup>4</sup> National Cancer Institute. Skin Cancer Prevention PDQ. Available at [http://www.cancer.gov/cancertopics/pdq/prevention/skin/HealthProfessional#Section\\_186](http://www.cancer.gov/cancertopics/pdq/prevention/skin/HealthProfessional#Section_186). Last accessed July 2, 2012.
- <sup>5</sup> American Cancer Society. Skin Cancer Prevention and Early Detection. Available at <http://www.cancer.org/acs/groups/cid/documents/webcontent/003184-pdf.pdf>. Last accessed July 2, 2012.
- <sup>6</sup> U.S. Department of Health and Human Services. Healthy People 2020. Topics & Objectives. Cancer. Available at <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=5>. Last accessed July 2, 2012.

**TABLE 8-1. SUN PREVENTION METHODS WHEN OUTDOORS FOR AN HOUR OR MORE ON A SUNNY DAY, AMONG ADULTS AGE 18 YEARS AND OLDER**

	Always or nearly always avoid sun between 10 a.m. - 4 p.m.					Always or nearly always use a sunscreen lotion with an SPF rating of 15 or higher				
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
<b>Total Population</b>	4094	1811	44%	42-47%		4093	1505	33%	31-35%	
<b>Area of Residence</b>					**					^
Urban	2194	1013	46%	43-49%		2194	808	32%	30-35%	
Rural	1900	798	39%	36-43%		1899	697	36%	32-39%	
<b>Gender</b>					**					**
Male	1541	595	41%	37-45%		1562	381	22%	19-24%	
Female	2553	1216	47%	44-50%		2531	1124	44%	41-47%	
<b>Age</b>					^					**
18-29 years	226	89	40%	31-48%		229	51	19%	13-26%	
30-39 years	466	202	48%	43-54%		466	193	39%	33-44%	
40-49 years	832	345	41%	37-46%		839	325	37%	33-41%	
50-64 years	1415	657	46%	43-50%		1418	549	37%	34-40%	
65-74 years	602	266	45%	40-50%		603	219	34%	29-39%	
75 years and older	488	224	45%	40-50%		471	145	31%	26-36%	
<b>Race</b>					^					**
White	3026	1368	45%	42-48%		3025	1301	40%	38-43%	
Black	760	310	43%	38-49%		759	113	14%	10-18%	
Other	260	111	41%	33-50%		261	73	28%	20-36%	
<b>Gender and Race</b>					^					**
White male	1184	463	41%	37-45%		1204	351	27%	23-30%	
Black male	237	86	43%	34-52%		237	10	6%	0-12%	
Other male	103	38	37%	24-50%		104	14	14%	4-24%	
White female	1842	905	49%	46-52%		1821	950	54%	50-57%	
Black female	523	224	43%	37-49%		522	103	19%	15-24%	
Other female	157	73	46%	35-56%		157	59	41%	31-52%	
<b>Education</b>					^					**
Less than high school	266	102	41%	32-51%		262	42	14%	8-20%	
High school grad or GED	1139	452	40%	35-46%		1131	320	23%	19-27%	
College 1-3 years	942	419	43%	38-48%		934	353	31%	26-35%	
College grad or higher	1734	830	47%	44-50%		1754	787	42%	39-46%	
<b>Employment Status</b>					**					^
Employed for wages	2107	972	47%	44-50%		2121	812	35%	32-38%	
Self-employed	312	114	36%	28-44%		316	126	32%	25-39%	
Retired	1065	471	43%	40-47%		1050	365	33%	29-36%	
Other	602	252	39%	32-45%		598	201	29%	24-35%	
<b>Household Income</b>					^					**
<\$25,000	656	273	42%	35-49%		643	149	19%	13-24%	
\$25,000-<\$35,000	351	151	46%	38-54%		352	110	25%	19-31%	
\$35,000-<\$50,000	428	184	46%	39-53%		426	150	28%	22-34%	
\$50,000-<\$75,000	591	285	48%	42-54%		593	228	36%	30-41%	
\$75,000 or greater	1467	654	44%	41-48%		1482	662	42%	38-45%	
Don't know/not sure	215	92	37%	26-49%		214	67	24%	15-33%	
Refused	386	172	45%	36-53%		383	139	31%	24-38%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

SPF = sun protective factor

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

**TABLE 8-2. SUN PREVENTION METHODS WHEN OUTDOORS FOR AN HOUR OR MORE ON A SUNNY DAY, AMONG ADULTS AGE 18 YEARS AND OLDER**

	Always or nearly always, wear a hat with a broad brim					Always or nearly always wear protective clothing like a long sleeve shirt and long pants				
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
<b>Total Population</b>	4107	1172	25%	23-27%		4064	964	22%	20-23%	
<b>Area of Residence</b>	^					^				
Urban	2199	607	25%	22-27%		2181	541	22%	20-24%	
Rural	1908	565	25%	22-27%		1883	423	20%	18-23%	
<b>Gender</b>	**					^				
Male	1566	654	33%	30-36%		1553	400	22%	19-25%	
Female	2541	518	17%	15-19%		2511	564	21%	19-24%	
<b>Age</b>	**					**				
18-29 years	229	22	10%	5-15%		227	34	13%	8-18%	
30-39 years	465	62	15%	11-20%		464	59	16%	11-20%	
40-49 years	840	199	25%	21-28%		836	143	20%	17-24%	
50-64 years	1423	470	33%	30-37%		1415	335	25%	22-28%	
65-74 years	611	234	42%	37-47%		599	194	33%	28-38%	
75 years and older	472	169	37%	32-43%		458	179	40%	34-45%	
<b>Race</b>	^					**				
White	3034	890	26%	24-28%		3007	649	19%	17-21%	
Black	766	201	23%	19-27%		756	222	27%	22-31%	
Other	259	68	22%	16-28%		253	81	27%	20-34%	
<b>Gender and Race</b>	**					**				
White male	1207	502	34%	30-38%		1199	292	21%	18-25%	
Black male	237	110	36%	28-44%		235	78	26%	19-33%	
Other male	105	34	21%	12-30%		102	25	17%	9-24%	
White female	1827	388	18%	15-20%		1808	357	17%	15-19%	
Black female	529	91	14%	10-18%		521	144	27%	22-32%	
Other female	154	34	23%	14-31%		151	56	37%	27-48%	
<b>Education</b>	^					*				
Less than high school	264	71	30%	21-38%		257	77	29%	21-37%	
High school grad or GED	1135	294	22%	18-25%		1122	271	22%	18-26%	
College 1-3 years	939	249	24%	20-28%		925	223	24%	19-28%	
College grad or higher	1757	555	26%	24-29%		1748	389	20%	17-22%	
<b>Employment Status</b>	**					**				
Employed for wages	2123	519	22%	20-25%		2109	410	19%	17-21%	
Self-employed	317	105	26%	19-32%		313	74	19%	13-25%	
Retired	1056	407	40%	36-44%		1037	345	34%	31-38%	
Other	603	139	19%	14-23%		597	135	20%	16-25%	
<b>Household Income</b>	^					**				
<\$25,000	649	186	24%	19-29%		641	212	31%	25-37%	
\$25,000-<\$35,000	352	96	25%	19-32%		347	93	28%	21-35%	
\$35,000-<\$50,000	432	129	28%	22-34%		423	85	18%	13-23%	
\$50,000-<\$75,000	596	158	24%	19-29%		592	142	25%	19-30%	
\$75,000 or greater	1481	424	25%	22-28%		1475	286	18%	16-21%	
Don't know/not sure	212	52	17%	10-25%		205	56	21%	12-29%	
Refused	385	127	28%	22-35%		381	90	18%	13-23%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

**TABLE 8-3. USE OF AT LEAST ONE SUN PREVENTION METHOD, AMONG ADULTS AGE 18 YEARS AND OLDER**

	Always or almost always use at least one sun prevention method~				
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
<b>Total Population</b>	4369	3280	73%	71-75%	
<b>Area of Residence</b>					^
Urban	2341	1767	73%	70-76%	
Rural	2028	1513	73%	70-75%	
<b>Gender</b>					**
Male	1642	1192	68%	65-72%	
Female	2727	2088	77%	74-79%	
<b>Age</b>					**
18-29 years	239	148	61%	53-69%	
30-39 years	484	347	74%	69-79%	
40-49 years	872	620	73%	70-77%	
50-64 years	1500	1159	76%	73-79%	
65-74 years	653	515	80%	76-84%	
75 years and older	551	441	80%	75-84%	
<b>Race</b>					**
White	3214	2476	75%	72-77%	
African American or Black	823	559	67%	62-72%	
Other	280	209	71%	63-79%	
<b>Gender and Race</b>					**
White male	1260	929	70%	66-74%	
Black male	250	179	69%	60-78%	
Other male	114	72	58%	44-71%	
White female	1954	1547	80%	77-83%	
Black female	573	380	66%	60-72%	
Other female	166	137	85%	79-91%	
<b>Education</b>					**
Less than high school	303	206	64%	55-73%	
High school grad or GED	1214	855	67%	62-72%	
College 1-3 years	1000	768	75%	70-79%	
College grad or higher	1838	1440	76%	73-79%	
<b>Employment Status</b>					**
Employed for wages	2224	1656	74%	71-77%	
Self-employed	325	238	66%	57-75%	
Retired	1171	923	78%	75-81%	
Other	641	460	68%	61-74%	
<b>Household Income</b>					^
<\$25,000	711	524	71%	64-78%	
\$25,000-<\$35,000	374	264	72%	64-79%	
\$35,000-<\$50,000	456	341	72%	66-78%	
\$50,000-<\$75,000	620	472	75%	70-81%	
\$75,000 or greater	1539	1180	74%	71-77%	
Don't know/not sure	233	168	65%	53-76%	
Refused	436	331	73%	65-81%	

~ Includes not going out in the sun, limiting sun exposure between 10 a.m. - 4 p.m., using sunscreen, wearing a broad brimmed hat, and wearing protective clothing  
N = Number of people in the sample who responded to the survey question  
n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

Maryland Cancer Screening and Risk Behaviors, 2010

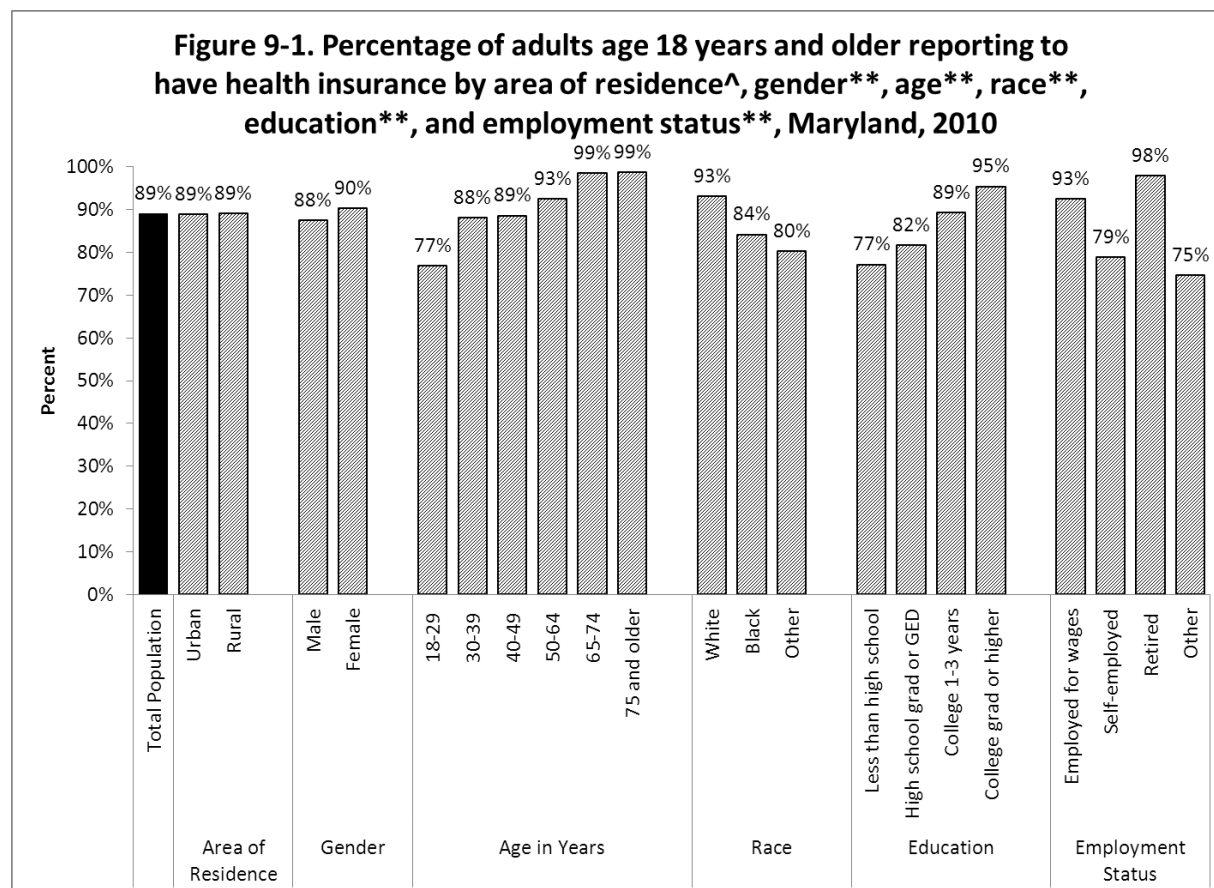
## Chapter 9. Access to Health Care and Cancer Screening

Increasing the proportion of people living in the United States who have health insurance from 82.3% in 2008 to 100% is one of the goals of HP 2020.<sup>1</sup> Uninsured persons are less likely to receive medical care, more likely to die prematurely, and more likely to have poorer health status.<sup>2</sup>

### Health Care Coverage (Figure 9-1 and Table 9-1)

Among Maryland adults age 18 years and older, 89% reported they have some form of health insurance. Statistically significant differences in health insurance status were observed by several demographic characteristics.

- The proportion of Marylanders having health insurance differed by age. Among those age 18-29 years, 77% reported having health insurance, compared to 99% among adults age 65 years and older.
- A lower proportion of blacks (84%) and persons of other race (80%) reported having health insurance compared to whites (93%);
- Health insurance was highest among those with some college (89%) or a college degree or higher (95%) compared to those with less than a high school degree (77%) and high school graduates (82%).



\*\* p-value < 0.05

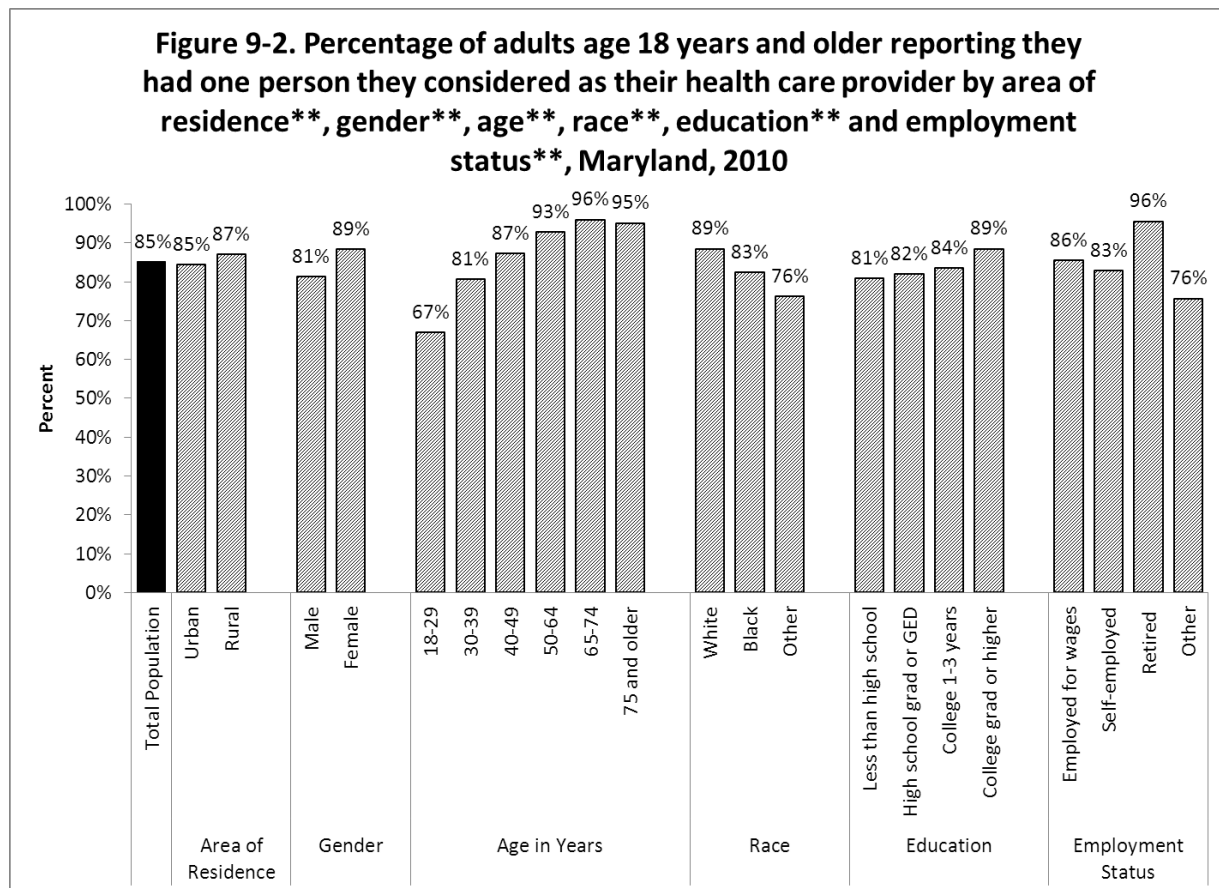
\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

## Having a Health Care Provider (Figure 9-2 and Table 9-1)

Another Healthy People 2020 objective for Access to Health Services is to increase the proportion of people with a usual primary care provider from the baseline of 76.3% in 2007 to 83.9% in 2020.<sup>3</sup>

- Among Maryland residents age 18 years and older, 85% reported they had at least one person they considered as their personal doctor or health care provider (HCP).
- A higher proportion of rural residents (87%) had an HCP compared to urban residents (85%).
- A higher proportion of women (89%) had an HCP compared to men (81%).
- As age increased, the proportion of respondents reporting having a HCP increased and was highest among those age 65 years and older.
- A higher proportion of whites (89%) had an HCP compared to blacks (83%) and persons of other race (76%).
- Access to a HCP differed by education level, with the highest among those with a college degree or higher (89%) compared to those with less than a high school degree (81%), high school graduates (82%), or adults with some college (84%).



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

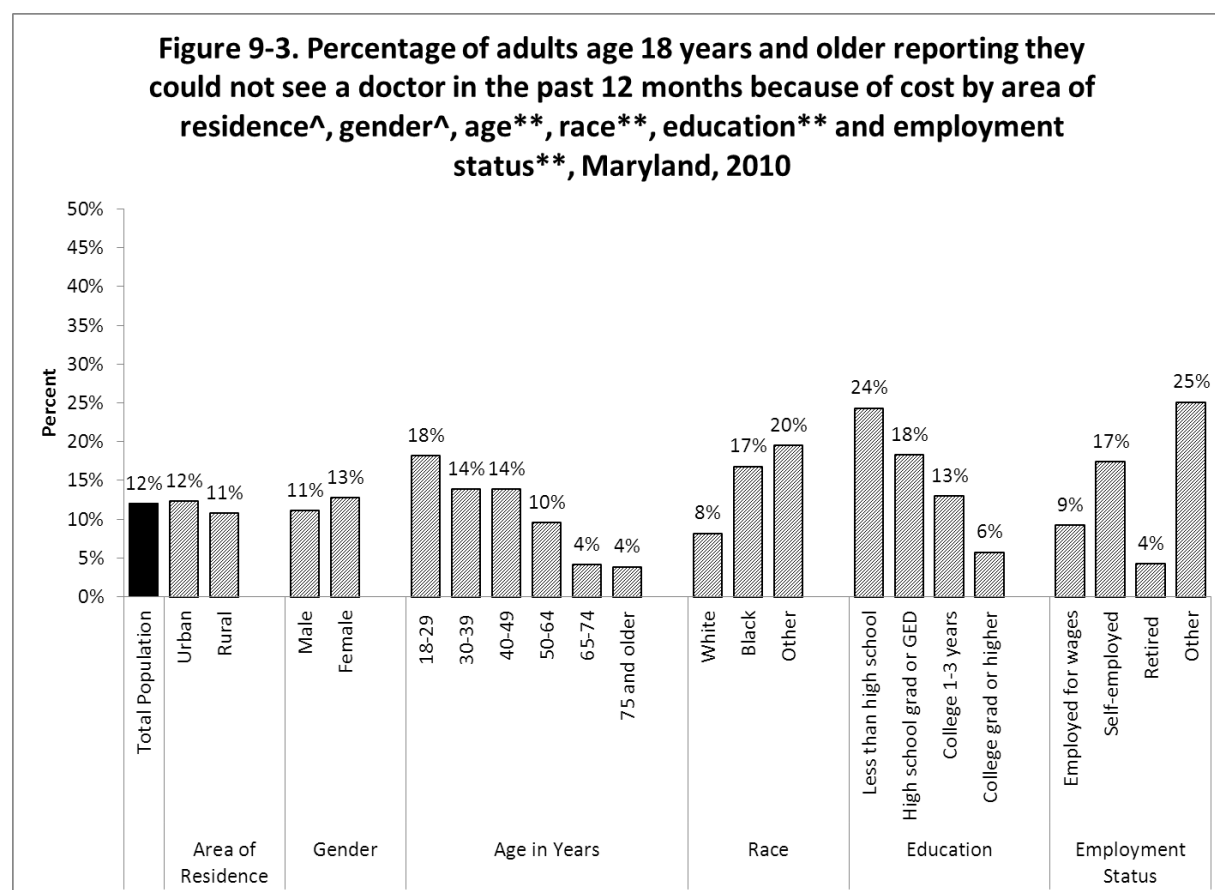
^ p-value ≥ 0.1

## Cost as a Barrier To Health Care Access (Figure 9-3 and Table 9-2)

The Healthy People 2020 also aims to reduce the proportion of individuals who are unable to obtain or delay in obtaining necessary medical care from 4.7% in 2007 to 4.2% by 2020.<sup>4</sup> A contributing factor to delaying obtaining medical treatment or selecting one treatment type over another may include the consideration of cost. This has been noted for cancer treatment.<sup>5</sup>

Among Maryland adults age 18 years and older,

- Twelve percent (12%) could not see a doctor in the past 12 months because of cost.
- This was lowest among adults age 65-74 years (4%) and age 75 years and older (4%) followed by those age 50-64 years (10%).
- Persons of other race had the highest proportion (20%) that could not see a doctor within the past 12 months due to cost compared to blacks (17%) and whites (8%).
- Those with less than a high school degree had the highest proportion (24%) that could not see a doctor within the past 12 months due to cost compared to those with a college degree of higher (6%).



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

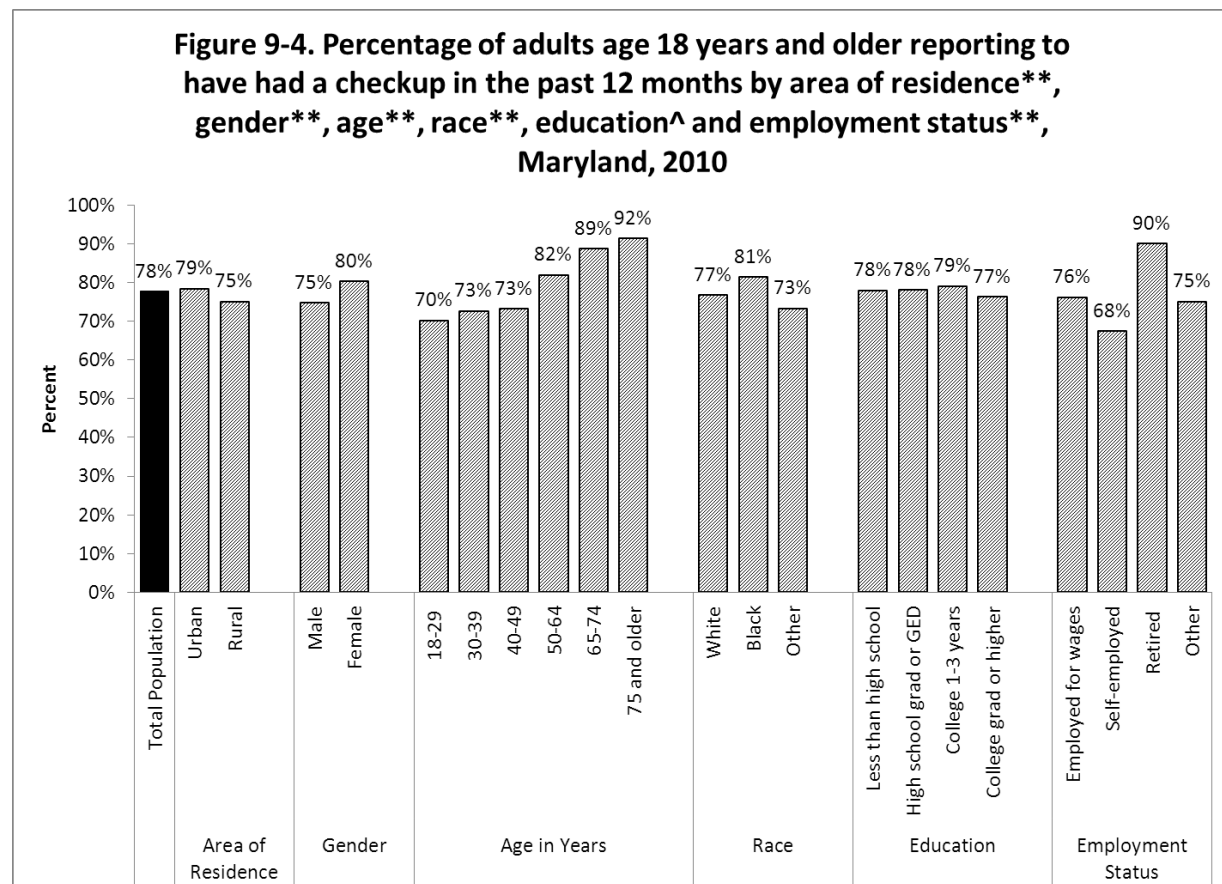
<sup>^</sup> p-value ≥ 0.1

## Regular Health Care Visit (Figure 9-4 and Table 9-2)

Access to health care (primarily health insurance coverage and having a usual source of care) is a strong predictor of recent cancer screening.<sup>6</sup> Across all racial and ethnic groups, those who lack health insurance or have inadequate access to care typically have higher cancer incidence and mortality rates and lower rates of cancer survival.<sup>7</sup>

Participants were asked how long it had been since they last visited a doctor for a routine checkup.

- Seventy-eight percent (78%) of Marylanders age 18 years and older said they had a routine checkup in the past year.
- Seventy-five percent (75%) of men and 80% of women reported having a routine checkup within the past year.
- A significantly higher proportion of adults age 65-74 years (89%) and age 75 years and older (92%) reported having a routine checkup in the past year, compared to those age 50-64 years (82%). Adults in the age groups under age 50 years reported lower proportions.
- A significantly higher proportion of blacks (81%) reported a routine checkup within the past year compared with whites (77%) and persons of other race (73%).
- The proportion of Marylanders having a routine checkup in the past year did not differ significantly by educational level or annual household income.



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

^ p-value ≥ 0.1



## Health Care Access and Cancer Screening (Table 9-3)

Research has found that people who are uninsured or underinsured are less likely to be screened for cancer.<sup>8,9</sup> In the analysis of the BRFSS 2010, we sought to determine whether our measures of health care access (having health insurance, the time since last routine checkup, having a primary HCP, and having delayed seeking care within the past 12 months due to cost) were associated with the prevalence of up-to-date cancer screening which is defined as follows:

Colorectal cancer: Fecal occult blood test (FOBT) within the past year, a sigmoidoscopy within the past 5 years, or a colonoscopy within the past 10 years among adults age 50 years and older;

Prostate Cancer: Prostate-specific antigen (PSA) test within the past year among men age 40 years and older;

Female Breast Cancer: Mammogram within the past 2 years among women age 40 years and older;

Cervical Cancer: Pap test within the past 3 years among women age 18 years and older; and,

Oral Cancer: Oral cancer screening test within the past year among adults age 18 years and older.

- Up-to-date screening for every type of cancer addressed in this analysis was significantly higher among respondents with health insurance than among those without insurance.
- Up-to-date screening for every type of cancer, excluding cervical and oral cancers, was significantly higher among those that had seen a doctor for routine checkup within the past year.
- The proportion of respondents with up-to-date screening for all cancers was significantly higher among those that had a person they considered to be their primary HCP compared to those that did not.
- Up-to-date screening for all types of cancer was significantly lower among respondents that delayed seeking care within the past 12 months due to cost compared to those that did not.

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<sup>1</sup> U.S. Department of Health and Human Services. Healthy People 2020. Available at <http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=1>. Last accessed July 2, 2012.

<sup>2</sup> U.S. Department of Health and Human Services. Agency for Healthcare Research and Quality. National Healthcare Disparities Report, 2008. Chapter 3. Access to Healthcare. Available at <http://www.ahrq.gov/qual/nhdr08/Chap3.htm>. Last accessed July 2, 2012.

<sup>3</sup> See footnote 1.

<sup>4</sup> See footnote 1.

<sup>5</sup> Kaiser Family Foundation. National Survey of Households Affected by Cancer. 2006. Available at: <http://www.kff.org/kaiserpolls/upload/7591.pdf>. Last accessed July 2, 2012.

<sup>6</sup> Smith RA, Cokkinides V, Hammon JE. American Cancer Society Guidelines for Early Detection of Cancer, 2006. *CA Cancer J Clin.* 2006; 56:11-25. Available at <http://onlinelibrary.wiley.com/doi/10.3322/canjclin.56.1.11/pdf>. Last accessed July 2, 2012.

<sup>7</sup> Institute of Medicine. The Unequal Burden of Cancer: An Assessment of NIH Research and Programs for Ethnic Minorities and the Medically Underserved. Washington, D.C., National Academy Press; 1999.

<sup>8</sup> Swan J, Breen N, Coates RJ, et al. Progress in cancer screening practices in the United States: Results from the 2000 National Health Interview Survey. *Cancer.* 2003;97(6):1528-40.

<sup>9</sup> Ross JS, Bradley EH, Busch SH. Use of health care services by lower-income and higher-income uninsured adults. *JAMA.* 2006; 295(17): 2027-36.

**TABLE 9-1. HEALTH CARE ACCESS-HAVING HEALTH INSURANCE AND  
HAVING A PRIMARY HEALTH CARE PROVIDER, AMONG ADULTS AGE 18 YEARS AND OLDER**

	Has health insurance					Has a personal doctor or health care provider				
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
<b>Total Population</b>	9168	8501	89%	88-90%		9163	8330	85%	84-87%	
<b>Area of Residence</b>					<sup>^</sup>					**
Urban	4895	4569	89%	87-91%		4893	4418	85%	83-86%	
Rural	4273	3932	89%	88-91%		4270	3912	87%	85-89%	
<b>Gender</b>					**					**
Male	3417	3126	88%	85-90%		3423	3002	81%	79-84%	
Female	5751	5375	90%	89-92%		5740	5328	89%	87-90%	
<b>Age</b>					**					**
18-29 years	517	416	77%	72-82%		521	374	67%	61-73%	
30-39 years	1075	966	88%	86-91%		1076	903	81%	77-84%	
40-49 years	1779	1605	89%	86-91%		1780	1577	87%	85-90%	
50-64 years	3119	2884	93%	91-94%		3116	2913	93%	92-94%	
65-74 years	1410	1389	99%	98-99%		1408	1357	96%	94-98%	
75 years and older	1134	1113	99%	98-99%		1129	1076	95%	94-97%	
<b>Race</b>					**					**
White	6634	6260	93%	92-94%		6629	6104	89%	87-90%	
Black	1766	1580	84%	81-87%		1767	1573	83%	79-86%	
Other	632	535	80%	75-86%		631	531	76%	70-82%	
<b>Gender and Race</b>					**					**
White male	2571	2399	93%	91-94%		2577	2295	86%	84-88%	
Black male	537	468	83%	78-88%		537	459	78%	73-84%	
Other male	260	213	76%	66-85%		260	204	69%	59-78%	
White female	4063	3861	94%	92-95%		4052	3809	91%	89-92%	
Black female	1229	1112	85%	82-89%		1230	1114	86%	82-89%	
Other female	372	322	86%	81-91%		371	327	86%	81-91%	
<b>Education</b>					**					**
Less than high school	630	523	77%	71-83%		633	559	81%	74-87%	
High school grad or GED	2539	2255	82%	78-85%		2535	2273	82%	79-85%	
College 1-3 years	2193	2038	89%	87-92%		2192	1989	84%	81-87%	
College grad or higher	3760	3644	95%	94-97%		3756	3467	89%	87-90%	
<b>Employment Status</b>					**					**
Employed for wages	4682	4427	93%	91-94%		4678	4231	86%	84-87%	
Self-employed	630	532	79%	73-84%		630	551	83%	78-88%	
Retired	2426	2370	98%	97-99%		2422	2322	96%	94-97%	
Other	1392	1138	75%	70-79%		1394	1192	76%	71-80%	
<b>Household Income</b>					**					**
<\$25,000	1483	1215	74%	70-79%		1483	1285	78%	74-82%	
\$25,000-<\$35,000	808	707	80%	74-85%		809	723	78%	72-85%	
\$35,000-<\$50,000	980	912	89%	85-92%		978	897	85%	81-89%	
\$50,000-<\$75,000	1262	1210	93%	90-96%		1259	1167	90%	87-93%	
\$75,000 or greater	3175	3116	97%	95-98%		3171	2931	88%	86-90%	
Don't know/not sure	516	448	79%	72-85%		514	452	79%	72-86%	
Refused	919	872	91%	88-95%		923	852	88%	84-93%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

<sup>^</sup> p-value ≥ 0.10

**TABLE 9-2. HEALTH CARE ACCESS-COULD NOT SEE A DOCTOR BECAUSE OF COST AND HAD A ROUTINE CHECK-UP IN THE LAST 12 MONTHS, AMONG ADULTS AGE 18 YEARS AND OLDER**

	Could not see doctor in the last 12 months because of cost					Had a routine checkup in the last 12 months				
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
Total Population	9169	830	12%	11-13%		9108	7407	78%	76-79%	
<b>Area of Residence</b>	^					**				
Urban	4899	459	12%	11-14%		4876	3982	79%	77-80%	
Rural	4270	371	11%	9-12%		4232	3425	75%	73-77%	
<b>Gender</b>	^					**				
Male	3422	267	11%	9-13%		3400	2624	75%	73-77%	
Female	5747	563	13%	11-14%		5708	4783	80%	79-82%	
<b>Age</b>	**					**				
18-29 years	522	94	18%	14-23%		512	364	70%	65-76%	
30-39 years	1076	133	14%	11-17%		1068	775	73%	70-76%	
40-49 years	1781	224	14%	12-16%		1772	1283	73%	71-76%	
50-64 years	3114	273	10%	8-11%		3102	2569	82%	80-84%	
65-74 years	1412	54	4%	3-6%		1405	1273	89%	86-91%	
75 years and older	1131	40	4%	2-5%		1118	1026	92%	89-94%	
<b>Race</b>	**					**				
White	6632	477	8%	7-9%		6588	5303	77%	75-78%	
Black	1771	239	17%	14-20%		1762	1515	81%	79-84%	
Other	630	105	20%	15-25%		623	474	73%	68-79%	
<b>Gender and Race</b>	**					**				
White male	2574	151	7%	5-8%		2561	1958	74%	72-77%	
Black male	539	71	16%	12-21%		532	438	78%	73-84%	
Other male	259	45	21%	13-28%		258	186	71%	63-79%	
White female	4058	326	9%	8-11%		4027	3345	79%	77-81%	
Black female	1232	168	17%	14-21%		1230	1077	84%	81-87%	
Other female	371	60	18%	12-24%		365	288	77%	70-83%	
<b>Education</b>	**					^				
Less than high school	631	111	24%	18-30%		620	516	78%	72-84%	
High school grad or GED	2542	310	18%	15-21%		2517	2066	78%	75-81%	
College 1-3 years	2190	216	13%	11-15%		2177	1790	79%	76-82%	
College grad or higher	3760	192	6%	5-7%		3748	2994	77%	75-79%	
<b>Employment Status</b>	**					**				
Employed for wages	4687	344	9%	8-11%		4656	3642	76%	75-78%	
Self-employed	630	92	17%	13-22%		628	460	68%	62-73%	
Retired	2422	94	4%	3-5%		2406	2188	90%	89-92%	
Other	1391	297	25%	21-29%		1379	1082	75%	71-79%	
<b>Household Income</b>	**					^				
<\$25,000	1481	292	26%	22-30%		1468	1195	78%	74-81%	
\$25,000-<\$35,000	807	131	28%	21-34%		799	650	76%	70-81%	
\$35,000-<\$50,000	980	105	15%	11-18%		973	806	78%	74-82%	
\$50,000-<\$75,000	1263	88	12%	8-15%		1256	1032	78%	74-82%	
\$75,000 or greater	3178	97	4%	3-5%		3162	2512	77%	75-79%	
Don't know/not sure	515	65	15%	10-20%		506	406	77%	71-84%	
Refused	919	49	9%	5-12%		918	784	83%	79-87%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

TABLE 9-3. UP-TO-DATE CANCER SCREENING BY HEALTH CARE ACCESS FACTORS

	Had an FOBT within the last year, a sigmoidoscopy within the last 5 years or a colonoscopy within the last 10 years (adults $\geq$ 50 years)					Had a PSA within the last year among men without a history of prostate cancer (men $\geq$ 40 years)					Had a DRE within the last year among men without a history of prostate cancer (men $\geq$ 40 years)				
Selected characteristic	N	n	wt%	95%CI	Stat Sig	N	n	wt%	95%CI	Stat Sig	N	n	wt%	95%CI	Stat Sig
<b>Do you have any kind of health care coverage?</b>					**					**					**
Yes	5228	3770	72%	70-73%		2304	1204	49%	46-52%		2374	1147	47%	44-50%	
No	264	128	52%	44-61%		172	36	17%	9-24%		175	36	13%	7-19%	
<b>Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?</b>					**					**					**
Yes	356	202	58%	51-66%		169	56	33%	23-43%		176	58	27%	19-36%	
No	5128	3696	72%	70-74%		2309	1184	48%	45-51%		2375	1125	46%	44-49%	
<b>How long has it been since you last visited a doctor for a routine checkup?</b>					**					**					**
Within the past year (less than 1 year)	4720	3535	75%	73-76%		1952	1165	56%	53-59%		2008	1122	54%	51-57%	
Within at least 1 year but less than 2 years	374	217	59%	53-66%		233	43	17%	11-23%		243	37	17%	11-24%	
Within at least 2 years but less than 5 years	179	87	48%	38-58%		150	19	12%	5-18%		157	14	10%	4-15%	
5 years or more (including never)	180	42	21%	14-29%		130	10	9%	2-16%		131	8	7%	0-13%	
<b>Do you have one person you think of as your primary health care provider?</b>					**					**					**
At least one health care provider	5186	3784	73%	71-74%		2244	1203	50%	48-53%		2307	1151	49%	46-51%	
No health care provider	294	108	42%	34-50%		234	37	15%	8-22%		244	32	10%	6-15%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05  $\leq$  p-value < 0.10

^ p-value  $\geq$  0.10

TABLE 9-3. PREVALENCE OF UP-TO-DATE CANCER SCREENING BY HEALTH CARE ACCESS FACTORS

	Had a mammogram within the last 2 years (women $\geq$ 40 years)					Had a Pap test within the last 3 years (women $\geq$ 18 years who have not had a hysterectomy)					Had an oral cancer screening test within the last year ( $\geq$ 18 years)				
Selected characteristic	N	n	wt%	95%CI	Stat Sig	N	n	wt%	95%CI	Stat Sig	N	n	wt%	95%CI	Stat Sig
<b>Do you have any kind of health care coverage?</b>					**					**					**
Yes	4297	3569	82%	81-84%		3730	3191	87%	86-89%		3954	1520	33%	31-35%	
No	255	137	51%	42-60%		290	204	76%	69-83%		292	43	13%	7-18%	
<b>Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?</b>					**					**					**
Yes	399	265	62%	55-68%		411	321	81%	76-86%		368	67	17%	12-22%	
No	4147	3438	83%	81-84%		3603	3072	87%	85-89%		3883	1496	32%	30-34%	
<b>How long has it been since you last visited a doctor for a routine checkup?</b>					**					**					**
Within the past year (less than 1 year)	3850	3291	85%	84-87%		3249	2834	89%	87-91%		3439	1320	33%	30-35%	
Within at least 1 year but less than 2 years	370	256	66%	60-72%		404	351	88%	84-93%		398	128	27%	21-32%	
Within at least 2 years but less than 5 years	156	81	45%	35-54%		174	120	69%	59-80%		208	67	22%	15-29%	
5 years or more (including never)	143	56	38%	27-49%		167	78	61%	50-72%		184	43	18%	11-25%	
<b>Do you have one person you think of as your primary health care provider?</b>					**					**					**
At least one health care provider	4296	3581	83%	81-84%		3673	3163	88%	86-90%		3868	1484	33%	31-36%	
No health care provider	244	113	42%	34-51%		337	224	73%	66-80%		375	80	15%	10-20%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05  $\leq$  p-value < 0.10

^ p-value  $\geq$  0.10



## Chapter 10. Lifestyle Factors and Cancer Screening

Lifestyle and dietary factors contribute to one's risk of developing cancer. Tobacco use and high-risk alcohol consumption are modifiable lifestyle risk factors that have been shown to influence the incidence of several diseases, including cancer.<sup>1,2</sup> Cigarette smoking is causally related to cancer of the oral cavity and pharynx, larynx, lung, bronchus, and trachea, stomach, cervix, esophagus, bladder, kidney, pancreas, blood marrow, and blood.<sup>1</sup> Smoking cessation has been shown to decrease the risk of developing smoking-related cancers compared to current smoking. High-risk alcohol consumption is also related to cancers of the colon, breast, liver, esophagus, oral cavity, pharynx, and larynx.<sup>2</sup>

Being overweight or obese are major health concerns in the United States (U.S.). Scientific evidence has established clear associations between being overweight/obese and the leading causes of morbidity and mortality in the U.S., including cardiovascular disease, cancer, and diabetes.<sup>3,4</sup> Being overweight or obese are clearly associated with increased risk of developing cancers of the breast (in postmenopausal women), colon, endometrium, esophagus, and kidney. Highly suggestive evidence also indicates that obesity increases risk for cancers of the gallbladder, prostate, ovary, pancreas, thyroid, and cervix, and for multiple myeloma and Hodgkin's lymphoma.<sup>5</sup> In 2003, it was estimated that in the U.S., among persons who have never smoked, being overweight or obese could account for as much as 14% of cancer-related deaths in men and 20% of all cancer-related deaths in women.<sup>6</sup>

Tobacco use, alcohol abuse, body weight, dietary practices, and levels of physical activity are the most important modifiable determinants of cancer risk. Because of their critical importance in overall health, these factors are leading health indicators used by Healthy People (HP) 2020 to measure the health of the nation. The Behavioral Risk Factor Surveillance System (BRFSS) examines these indicators through a series of questions related to tobacco use, alcohol consumption, body weight and height, fruit and vegetable consumption, and frequency and intensity of physical activity. Findings were used to assess the prevalence of these risk factors among Marylanders, and to examine whether these risk factors are associated with up-to-date cancer screening behaviors. Up-to-date screening was defined as follows:

Colorectal Cancer: Fecal occult blood test (FOBT) within the last year, a sigmoidoscopy within the last 5 years, or a colonoscopy within the last 10 years among adults age 50 years and older;

Prostate Cancer: Prostate-specific antigen (PSA) test and digital rectal exam (DRE) within the last year among men age 40 years and older;

Female Breast Cancer: Mammogram within the last 2 years among women age 40 years and older;

Cervical Cancer: Pap test within the last 3 years among women age 18 years and older; and,

Oral Cancer: Oral cancer screening exam within the last year among adults age 18 years and older.

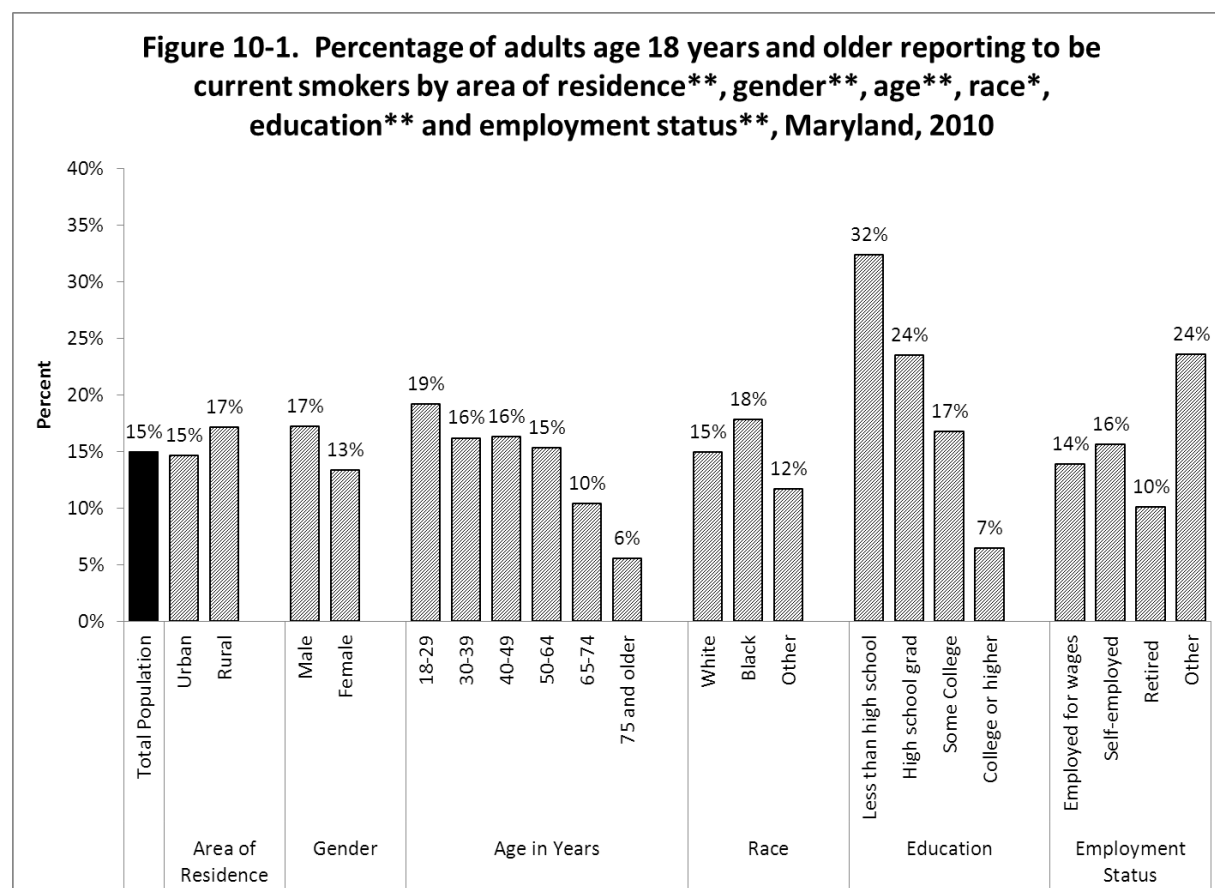
### 10.1 Tobacco use

The HP 2020 target is to reduce the proportion of adult cigarette smokers (age 18 years and older) from the U.S. 2008 baseline of 20.6% to 12%.<sup>7</sup> Among Marylanders age 18 years and

older, 15% reported they currently smoke, 24% reported they were former smokers, and 61% reported they have never smoked.

When comparing current smokers to non-smokers (former and never smokers combined) significant differences were found for most of the demographic characteristics examined among the Maryland population age 18 years and older (Figure 10-1 and Table 10-1).

- A significantly higher proportion of rural residents (17%) were current cigarettes smokers, compared to urban residents (15%).
- A significantly higher proportion of men (17%) were current smokers compared to women (13%).
- The lowest percentages of current smokers were seen in the oldest age groups: 10% of adults age 65-74 years and 6% of those age 75 years and older.
- A higher proportion of blacks (18%) were current smokers followed by whites (15%) and persons of other race (12%), though the difference was not statistically significant.
- As education level increased, the percent of current smokers declined. The prevalence of current smoking was 4.5 times higher among respondents with less than a high school education compared to those with college degree or higher (32% vs. 7%).



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

^ p-value ≥ 0.1



### Smoking Status and Up-to-Date Cancer Screenings (Table 10-4)

Smoking status was examined in relation to the various types of cancer screening tests and their recommended schedule for up-to-date screening.

- Current smokers age 50 years and older were significantly less likely than non-smokers (i.e., never and former smokers) to have ever been screened for CRC by FOBT or by lower GI endoscopy.
- Male smokers age 40 years and older were less likely than non-smokers to have had a PSA test or a DRE within the past year.
- A lower proportion of current female smokers age 40 years and older reported having had a mammogram in the past 2 years (64%) compared to non-smokers (83%).
- Among women age 18 years and older, no significant difference by smoking status was found in the proportion screened for cervical cancer by Pap test within the past 3 years.
- A lower proportion of current smokers (19%) reported having had an oral cancer screening test within the past year compared to non-smokers (33%).

## **10.2 Alcohol Consumption**

According to current guidelines of the National Institute on Alcohol Abuse and Alcoholism (NIAAA), men are considered to be at high risk for alcohol-related problems if they consume more than 14 drinks per week or engage in binge drinking, while women are considered to be at high risk if they consume more than seven drinks per week or engage in binge drinking.<sup>8</sup> The NIAAA has defined binge drinking as a blood alcohol concentration corresponding to consuming five drinks or more for men and four drinks or more for women in a period of about 2 hours.<sup>9</sup>

Two HP 2020 objectives related to alcohol consumption include:<sup>10</sup>

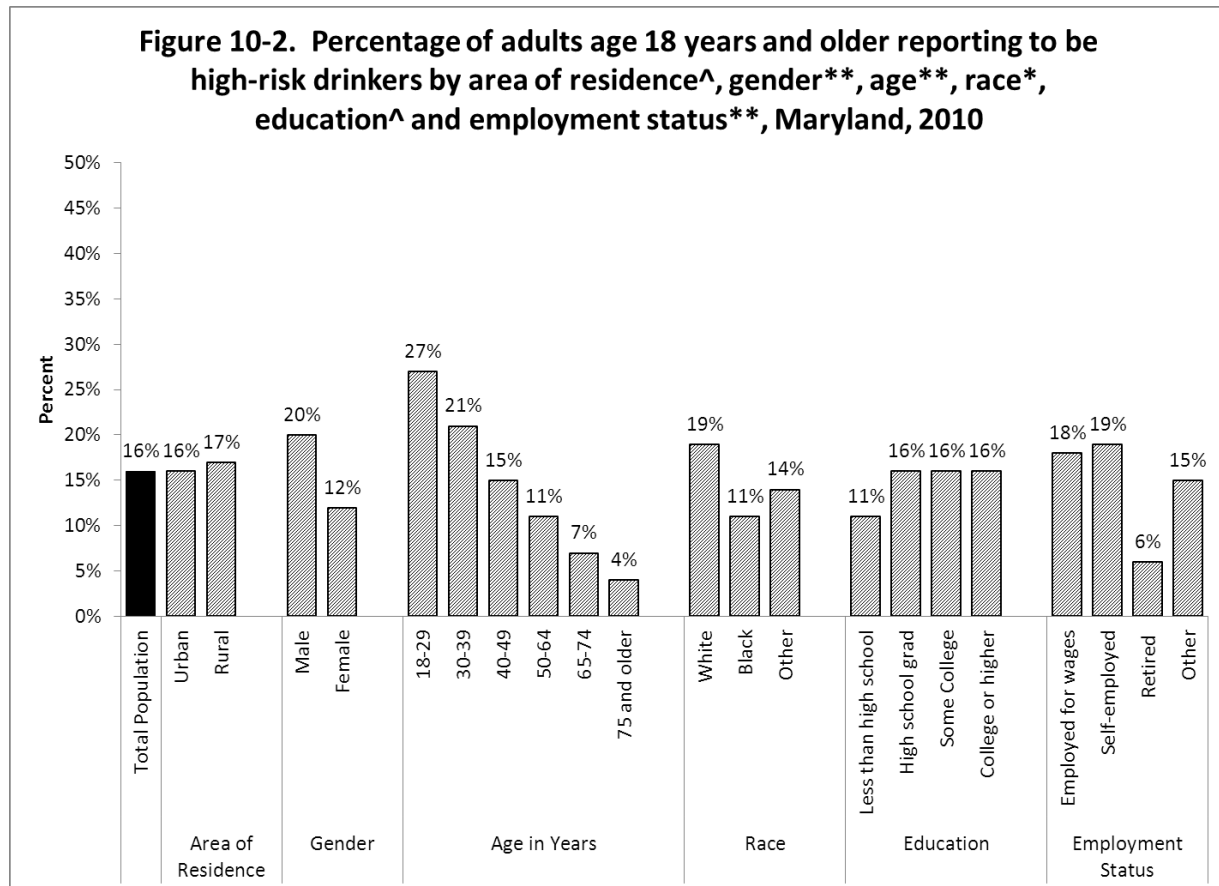
1. To reduce the proportion of adults age 18 years and older who engage in binge drinking during the past month from a national baseline in 2008 of 27.0% to a target of 24.3%;and
2. To reduce the proportion of adults age 18 years and older who drank excessively in the previous 30 days from a national baseline in 2008 of 28.1% to a target of 25.3%.

The BRFSS 2010 included a series of questions about the frequency and amount of alcohol consumed during the past 30 days. Three categories of alcohol consumption were defined: non-drinkers, those at low risk for alcohol-related problems, and those at high risk. For this analysis, high-risk drinking was defined in accordance with NIAAA guidelines, as more than 14 drinks in a week for a man and more than 7 drinks in a week for a woman, or engaging in binge drinking. We have defined low-risk alcohol drinkers as those who consume some alcohol, but less than high-risk drinkers.

Forty-six percent (46%) of Maryland adults age 18 years and older were non-drinkers in the 30 days prior to the survey and 38% were low-risk drinkers. Sixteen percent (16%) were classified as high-risk drinkers.

## High-Risk Drinking (Figure 10-2 and Table 10-1)

- The proportion of high-risk drinkers in the 30 days prior to the survey was higher among men (20%) compared to women (12%).
- The prevalence of high-risk drinking decreased with increasing age, ranging from 27% for adults age 18-29 years to 4% among adults age 75 years and older.
- High-risk drinking was more prevalent among whites (19%) than among blacks (11%).
- There were no statistically significant differences in high-risk drinking by educational level and household income.



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

## Alcohol Consumption and Up-to-Date Cancer Screening (Table 10-4)

High-risk alcohol consumption was examined in relation to the prevalence of various types of cancer screening tests. Significant differences in screening prevalence based on alcohol consumption were seen for the following screening tests:

- Among men age 40 years and older, the prevalence of having had a PSA test within the last year was lower among high-risk alcohol drinkers (37%) compared to non-drinkers and low-risk drinkers combined (50%).
- Among women age 40 years and older, the prevalence of having had a mammogram within the past two years was lower among high-risk alcohol drinkers (76%) compared to non-drinkers and low-risk drinkers combined (81%), but the difference was not statistically significant.
- In contrast to the findings above, among women age 18 years and older, the prevalence of having a Pap test within the past 3 years was *higher* among high-risk alcohol drinkers (93%) compared to non-drinkers and low-risk alcohol drinkers combined (85%).

### 10.3 Body Mass Index (BMI)

BMI is widely used as an indicator of total body fat, based on an individual's height and weight. BMI is calculated as body weight in kilograms divided by height in meters squared ( $\text{kg/m}^2$ ). The table below shows the BMI ranges generally used as a measure of whether an individual is underweight, at a healthy weight, overweight, or obese.

	<b>BMI range (<math>\text{kg/m}^2</math>)</b>
Underweight	Less than 18.5
Healthy	18.5 – 24.9
Overweight	25.0 – 29.9
Obese	30.0 or higher

Reducing the percentage of Americans who are overweight or obese is among the leading health indicators used by HP 2020. One specific HP 2020 target is to reduce the proportion of American adults age 20 years and older who are obese, from a national baseline of 34% in 2005-2008 to 30.6% by 2020. Another HP 2020 target is to increase the proportion of adults age 20 years and older that has a healthy weight, from a national baseline of 30.8% to 33.9%.<sup>11</sup>

In the BRFSS, participants were asked to provide their height and weight, which was then used to estimate BMI. The following is a summary of BMI distribution among Marylanders age 18 years and older, based on results of the BRFSS 2010 (Table 10-2).

- Thirty-three percent (33%) had a BMI in the “healthy” range, 39% had a BMI in the “overweight” range and 28% had a BMI in the “obese” range. (107 persons with a BMI in the “underweight” range were excluded from analysis due to small sample size, as were the 496 persons who did not report a height and/or weight.)
- Sixty-seven percent (67%) of Marylanders age 18 years and older can be considered overweight or obese.

BMI differed significantly among respondents, based on several demographic characteristics (Table 10-2).

- A statistically significant lower percentage of men (26%) compared to women (40%) had a BMI in the healthy weight range. Although the prevalence of overweight was significantly higher among men (45%) compared to women (33%), the prevalence of obesity was comparable for men and women (29% vs. 27%).
- Blacks (35%) had a significantly greater percentage with a BMI in the obese range than did either whites (26%) or those of other race (22%).
- Adults who had attained a college degree or higher had the highest prevalence of healthy weight and the lowest prevalence of obese weight.

#### BMI and Up-to-Date Cancer Screening (Tables 10-4 and 10-5)

Significant differences in cancer screening tests by BMI were only found for up-to-date oral cancer screening. Those with a healthy weight were found to have the highest proportion of oral cancer screening tests within the last year (34%) and the lowest was among the obese (26%). There were no significant differences in up-to-date screening for the other cancers by BMI.

### **10.4 Dietary Practices**

Epidemiological studies have shown that eating a diet high in vegetables and fruits and low in animal fat and meat reduces the risk of some of the most common types of cancer.<sup>3,4</sup> Current recommendations for overall health are to increase the intake of fruits and vegetables, eat a variety of vegetables (especially dark-green and red and orange vegetables), consume at least half of all grains as whole grains, and to limit consumption of saturated fats, alcohol, and excess calories.<sup>12</sup>

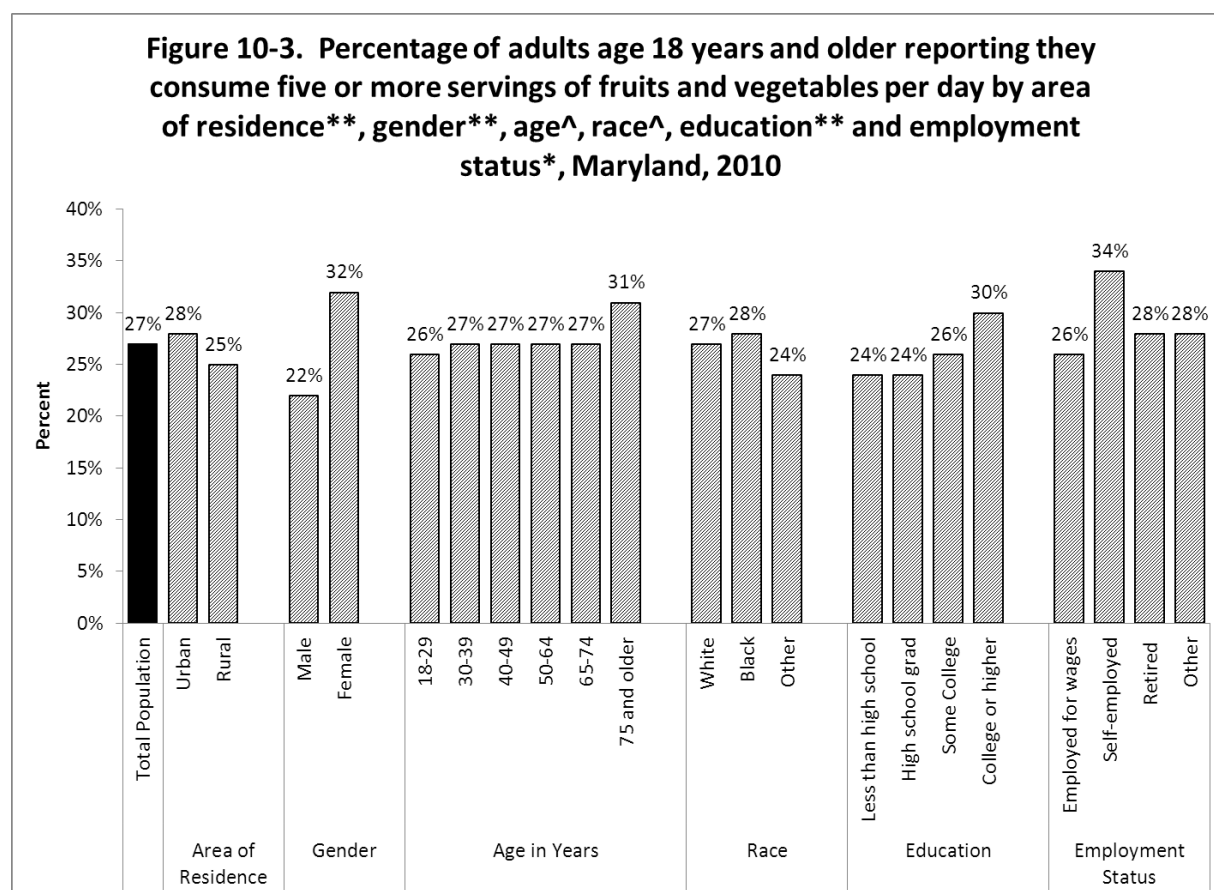
#### Fruit and Vegetable Consumption (Figure 10-3 and Table 10-3)

In the BRFSS 2010, survey respondents were asked about their average daily consumption of a variety of fruits and vegetables. Using these survey results, the number of daily servings of fruits and vegetables were estimated by summing the responses from specific questions about consumption of fruits, fruit juice, leafy salad greens, and vegetables (other than potatoes).

Below are the findings for Marylanders age 18 years and older eating at least five servings of fruits and vegetables daily:

- Overall, 27% reported eating five or more servings of fruits and vegetables a day.
- The proportion of persons who reported consuming five or more servings of fruits and/or vegetables a day differed significantly with respect to several demographic characteristics.
  - A higher proportion of women (32%) than men (22%) reported eating at least five servings a day.
  - The proportion of persons eating at least five servings a day was lower among those living in rural areas (25%), compared to those living in urban areas (28%).

- Marylanders with a BMI in the healthy range (31%) were more likely to consume at least five daily servings of fruits and/or vegetables than persons who were overweight (25%) or obese (25%; data not shown).



\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.1

^ p-value ≥ 0.1

### Fruit and Vegetable Consumption and Up-to-Date Cancer Screening (Table 10-4)

The association between dietary practices, specifically the number of servings of fruits and vegetables, and up-to-date cancer screenings were analyzed.

- Persons who reported eating at least five servings of fruits and vegetables per day reported significantly higher prevalence of being up-to-date with breast cancer screening and oral cancer screening, compared to those who ate fewer servings a day.

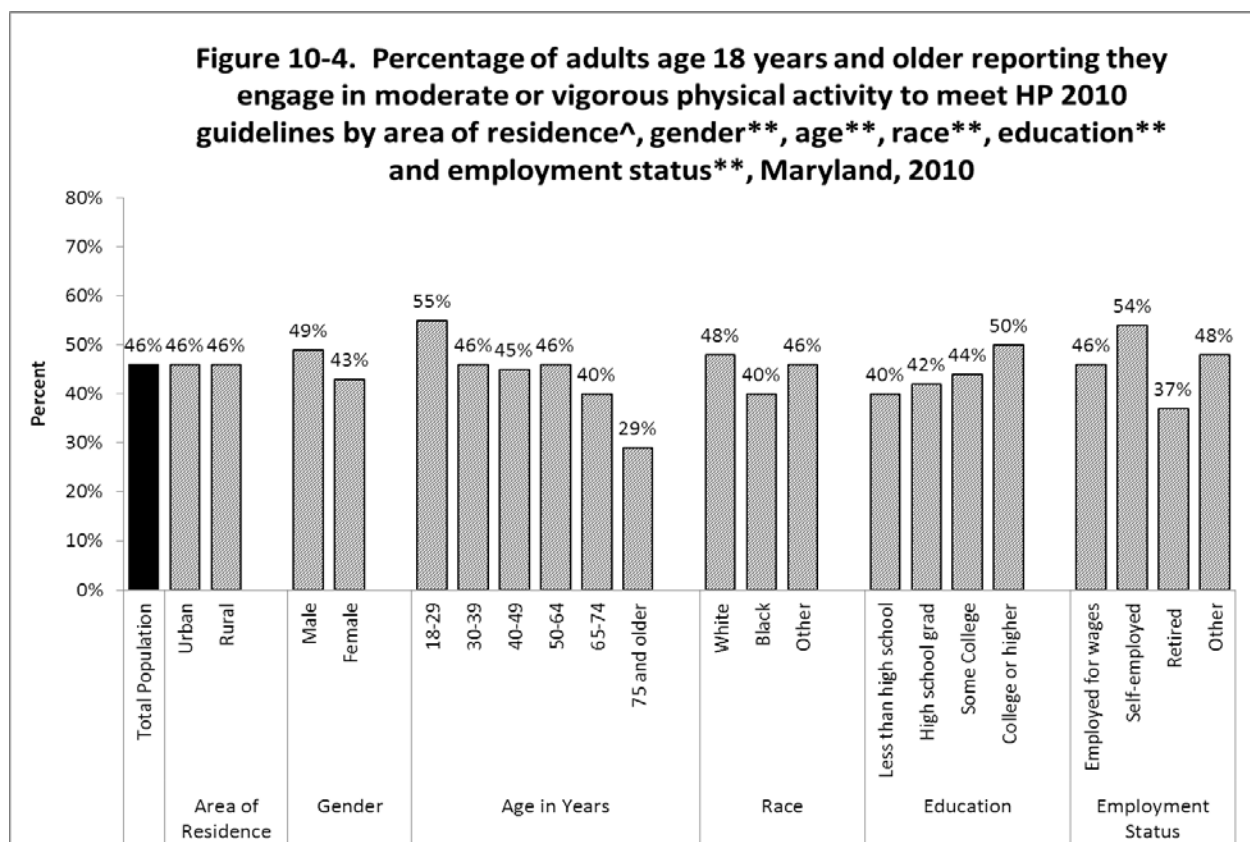
## 10.5 Physical Activity

In addition to known benefits in reducing cardiovascular disease risk, physical activity may also reduce the risk of developing several types of cancer, including cancer of the breast,<sup>13,14</sup> colon,<sup>15,16</sup> and endometrium.<sup>17,18</sup>

## Moderate or Vigorous Physical Activity (Figure 10-4 and Table 10-3)

BRFSS participants were asked about the frequency and duration of their moderate and vigorous physical activity in a typical week. Responses to these questions were combined to estimate the proportion of the population that engages in regular physical activity to meet the HP 2010 objective— either 20 minutes of vigorous physical activity 3 or more days per week, or 30 minutes of moderate physical activity 5 or more days per week. This measure was used as a basis for comparisons in this report.

- Almost half (46%) of Marylanders age 18 years and older engage in regular moderate or vigorous physical activity per week.
- The highest proportions of persons achieving these activity levels were found among men (49%) compared to women (43%), and those age 18-29 years (55%) compared to all other age groups.
- The proportion of individuals that participated in moderate or vigorous physical activity was highest among those with a college education or more.



<sup>\*\*</sup> p-value < 0.05

<sup>\*</sup> 0.05 ≤ p-value < 0.1

<sup>^</sup> p-value ≥ 0.1

## Physical Activity and Healthy People (HP) 2020

Physical activity remains one of the leading health indicators used by HP 2020 and has been expanded from HP 2010; HP 2020 set several objectives for physical activity including the following which increases the amount of vigorous physical activity to be done in a week:<sup>19</sup>

Increase the proportion of adults who engage in aerobic physical activity of at least moderate intensity for at least 150 minutes/week (30 minutes a day for at least 5 days a week), or 75 minutes/week of vigorous intensity, or an equivalent combination to 47.9%.

35% of Maryland adults age 18 years and older met the HP 2020 objective.

## Physical Activity and Up-to-Date Cancer Screening (Table 10-5)

For each type of cancer screening, the prevalence of up-to-date screening was examined for persons who engage in regular physical activity (vigorous and moderate levels) compared to those who do not.

- Those who engaged in vigorous or moderate physical activity compared to those that did not had a significantly higher prevalence of having a DRE within the past year, a mammogram within the last 2 years (83% vs. 78%), a pap test within the last 3 years (89% vs. 85%), and an oral cancer test within that last years (33% vs. 29%).

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<sup>1</sup> U.S. Department of Health and Human Services. How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease report of the Surgeon General Rockville, MD; 2010. Available at [http://www.cdc.gov/tobacco/data\\_statistics/sgr/2010/index.htm](http://www.cdc.gov/tobacco/data_statistics/sgr/2010/index.htm). Last accessed July 2, 2012.

<sup>2</sup> Centers for Disease Control and Prevention. Quick Stats: General Information on Alcohol Use and Health. Centers for Disease Control and Prevention. Available at [http://www.cdc.gov/alcohol/quickstats/general\\_info.htm](http://www.cdc.gov/alcohol/quickstats/general_info.htm). Last accessed July 2, 2012.

<sup>3</sup> Eyre H, Kahn R, and Robertson RM. Preventing cancer, cardiovascular disease, and diabetes. *Diabetes Care* 2004; 27(7): 1812-1824.

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<sup>7</sup> U.S. Department of Health and Human Services. Healthy People 2020. Topics & Objectives. Tobacco use. Available at <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=41>. Last accessed July 2, 2012.

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**TABLE 10-1. CURRENT SMOKING AND HIGH-RISK ALCOHOL CONSUMPTION,  
AMONG ADULTS AGE 18 YEARS AND OLDER**

	Current smoker					High-risk drinker				
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
Total Population	9149	1281	15%	14-17%		8869	1099	16%	14-17%	
<b>Area of Residence</b>					**					^
Urban	4885	623	15%	13-16%		4722	571	16%	14-17%	
Rural	4264	658	17%	15-19%		4147	528	17%	15-19%	
<b>Gender</b>					**					**
Male	3421	516	17%	15-19%		3290	531	20%	17-22%	
Female	5728	765	13%	12-15%		5579	568	12%	11-14%	
<b>Age</b>					**					**
18-29 years	520	97	19%	14-24%		506	128	27%	22-33%	
30-39 years	1074	170	16%	13-19%		1052	205	21%	18-24%	
40-49 years	1781	309	16%	14-19%		1711	285	15%	13-17%	
50-64 years	3112	480	15%	14-17%		3025	327	11%	9-12%	
65-74 years	1407	143	10%	8-12%		1375	106	7%	5-9%	
75 years and older	1123	66	6%	4-7%		1085	41	4%	2-6%	
<b>Race</b>					*					**
White	6616	922	15%	14-16%		6446	882	19%	17-20%	
Black	1767	276	18%	15-21%		1697	142	11%	8-13%	
Other	633	73	12%	7-17%		604	55	14%	9-19%	
<b>Gender and Race</b>					**					**
White male	2572	367	16%	14-18%		2485	437	23%	20-26%	
Black male	539	108	22%	17-28%		517	53	13%	9-17%	
Other male	261	38	15%	7-23%		245	32	20%	11-28%	
White female	4044	555	14%	13-16%		3961	445	15%	13-17%	
Black female	1228	168	14%	11-17%		1180	89	9%	6-11%	
Other female	372	35	8%	4-11%		359	23	8%	3-12%	
<b>Education</b>					**					^
Less than high school	630	168	32%	26-39%		614	52	11%	7-15%	
High school grad or GED	2537	494	24%	20-27%		2452	269	16%	13-19%	
College 1-3 years	2188	351	17%	14-19%		2129	276	16%	14-19%	
College grad or higher	3748	259	7%	5-8%		3646	501	16%	14-18%	
<b>Employment Status</b>					**					**
Employed for wages	4680	630	14%	12-15%		4534	691	18%	17-20%	
Self-employed	630	79	16%	11-21%		608	109	19%	14-24%	
Retired	2412	229	10%	8-12%		2359	143	6%	5-7%	
Other	1389	338	24%	20-28%		1352	155	15%	11-19%	
<b>Household Income</b>					**					^
<\$25,000	1483	352	30%	25-34%		1448	107	13%	9-17%	
\$25,000-<\$35,000	808	143	17%	13-21%		780	77	12%	8-16%	
\$35,000-<\$50,000	974	143	19%	15-23%		950	111	14%	11-18%	
\$50,000-<\$75,000	1261	182	15%	12-18%		1242	166	14%	11-18%	
\$75,000 or greater	3168	278	9%	7-11%		3103	508	18%	16-20%	
Don't know/not sure	513	79	18%	12-24%		498	48	18%	11-25%	
Refused	916	96	12%	8-15%		848	82	15%	10-20%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.1

Maryland Cancer Screening and Risk Behaviors, 2010

**TABLE 10-1. CURRENT SMOKING AND HIGH-RISK ALCOHOL CONSUMPTION,  
AMONG ADULTS AGE 18 YEARS AND OLDER**

	Current smoker					High-risk drinker				
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
Total Population	9149	1281	15%	14-17%		8869	1099	16%	14-17%	
<b>Area of Residence</b>					**					^
Urban	4885	623	15%	13-16%		4722	571	16%	14-17%	
Rural	4264	658	17%	15-19%		4147	528	17%	15-19%	
<b>Gender</b>					**					**
Male	3421	516	17%	15-19%		3290	531	20%	17-22%	
Female	5728	765	13%	12-15%		5579	568	12%	11-14%	
<b>Age</b>					**					**
18-29 years	520	97	19%	14-24%		506	128	27%	22-33%	
30-39 years	1074	170	16%	13-19%		1052	205	21%	18-24%	
40-49 years	1781	309	16%	14-19%		1711	285	15%	13-17%	
50-64 years	3112	480	15%	14-17%		3025	327	11%	9-12%	
65-74 years	1407	143	10%	8-12%		1375	106	7%	5-9%	
75 years and older	1123	66	6%	4-7%		1085	41	4%	2-6%	
<b>Race</b>					*					**
White	6616	922	15%	14-16%		6446	882	19%	17-20%	
Black	1767	276	18%	15-21%		1697	142	11%	8-13%	
Other	633	73	12%	7-17%		604	55	14%	9-19%	
<b>Gender and Race</b>					**					**
White male	2572	367	16%	14-18%		2485	437	23%	20-26%	
Black male	539	108	22%	17-28%		517	53	13%	9-17%	
Other male	261	38	15%	7-23%		245	32	20%	11-28%	
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Black female	1228	168	14%	11-17%		1180	89	9%	6-11%	
Other female	372	35	8%	4-11%		359	23	8%	3-12%	
<b>Education</b>					**					^
Less than high school	630	168	32%	26-39%		614	52	11%	7-15%	
High school grad or GED	2537	494	24%	20-27%		2452	269	16%	13-19%	
College 1-3 years	2188	351	17%	14-19%		2129	276	16%	14-19%	
College grad or higher	3748	259	7%	5-8%		3646	501	16%	14-18%	
<b>Employment Status</b>					**					**
Employed for wages	4680	630	14%	12-15%		4534	691	18%	17-20%	
Self-employed	630	79	16%	11-21%		608	109	19%	14-24%	
Retired	2412	229	10%	8-12%		2359	143	6%	5-7%	
Other	1389	338	24%	20-28%		1352	155	15%	11-19%	
<b>Household Income</b>					**					^
<\$25,000	1483	352	30%	25-34%		1448	107	13%	9-17%	
\$25,000-<\$35,000	808	143	17%	13-21%		780	77	12%	8-16%	
\$35,000-<\$50,000	974	143	19%	15-23%		950	111	14%	11-18%	
\$50,000-<\$75,000	1261	182	15%	12-18%		1242	166	14%	11-18%	
\$75,000 or greater	3168	278	9%	7-11%		3103	508	18%	16-20%	
Don't know/not sure	513	79	18%	12-24%		498	48	18%	11-25%	
Refused	916	96	12%	8-15%		848	82	15%	10-20%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.1

Maryland Cancer Screening and Risk Behaviors, 2010

**TABLE 10-2. BODY MASS INDEX BY DEMOGRAPHIC CHARACTERISTICS,  
AMONG ADULTS AGE 18 YEARS AND OLDER**

		Healthy weight (BMI 18.5 - 24.9)			Overweight (BMI 25.0 - 29.9)			Obese (BMI ≥ 30.0)			
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
Total Population	8582	2775	33%	31-35%	3300	39%	37-40%	2507	28%	27-30%	**
<b>Area of Residence</b>											**
Urban	4593	1551	34%	32-36%	1788	39%	37-41%	1254	27%	26-29%	
Rural	3989	1224	31%	28-33%	1512	38%	36-40%	1253	31%	29-33%	
<b>Gender</b>											**
Male	3333	773	26%	23-28%	1553	45%	42-48%	1007	29%	27-32%	
Female	5249	2002	40%	38-42%	1747	33%	31-35%	1500	27%	26-29%	
<b>Age</b>											**
18-29 years	490	221	46%	40-52%	152	31%	25-37%	117	23%	18-28%	
30-39 years	1011	362	34%	30-38%	348	36%	32-40%	301	30%	27-34%	
40-49 years	1666	499	27%	25-30%	662	42%	39-45%	505	30%	28-33%	
50-64 years	2934	861	27%	25-29%	1124	41%	39-44%	949	32%	29-34%	
65-74 years	1339	375	26%	23-29%	530	42%	38-45%	434	32%	28-35%	
75 years and older	1072	420	40%	36-43%	461	44%	41-48%	191	16%	13-18%	
<b>Race</b>											**
White	6244	2186	36%	34-38%	2379	37%	36-39%	1679	26%	25-28%	
Black	1658	351	25%	22-28%	638	40%	36-43%	669	35%	32-38%	
Other	582	206	35%	30-41%	238	43%	37-49%	138	22%	17-27%	
<b>Gender and Race</b>											**
White male	2522	589	26%	23-28%	1178	44%	41-47%	755	30%	28-33%	
Black male	523	104	24%	18-30%	234	45%	39-51%	185	31%	26-36%	
Other male	248	66	29%	20-37%	123	49%	40-58%	59	22%	15-29%	
White female	3722	1597	47%	44-49%	1201	31%	29-33%	924	23%	21-25%	
Black female	1135	247	26%	23-30%	404	35%	31-39%	484	39%	35-42%	
Other female	334	140	44%	36-51%	115	35%	28-42%	79	22%	16-28%	
<b>Education</b>											**
Less than high school	586	155	28%	21-34%	222	37%	31-44%	209	35%	28-41%	
High school grad or GED	2371	640	28%	25-32%	908	37%	34-41%	823	34%	31-38%	
College 1-3 years	2053	611	30%	27-34%	776	39%	35-42%	666	31%	28-34%	
College grad or higher	3555	1364	38%	36-40%	1388	40%	38-42%	803	22%	20-24%	
<b>Employment Status</b>											**
Employed for wages	4410	1381	32%	30-34%	1744	40%	38-42%	1285	28%	26-30%	
Self-employed	596	208	34%	28-40%	237	40%	34-46%	151	26%	21-32%	
Retired	2288	767	32%	30-35%	902	42%	39-45%	619	26%	24-28%	
Other	1277	417	37%	33-42%	412	31%	27-36%	448	31%	27-36%	
<b>Household Income</b>											**
<\$25,000	1391	398	31%	26-36%	492	34%	30-39%	501	35%	31-39%	
\$25,000-<\$35,000	760	226	30%	25-36%	272	40%	33-46%	262	30%	25-35%	
\$35,000-<\$50,000	934	259	27%	23-31%	353	41%	36-46%	322	32%	28-37%	
\$50,000-<\$75,000	1208	382	32%	28-36%	470	37%	33-41%	356	31%	27-34%	
\$75,000 or greater	3044	1038	33%	31-35%	1224	41%	38-43%	782	26%	24-29%	
Don't know/not sure	468	179	44%	36-52%	172	36%	29-44%	117	20%	14-26%	
Refused	777	293	38%	33-44%	317	39%	33-44%	167	23%	18-28%	

N = Number of people in the sample who responded to the survey question

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\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

**TABLE 10-2. BODY MASS INDEX BY DEMOGRAPHIC CHARACTERISTICS,  
AMONG ADULTS AGE 18 YEARS AND OLDER**

		Healthy weight (BMI 18.5 - 24.9)			Overweight (BMI 25.0 - 29.9)			Obese (BMI ≥ 30.0)			
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
Total Population	8582	2775	33%	31-35%	3300	39%	37-40%	2507	28%	27-30%	**
<b>Area of Residence</b>											**
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<b>Gender</b>											**
Male	3333	773	26%	23-28%	1553	45%	42-48%	1007	29%	27-32%	
Female	5249	2002	40%	38-42%	1747	33%	31-35%	1500	27%	26-29%	
<b>Age</b>											**
18-29 years	490	221	46%	40-52%	152	31%	25-37%	117	23%	18-28%	
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<b>Race</b>											**
White	6244	2186	36%	34-38%	2379	37%	36-39%	1679	26%	25-28%	
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White female	3722	1597	47%	44-49%	1201	31%	29-33%	924	23%	21-25%	
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Other female	334	140	44%	36-51%	115	35%	28-42%	79	22%	16-28%	
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Less than high school	586	155	28%	21-34%	222	37%	31-44%	209	35%	28-41%	
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College 1-3 years	2053	611	30%	27-34%	776	39%	35-42%	666	31%	28-34%	
College grad or higher	3555	1364	38%	36-40%	1388	40%	38-42%	803	22%	20-24%	
<b>Employment Status</b>											**
Employed for wages	4410	1381	32%	30-34%	1744	40%	38-42%	1285	28%	26-30%	
Self-employed	596	208	34%	28-40%	237	40%	34-46%	151	26%	21-32%	
Retired	2288	767	32%	30-35%	902	42%	39-45%	619	26%	24-28%	
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\$35,000-<\$50,000	934	259	27%	23-31%	353	41%	36-46%	322	32%	28-37%	
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Don't know/not sure	468	179	44%	36-52%	172	36%	29-44%	117	20%	14-26%	
Refused	777	293	38%	33-44%	317	39%	33-44%	167	23%	18-28%	

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\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

**TABLE 10-3. FRUIT AND VEGETABLE INTAKE AND PHYSICAL ACTIVITY MEASURES,  
AMONG ADULTS AGE 18 YEARS AND OLDER**

	Persons reporting they eat five or more servings of fruits and vegetables per day					Engage in vigorous activity on ≥ 3 days per week for ≥ 20 minutes per occasion OR in moderate activity on 5-7 days per week for ≥ 30 minutes a day				
<b>Selected Characteristic</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>	<b>N</b>	<b>n</b>	<b>wt %</b>	<b>95% CI</b>	<b>Stat Sig</b>
Total Population	8760	2419	27%	26-29%		8224	3523	46%	44-47%	
<b>Area of Residence</b>					**					^
Urban	4665	1359	28%	26-30%		4412	1906	46%	44-48%	
Rural	4095	1060	25%	23-27%		3812	1617	46%	43-48%	
<b>Gender</b>					**					**
Male	3244	710	22%	20-24%		3053	1414	49%	46-51%	
Female	5516	1709	32%	30-34%		5171	2109	43%	41-45%	
<b>Age</b>					^					**
18-29 years	490	140	26%	21-31%		467	253	55%	49-61%	
30-39 years	1023	275	27%	24-30%		971	446	46%	42-50%	
40-49 years	1693	445	27%	24-30%		1616	749	45%	42-48%	
50-64 years	2992	831	27%	25-29%		2822	1258	46%	43-48%	
65-74 years	1368	350	27%	24-30%		1269	501	40%	36-44%	
75 years and older	1080	341	31%	28-35%		980	281	29%	25-32%	
<b>Race</b>					^					**
White	6395	1784	27%	26-29%		5983	2684	48%	46-50%	
Black	1660	428	28%	25-32%		1575	551	40%	37-44%	
Other	586	173	24%	19-29%		554	251	46%	40-53%	
<b>Gender and Race</b>					**					**
White male	2465	530	21%	19-23%		2317	1099	50%	47-53%	
Black male	496	119	27%	21-32%		470	194	46%	40-53%	
Other male	239	53	19%	12-36%		225	106	48%	38-58%	
White female	3930	1254	33%	31-35%		3666	1585	47%	44-49%	
Black female	1164	309	29%	26-33%		1105	357	36%	32-40%	
Other female	347	120	30%	24-37%		329	145	44%	37-52%	
<b>Education</b>					**					**
Less than high school	589	124	24%	18-30%		522	166	40%	33-47%	
High school grad or GED	2404	543	24%	21-27%		2249	852	42%	38-46%	
College 1-3 years	2118	585	26%	23-30%		2000	824	44%	40-47%	
College grad or higher	3620	1161	30%	28-32%		3428	1674	50%	48-52%	
<b>Employment Status</b>					*					**
Employed for wages	4482	1188	26%	24-28%		4251	1886	46%	44-48%	
Self-employed	591	194	34%	28-40%		566	322	54%	48-61%	
Retired	2341	676	28%	25-30%		2147	795	37%	34-39%	
Other	1329	358	28%	24-32%		1246	516	48%	44-53%	
<b>Household Income</b>					^					**
<\$25,000	1412	358	27%	23-31%		1317	446	36%	31-41%	
\$25,000-<\$35,000	773	197	26%	20-32%		735	275	41%	35-48%	
\$35,000-<\$50,000	945	237	24%	20-28%		894	376	43%	38-48%	
\$50,000-<\$75,000	1220	330	26%	22-29%		1165	503	45%	40-49%	
\$75,000 or greater	3073	951	29%	27-31%		2929	1481	51%	49-54%	
Don't know/not sure	490	113	22%	16-29%		425	140	46%	37-54%	
Refused	847	233	28%	23-33%		759	302	43%	37-48%	

N = Number of people in the sample who responded to the survey question

n = Number of people answering "yes" to that question or who had that characteristic

\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

TABLE 10-4. UP-TO-DATE CANCER SCREENING BY LIFESTYLE FACTORS

	Had an FOBT within the last year, a sigmoidoscopy within the last 5 years or a colonoscopy within the last 10 years (adults ≥ 50 years)					Had a PSA within the last year among men without a history of prostate cancer (men ≥ 40 years)					Had a DRE within the last year among men without a history of prostate cancer (men ≥ 40 years)				
<b>Selected characteristic</b>	<b>N</b>	<b>n</b>	<b>wt%</b>	<b>95%CI</b>	<b>Stat Sig</b>	<b>N</b>	<b>n</b>	<b>wt%</b>	<b>95%CI</b>	<b>Stat Sig</b>	<b>N</b>	<b>n</b>	<b>wt%</b>	<b>95%CI</b>	<b>Stat Sig</b>
<b>Cigarette smoking</b>					**					**					**
Non-smoker	4810	3496	73%	71-74%		2145	1112	48%	46-51%		2201	1065	47%	44-50%	
Current smoker	659	386	59%	54-64%		331	125	36%	30-43%		348	116	31%	25-38%	
<b>Alcohol consumption</b>					^					**					^
Non-drinker or low-risk drinker	4919	3487	71%	69-73%		2084	1070	48%	45-51%		2146	1011	45%	42-48%	
High-risk drinker	462	330	67%	61-73%		327	138	37%	30-44%		336	144	41%	34-48%	
<b>Do you eat five or more servings of fruits and vegetables per day</b>					^					^					^
Yes	1513	1109	73%	70-76%		516	252	44%	39-50%		532	254	45%	40-51%	
No	3884	2735	70%	68-72%		1899	953	47%	44-50%		1958	903	45%	42-48%	
<b>Weight</b>					^					^					^
Healthy weight	1614	1135	70%	67-73%		510	227	44%	38-49%		526	232	43%	38-48%	
Overweight	2048	1487	73%	70-76%		1158	600	47%	43-51%		1186	567	46%	42-50%	
Obese	1548	1111	70%	67-73%		770	394	47%	42-52%		797	364	43%	38-48%	
<b>Engage in vigorous physical activity on &gt; 3 days per week for &gt; 20 minutes per occasion OR in moderate physical activity on 5-7 days per week for &gt; 30 minutes a day</b>					^					^					**
Yes	2031	1475	71%	69-74%		1032	520	48%	44-52%		1061	512	49%	45-53%	
No	2999	2120	71%	69-73%		1247	620	45%	41-49%		1285	592	43%	39-46%	

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\*\* p-value < 0.05

\* 0.05 ≤ p-value < 0.10

^ p-value ≥ 0.10

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TABLE 10-5. UP-TO-DATE CANCER SCREENING BY LIFESTYLE FACTORS

	Had a mammogram within the last 2 years (women $\geq$ 40 years)					Had a Pap test within the last 3 years (women $\geq$ 18 years who have not had a hysterectomy)					Had an oral cancer screening test within the last year (adults $\geq$ 18 years)				
Selected characteristic	N	n	wt%	95%CI	Stat Sig	N	n	wt%	95%CI	Stat Sig	N	n	wt%	95%CI	Stat Sig
<b>Cigarette smoking</b>					**					$\wedge$					**
Non-smoker	3937	3306	83%	81-84%		3485	2970	86%	84-88%		3631	1420	33%	31-35%	
Current smoker	595	382	64%	58-69%		521	416	86%	82-89%		611	141	19%	15-24%	
<b>Alcohol consumption</b>					*					**					$\wedge$
Non-drinker or low-risk drinker	4072	3315	81%	79-82%		3469	2892	85%	83-87%		3617	1317	31%	29-33%	
High-risk drinker	398	323	76%	70-81%		477	439	93%	90-96%		535	209	30%	24-35%	
<b>Do you eat five or more servings of fruits and vegetables per day</b>					**					$\wedge$					**
Yes	1389	1162	83%	80-86%		1246	1067	87%	84-90%		1154	495	36%	32-40%	
No	3077	2469	79%	77-81%		2697	2269	86%	84-88%		3090	1069	29%	27-31%	
<b>Weight</b>					$\wedge$					$\wedge$					**
Healthy weight	1538	1251	80%	77-83%		1518	1318	87%	84-90%		1276	532	34%	30-38%	
Overweight	1449	1198	82%	80-85%		1191	1005	86%	83-89%		1564	556	30%	27-33%	
Obese	1223	1002	80%	77-83%		1000	824	85%	82-88%		1169	377	26%	22-29%	
<b>Engage in vigorous physical activity on &gt; 3 days per week for &gt; 20 minutes per occasion OR in moderate physical activity on 5-7 days per week for &gt; 30 minutes a day</b>					**					**					**
Yes	1664	1365	83%	80-85%		1617	1428	89%	86-91%		1726	714	33%	30-36%	
No	2511	2027	78%	76-81%		2084	1718	85%	83-87%		2251	756	29%	26-31%	

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\*\* p-value < 0.05

\* 0.05  $\leq$  p-value < 0.10

$\wedge$  p-value  $\geq$  0.10

Maryland Cancer Screening and Risk Behaviors, 2010