STATE OF MARYLAND
DHMH
Maryland Department of Health and Mental Hygiene
201 W. Preston Street • Baltimore, Maryland 21201
Martin O'Malley, Governor – Anthony G. Brown, Lt. Governor – Joshua M. Sharfstein, M.D., Secretary

OCT 0 9 2012

The Honorable Martin O'Malley
Governor
State of Maryland
Annapolis, MD 21401-1991

The Honorable Thomas V. Mike Miller, Jr.
President of the Senate
H-107 State House
Annapolis, MD 21401-1991

The Honorable Michael E. Busch
Speaker of the House
H-101 State House
Annapolis, MD 21401-1991

Re: HB 935 (Chap. 203) of the Acts of 2003 and Health-General Article, Section 13-1104 (e)
2012 Cigarette Restitution Fund Cancer Report

Dear Governor O'Malley, President Miller and Speaker Busch:

Pursuant to Health-General Article, Section 13-1104 (e), Annotated Code of Maryland, the Department of Health and Mental Hygiene is directed to produce a biennial report on the cancers targeted under the Cigarette Restitution Fund Program's Cancer Prevention, Education, Screening, and Treatment Program. Enclosed is the Cigarette Restitution Fund (CRF) Program Cancer Report for 2012. This report includes the most currently available Maryland data on cancer incidence and mortality for 2009 and highlights recommended public health interventions designed to reduce the impact of this disease on Maryland citizens.

I hope you find this information useful. If you have questions about this report, please contact Ms. Marie Grant, Director of the Office of Governmental Affairs, at 410-767-6481.

Sincerely,

Joshua M. Sharfstein, M.D.
Secretary

Enclosure

cc: Marie Grant, J.D.
Donna Gugel, M.H.S.
Courtney Lewis, M.P.H.
Sarah Albert, MSAR #2251

Maryland Department of Health and Mental Hygiene

Cancer Report 2012

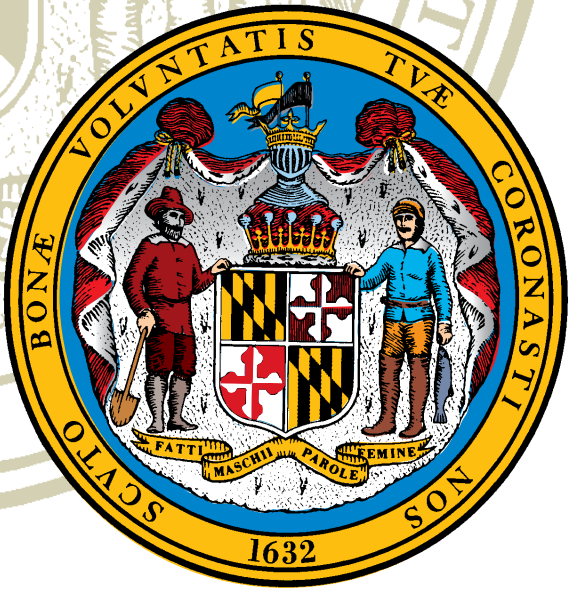
Cigarette Restitution Fund Program

Cancer Prevention, Education, Screening and Treatment Program

Martin O'Malley
Governor
of Maryland

Anthony G. Brown
Lieutenant Governor
of Maryland

Joshua M. Sharfstein, M.D.
Secretary
Maryland Department
of Health and Mental Hygiene



September 2012

STATE OF MARYLAND
DHMH
Maryland Department of Health and Mental Hygiene
201 W. Preston Street • Baltimore, Maryland 21201
Martin O'Malley, Governor – Anthony G. Brown, Lt. Governor – Joshua M. Sharfstein, M.D., Secretary

OCT 0 9 2012

Dear Fellow Marylanders:

Cancer is the second leading cause of death in Maryland and in the nation. Over 26,000 Marylanders were diagnosed with cancer in the year 2009, and more than 10,000 died from cancer. Technical advances and improved resources have led to earlier diagnosis and better treatment of many cancers. As a result, rates of new diagnoses and rates of death from all cancers combined are declining for men and women overall, and more people diagnosed with cancer are surviving each year.

Cancer prevention and control under the Cigarette Restitution Fund Program (CRFP) are among the highest priorities for the Maryland Department of Health and Mental Hygiene. The CRFP focuses on these priorities and includes the Cancer Prevention, Education, Screening and Treatment Program. The primary goals are to reduce cancer mortality and to decrease health disparities in cancer. The Department is coordinating efforts of the CRFP through local health departments and other partnerships in order to reduce the burden of cancer.

The enclosed 2012 Cancer Report of the Cigarette Restitution Fund Program reviews total cancers and the seven specific cancer sites targeted by the Cancer Prevention, Education, Screening and Treatment Program: lung and bronchus, colon and rectum, female breast, prostate, oral, melanoma of the skin, and cervix. These cancers were selected based on proven interventions for prevention (lung and bronchus and melanoma of the skin) and early detection and treatment (colon and rectum, female breast, cervix, and oral), or the magnitude of the impact on incidence and mortality (prostate).

Cancer prevention and control results from awareness and proactive behavior of all Marylanders. On behalf of the Maryland Department of Health and Mental Hygiene, I appreciate your efforts to control cancer in the state.

Sincerely,

Joshua M. Sharfstein, M.D.
Secretary

Enclosure

Maryland Department of Health and Mental Hygiene

2012 Cancer Report

Cigarette Restitution Fund Program

Cancer Prevention, Education, Screening and Treatment Program

Prepared by:

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Acknowledgments

The Maryland Department of Health and Mental Hygiene (DHMH), Center for Cancer Prevention and Control (CCPC), is pleased to present the Cigarette Restitution Fund Program 2012 Cancer Report. Our hope is that individuals, groups, and agencies, such as local health departments, Statewide Academic Health Centers, community health coalitions, other community organizations, Marylanders, and policy makers, will benefit from this report.

We thank the following individuals for their contributions to this document:

- Cancer and Chronic Disease Bureau, DHMH:
  - Kimberly S. Stern, M.H.A., C.T.R., Jennifer Hayes, M.Ed., M.P.H., and Afaq Ahmad, M.D., M.P.H., C.T.R., Maryland Cancer Registry, CCSC, for providing incidence data. We acknowledge the State of Maryland, the Maryland Cigarette Restitution Fund, and the National Program of Cancer Registries (NPCR) of the Centers for Disease Control and Prevention (CDC) for the funds that helped support the availability of the cancer registry data.
  - Helio Lopez, M.S., and Sara Barra, M.S., Center for Chronic Disease Prevention and Control, for data from the Maryland Behavioral Risk Factor Surveillance System (BRFSS) and Maryland mortality data from the Maryland Assessment Tool for Community Health (MATCH).
  - Harry Goodman, D.M.D., M.P.H., Office of Oral Health, for providing guidance on oral cancer prevention and screening.
  - Robert Fiedler, J.D., Center for Tobacco Prevention and Control, for providing guidance on lung cancer prevention, screening and interventions.
  - Lorraine Underwood, Surveillance and Evaluation Unit, CCPC, DHMH, for coordinating and developing this report.
- Eileen Steinberger, M.D., M.S., University of Maryland, Baltimore, Department of Epidemiology and Public Health, and Surveillance and Evaluation Unit, CCPC, DHMH, for providing Maryland Cancer Survey data.
- Hal Sommers, M.A., and Bob Hayman, Ph.D., Maryland Vital Statistics, DHMH, for providing colorectal cancer mortality data.

We thank all the individuals who contributed to the development and careful review of this document.

Dedication

We dedicate this report to all persons whose lives have been touched by cancer. We hope to illustrate the progress and challenges related to cancer prevention, diagnosis and treatment.

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I. Executive Summary

A. Introduction

This publication is the Cigarette Restitution Fund Program (CRFP) 2012 Cancer Report. The primary purpose of the Cancer Report, which is required biennially by Maryland law, is to assist local health departments and local community health coalitions in planning and implementing comprehensive cancer prevention, education, screening, and treatment programs. The data and the "Public Health Intervention" recommendations are intended to guide local health departments, Statewide Academic Health Centers, community health coalitions, other community organizations, and policy makers as they decide how to allocate limited resources for the maximum benefit, with the goal of reducing cancer mortality and eliminating racial disparities.

The CRFP was established in 2000 to provide for the distribution of funds received as a result of multi-state litigation against the tobacco industry. This program provided approximately $29.6 million in Fiscal Year 2012 to combat cancer. The CRFP law established the Cancer Prevention, Education, Screening and Treatment (CPEST) Program within the Maryland Department of Health and Mental Hygiene (DHMH). The primary goal of the CPEST Program is to reduce mortality and morbidity rates for cancer and tobacco-related diseases in the State of Maryland.

The CRFP law requires DHMH to identify the types of cancers that may be targeted under the CPEST Program. In addition to overall cancers presented in this report, DHMH has selected seven targeted cancers; each is presented individually. The seven targeted cancer sites are: lung and bronchus, colon and rectum, female breast, prostate, oral, melanoma of the skin, and cervix. These cancers were selected because they can be prevented (lung and bronchus and melanoma), detected and treated early (colon and rectum, female breast, cervix, and oral), or because of the magnitude of their impact on incidence and mortality (prostate).

Additionally, the CRFP law requires Maryland jurisdictions to develop plans to: 1) eliminate the higher incidence and mortality rates of cancer in minority populations (as defined in the CRFP law as women or individuals of African, Hispanic, Native American, and Asian descent) and the higher rates in rural areas, and 2) increase availability of and access to health care services for medically underserved populations and uninsured individuals.

This 2012 CRFP Cancer Report includes information on cancer incidence, mortality, stage of disease at diagnosis, public health evidence for prevention and screening, recommended areas for public health intervention, and Maryland screening behaviors compared to the Healthy People 2020 and the Maryland Comprehensive Cancer Control Plan targets for cancer prevention and screening. Further efforts to prevent and control cancer in Maryland can be found in the Maryland Comprehensive Cancer Control Plan (MCCCP) at http://fha.dhmh.maryland.gov/cancer/cancerplan.

B. Major Highlights of the Report

1. Major findings for **all cancer sites**:

- In 2009, a total of 26,800 new cases of cancer were diagnosed in Maryland.
- From 2000 to 2009, the overall cancer incidence rates declined in Maryland at a pace comparable to the decline in the U.S. rate.
- From 2005 to 2009, incidence rates for all cancer sites have remained slightly higher among whites than blacks in Maryland; rates increased for blacks and remained the same for whites for the period.
- Mortality rates for all cancer sites decreased from 2000 to 2009 in Maryland and in the U.S.
- Blacks have higher mortality rates than whites from 2005 to 2009; the annual percent change decreased for both races.

2. Major findings for **lung and bronchus** cancer:

- Lung cancer is the leading cause of cancer deaths in both men and women in Maryland; it accounts for 27.3% of all cancer deaths in 2009.
- Lung cancer incidence and mortality rates decreased in Maryland from 2005 to 2009.
- From 2005 to 2009, lung cancer incidence rates in Maryland declined for both whites and blacks.
- Tobacco use is the primary cause of lung cancer; tobacco smoking causes an estimated 90% of lung cancer in males and 78% of lung cancer in females.
- The public health intervention for lung cancer is the prevention and cessation of tobacco use.
- Smoking rates among Maryland youths continue to decline, while smoking rates among adults had a slight increase from 2008 to 2010. In 2010, 15.2% of adults age 18 years and older were current smokers; Maryland had not yet attained the Healthy People 2020 goal of reducing the percentage of adult smokers to 12%.

3. Major findings for **colon and rectum** cancer:

- Incidence and mortality rates for colorectal cancer declined in Maryland from 2005 to 2009. Incidence and mortality rates had a greater decrease among Maryland whites than blacks over the period.
- The recommended public health intervention for colorectal cancer is early detection with screening colonoscopy or with a combination of fecal occult blood testing and flexible sigmoidoscopy.
- Maryland continues to surpass the Healthy People 2020 target for up-to-date colorectal cancer screening; in 2010, 70.9% of adults age 50 years and older report having been up-to-date.

4. Major findings for **female breast** cancer:

- Breast cancer is the second leading cause of cancer deaths among women after lung cancer.
- Incidence rates for female breast cancer increased from 2005 to 2009 with the incidence rate for black females increasing at a greater rate per year than white females.
- From 2005 to 2009, mortality rates for female breast cancer declined for white females and increased for black females.
- The recommended public health intervention for breast cancer is early detection using mammography and clinical breast examination by a health care professional.
- Maryland women continue to surpass the Healthy People 2020 target for mammography screening; in 2010, 85.6% of women age 50 to 74 years report having had a mammogram within the past 2 years.

5. Major findings for **prostate** cancer:

- Prostate cancer is the second leading cause of cancer death among men after lung cancer.
- Incidence rates for prostate cancer increased from 2005 to 2009, while mortality rates for prostate cancer decreased.
- Racial disparities in prostate cancer incidence and mortality were present, with the rates for black males remaining higher than for white males in the years 2005 to 2009.
- From 2005 to 2009, mortality rates had a greater decrease for black men than for white men.
- Clinicians should discuss with their patients the potential benefits and uncertainties regarding prostate cancer screening and treatment, consider individual patient preferences, and individualize the decision to screen.

6. Major findings for **oral** cancer:

- From 2005 to 2009, Maryland oral cancer incidence rates increased; rates decreased for blacks and increased for whites.
- There is extensive evidence that tobacco use causes oral cancer.
- The recommended public health interventions for oral cancer are: avoidance and cessation of tobacco use; avoidance and reduction of alcohol consumption; avoidance of sun exposure; use of lip balm that blocks ultraviolet (UV) light; and screening for oral cancer targeted to individuals 40 years of age and older.
- Marylanders were below the Maryland Comprehensive Cancer Control Plan target of 48.0% for 2015 for oral cancer screening: in 2010, 37.8% of adults age 40 years and older reported having an oral cancer exam in the past year.

7. Major findings for **melanoma** skin cancer:

- Melanoma incidence rates in Maryland slightly decreased from 2005 to 2009. The incidence rate slightly increased among males and decreased among females.

- From 2005 to 2009, the overall mortality rates decreased; while rates increased for males and decreased for females for the same period.
- The recommended public health intervention for skin cancer is reduction of exposure to the sun and other ultraviolet (UV) light by practicing sun- and UV-protective behaviors including: 1) avoiding the sun, especially between 10 a.m. and 4 p.m., 2) wearing sun protective clothing, hat, and sunglasses when exposed to sunlight, 3) avoiding artificial sources of UV light (e.g., tanning booths), and 4) using sunscreens with a SPF of 15 or higher, if sun exposure cannot be avoided.
- In 2010, 68.4% of Marylanders aged 18 years and older used at least one sun protective measure "always" or "nearly always," below the Healthy People 2020 target of 80.1%.

8. Major findings for **cervical** cancer:

- Cervical cancer incidence among Maryland women decreased from 2005 to 2009.
- The decrease in incidence rates for white women was greater than for black women.
- Mortality rates for cervical cancer increased from 2005 to 2009 and differed by race; mortality rates among black women remained higher than among white women.
- According to recommended guidelines, the public health interventions for cervical cancer are early detection using the Pap test for women age 21 to 65 years every 3 years, and the human papillomavirus (HPV) vaccination.
- The Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) recommends the HPV vaccine as a means for preventing cervical cancer. ACIP recommends the vaccine be given routinely to girls when they are age 11 or 12 years. The ACIP recommendation also allows for vaccination of girls beginning at age 9 years, and for vaccination of girls and women age 13-26 years who have not been previously vaccinated.
- In 2010, close to 87% of Maryland women age 18 years and older had a Pap test within the past 3 years, slightly below the Healthy People 2020 target of 93%.

C. Major Changes to this Report from the 2010 Cancer Report

- This report presents Maryland and U.S. incidence and mortality data for 2009 and 5-year aggregate data for 2005-2009.
- The Maryland mortality data for single years 2008 and 2009, and 5-year aggregate data for 2005-2009 were obtained from the Maryland Assessment Tool for Community Health (MATCH), where data are obtained from the Maryland Vital Statistics Administration. Maryland colorectal cancer mortality data were directly obtained from the Maryland Vital Statistics Administration. CDC WONDER remained the source for mortality rates for single years 2005 through 2007.
- The U.S. mortality data for single year 2009 and 5-year aggregate data for 2005-2009 were obtained from the Surveillance Epidemiology and End Results (SEER) Cancer Statistics Review reports. CDC WONDER remained the source for mortality rates for single years 2000 to 2008.
- The definition of lung and bronchus cancer includes cancer of the trachea for 2008 and 2009 Maryland mortality data.

- The guidelines for cervical cancer screening were modified from recommending a Pap test for women within 3 years of onset of sexual activity or age 21 (whichever comes first) up to 65 years, to all women age 21 to 65 years.
- The guidelines for prostate cancer screening were modified to include the U.S. Preventive Services Task Force (USPSTF) recommendation against PSA-based screening for prostate cancer.

Important note: The 2006 case counts presented in this report for Montgomery and Prince George's counties are underreported for each cancer site due to delay in case reporting. Cancers reported to the MCR after the annual cutoff date are not included in the MCR official Maryland case counts and rates. The case undercounts resulted in lower than actual age-adjusted incidence rates for Montgomery and Prince George's counties, for the National Capital geographic region, and to a lesser degree, for Maryland, for 2006, thereby affecting the 5-year period 2005-2009.

II. All Cancer Sites

Incidence (New Cases)

A total of 26,800 new cases of cancer diagnosed in 2009 in Maryland residents were reported to the Maryland Cancer Registry. The total age-adjusted cancer incidence rate for Maryland was 443.7 per 100,000 population (438.3-449.1, 95% Confidence Interval [C.I.]) in 2009. The 2009 Maryland cancer incidence rate is statistically significantly lower than the 2009 United States (U.S.) Surveillance Epidemiology and End Results (SEER) rate of 456.4 per 100,000 population (455.0-457.9, 95% C.I.).

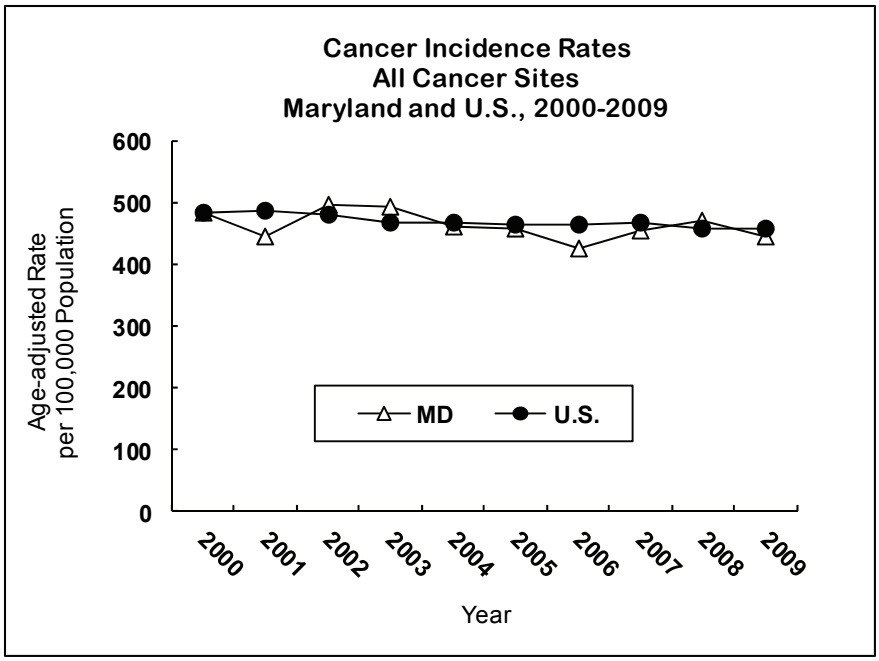
Mortality (Deaths)

Cancer is the second leading cause of death in Maryland, accounting for 23.7% of all deaths in 2009. A total of 10,376 Maryland residents died from cancer in 2009. The Maryland mortality rate for all cancer sites was 177.7 per 100,000 population (174.3-181.2, 95% C.I.) for 2009. This rate is statistically significantly higher than the 2009 U.S. mortality rate for all cancer sites of 173.1 per 100,000 population (172.6-173.5, 95% C.I.). Maryland ranks 20th highest among all states and the District of Columbia in total cancer mortality for the period 2005-2009.

Table 1.
All Cancer Sites Incidence and Mortality Rates
by Gender and Race, Maryland and the United States, 2009

Incidence 2009	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
New Cases (count)	26,800	13,346	13,413	18,912	6,557	1,081
MD Incidence Rate	443.7	500.4	405.0	446.5	431.8	356.1
U.S. SEER Rate	456.4	522.2	411.5	460.3	483.7	394.3
Mortality 2009	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
Deaths (count)	10,376	5,267	5,109	7,472	2,658	246
MD Mortality Rate	177.7	217.6	152.2	176.6	193.0	91.3
U.S. Mortality Rate	173.1	211.9	146.4	172.4	207.8	N/A

Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population
Total also includes cases reported as transsexual, hermaphrodite, unknown gender, and unknown race
N/A = Data were not available
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration from MATCH
U.S. SEER, Cancer Statistics Review

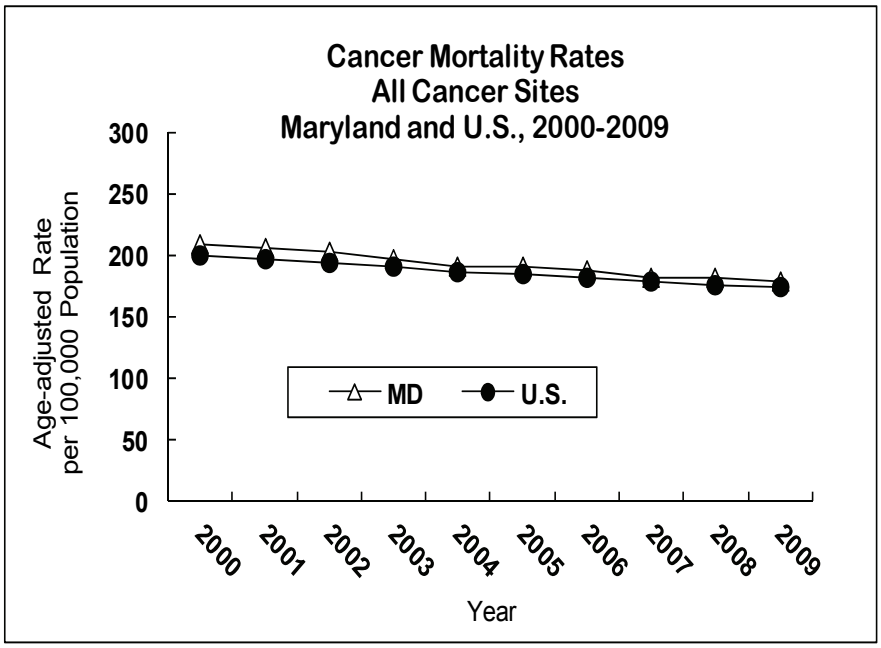


Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat

Maryland vs. U.S., All Cancer Sites Incidence Rates, All Age Groups

All cancer sites incidence rates in Maryland and the U.S. declined over the 10-year period from 2000 to 2009. Maryland incidence rates decreased at a rate of 0.8% per year; U.S. incidence rates decreased at a rate of 0.6% per year.

See Appendix K, Table 1.

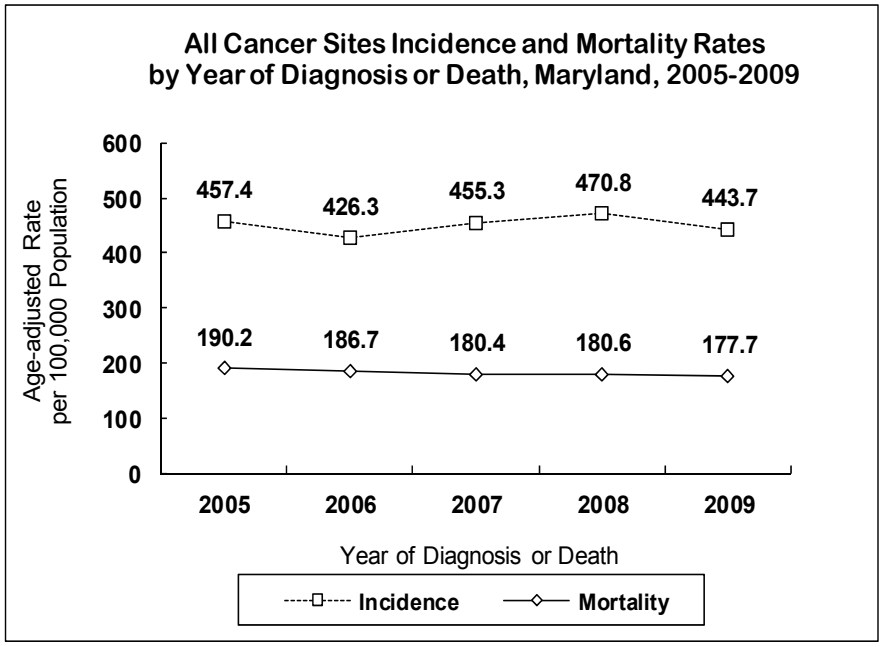


Source: NCHS Compressed Mortality File in CDC WONDER, 2000-2007 (MD)
Maryland Vital Statistics Administration from MATCH, 2008-2009 (MD)
NCHS Compressed Mortality File in CDC WONDER, 2000-2008 (U.S.)
U.S. SEER, Cancer Statistics Review, 2009 (U.S.)

Maryland vs. U.S., All Cancer Sites Mortality Rates, All Age Groups

Maryland cancer mortality rates have declined since 2000. From 2000 to 2009, all cancer sites mortality rates in Maryland decreased at a rate of 1.8% per year, similar to the U.S. mortality rates which decreased at a rate of 1.6% for the same time period.

See Appendix K, Table 2.



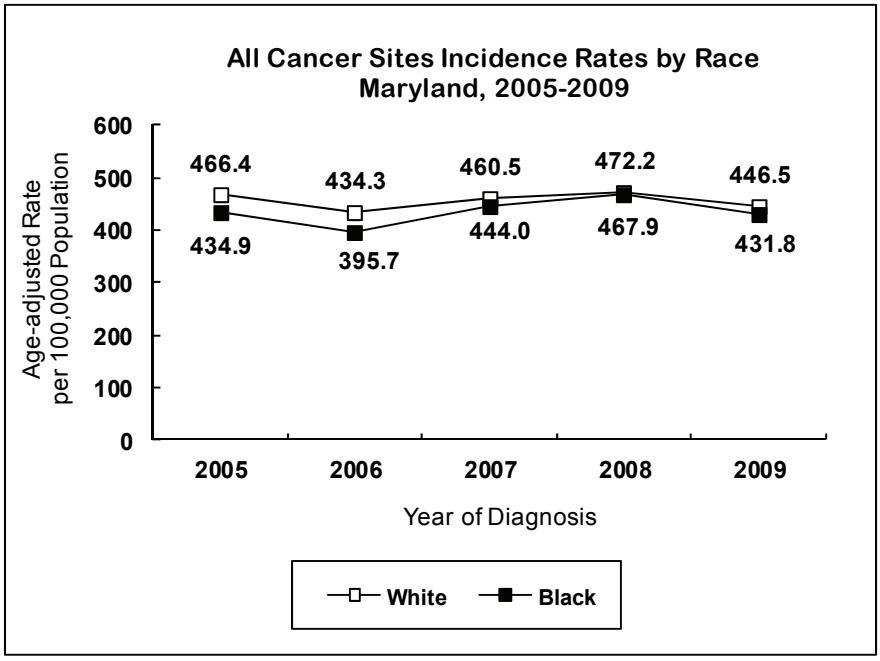
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Incidence and Mortality Trends

In Maryland, the incidence rate for all cancer sites increased at a rate of 0.4% per year from 2005 to 2009.

Cancer mortality rates decreased at a rate of 1.7% per year from 2005 to 2009.

See Appendix I, Tables 1 and 2.

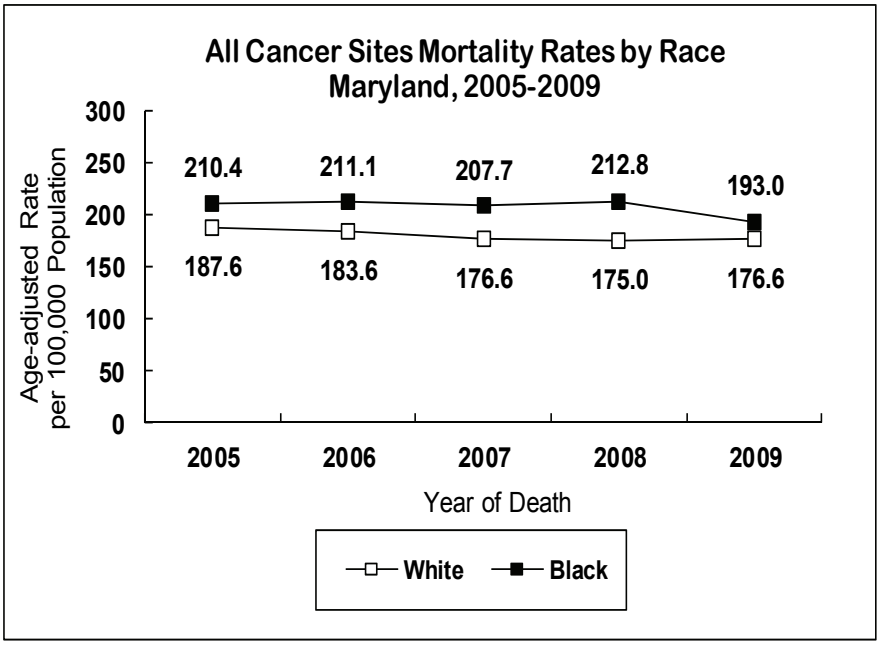


Source: Maryland Cancer Registry

Incidence Trends by Race

Incidence rates for all cancer sites have remained higher among whites than blacks in Maryland, although the difference between both races has decreased. From 2005 to 2009, incidence rates for all cancer sites remained stable among whites and increased at a rate of 1.5% per year among blacks.

See Appendix I, Table 3.



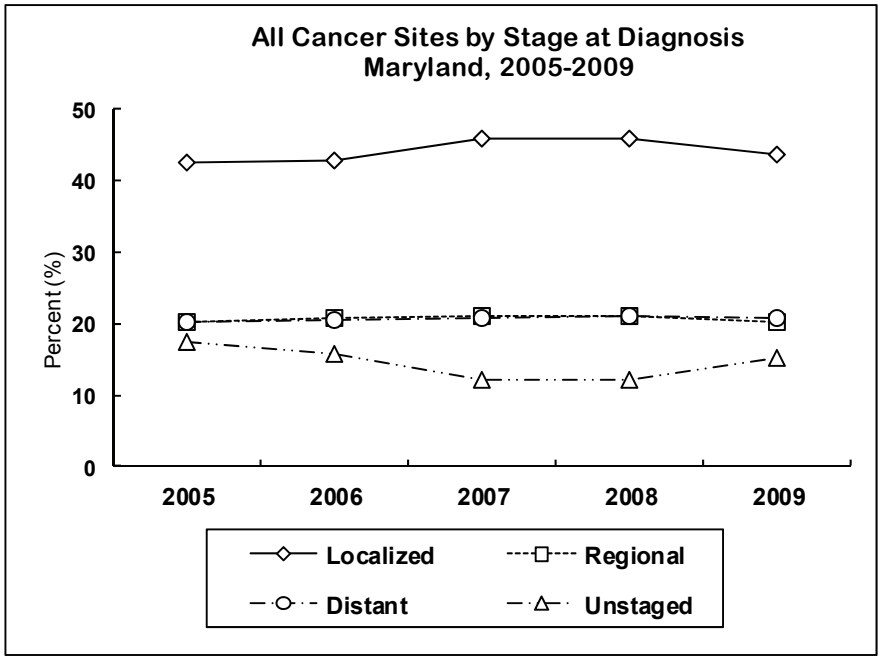
Source: NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Mortality Trends by Race

Both blacks and whites showed declines in cancer mortality from 2005 to 2009, with a decrease of 1.6% per year for blacks and 1.7% per year for whites.

Blacks have higher mortality rates of all cancer sites than whites.

See Appendix I, Table 5.

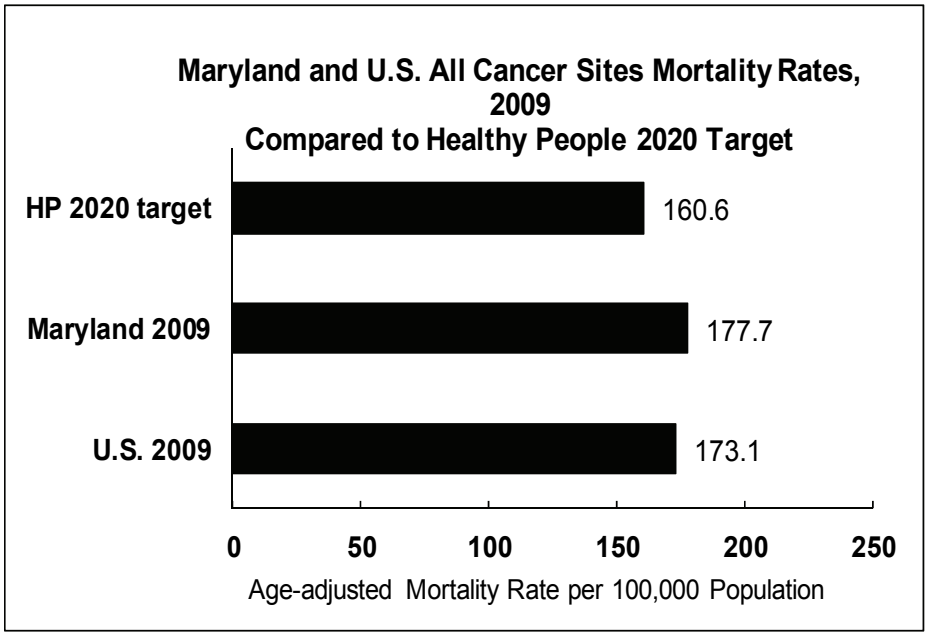


Source: Maryland Cancer Registry

Stage at Diagnosis

Of all cancers diagnosed in Maryland in 2009, 43.8% were found at the localized (early) stage, 20.2% at the regional stage, and 20.7% at the distant (late) stage. The proportion of all cancers reported as unstaged has slightly increased in 2009.

See Appendix J, Table 1.



Source: Healthy People 2020, U.S. Department of Health and Human Services
Maryland Vital Statistics Administration from MATCH, 2009
U.S. SEER, 2009

Mortality Rates Compared to Healthy People 2020 Target

The overall cancer mortality rate in Maryland for 2009 was 177.7 per 100,000 population, which is above the Healthy People 2020 target to reduce cancer mortality to 160.6 per 100,000 population.

Summary – Identification of Targeted Cancers

The cancers targeted under the Cigarette Restitution Fund in 2012 include: lung and bronchus, colon and rectum, prostate, female breast, cervical, oral, and melanoma of the skin. These cancers were chosen due to the capacity to prevent, detect early, and effectively treat these cancers, and due to the magnitude of their impact on incidence and mortality. The remaining sections of this report address these targeted cancers. The public health interventions to reduce the impact of these and other cancers among Marylanders are listed in the chart below.

Public Health Interventions for Targeted and Other Cancers
» Prevention, including: • stopping tobacco use or not starting it • limiting alcohol use • being physically active • staying at a healthy weight • eating a healthy diet » Early detection (screening) and treatment of: • colon and rectum cancer • cervical cancer • female breast cancer • oral cancer » Human papillomavirus vaccine to prevent cervical cancer » Protection of the skin from excessive sun and other sources of ultraviolet light exposure » Men should discuss potential risks and benefits of prostate cancer screening with their health care provider

Table 2.
Number of Cancer Cases for All Cancer Sites by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race			
		Males	Females	Whites	Blacks	Other	Unknown
Maryland	26,800	13,346	13,413	18,912	6,557	1,081	250
Allegany	518	254	263	503	s	<6	0
Anne Arundel	2,589	1,342	1,241	2,204	311	59	15
Baltimore City	3,048	1,512	1,533	1,094	1,898	41	15
Baltimore County	4,369	2,081	2,285	3,502	741	109	17
Calvert	360	168	185	308	46	<6	<6
Caroline	156	79	77	136	s	<6	0
Carroll	839	412	427	800	24	s	<6
Cecil	455	234	221	431	s	<6	0
Charles	500	267	230	313	163	16	8
Dorchester	171	83	87	122	s	<6	<6
Frederick	1,035	488	545	934	73	20	8
Garrett	158	65	93	155	0	<6	<6
Harford	1,333	666	667	1,169	125	29	10
Howard	1,084	506	575	810	167	95	12
Kent	141	72	69	115	s	<6	<6
Montgomery	4,052	1,989	2,061	2,952	566	467	67
Prince George's	3,003	1,516	1,483	851	1,957	153	42
Queen Anne's	258	139	119	234	21	<6	<6
Saint Mary's	370	191	178	329	36	<6	<6
Somerset	137	83	54	100	s	<6	0
Talbot	271	154	117	235	32	<6	<6
Washington	786	391	394	735	37	s	<6
Wicomico	561	320	239	433	116	s	<6
Worcester	387	205	181	320	41	19	7
Unknown	219	129	89	127	47	14	31

Total includes cases reported as transexual, hermaphrodite, and unknown gender

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Cancer Registry

Table 3.
All Cancer Sites Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	443.7	500.4	405.0	446.5	431.8	356.1
Allegany	532.3	588.7	503.9	537.0	**	**
Anne Arundel	472.8	530.9	427.7	476.1	464.9	357.9
Baltimore City	471.5	564.7	410.8	483.5	462.3	387.4
Baltimore County	476.3	516.7	450.6	484.1	466.4	337.0
Calvert	412.9	424.8	396.3	423.4	356.8	**
Caroline	428.9	480.9	395.7	442.7	367.9	**
Carroll	440.7	478.2	417.1	440.7	386.7	**
Cecil	430.5	483.3	392.8	434.9	365.2	**
Charles	387.9	457.1	327.3	376.1	403.7	402.6
Dorchester	389.3	441.4	353.6	369.2	445.2	**
Frederick	463.0	496.6	447.6	465.7	474.9	300.1
Garrett	409.3	350.0	470.4	405.9	0.0	**
Harford	513.4	560.3	481.3	508.5	519.3	509.7
Howard	387.3	401.5	378.8	388.3	389.1	307.2
Kent	457.3	531.8	410.8	443.4	499.4	**
Montgomery	389.2	437.1	359.6	387.6	406.8	331.5
Prince George's	387.6	458.9	341.5	336.9	408.4	395.0
Queen Anne's	452.6	513.2	406.4	459.9	393.4	**
Saint Mary's	382.9	406.5	357.4	413.3	252.1	**
Somerset	470.8	625.8	370.3	500.3	414.7	**
Talbot	471.8	581.3	382.4	474.3	401.5	**
Washington	471.7	532.6	440.0	468.4	455.7	**
Wicomico	550.4	715.4	429.7	555.9	534.3	**
Worcester	500.4	584.7	432.4	472.3	442.7	3,063.9

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 4.
All Cancer Sites Cases and Age-Adjusted Incidence Rates* Among Hispanics§ by Geographical Area in Maryland, 2009

Jurisdiction	Cases	Rate
Maryland	651	300.2
Allegany	<6	**
Anne Arundel	52	494.6
Baltimore City	29	279.7
Baltimore County	51	337.9
Calvert	<6	**
Caroline	<6	**
Carroll	9	**
Cecil	11	**
Charles	6	**
Dorchester	<6	**
Frederick	20	354.4
Garrett	<6	**
Harford	20	521.8
Howard	31	329.2
Kent	<6	**
Montgomery	275	272.4
Prince George's	108	242.7
Queen Anne's	<6	**
St. Mary's	<6	**
Somerset	<6	**
Talbot	<6	**
Washington	6	**
Wicomico	<6	**
Worcester	<6	**
Region	**Cases**	**Rate**
Baltimore Metropolitan Area ^	192	372.0
Eastern Shore Region	32	590.1
National Capital Area	383	260.5
Northwest Region	29	402.7
Southern Region	13	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

§ Case counts were prepared using MCR data and an algorithm to determine Hispanic ethnicity. (See Appendix C, Section D.6.)

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

^ Includes Baltimore City

Source: Maryland Cancer Registry

Table 5.
Number of Deaths for All Cancer Sites
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	10,376	5,267	5,109	7,472	2,658	246
Allegany	198	92	106	s	<5	0
Anne Arundel	952	507	445	836	105	11
Baltimore City	1,380	705	675	473	899	8
Baltimore County	1,853	902	951	1,529	296	28
Calvert	150	64	86	129	21	0
Caroline	76	42	34	64	12	0
Carroll	320	185	135	312	s	<5
Cecil	215	118	97	206	9	0
Charles	209	103	106	143	61	5
Dorchester	84	47	37	54	30	0
Frederick	385	182	203	346	28	11
Garrett	67	40	27	67	0	0
Harford	433	221	212	393	35	5
Howard	352	172	180	288	41	23
Kent	66	39	27	49	17	0
Montgomery	1,304	629	675	992	197	115
Prince George's	1,203	611	592	400	769	34
Queen Anne's	88	46	42	s	s	<5
Saint Mary's	173	95	78	153	s	<5
Somerset	68	32	36	48	20	0
Talbot	117	66	51	107	10	0
Washington	292	156	136	278	s	<5
Wicomico	231	119	112	190	41	0
Worcester	160	94	66	142	18	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 6.
All Cancer Sites Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	177.7	217.6	152.2	176.6	193.0	91.3
Allegany	194.3	220.1	175.4	194.9	**	**
Anne Arundel	186.4	232.7	155.5	191.4	174.5	**
Baltimore City	218.2	283.8	177.5	206.9	227.0	**
Baltimore County	197.1	233.0	176.0	197.6	202.3	96.0
Calvert	188.9	191.7	193.7	194.9	176.7	**
Caroline	214.5	301.4	167.7	213.4	**	**
Carroll	174.3	236.6	128.3	176.7	**	**
Cecil	210.9	257.9	174.6	214.5	**	**
Charles	182.2	214.2	163.4	181.8	181.7	**
Dorchester	182.3	246.3	136.0	151.2	276.9	**
Frederick	179.6	205.5	165.0	179.0	177.7	**
Garrett	170.6	231.3	124.5	171.8	**	**
Harford	177.0	208.0	154.8	180.0	160.9	**
Howard	145.4	168.6	130.4	156.8	110.8	99.5
Kent	208.1	290.0	148.6	182.9	**	**
Montgomery	126.7	151.7	111.8	126.3	155.1	89.0
Prince George's	170.3	215.9	144.3	158.2	187.2	96.5
Queen Anne's	160.1	190.0	136.7	161.6	**	**
Saint Mary's	189.9	224.8	161.7	203.9	**	**
Somerset	241.4	261.0	241.2	241.0	265.1	**
Talbot	186.1	244.1	144.7	195.4	**	**
Washington	174.8	223.2	148.3	175.5	**	**
Wicomico	226.6	280.5	190.2	241.6	192.0	**
Worcester	203.1	277.4	142.2	208.4	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Table 7.
Number of Cancer Cases for All Cancer Sites
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race			
		Males	Females	Whites	Blacks	Other	Unknown
Maryland	130,581	65,763	64,643	93,919	30,631	4,888	1,143
Allegany	2,375	1,243	1,131	2,313	53	s	<6
Anne Arundel	12,211	6,345	5,828	10,494	1,365	277	75
Baltimore City	14,888	7,451	7,422	5,624	8,945	226	93
Baltimore County	21,309	10,395	10,898	17,097	3,493	569	150
Calvert	1,943	981	952	1,674	244	13	12
Caroline	846	436	409	727	108	s	<6
Carroll	4,183	2,147	2,032	3,988	114	54	27
Cecil	2,447	1,254	1,193	2,317	109	s	<6
Charles	2,470	1,321	1,140	1,647	717	77	29
Dorchester	946	499	445	714	221	<6	s
Frederick	5,020	2,421	2,593	4,582	299	97	42
Garrett	766	381	384	760	<6	<6	<6
Harford	5,964	3,102	2,860	5,279	537	111	37
Howard	5,398	2,621	2,770	4,159	783	400	56
Kent	689	376	313	589	94	<6	<6
Montgomery †	19,900	9,609	10,273	14,853	2,697	2,068	282
Prince George's †	14,807	7,438	7,352	4,887	9,096	665	159
Queen Anne's	1,233	679	551	1,109	107	10	7
Saint Mary's	2,113	1,121	991	1,806	256	33	18
Somerset	666	376	290	466	177	s	<6
Talbot	1,314	720	594	1,153	148	s	<6
Washington	3,737	1,943	1,792	3,528	163	38	8
Wicomico	2,525	1,322	1,200	1,988	487	s	<6
Worcester	1,897	1,038	856	1,594	196	94	13
Unknown	934	544	374	571	s	40	s

Total includes cases reported as transexual, hermaphrodite, and unknown gender

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

† 2006 case counts for Montgomery and Prince George's counties are underreported. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 8.
All Cancer Sites Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	450.8	519.1	403.2	456.0	435.0	356.8
Allegany	500.7	593.6	441.1	505.1	512.7	**
Anne Arundel	472.5	541.8	420.0	477.7	444.2	369.5
Baltimore City	462.0	562.0	396.9	478.4	447.5	415.6
Baltimore County	470.8	527.1	433.2	469.4	485.6	387.4
Calvert	470.7	532.0	426.2	482.2	413.8	**
Caroline	481.2	550.4	427.4	487.7	443.4	**
Carroll	474.1	541.0	427.6	472.4	410.3	619.7
Cecil	496.6	554.8	455.6	499.8	451.3	564.4
Charles	412.8	506.9	342.7	404.3	422.8	414.4
Dorchester	447.5	542.6	379.8	444.6	443.3	**
Frederick	479.1	531.8	449.6	483.0	428.4	337.4
Garrett	408.3	437.1	389.8	408.3	**	**
Harford	489.7	565.1	433.7	487.5	496.6	427.8
Howard	421.1	457.1	397.4	429.9	414.5	309.3
Kent	493.7	590.0	423.9	500.7	440.0	**
Montgomery †	398.6	445.0	369.1	399.6	422.7	322.9
Prince George's †	402.2	476.8	352.1	385.2	412.4	368.8
Queen Anne's	464.1	537.3	399.2	466.4	435.2	**
Saint Mary's	466.7	531.1	416.4	482.6	390.8	294.0
Somerset	476.0	579.7	407.0	472.4	465.1	3,073.8
Talbot	471.6	569.2	394.4	476.4	424.3	**
Washington	472.0	551.7	422.1	471.9	516.0	465.5
Wicomico	509.4	615.9	436.4	518.0	475.9	560.8
Worcester	507.5	592.7	442.3	490.4	417.8	3,938.5

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

† 2005-2009 incidence rates for Montgomery County and Prince George's County are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 9.
Number of Cancer Deaths for All Cancer Sites by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	51,548	26,106	25,442	37,163	13,264	1,121
Allegany	952	473	479	937	s	<5
Anne Arundel	4,745	2,468	2,277	4,155	530	60
Baltimore City	7,101	3,611	3,490	2,479	4,589	33
Baltimore County	8,957	4,446	4,511	7,505	1,337	115
Calvert	770	381	389	650	120	0
Caroline	374	206	168	317	s	<5
Carroll	1,551	844	707	1,504	40	7
Cecil	1,035	558	477	987	s	<5
Charles	1,079	558	521	751	308	20
Dorchester	431	234	197	314	s	<5
Frederick	1,769	893	876	1,626	122	21
Garrett	323	177	146	320	<5	<5
Harford	2,173	1,099	1,074	1,946	205	22
Howard	1,782	871	911	1,381	292	109
Kent	301	166	135	249	52	0
Montgomery	6,588	3,110	3,478	5,110	933	545
Prince George's	6,023	3,000	3,023	2,086	3,780	157
Queen Anne's	509	287	222	454	s	<5
Saint Mary's	835	477	358	704	s	<5
Somerset	302	155	147	221	s	<5
Talbot	553	290	263	480	s	<5
Washington	1,483	784	699	1,414	62	7
Wicomico	1,145	588	557	909	228	8
Worcester	767	430	337	664	103	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 10.
All Cancer Sites Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2005-2009

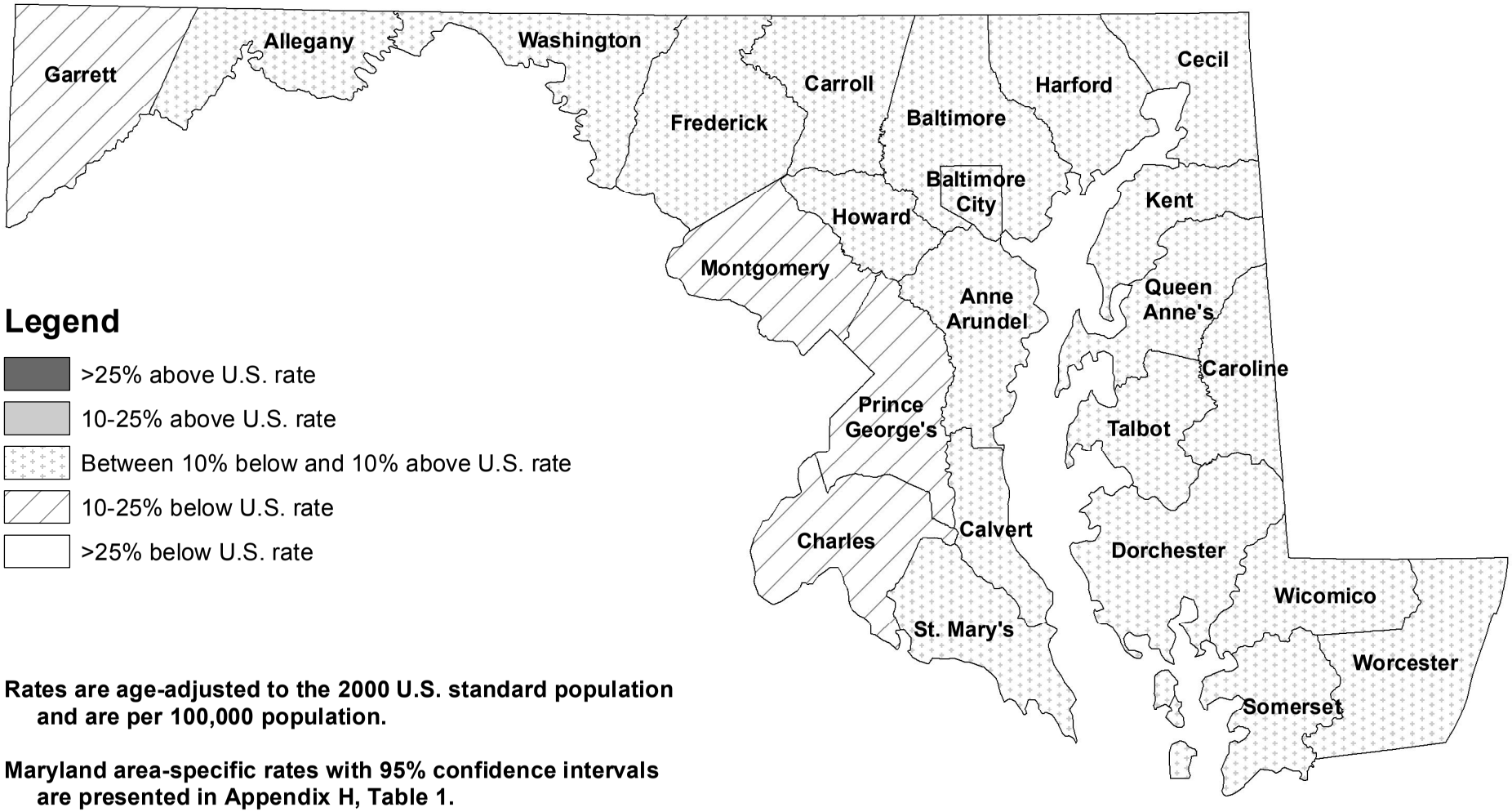
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	182.4	221.5	156.6	179.3	205.9	92.6
Allegany	190.2	229.3	166.1	192.0	**	**
Anne Arundel	195.5	235.4	167.5	199.0	192.9	90.4
Baltimore City	221.8	287.5	181.1	202.6	236.3	64.4
Baltimore County	191.6	228.8	167.1	192.2	208.3	84.4
Calvert	200.0	229.3	181.3	201.2	214.0	**
Caroline	215.0	277.2	170.4	214.1	223.5	**
Carroll	181.6	231.8	146.4	183.0	166.9	**
Cecil	219.0	269.8	183.4	220.9	214.9	**
Charles	201.3	251.2	169.9	203.8	202.6	108.9
Dorchester	197.2	256.0	156.7	186.1	233.7	**
Frederick	177.9	215.8	154.3	179.1	192.5	79.9
Garrett	169.2	207.7	139.9	168.9	**	**
Harford	187.1	217.6	165.2	187.2	203.4	100.1
Howard	158.3	184.6	142.6	161.3	177.5	101.7
Kent	198.5	255.3	161.4	191.9	236.3	**
Montgomery	134.0	154.9	121.4	133.9	163.1	96.5
Prince George's	178.6	218.5	153.9	164.4	197.4	96.4
Queen Anne's	199.9	244.3	162.1	200.5	210.0	**
Saint Mary's	197.4	256.0	156.0	201.2	201.8	**
Somerset	217.7	254.1	190.9	218.5	223.1	**
Talbot	180.9	221.8	149.7	178.9	199.7	**
Washington	183.7	230.0	152.9	183.5	246.0	**
Wicomico	228.9	283.4	192.8	233.1	225.0	**
Worcester	194.7	245.0	154.2	194.5	209.7	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Maryland All Cancer Sites Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Legend

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate

Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

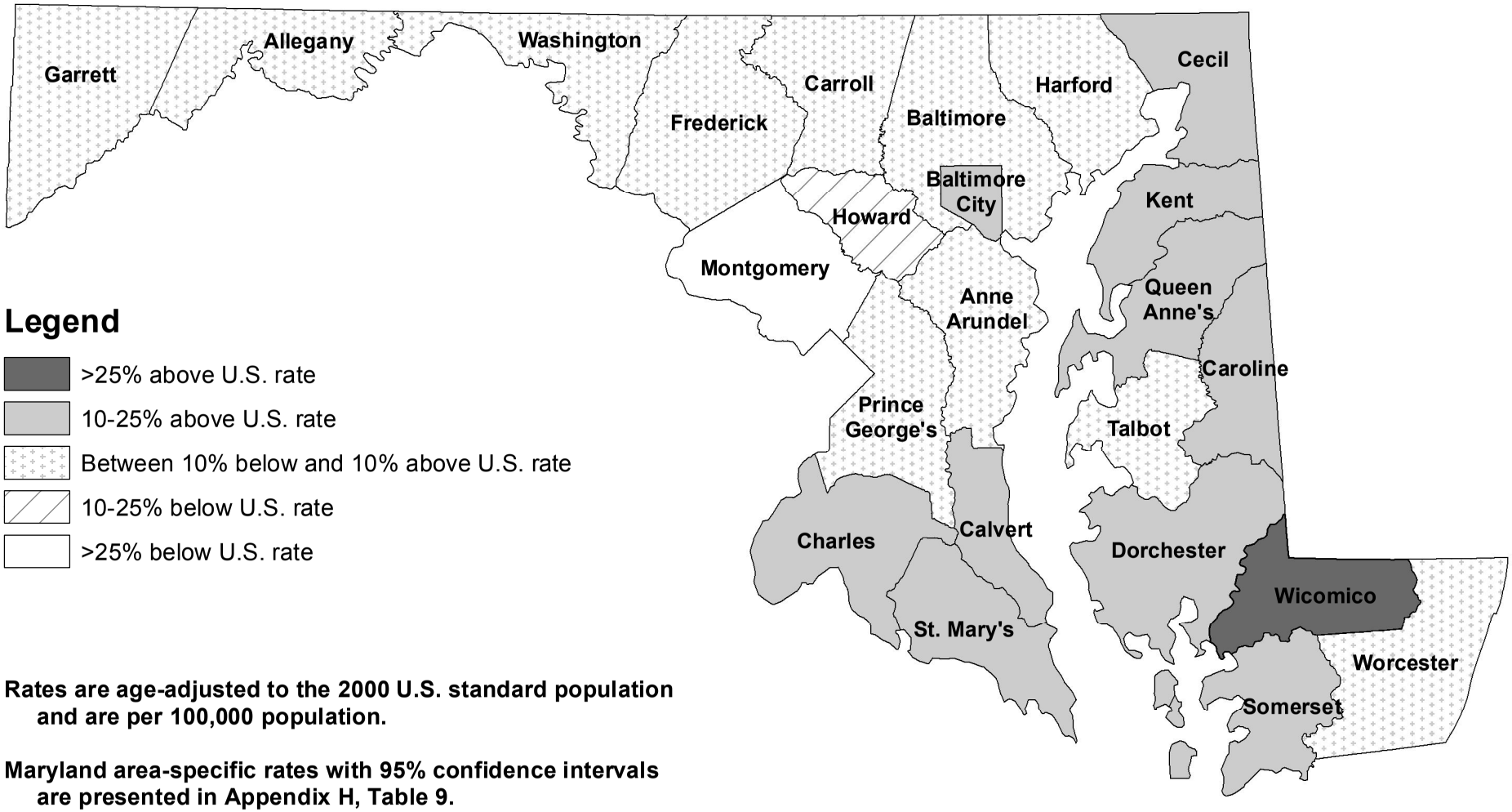
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 1.

U.S. all cancer sites incidence rate, 2005-2009: 465.2/100,000

Maryland all cancer sites incidence rate, 2005-2009: 450.8/100,000

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat

Maryland All Cancer Sites Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 9.

U.S. all cancer sites mortality rate, 2005-2009: 178.7/100,000

Maryland all cancer sites mortality rate, 2005-2009: 182.4/100,000

Source: MD mortality rates from Maryland Vital Statistics Administration from MATCH, 2005-2009
U.S. rate from SEER, Cancer Statistics Review, 2005-2009

III. Targeted Cancers

A. Lung and Bronchus Cancer

Incidence (New Cases)

There were 3,461 new cases of lung and bronchus cancer (called lung cancer) reported among Maryland residents in 2009. The 2009 Maryland age-adjusted lung cancer incidence rate was 58.6 per 100,000 population (56.6-60.6, 95% C.I.), which is similar to the 2009 U.S. SEER lung cancer incidence rate of 60.2 per 100,000 population (59.7-60.8, 95% C.I.).

Mortality (Deaths)

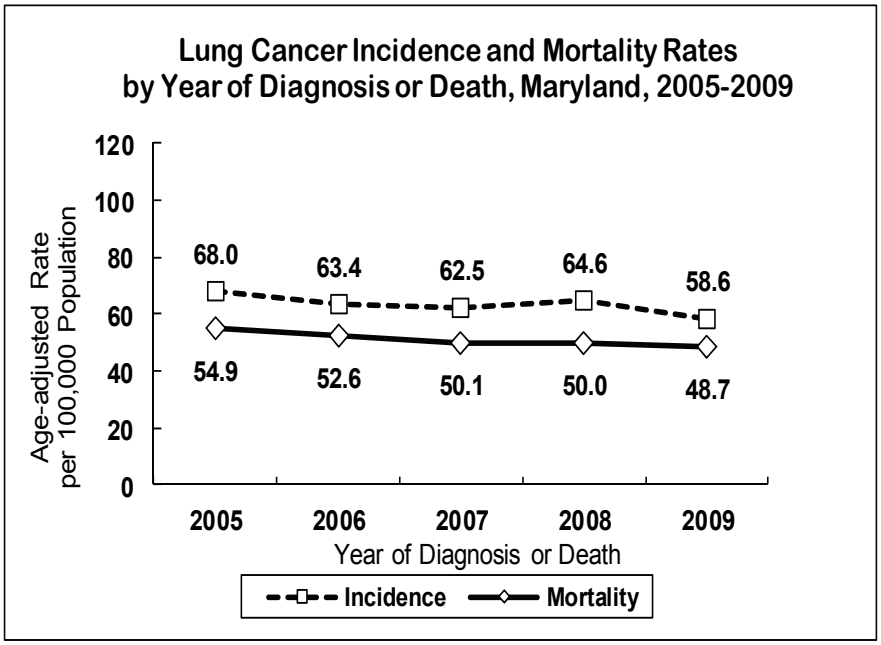
There were 2,835 lung cancer deaths among Maryland residents in 2009. In 2009, lung cancer accounted for 27.3% of all cancer deaths in Maryland and was the leading cause of cancer death in both men and women. The 2009 age-adjusted lung cancer mortality rate was 48.7 per 100,000 population (46.9-50.54, 95% C.I.) in Maryland. This rate is similar to the 2009 U.S. mortality rate for lung and bronchus cancer of 48.5 per 100,000 population (48.3-48.7, 95% C.I.). Maryland had the 26th highest lung cancer mortality rate among the states and the District of Columbia for the period 2005-2009.

Note: Maryland 2008 and 2009 mortality data include cancer of the trachea.

Table 11.
Lung Cancer Incidence and Mortality Rates
by Gender and Race, Maryland and the United States, 2009

Incidence 2009	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
New Cases (count)	3,461	1,723	1,731	2,571	786	100
MD Incidence Rate	58.6	67.6	52.2	60.7	55.6	35.8
U.S. SEER Rate	60.2	72.6	51.3	61.4	69.4	39.8
Mortality 2009	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
Deaths (count)	2,835	1,483	1,352	2,134	641	60
MD Mortality Rate	48.7	60.0	40.8	50.6	46.2	22.6
U.S. Mortality Rate	48.5	62.0	38.6	49.2	52.2	N/A

Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population
Total also includes cases reported as transsexual, hermaphrodite, unknown gender, and unknown race
s = Counts are suppressed to prevent disclosure of data in other cell(s) based on Table 12
N/A = Data were not available
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration from MATCH
U.S. SEER, Cancer Statistics Review



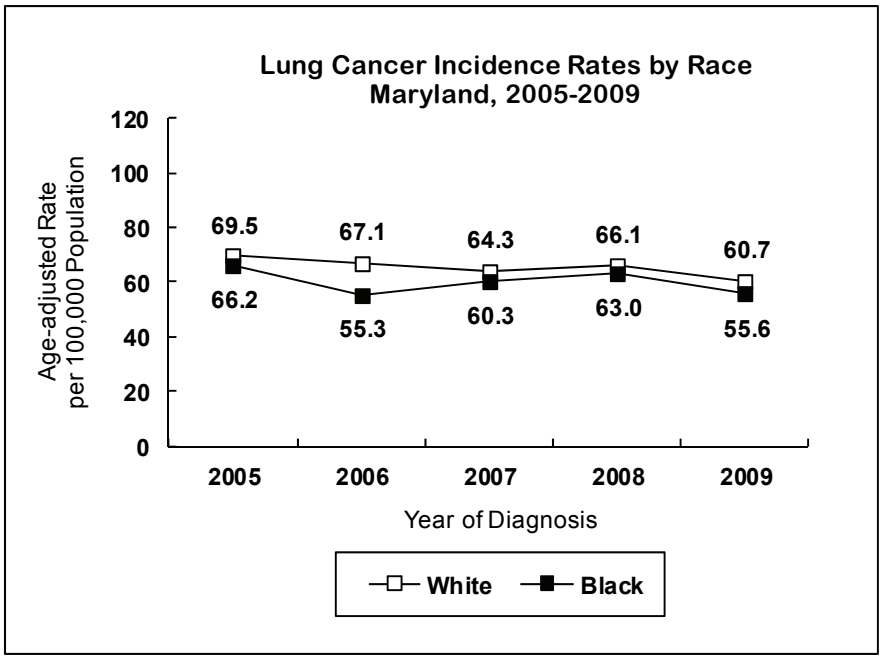
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Incidence and Mortality Trends

Lung cancer incidence rates in Maryland decreased at a rate of 2.7% per year from 2005 to 2009.

Lung cancer mortality rates decreased at a rate of 2.9% per year from 2005 to 2009.

See Appendix I, Tables 1 and 2.

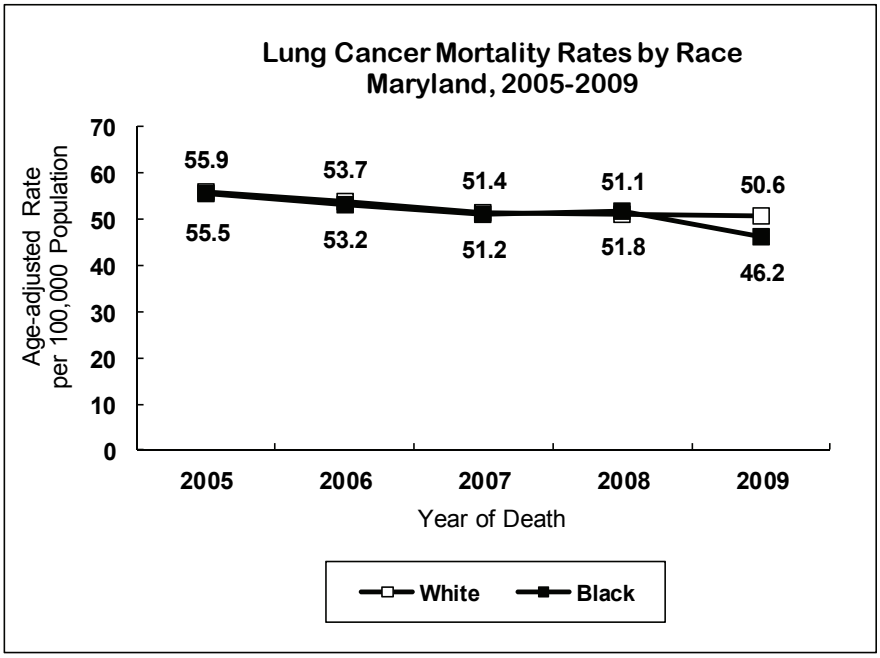


Source: Maryland Cancer Registry

Incidence Trends by Race

From 2005 to 2009, the incidence rates remained lower among blacks than whites. From 2005 to 2009, lung cancer incidence rates for blacks declined at a rate of 2.2% per year, compared to a decline of 2.8% per year among whites.

See Appendix I, Table 3.

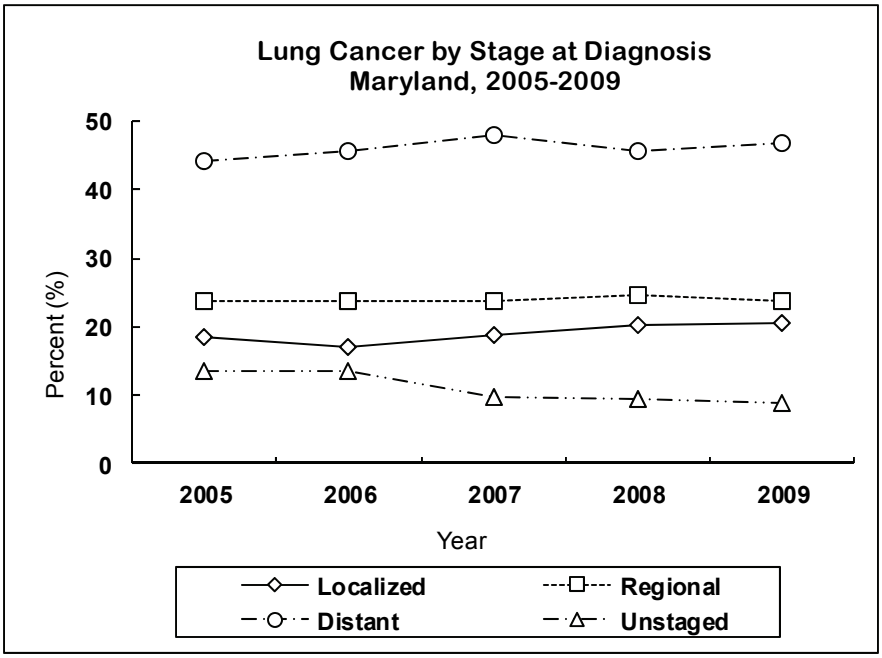


Source: NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Mortality Trends by Race

Lung cancer mortality rates are declining for both blacks and whites. From 2005 to 2009, rates decreased at a rate of 3.9% per year for blacks, and 2.5% per year for whites.

See Appendix I, Table 5.

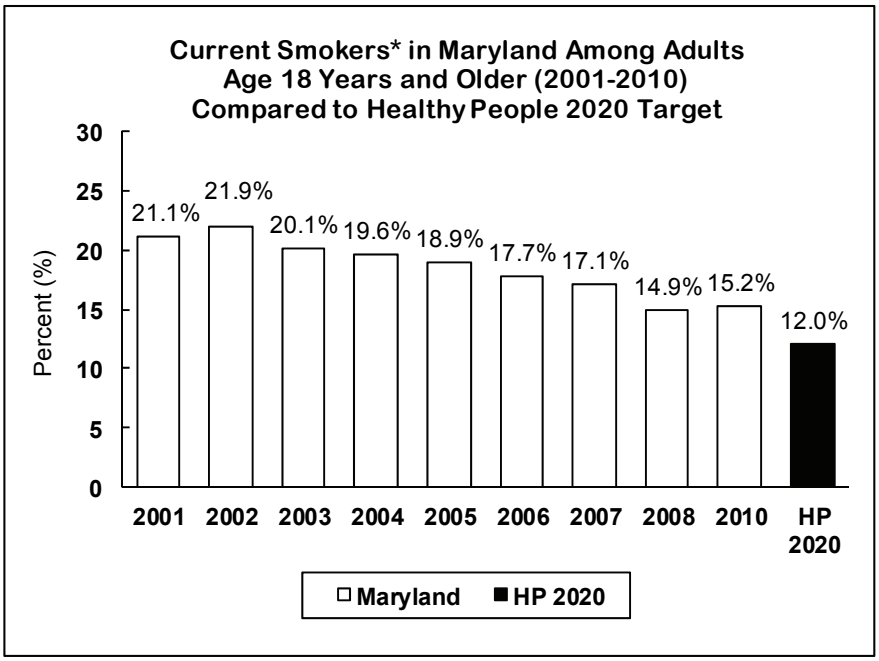


Source: Maryland Cancer Registry

Stage at Diagnosis

A higher proportion of lung cancer cases were diagnosed at the distant stage than at the localized or regional stage of cancer. In 2009, 20.5% of lung cancer cases in Maryland were diagnosed at the local stage, 23.8% were detected at the regional stage, and 46.9% were found at the distant stage. The proportion of lung cancers reported as unstaged has declined in recent years.

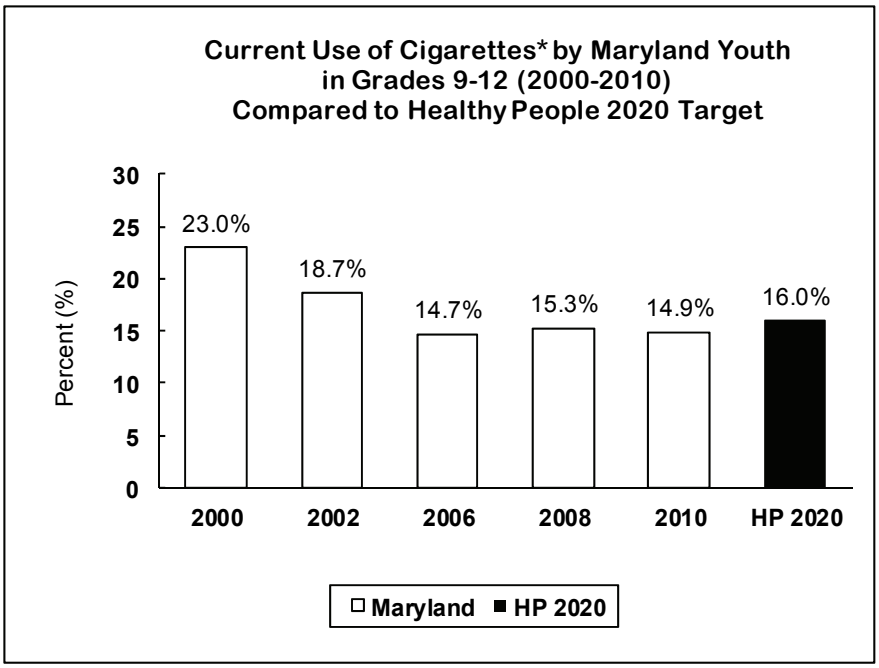
See Appendix J, Table 2.



* Current smoker is defined as a person who smokes cigarettes every day or some days.
Source: Maryland BRFSS
Healthy People 2020, U.S. Department of Health and Human Services

Smoking Prevalence Among Maryland Adults

One Healthy People 2020 target is to reduce the percentage of adults who are current smokers to 12%. Although Maryland has not yet attained this goal, the percentage of adult smokers has decreased from 21.1% in 2001 to 15.2% in 2010.



* Current use of cigarettes is defined as smoking cigarettes on 1 or more days in the previous 30 days.
Source: MYTS
Healthy People 2020, U.S. Department of Health and Human Services

Cigarette Use by Maryland Youth

Healthy People 2020 has established a target of reducing the percentage of youth in grades 9-12 who have smoked cigarettes in the previous 30 days to 16%.

Based on results of the 2006, 2008 and 2010 Maryland Youth Tobacco Surveys, Maryland has met the Healthy People 2020 target for reducing current cigarette use among high school students.

Public Health Evidence (quoted from National Cancer Institute [NCI], Physician Data Query [PDQ], 1/25/2012 and 3/29/2012, and United States Preventive Services Task Force [USPSTF], 5/2004)

Primary Prevention

The most important risk factor for lung cancer (as well as many other cancers) is tobacco use. Cigarette smoking has been established as the predominant cause of lung cancer, and tobacco smoking is estimated to cause 90% of lung cancer in males and 78% of lung cancer in females. Cigar and pipe smoking have also been associated, independently, with increased lung cancer risk. Based on solid evidence, cigarette smoking causes lung cancer and therefore, smoking avoidance would result in decreased mortality from primary lung cancers. Additionally, long-term sustained smoking cessation results in decreased incidence of lung cancer and of second primary lung tumors. Compared with persistent smokers, a 30% to 50% reduction of lung cancer mortality has been noted after 10 years of smoking cessation.

Environmental, or secondhand, tobacco smoke contains the same components as inhaled mainstream smoke at 1% to 10% the concentration, depending on the component. Indoor exposure to radon increases lung cancer incidence and mortality. Considered in total, occupational exposures have been estimated to account for approximately 10% of lung cancers. These carcinogens include asbestos, radon, tar and soot (source of polycyclic aromatic hydrocarbons), arsenic, chromium, and nickel. For many of these workplace carcinogens, cigarette smoking interacts to synergistically increase the risk.

Screening

Based on solid evidence, screening with chest x-ray (CXR) and/or sputum cytology does not reduce mortality from lung cancer; screening with CXR and/or sputum cytology or with low-dose helical computed tomography (LDCT) would lead to false-positive tests and unnecessary invasive diagnostic procedures and treatments. There is evidence that screening persons age 55-74 years who have 30+ pack-years smoking history (either current smokers or former smokers who quit within the last 15 years) with LDCT decreases mortality from lung cancer.

The United States Preventive Services Task Force concluded that the evidence is insufficient to recommend for or against screening asymptomatic persons for lung cancer with LDCT, CXR, sputum cytology, or a combination of these tests. Because of the high number of false-positive tests in certain populations and the invasive nature of diagnostic testing, there is potential for significant harms from screening and diagnostic procedures.

Chemoprevention

Chemoprevention studies of beta-carotene found that high-intensity smokers (one or more packs per day) who take pharmacological doses of beta-carotene supplementation ($\geq$ 20 mg/day) have an *increased* lung cancer incidence and mortality that is associated with taking the supplement. Based on solid evidence, taking vitamin E supplements does not affect the risk of lung cancer.

Public Health Intervention for Lung Cancer (CDC Best Practices for Comprehensive Tobacco Control Programs-2007, 10/2007)

- Prevent tobacco use among youth and young adults.
- Promote cessation among adults and young people.
- Eliminate exposure to secondhand smoke.
- Identify and eliminate tobacco-related disparities.

The CDC Best Practice Guidelines address five components of Comprehensive Tobacco Control Programs including:

- ***State and Community Interventions:***

✓ Support and implement programs and policies to influence organizations, systems, and networks.
✓ Include local and statewide policies and programs, chronic disease and tobacco-related disparity elimination initiatives, and interventions aimed at youth.

- ***Health Communication Interventions:***

✓ Deliver strategic, culturally appropriate, and high-impact messages in sustained and adequately funded campaigns.
✓ Use traditional health communication interventions and counter-marketing strategies, as well as innovations including more focused targeting of specific audiences and fostering message development and distribution.

- ***Cessation Interventions:***

✓ Use interventions that encompass a broad array of policy, system, and population-based measures.
✓ Ensure that all patients seen in the health care system are screened for tobacco use, receive brief interventions to help them quit, and are offered more intensive counseling services and FDA-approved cessation medications.
✓ Make quitline counseling available to all tobacco users willing to access the service.

- ***Surveillance and Evaluation:***

✓ Monitor tobacco-related attitudes, behaviors, and health outcomes.
✓ Collect baseline data related to each objective and performance indicator to ensure program effects are adequately measured.

- ***Administration and Management:***

✓ Have sufficient funding, internal capacity, and skilled staff for effective tobacco prevention and control programs.

Additional resources that expand on Maryland's planned interventions include:

- State Health Improvement Process - http://dhmh.maryland.gov/ship
- Maryland Comprehensive Cancer Control Plan - http://fha.dhmh.maryland.gov/cancer/cancerplan

Table 12.
Number of Lung and Bronchus Cancer Cases by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race			
		Males	Females	Whites	Blacks	Other	Unknown
Maryland	3,461	1,723	1,731	2,571	786	s	<6
Allegany	81	36	45	s	<6	0	0
Anne Arundel	358	178	177	317	s	<6	0
Baltimore City	514	257	257	183	324	7	0
Baltimore County	676	329	347	590	77	9	0
Calvert	41	12	28	35	<6	<6	0
Caroline	20	11	9	s	<6	0	0
Carroll	96	47	49	s	<6	0	0
Cecil	86	41	45	81	<6	<6	0
Charles	58	25	32	40	s	<6	0
Dorchester	27	17	10	19	8	0	0
Frederick	123	57	66	115	s	<6	0
Garrett	22	12	10	s	0	<6	0
Harford	156	91	65	141	s	<6	0
Howard	99	50	49	77	13	9	0
Kent	16	s	s	s	<6	0	0
Montgomery	371	165	206	273	61	37	0
Prince George's	312	167	144	125	177	s	<6
Queen Anne's	32	17	15	s	<6	0	0
Saint Mary's	55	36	19	50	<6	<6	<6
Somerset	23	14	9	18	<6	<6	0
Talbot	27	13	14	s	<6	0	0
Washington	121	63	57	s	<6	0	0
Wicomico	85	42	43	65	s	<6	0
Worcester	53	30	23	41	6	<6	<6
Unknown	9	s	<6	<6	<6	<6	<6

Total includes cases reported as transexual, hermaphrodite, and unknown gender

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Cancer Registry

Table 13.
Lung and Bronchus Cancer Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	58.6	67.6	52.2	60.7	55.6	35.8
Allegany	78.8	83.1	73.2	80.1	**	0.0
Anne Arundel	66.9	74.3	61.5	68.9	63.2	**
Baltimore City	81.1	99.6	69.0	84.2	79.6	**
Baltimore County	73.3	83.9	66.3	78.7	54.0	**
Calvert	50.2	**	62.3	51.3	**	**
Caroline	56.1	**	**	57.0	**	0.0
Carroll	51.7	54.4	48.8	53.3	**	0.0
Cecil	81.9	86.1	78.5	82.2	**	**
Charles	48.0	43.3	49.4	49.0	43.0	**
Dorchester	57.6	85.7	**	52.9	**	0.0
Frederick	56.7	60.3	54.6	58.3	**	**
Garrett	53.2	**	**	51.3	0.0	**
Harford	61.5	80.3	47.6	62.0	**	**
Howard	39.0	43.4	35.5	40.4	**	**
Kent	54.9	**	**	**	**	0.0
Montgomery	36.8	38.7	35.9	35.9	48.6	27.9
Prince George's	43.3	57.1	34.1	49.5	41.9	**
Queen Anne's	56.3	61.7	**	57.7	**	0.0
Saint Mary's	60.6	79.1	41.8	67.9	**	**
Somerset	78.1	**	**	82.9	**	**
Talbot	40.8	**	**	42.2	**	0.0
Washington	73.2	89.5	62.0	74.1	**	0.0
Wicomico	82.2	93.5	74.0	81.5	82.9	**
Worcester	62.9	81.6	48.3	55.3	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 14.
Number of Lung and Bronchus Cancer Deaths¥ by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	2,835	1,483	1,352	2,134	641	60
Allegany	47	21	26	s	<5	0
Anne Arundel	296	165	131	269	s	<5
Baltimore City	413	230	183	s	249	<5
Baltimore County	532	256	276	456	68	8
Calvert	39	16	23	s	<5	0
Caroline	23	17	6	s	<5	0
Carroll	100	58	42	s	<5	0
Cecil	78	43	35	78	0	0
Charles	64	32	32	49	s	<5
Dorchester	34	22	12	19	15	0
Frederick	106	50	56	92	s	<5
Garrett	22	11	11	22	0	0
Harford	115	63	52	108	<5	<5
Howard	72	29	43	61	<5	s
Kent	18	8	10	11	7	0
Montgomery	253	114	139	197	37	19
Prince George's	285	161	124	106	169	10
Queen Anne's	24	12	12	s	<5	<5
Saint Mary's	57	32	25	49	s	<5
Somerset	15	8	7	s	<5	0
Talbot	29	16	13	s	<5	0
Washington	92	52	40	s	<5	0
Wicomico	68	34	34	58	10	0
Worcester	53	33	20	s	5	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

¥ Includes cancer of the trachea (See Appendic C, Section I.B.)

Source: Maryland Vital Statistics Administration from MATCH

Table 15.
Lung and Bronchus Cancer Age-Adjusted Mortality Rates*¥ by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	48.7	60.0	40.8	50.6	46.2	22.6
Allegany	46.8	50.3	45.2	44.8	**	**
Anne Arundel	58.3	74.6	46.4	61.8	40.6	**
Baltimore City	64.8	90.5	48.1	70.6	61.9	**
Baltimore County	57.1	65.4	51.9	59.8	48.5	**
Calvert	48.0	**	52.8	54.0	**	**
Caroline	62.4	**	**	69.8	**	**
Carroll	54.2	72.3	40.4	54.1	**	**
Cecil	74.6	83.5	62.7	79.3	**	**
Charles	56.3	66.6	51.1	62.2	**	**
Dorchester	73.7	114.2	**	**	**	**
Frederick	50.2	56.0	46.5	48.3	**	**
Garrett	55.6	**	**	56.0	**	**
Harford	47.1	59.0	38.0	49.2	**	**
Howard	30.9	26.4	33.1	34.8	**	**
Kent	**	**	**	**	**	**
Montgomery	25.3	27.5	23.7	25.7	31.4	**
Prince George's	41.0	58.6	30.7	42.3	41.4	**
Queen Anne's	43.7	**	**	45.5	**	**
Saint Mary's	64.0	70.0	55.8	67.7	**	**
Somerset	**	**	**	**	**	**
Talbot	45.8	**	**	46.9	**	**
Washington	54.8	74.2	43.5	55.7	**	**
Wicomico	66.2	78.0	59.5	73.4	**	**
Worcester	64.0	91.4	43.2	65.4	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

¥ Includes cancer of the trachea (See Appendic C, Section I.B.)

Source: Maryland Vital Statistics Administration from MATCH

Table 16.
Number of Lung and Bronchus Cancer Cases by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race			
		Males	Females	Whites	Blacks	Other	Unknown
Maryland	17,906	9,131	8,745	13,456	3,968	453	29
Allegany	413	226	187	407	<6	<6	0
Anne Arundel	1,797	901	885	1,619	152	26	0
Baltimore City	2,549	1,314	1,234	988	1,542	s	<6
Baltimore County	3,196	1,594	1,602	2,718	430	s	<6
Calvert	265	113	150	229	s	<6	0
Caroline	139	82	57	120	s	<6	0
Carroll	590	326	264	571	13	<6	<6
Cecil	429	212	217	413	s	<6	0
Charles	310	172	137	229	73	8	0
Dorchester	167	95	72	123	s	0	<6
Frederick	665	348	316	615	41	9	0
Garrett	93	49	44	s	0	<6	0
Harford	824	439	384	750	57	17	0
Howard	568	274	294	467	70	s	<6
Kent	110	53	57	89	21	0	0
Montgomery †	1,936	889	1,045	1,483	268	178	7
Prince George's †	1,712	884	825	701	948	57	6
Queen Anne's	186	103	82	170	s	<6	0
Saint Mary's	301	164	137	265	32	<6	<6
Somerset	117	70	47	78	30	9	0
Talbot	185	76	109	165	20	0	0
Washington	567	320	246	538	s	<6	0
Wicomico	427	234	193	348	70	9	0
Worcester	292	156	136	242	32	s	<6
Unknown	68	37	25	s	15	8	s

Total includes cases reported as transexual, hermaphrodite, and unknown gender

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

† 2006 case counts for Montgomery and Prince George's counties are underreported. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 17.
Lung and Bronchus Cancer Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	63.3	75.1	54.8	65.5	60.0	36.5
Allegany	83.6	107.5	66.2	84.5	**	**
Anne Arundel	72.5	81.8	65.3	75.9	54.2	42.7
Baltimore City	79.7	101.8	65.1	84.6	77.5	35.2
Baltimore County	70.1	82.0	62.0	72.1	65.2	31.6
Calvert	68.0	64.1	70.5	70.2	59.3	**
Caroline	79.1	108.9	58.1	80.5	70.7	**
Carroll	69.2	86.4	56.9	69.8	**	**
Cecil	89.6	98.7	83.9	91.6	**	**
Charles	56.5	74.0	44.7	60.3	47.4	**
Dorchester	75.8	101.4	58.7	72.6	86.0	0.0
Frederick	67.5	81.0	57.6	68.1	71.3	**
Garrett	48.3	55.1	43.1	48.1	0.0	**
Harford	69.4	83.4	58.9	70.5	55.9	74.9
Howard	49.7	54.1	47.0	53.3	42.5	28.0
Kent	75.4	82.6	72.0	71.8	96.8	0.0
Montgomery †	40.2	43.7	38.0	40.4	47.5	30.4
Prince George's †	50.3	62.5	42.3	55.3	48.1	36.8
Queen Anne's	70.6	82.9	58.6	72.8	**	**
Saint Mary's	69.9	80.8	60.6	74.9	48.8	**
Somerset	82.6	107.1	60.0	75.3	80.8	**
Talbot	60.1	54.6	65.1	61.4	52.8	0.0
Washington	71.4	92.7	56.1	70.9	94.5	**
Wicomico	85.5	110.2	68.5	89.3	69.9	**
Worcester	73.3	86.0	63.5	69.1	65.8	654.6

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

† 2005-2009 incidence rates for Montgomery County and Prince George's County are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 18.
Number of Lung and Bronchus Cancer Deaths¥
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	14,390	7,720	6,670	10,814	3,331	245
Allegany	284	164	120	279	<5	<5
Anne Arundel	1,507	806	701	1,353	136	18
Baltimore City	2,131	1,165	966	809	1,314	8
Baltimore County	2,543	1,313	1,230	2,191	326	26
Calvert	223	102	121	198	25	0
Caroline	121	77	44	104	s	<5
Carroll	461	265	196	447	s	<5
Cecil	318	161	157	304	14	0
Charles	311	169	142	233	70	8
Dorchester	142	76	66	103	39	0
Frederick	500	278	222	462	33	5
Garrett	87	51	36	87	0	0
Harford	653	355	298	595	48	10
Howard	420	218	202	340	58	22
Kent	79	42	37	54	25	0
Montgomery	1,453	704	749	1,151	190	112
Prince George's	1,439	803	636	588	822	29
Queen Anne's	166	94	72	152	s	<5
Saint Mary's	254	150	104	220	s	<5
Somerset	96	51	45	74	22	0
Talbot	159	77	82	134	25	0
Washington	450	264	186	434	16	0
Wicomico	354	192	162	292	s	<5
Worcester	239	143	96	210	29	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

¥ Includes cancer of the trachea (See Appendic C, Section I.B.)

Source: Maryland Vital Statistics Administration from MATCH

Table 19.
Lung and Bronchus Cancer Age-Adjusted Mortality Rates*¥ by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	51.1	64.6	41.5	52.5	51.5	20.9
Allegany	57.0	78.9	41.5	57.4	**	**
Anne Arundel	61.9	75.4	51.9	64.5	50.1	**
Baltimore City	67.0	91.8	50.6	68.1	67.0	**
Baltimore County	54.9	67.3	46.4	56.8	51.7	17.2
Calvert	57.7	59.6	56.4	60.8	44.6	**
Caroline	69.7	105.1	44.9	70.3	**	**
Carroll	53.9	70.8	41.6	54.3	**	**
Cecil	67.0	75.8	61.2	67.7	**	**
Charles	58.4	76.4	47.2	62.9	47.1	**
Dorchester	64.8	82.4	53.6	61.2	78.4	**
Frederick	51.2	67.2	39.9	51.7	52.8	**
Garrett	44.8	57.5	33.2	45.1	**	**
Harford	55.6	68.8	45.7	56.4	48.7	**
Howard	38.0	44.7	33.0	40.4	34.7	22.3
Kent	53.0	65.0	44.8	41.8	114.6	**
Montgomery	30.0	35.1	26.6	30.7	34.4	20.8
Prince George's	42.9	58.1	32.8	46.6	41.8	18.5
Queen Anne's	64.3	76.2	52.9	65.9	**	**
Saint Mary's	60.7	77.4	47.0	63.9	51.6	**
Somerset	68.7	80.0	56.8	72.2	61.0	**
Talbot	52.1	58.8	46.3	49.6	69.0	**
Washington	56.5	76.4	41.6	57.0	**	**
Wicomico	70.8	90.6	57.2	74.7	59.5	**
Worcester	59.2	79.9	42.6	59.7	59.1	**

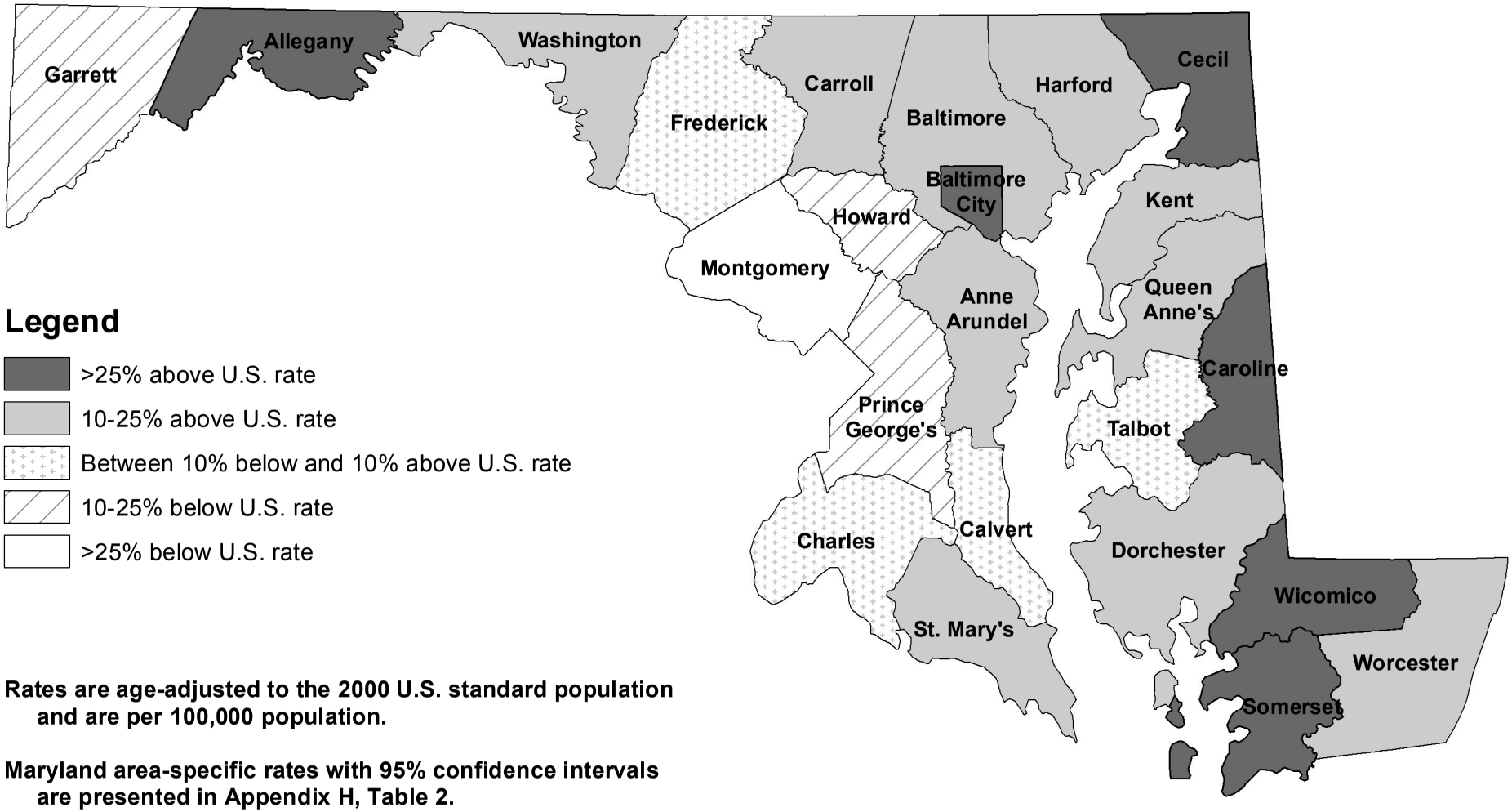
* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

¥ Includes cancer of the trachea (See Appendic C, Section I.B.)

Source: Maryland Vital Statistics Administration from MATCH

Maryland Lung Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

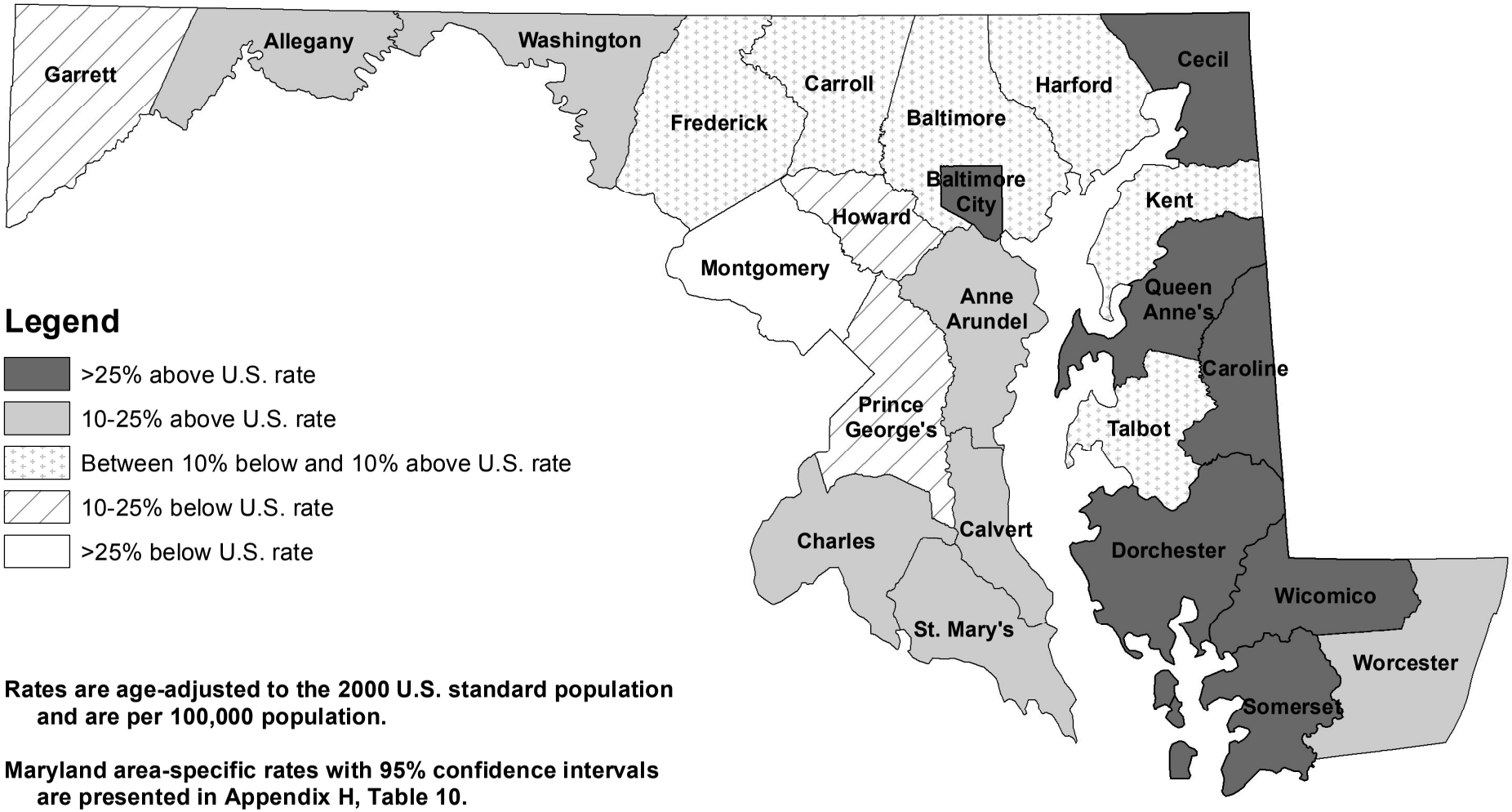
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 2.

U.S. lung cancer incidence rate, 2005-2009: 62.6/100,000

Maryland lung cancer incidence rate, 2005-2009: 63.3/100,000

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat

Maryland Lung Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 10.

U.S. lung cancer mortality rate, 2005-2009: 50.6/100,000

Maryland lung cancer mortality rate, 2005-2009: 51.1/100,000

Source: MD mortality rates from Maryland Vital Statistics Administration from MATCH, 2005-2009
U.S. rate from SEER, Cancer Statistics Review, 2005-2009

B. Colon and Rectum Cancer

Incidence (New Cases)

In 2009, there were 2,269 new cases of cancer of the colon or rectum (called colorectal cancer) reported among Maryland residents. The age-adjusted colorectal cancer incidence rate in Maryland for 2009 was 38.0 per 100,000 population (36.4-39.6, 95% C.I.), which is statistically significantly lower than the 2009 U.S. SEER age-adjusted colorectal cancer incidence rate of 43.5 per 100,000 population (43.0-43.9, 95% C.I.).

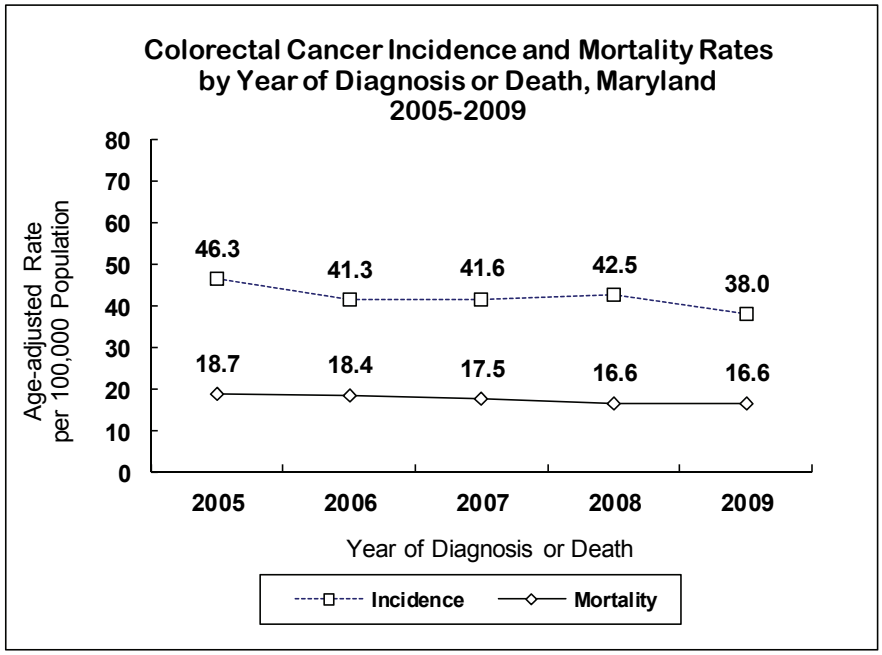
Mortality (Deaths)

A total of 977 persons died of colorectal cancer in 2009 in Maryland. In 2009, colorectal cancer accounted for 9.4% of all cancer deaths and was the second leading cause of cancer death in Maryland. The age-adjusted colorectal cancer mortality rate in Maryland was 16.6 per 100,000 population (15.6-17.7, 95% C.I.). This rate is similar to the 2009 U.S. colorectal cancer mortality rate of 15.7 per 100,000 population (15.6-15.9, 95% C.I.). Maryland had the 17th highest colorectal cancer mortality rate among the states and the District of Columbia for the period 2005-2009.

Table 20.
Colorectal Cancer Incidence and Mortality Rates
by Gender and Race, Maryland and the United States, 2009

Incidence 2009	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
New Cases (count)	2,269	1,092	1,174	1,534	612	108
MD Incidence Rate	38.0	42.1	34.8	36.0	42.4	36.8
U.S. SEER Rate	43.5	50.2	38.1	42.3	53.7	42.0
Mortality 2009	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
Deaths (count)	977	508	469	648	302	27
MD Mortality Rate	16.6	20.6	13.7	15.2	21.8	9.7
U.S. Mortality Rate	15.7	19.1	13.1	15.3	22.1	N/A

Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population
Total also includes cases reported as transsexual, hermaphrodite, unknown gender, and unknown race
N/A = Data were not available
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration
U.S. SEER, Cancer Statistics Review



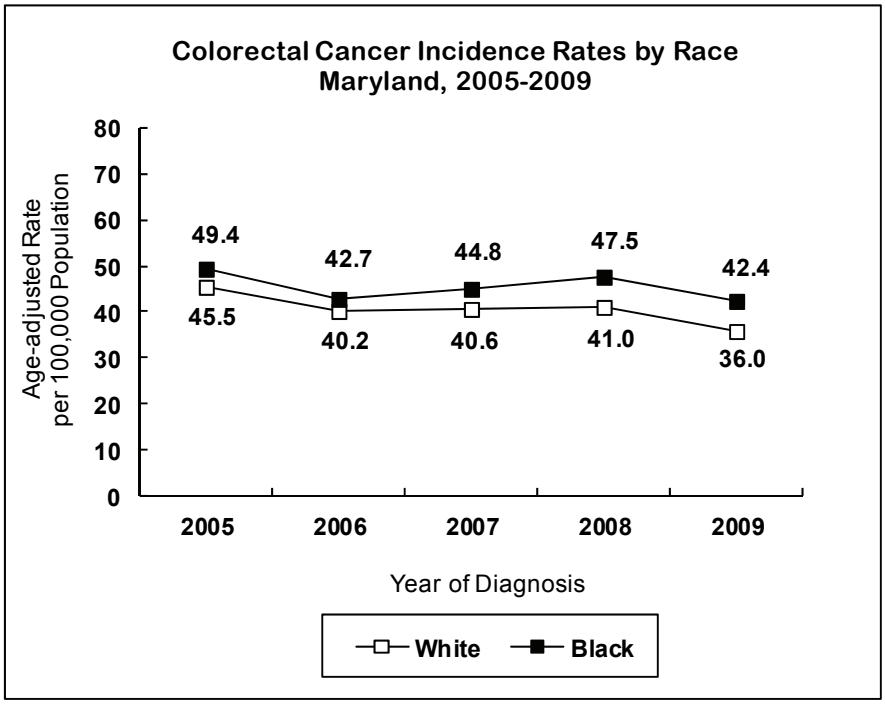
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration, 2008-2009

Incidence and Mortality Trends

Incidence rates for colorectal cancer have been declining in Maryland. From 2005 to 2009, incidence rates declined at a rate of 3.6% per year.

Colorectal cancer mortality rates declined at a rate of 3.4% per year from 2005 to 2009.

See Appendix I, Tables 1 and 2.

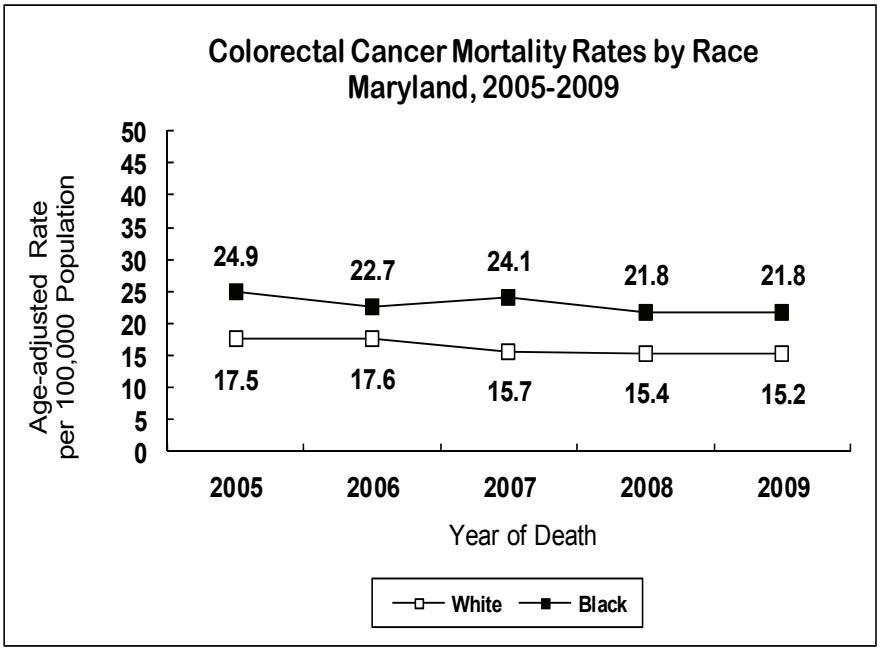


Source: Maryland Cancer Registry

Incidence Trends by Race

From 2005 to 2009, colorectal cancer incidence rates declined at a rate of 2.0% per year for blacks and 4.4% per year among whites. In 2009, the incidence rate for colorectal cancer was 36.0 for whites and 42.4 for blacks in Maryland.

See Appendix I, Table 3.

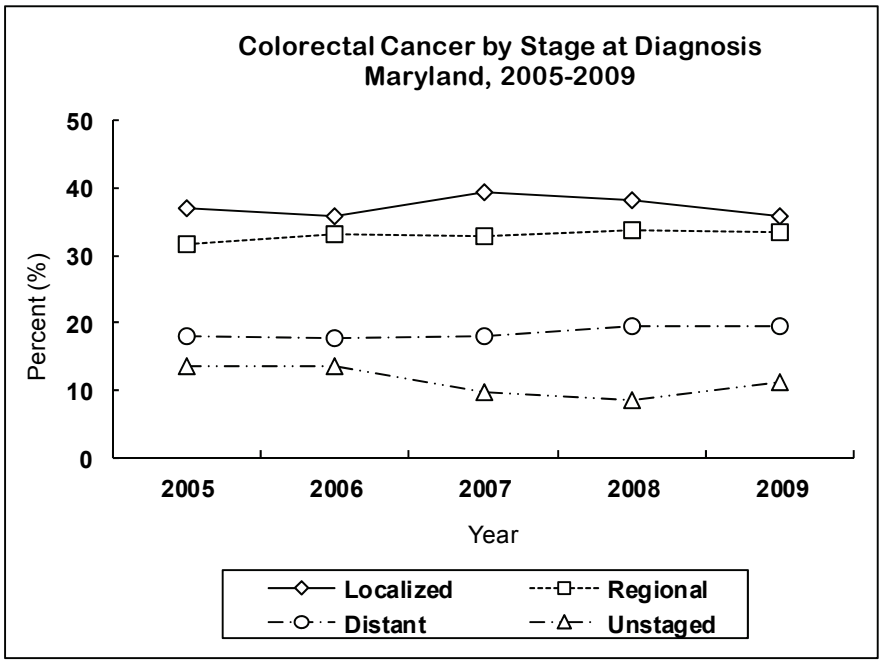


Source: NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration, 2008-2009

Mortality Trends by Race

From 2005 to 2009, colorectal cancer mortality rates declined for blacks and whites. Mortality rates in blacks decreased at a rate of 3.0% per year; whereas, among whites, the decline was 4.1% per year.

See Appendix I, Table 5.

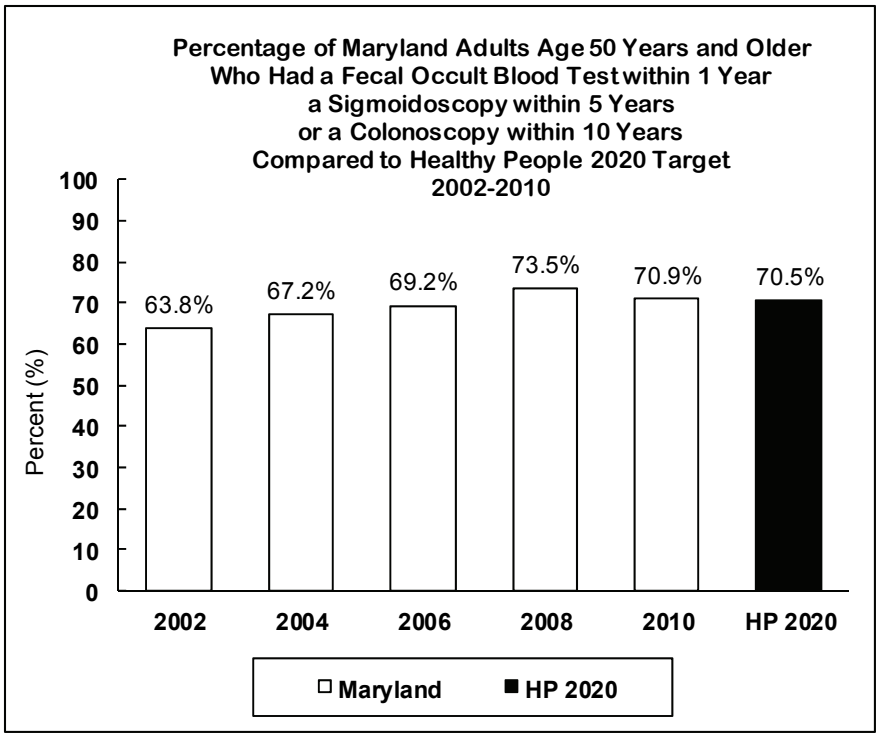


Source: Maryland Cancer Registry

Stage at Diagnosis

In 2009, 35.8% of colorectal cancers diagnosed in Maryland were detected at the localized stage, 33.5% were detected at the regional stage, and 19.4% were found at the distant stage. The proportion of colorectal cancers reported as unstaged has increased in 2009.

See Appendix J, Table 3.



Note: Graphic includes results from both the Maryland BRFSS and Maryland Cancer Survey. See Appendix C for a cautionary note on comparing these data.

Source: Maryland Cancer Survey 2002, 2004, 2006 and 2008
Maryland BRFSS 2010
Healthy People 2020, U.S. Department of Health and Human Services

Up-to-Date Screening for Colorectal Cancer

The Healthy People 2020 target for colorectal cancer screening is to increase to 70.5% the proportion of adults age 50 years and older who are screened based on recent guidelines. Based on guidelines provided by the American Cancer Society (ACS), up-to-date screening was defined as having a fecal occult blood test (FOBT) within 1 year, a sigmoidoscopy within 5 years, and a colonoscopy within 10 years. Up-to-date screening in Maryland increased steadily from 63.8% in 2002 to 73.5% in 2008, but declined in 2010 to 70.9%, while remaining above the Healthy People 2020 target of 70.5%.

Public Health Evidence (quoted from NCI PDQ, 3/30/2012 and 1/25/2012, and USPSTF, 11/2008)

Prevention

Based on solid evidence, physical activity is associated with a decreased risk of colorectal cancer (CRC). Based on fair evidence, removal of adenomatous polyps reduces the risk of CRC. Harms of polyp removal include infrequent perforation of the colon and bleeding. Based on fair evidence, a diet low in fat and meat and high in fiber, fruits, and vegetables started as an adult does not reduce the risks of CRC by a clinically important degree; however, there are no known harms from dietary modification, including reduction of fatty acids or meats and an increase in the intake of fiber, fruits, and vegetables. Based on solid evidence, factors associated with increased CRC risk are: excessive alcohol use, cigarette smoking, and obesity; cigarette smoking and obesity are also associated with increased mortality from CRC.

Screening

Screening for CRC reduces CRC mortality but there is little evidence that it reduces all-cause mortality, possibly because of an observed increase in other causes of death. The United States Preventive Services Task Force (USPSTF) recommends screening for CRC using fecal occult blood testing, sigmoidoscopy, or colonoscopy beginning at age 50 years and continuing until age 75 years. The USPSTF recommends against routine screening for CRC in adults age 76 to 85 years, but considerations may support CRC screening in an individual patient. The USPSTF recommends against CRC screening for adults older than age 85 years because there is moderate certainty that the benefits of screening do not outweigh the harms. Barium enema studies are no longer recommended due to lower sensitivity compared with other studies, lack of screening trials, and declining use. The USPSTF concluded that the benefits from screening substantially outweigh potential harms for persons age 50 to 75 years, but the risks and benefits vary with each method. They recommend that efforts to reduce CRC mortality should focus on maximizing the number of individuals who get screening and that test selection should be based on patient preference, local test availability, and quality. The USPSTF found insufficient evidence to assess the benefits and harms of computer tomographic (CT) colonography ("virtual colonoscopy") and fecal DNA testing as screening modalities.

Chemoprevention

There is inadequate evidence that the use of nonsteroidal anti-inflammatory drugs (NSAIDs) reduces the risk of CRC. Based on solid evidence, NSAIDs reduce the risk of adenomas, but the extent to which this translates into a reduction of CRC is uncertain. However, harms of NSAID use are relatively common and potentially serious, and include upper gastrointestinal bleeding, chronic kidney disease, and serious cardiovascular events such as heart attack, heart failure, and hemorrhagic stroke. Based on solid evidence, postmenopausal estrogen plus progesterone hormone use, but not estrogen alone, decreases the incidence of CRC. However, harms of postmenopausal combined estrogen plus progestin hormone use include increased risk of breast cancer, coronary heart disease, and thromboembolic events.

Public Health Intervention for CRC (USPSTF 2008; DHMH CRC Medical Advisory Committee, 2009)
➢ For those age 50 to 75 years at average risk, screen with colonoscopy or with FOBT and flexible sigmoidoscopy. Persons older than age 75 years may also be screened if there are considerations to support screening after taking into account comorbidities, longevity, and past CRC screening results. The harms likely outweigh the benefits of CRC screening for persons older than age 85 years. ➢ For those unable or unwilling to undergo colonoscopy or sigmoidoscopy, FOBT is an alternative initial screening method. ➢ Reserve other CRC screening tests as alternatives for situations where the patient and the provider discuss and determine that such tests are indicated for the individual.

Table 21.
Number of Colorectal Cancer Cases
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race			
		Males	Females	Whites	Blacks	Other	Unknown
Maryland	2,269	1,092	1,174	1,534	612	108	15
Allegany	53	24	29	s	<6	0	0
Anne Arundel	199	105	94	156	33	s	<6
Baltimore City	288	129	159	99	184	<6	<6
Baltimore County	398	187	211	294	90	s	<6
Calvert	27	9	15	s	<6	0	0
Caroline	19	10	9	19	0	0	0
Carroll	66	38	28	60	<6	<6	0
Cecil	38	23	15	s	<6	0	0
Charles	55	32	23	36	15	<6	<6
Dorchester	16	<6	s	10	6	0	0
Frederick	117	51	66	106	s	<6	0
Garrett	13	s	<6	13	0	0	0
Harford	121	58	63	106	s	<6	0
Howard	90	46	44	55	18	17	0
Kent	9	s	<6	s	<6	0	0
Montgomery	269	129	140	187	s	42	<6
Prince George's	254	121	133	71	167	s	<6
Queen Anne's	18	6	12	s	<6	0	0
Saint Mary's	26	14	12	s	<6	0	0
Somerset	9	0	9	s	<6	0	0
Talbot	28	13	15	s	<6	0	0
Washington	68	34	34	s	<6	0	0
Wicomico	48	20	28	34	14	0	0
Worcester	31	18	13	27	<6	<6	<6
Unknown	9	<6	<6	<6	<6	<6	<6

Total includes cases reported as transexual, hermaphrodite, and unknown gender

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Cancer Registry

Table 22.
Colorectal Cancer Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	38.0	42.1	34.8	36.0	42.4	36.8
Allegany	51.8	54.9	50.6	51.1	**	0.0
Anne Arundel	37.4	41.5	32.9	34.4	58.2	**
Baltimore City	44.8	50.6	41.7	44.0	45.3	**
Baltimore County	42.3	46.9	39.2	38.5	60.1	**
Calvert	31.1	**	**	31.8	**	0.0
Caroline	51.9	**	**	61.1	0.0	0.0
Carroll	34.7	44.3	26.8	33.1	**	**
Cecil	36.9	48.3	**	38.7	**	0.0
Charles	45.2	60.0	33.7	46.8	**	**
Dorchester	34.5	**	**	**	**	0.0
Frederick	55.8	57.0	56.5	56.6	**	**
Garrett	**	**	**	**	0.0	0.0
Harford	47.7	51.5	44.4	47.3	**	**
Howard	34.6	42.8	30.4	28.0	47.7	60.5
Kent	**	**	**	**	**	0.0
Montgomery	25.3	27.7	22.9	23.2	27.1	32.0
Prince George's	33.7	36.8	31.3	28.1	38.0	**
Queen Anne's	30.4	**	**	**	**	0.0
Saint Mary's	28.3	**	**	32.5	**	0.0
Somerset	**	0.0	**	**	**	0.0
Talbot	44.3	**	**	49.4	**	0.0
Washington	41.3	46.5	37.5	41.0	**	0.0
Wicomico	47.4	50.5	47.8	43.6	**	0.0
Worcester	39.5	54.9	**	40.1	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 23.
Number of Colorectal Cancer Deaths
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	977	508	469	648	302	27
Allegany	21	14	7	21	0	0
Anne Arundel	72	47	25	58	14	0
Baltimore City	142	71	71	s	96	<5
Baltimore County	170	85	85	138	s	<5
Calvert	10	<5	s	s	<5	0
Caroline	<5	<5	<5	<5	0	0
Carroll	33	21	12	33	0	0
Cecil	16	11	5	s	<5	0
Charles	18	10	8	11	7	0
Dorchester	7	<5	s	s	<5	0
Frederick	34	16	18	s	<5	<5
Garrett	7	s	<5	7	0	0
Harford	46	23	23	38	s	<5
Howard	31	12	19	22	s	<5
Kent	6	<5	<5	6	0	0
Montgomery	102	44	58	70	19	13
Prince George's	132	68	64	s	98	<5
Queen Anne's	s	<5	<5	<5	<5	0
Saint Mary's	19	10	9	s	<5	0
Somerset	12	<5	s	7	5	0
Talbot	10	s	<5	s	<5	0
Washington	34	24	10	s	<5	0
Wicomico	29	15	14	22	7	0
Worcester	16	9	7	s	<5	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration

Table 24.
Colorectal Cancer Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	16.6	20.6	13.7	15.2	21.8	9.7
Allegany	19.9	**	**	20.4	**	**
Anne Arundel	14.1	20.0	8.7	13.2	**	**
Baltimore City	22.5	29.4	18.3	18.5	24.5	**
Baltimore County	17.8	21.4	15.0	17.3	18.5	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	18.7	28.6	**	19.5	**	**
Cecil	**	**	**	**	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	15.9	**	**	16.7	**	**
Garrett	**	**	**	**	**	**
Harford	19.0	21.0	17.0	18.3	**	**
Howard	12.8	**	**	11.8	**	**
Kent	**	**	**	**	**	**
Montgomery	9.5	10.0	9.2	8.6	**	**
Prince George's	18.4	21.0	15.9	11.6	23.7	**
Queen Anne's	**	**	**	**	**	**
Saint Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	20.2	35.3	**	20.5	**	**
Wicomico	27.5	**	**	27.0	**	**
Worcester	**	**	**	**	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Table 25.
Number of Colorectal Cancer Cases
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race			
		Males	Females	Whites	Blacks	Other	Unknown
Maryland	11,987	5,963	6,011	8,418	3,034	467	68
Allegany	260	140	120	251	s	<6	0
Anne Arundel	988	525	462	798	153	30	7
Baltimore City	1,447	665	779	534	891	16	6
Baltimore County	2,017	976	1,040	1,599	358	47	13
Calvert	177	88	86	146	s	<6	0
Caroline	79	40	39	s	<6	0	0
Carroll	371	191	179	357	9	<6	<6
Cecil	235	135	100	221	14	0	0
Charles	265	143	122	173	85	<6	<6
Dorchester	103	49	54	77	26	0	0
Frederick	514	259	254	481	26	s	<6
Garrett	80	41	39	s	<6	0	0
Harford	544	257	287	481	54	9	0
Howard	451	248	203	333	73	s	<6
Kent	67	36	31	57	10	0	0
Montgomery †	1,651	799	852	1,196	231	205	19
Prince George's †	1,386	677	708	438	873	64	11
Queen Anne's	119	59	60	103	16	0	0
Saint Mary's	204	114	90	168	29	7	0
Somerset	63	34	29	46	17	0	0
Talbot	131	71	60	114	17	0	0
Washington	339	178	161	321	s	<6	0
Wicomico	255	117	138	195	s	<6	0
Worcester	173	94	79	138	s	18	<6
Unknown	68	27	39	37	s	<6	<6

Total includes cases reported as transexual, hermaphrodite, and unknown gender

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

† 2006 case counts for Montgomery and Prince George's counties are underreported. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 26.
Colorectal Cancer Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	41.9	48.5	36.9	40.6	45.3	35.8
Allegany	52.4	67.0	42.1	51.8	**	**
Anne Arundel	39.7	46.8	33.9	37.3	55.0	49.1
Baltimore City	44.9	51.7	40.7	44.4	45.3	32.5
Baltimore County	43.6	49.7	38.9	41.8	52.3	32.2
Calvert	44.3	49.5	39.1	44.1	50.0	**
Caroline	45.2	51.1	40.7	50.4	**	0.0
Carroll	43.1	50.9	37.3	43.2	**	**
Cecil	48.9	60.9	38.5	49.1	**	0.0
Charles	48.3	62.5	38.7	46.3	53.4	**
Dorchester	47.7	53.9	44.0	46.2	52.1	0.0
Frederick	50.8	59.6	44.6	52.0	41.0	**
Garrett	41.9	48.4	37.3	41.7	**	0.0
Harford	46.8	49.9	44.2	46.5	51.7	**
Howard	37.7	47.5	30.9	36.7	41.4	37.8
Kent	44.5	55.6	34.8	45.1	**	0.0
Montgomery †	33.2	37.7	29.8	31.6	37.5	33.5
Prince George's †	39.1	44.3	35.0	34.7	42.9	34.3
Queen Anne's	45.7	47.8	43.5	44.3	61.8	0.0
Saint Mary's	45.4	53.2	38.1	44.9	45.0	**
Somerset	44.9	54.2	38.6	45.1	45.9	0.0
Talbot	45.4	57.4	34.7	45.1	51.2	0.0
Washington	42.2	51.2	35.3	41.9	53.9	**
Wicomico	51.4	56.0	48.1	50.5	54.2	**
Worcester	44.3	53.2	36.3	41.2	33.2	855.1

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

† 2005-2009 incidence rates for Montgomery County and Prince George's County are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 27.
Number of Colorectal Cancer Deaths
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	4,936	2,548	2,388	3,373	1,447	116
Allegany	92	45	47	s	<5	0
Anne Arundel	397	221	176	328	62	7
Baltimore City	696	325	371	230	461	5
Baltimore County	861	428	433	698	151	12
Calvert	79	41	38	60	19	0
Caroline	31	17	14	s	<5	0
Carroll	165	86	79	156	9	0
Cecil	94	52	42	88	s	<5
Charles	134	75	59	86	48	0
Dorchester	46	21	25	31	15	0
Frederick	167	82	85	154	s	<5
Garrett	40	21	19	s	<5	0
Harford	193	105	88	168	s	<5
Howard	178	91	87	122	46	10
Kent	25	12	13	s	<5	0
Montgomery	585	302	283	435	93	57
Prince George's	617	319	298	184	418	15
Queen Anne's	51	29	22	41	10	0
Saint Mary's	68	43	25	60	8	0
Somerset	29	13	16	17	12	0
Talbot	47	25	22	38	9	0
Washington	145	89	56	136	s	<5
Wicomico	130	63	67	96	s	<5
Worcester	66	43	23	s	<5	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration

Table 28.
Colorectal Cancer Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2005-2009

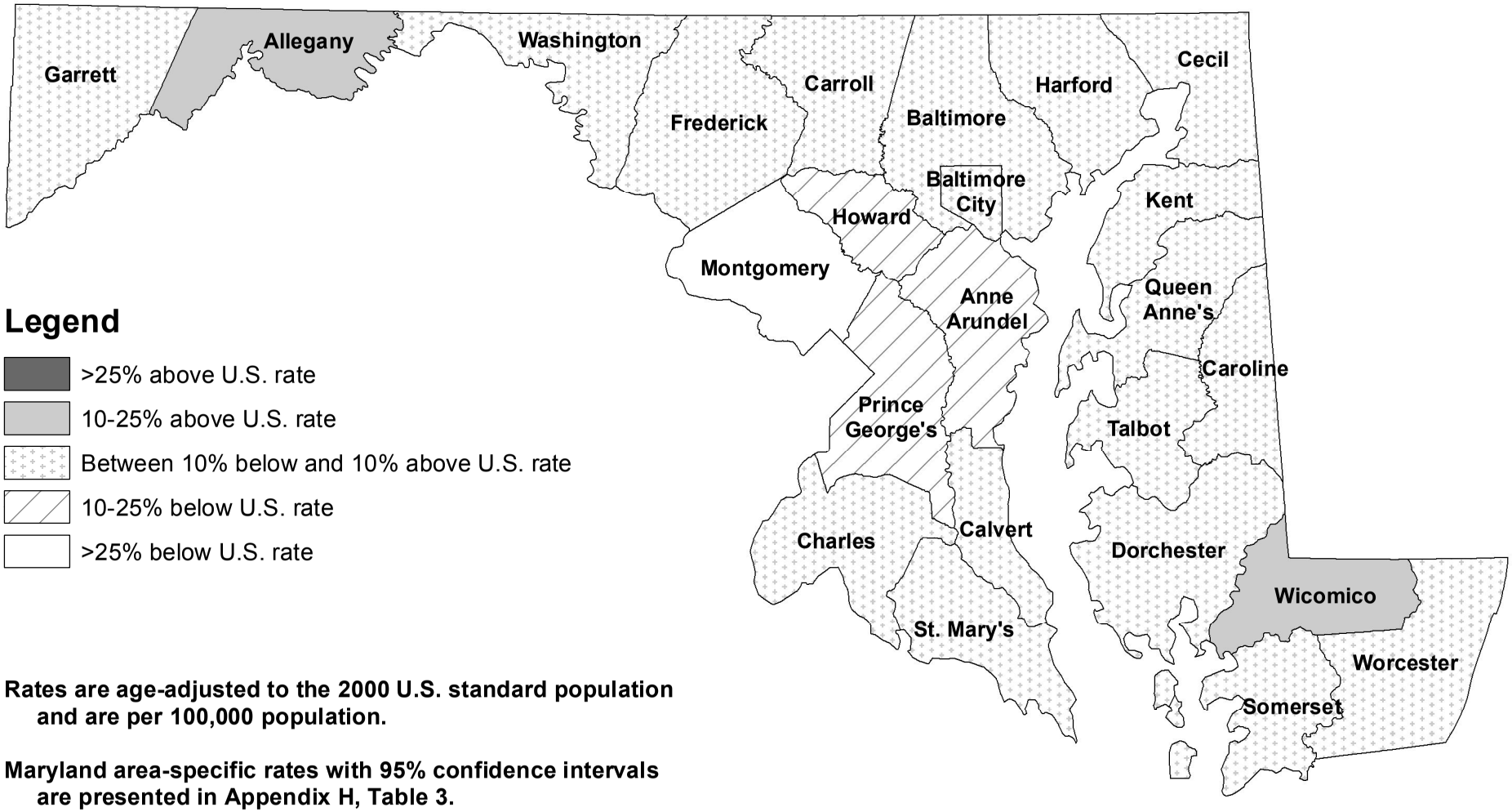
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	17.5	21.6	14.5	16.2	23.0	9.7
Allegany	17.9	21.7	15.6	18.1	**	**
Anne Arundel	16.8	20.9	13.3	16.1	23.5	**
Baltimore City	21.5	26.1	18.5	17.7	24.1	**
Baltimore County	18.2	21.8	15.4	17.6	23.4	**
Calvert	20.8	24.9	18.0	19.4	**	**
Caroline	18.0	**	**	20.5	**	**
Carroll	19.7	24.3	16.1	19.4	**	**
Cecil	20.4	26.1	16.0	20.3	**	**
Charles	26.4	37.1	19.8	24.4	35.4	**
Dorchester	21.2	25.2	18.8	18.3	**	**
Frederick	17.1	19.9	14.8	17.3	**	**
Garrett	20.7	24.8	**	20.3	**	**
Harford	17.4	21.0	14.2	17.0	22.3	**
Howard	16.6	19.5	14.2	14.6	30.8	**
Kent	17.0	**	**	17.6	**	**
Montgomery	11.9	15.0	9.8	11.3	16.4	10.4
Prince George's	18.5	22.2	15.5	14.4	22.4	**
Queen Anne's	20.2	25.0	16.0	18.3	**	**
Saint Mary's	16.1	22.1	11.1	17.1	**	**
Somerset	21.3	**	**	**	**	**
Talbot	15.2	19.3	11.7	14.0	**	**
Washington	17.8	26.7	11.8	17.5	**	**
Wicomico	25.4	30.3	21.9	23.9	31.4	**
Worcester	16.4	23.7	10.1	17.7	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Maryland Colorectal Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

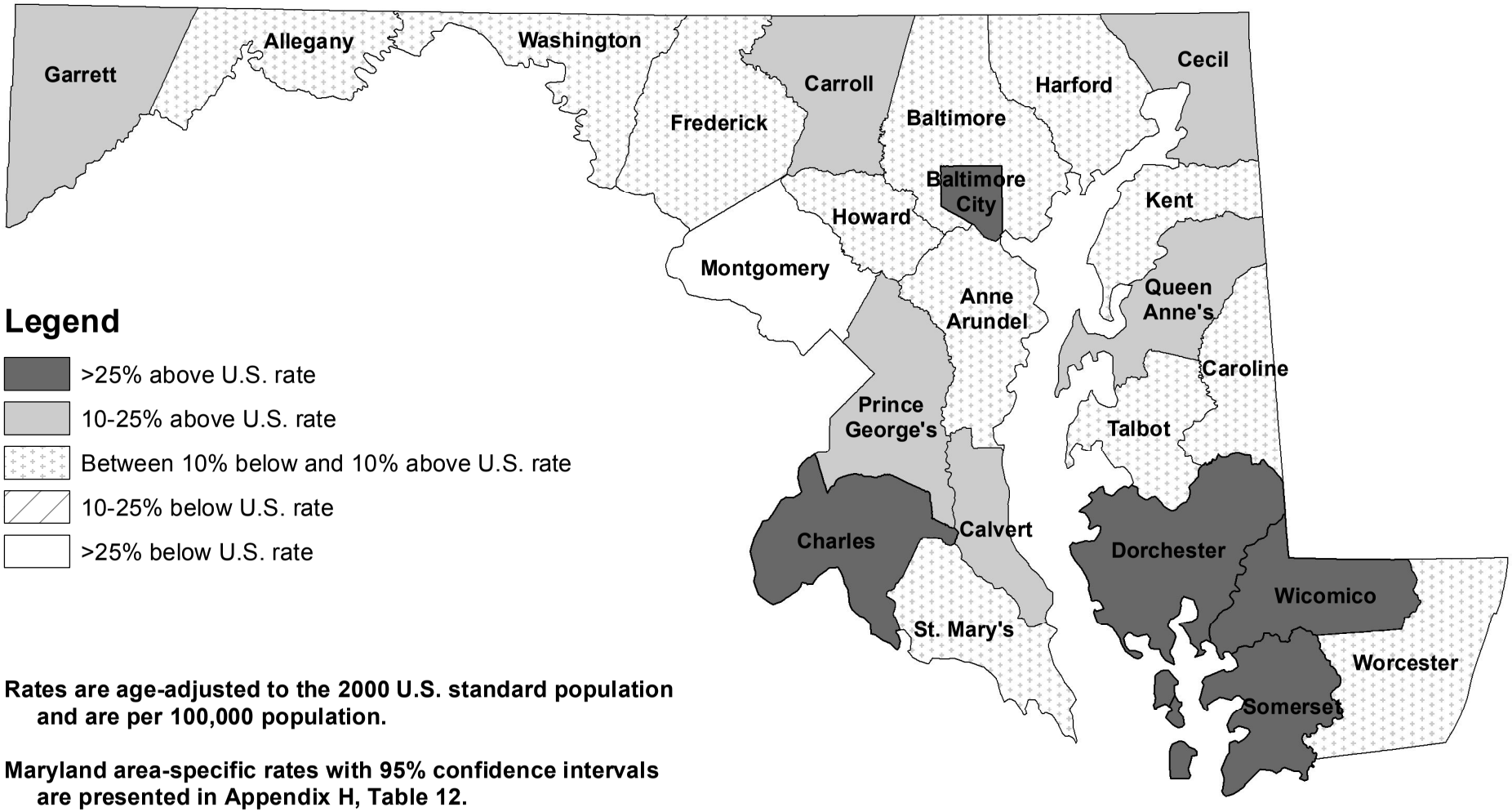
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 3.

U.S. colorectal cancer incidence rate, 2005-2009: 46.3/100,000

Maryland colorectal cancer incidence rate, 2005-2009: 41.9/100,000

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat

Maryland Colorectal Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 12.

U.S. colorectal cancer mortality rate, 2005-2009: 16.7/100,000

Maryland colorectal cancer mortality rate, 2005-2009: 17.5/100,000

Source: MD mortality rates from Maryland Vital Statistics Administration, 2005-2009
U.S. rate from SEER, Cancer Statistics Review, 2005-2009

C. Female Breast Cancer

Incidence (New Cases)

In 2009, a total of 4,236 cases of breast cancer were reported among Maryland women. The 2009 age-adjusted incidence rate in Maryland was 127.4 per 100,000 women (123.5-131.3, 95% C.I.), which is similar to the 2009 U.S. SEER age-adjusted female breast cancer incidence rate of 125.7 per 100,000 population (124.7-126.8, 95% C.I.).

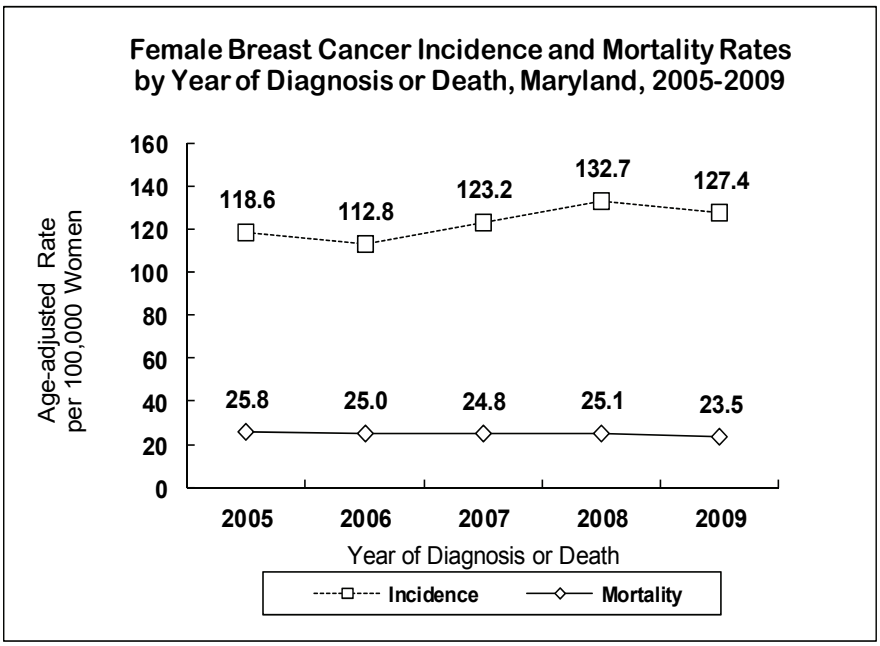
Mortality (Deaths)

In 2009, a total of 793 women died of breast cancer in Maryland. Female breast cancer accounted for 15.5% of cancer deaths among women and 7.6% of all cancer deaths in Maryland in 2009. Breast cancer is the second leading cause of cancer death among women in Maryland after lung cancer. The 2009 age-adjusted mortality rate for breast cancer in Maryland was 23.5 per 100,000 women (21.9-25.2, 95% C.I.). This rate is similar to the U.S. female breast cancer mortality rate of 22.2 per 100,000 women (22.0-22.4, 95% C.I.). Maryland had the 7th highest female breast cancer mortality rate among the states and the District of Columbia for the period 2005-2009.

Table 29.
Female Breast Incidence and Mortality Rates
by Race, Maryland and the United States, 2009

Incidence 2009	*Total*	*Whites*	*Blacks*	*Other*
New Cases (count)	4,236	2,896	1,107	211
MD Incidence Rate	127.4	127.8	121.7	120.5
U.S. SEER Rate	125.7	128.3	125.1	104.5
Mortality 2009	*Total*	*Whites*	*Blacks*	*Other*
Deaths (count)	793	540	240	13
MD Mortality Rate	23.5	22.6	27.1	**
U.S. Mortality Rate	22.2	21.7	30.5	N/A

Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population
Total includes unknown race
** MD mortality rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy
N/A = Data were not available
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration from MATCH
U.S. SEER, Cancer Statistics Review



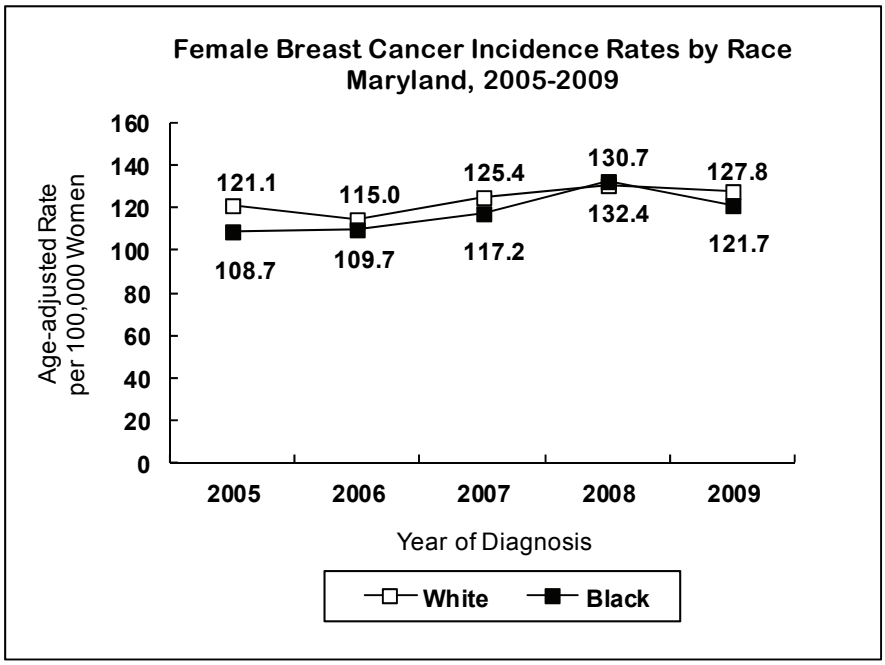
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Incidence and Mortality Trends

From 2005 to 2009, incidence rates for female breast cancer increased in Maryland at a rate of 3.1% annually.

Breast cancer mortality rates for females decreased at a rate of 1.8% per year.

See Appendix I, Tables 1 and 2.

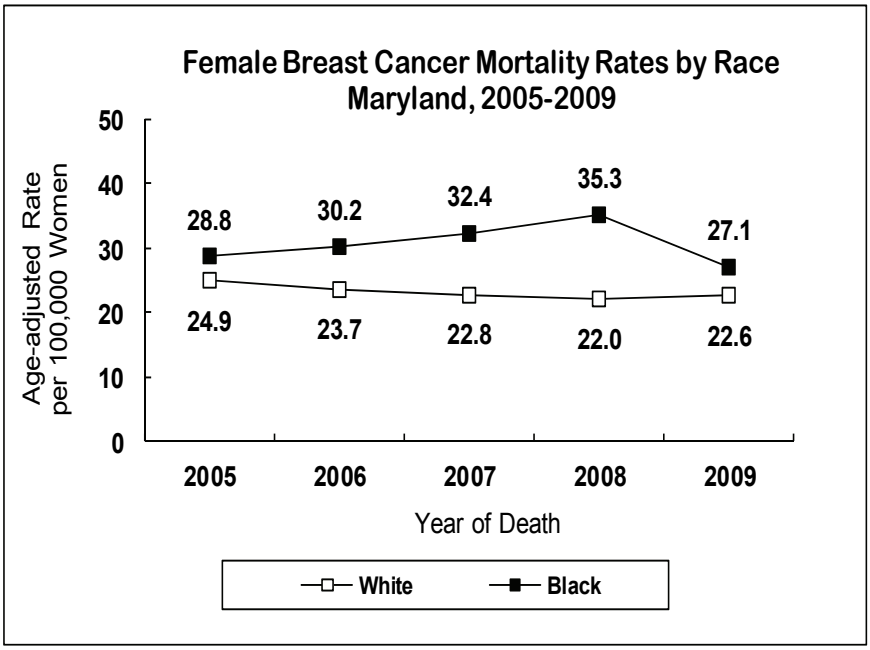


Source: Maryland Cancer Registry

Incidence Trends by Race

The increase in female breast cancer incidence rates differed by race in Maryland from 2005 to 2009. Incidence rates increased at a rate of 2.4% per year among white women and 4.2% among black women. In 2009, the breast cancer incidence rate for white women in Maryland was 127.8 per 100,000 women compared to 121.7 per 100,000 women for black women.

See Appendix I, Table 3.

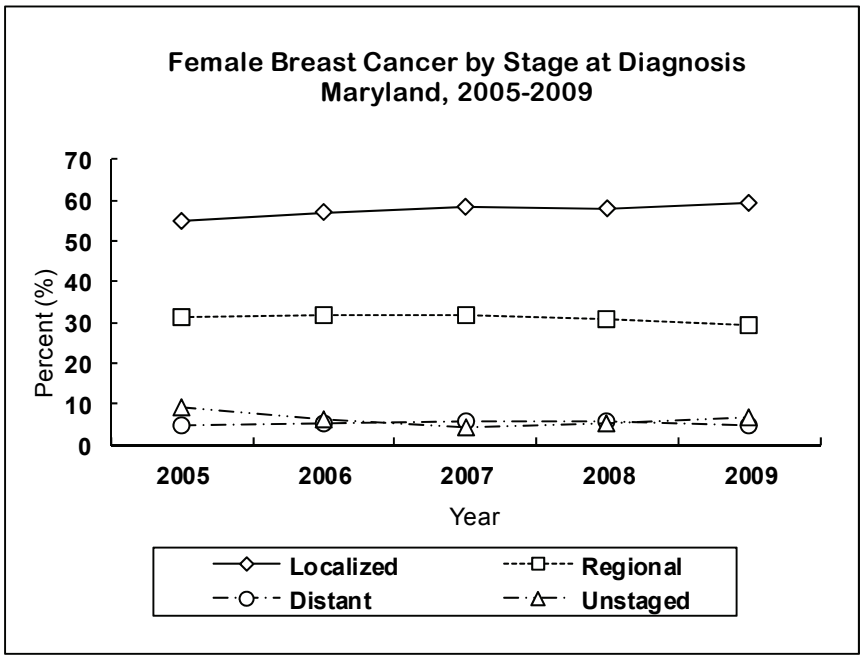


Source: NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Mortality Trends by Race

Female breast cancer mortality trends differed by race from 2005 to 2009. Mortality rates in blacks increased at a rate of 0.3% per year compared to whites who had a decrease of 2.6% per year.

See Appendix I, Table 5.

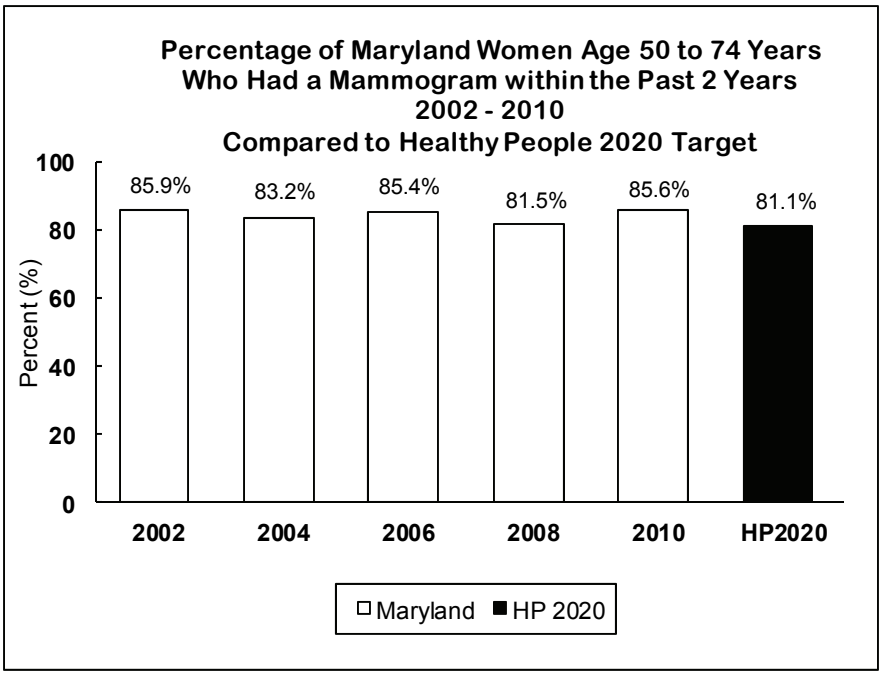


Source: Maryland Cancer Registry

Stage at Diagnosis

In 2009, 59.4% of all female breast cancer cases in Maryland were diagnosed at the local stage, 29.3% were found at the regional stage, and 4.8% were diagnosed at the distant stage. The proportion of female breast cancers reported as unstaged increased in 2009.

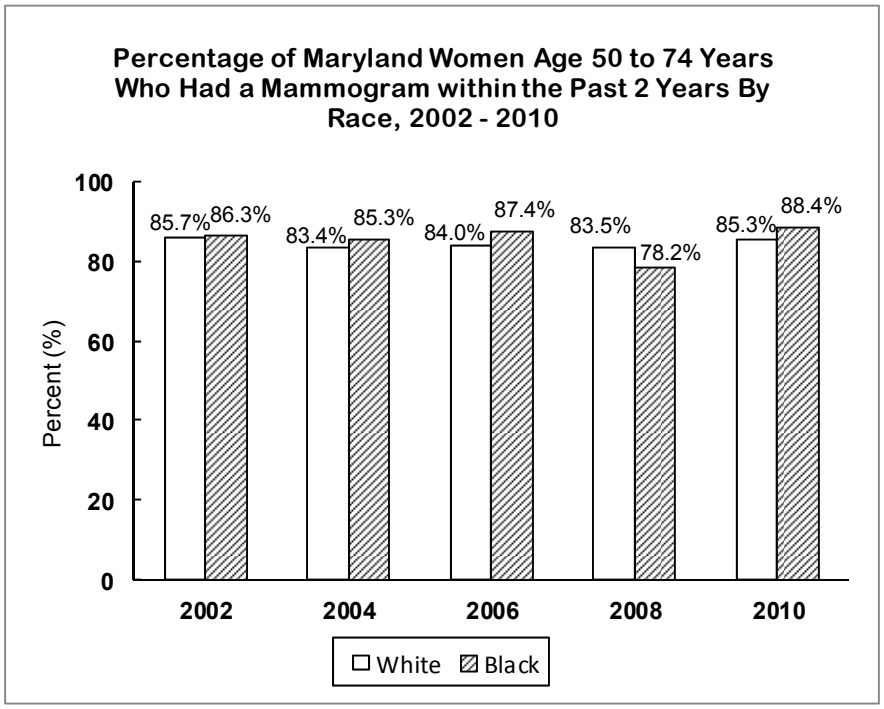
See Appendix J, Table 4.



Source: Maryland BRFSS
Healthy People 2020, U.S. Department of Health and Human Services

Breast Cancer Screening

The Healthy People 2020 target for breast cancer is to increase to 81.1% the proportion of women who had a breast cancer screening based on most recent guidelines. As of May 2012, the U.S. Preventive Task Force guideline includes biennial mammography for women age 50 to 74 years. Maryland women have consistently surpassed this target. In 2010, 85.6% of Maryland women age 50 to 74 years reported receiving a mammogram within the past 2 years.



Source: Maryland BRFSS

The percentage of women who had a mammogram in the past 2 years differed by race from 2002 to 2010. With the exception of 2008, black women have consistently had a higher proportion of women with a mammogram in the past 2 years compared to white women.

Table 30.
Number of Female Breast Cancer Cases by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race			
		Whites	Blacks	Other	Unknown
Maryland	4,236	2,896	1,107	211	22
Allegany	71	s	<6	0	0
Anne Arundel	381	322	45	s	<6
Baltimore City	418	156	255	s	<6
Baltimore County	699	541	136	22	0
Calvert	57	46	11	0	0
Caroline	22	s	<6	0	0
Carroll	157	149	s	<6	0
Cecil	62	s	<6	0	0
Charles	74	41	s	0	<6
Dorchester	32	22	10	0	0
Frederick	143	133	<6	<6	<6
Garrett	32	s	0	<6	<6
Harford	223	186	30	<6	<6
Howard	203	145	34	s	<6
Kent	22	s	<6	0	0
Montgomery	731	522	112	s	<6
Prince George's	513	106	372	s	<6
Queen Anne's	36	s	<6	0	0
Saint Mary's	53	45	s	<6	0
Somerset	10	s	<6	0	0
Talbot	40	s	<6	0	0
Washington	103	97	<6	<6	0
Wicomico	57	46	s	<6	<6
Worcester	62	52	s	<6	0
Unknown	35	19	s	<6	8

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Cancer Registry

Table 31.
Female Breast Cancer Age-Adjusted Incidence Rates*
by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	127.4	127.8	121.7	120.5
Allegany	135.6	138.1	**	0.0
Anne Arundel	127.8	129.7	109.3	**
Baltimore City	114.3	128.4	107.8	**
Baltimore County	140.6	141.1	138.6	136.6
Calvert	118.3	116.8	**	0.0
Caroline	115.2	104.6	**	0.0
Carroll	151.9	151.0	**	**
Cecil	107.1	108.7	**	0.0
Charles	100.4	90.2	140.0	0.0
Dorchester	140.4	131.8	**	0.0
Frederick	115.2	119.4	**	**
Garrett	155.8	148.6	0.0	**
Harford	156.8	148.1	209.6	**
Howard	128.2	123.2	132.1	125.9
Kent	132.0	127.5	**	0.0
Montgomery	127.1	127.4	124.7	115.1
Prince George's	115.0	82.0	125.9	159.1
Queen Anne's	119.2	128.0	**	0.0
Saint Mary's	100.0	105.3	**	**
Somerset	**	**	**	0.0
Talbot	145.9	155.8	**	0.0
Washington	118.5	117.3	**	**
Wicomico	105.2	112.4	**	**
Worcester	158.6	158.6	**	**

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 32.
Number of Female Breast Cancer Deaths by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	793	540	240	13
Allegany	14	14	0	0
Anne Arundel	62	52	s	<5
Baltimore City	102	s	67	<5
Baltimore County	149	120	29	0
Calvert	13	s	<5	0
Caroline	10	s	<5	0
Carroll	19	19	0	0
Cecil	15	s	<5	0
Charles	13	7	6	0
Dorchester	8	s	<5	0
Frederick	28	24	<5	<5
Garrett	<5	<5	0	0
Harford	33	s	<5	0
Howard	34	28	<5	<5
Kent	<5	<5	<5	0
Montgomery	126	89	s	<5
Prince George's	97	s	68	<5
Queen Anne's	5	5	0	0
Saint Mary's	10	s	<5	0
Somerset	<5	<5	<5	0
Talbot	9	s	<5	0
Washington	14	14	0	0
Wicomico	13	s	<5	0
Worcester	11	s	<5	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 33.
Female Breast Cancer Age-Adjusted Mortality Rates*
by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	23.5	22.6	27.1	**
Allegany	**	**	**	**
Anne Arundel	21.5	21.7	**	**
Baltimore City	27.5	23.9	28.6	**
Baltimore County	28.5	28.6	25.9	**
Calvert	**	**	**	**
Caroline	**	**	**	**
Carroll	**	**	**	**
Cecil	**	**	**	**
Charles	**	**	**	**
Dorchester	**	**	**	**
Frederick	21.4	20.3	**	**
Garrett	**	**	**	**
Harford	23.4	24.4	**	**
Howard	22.6	24.5	**	**
Kent	**	**	**	**
Montgomery	20.7	19.1	36.6	**
Prince George's	22.3	21.6	25.5	**
Queen Anne's	**	**	**	**
Saint Mary's	**	**	**	**
Somerset	**	**	**	**
Talbot	**	**	**	**
Washington	**	**	**	**
Wicomico	**	**	**	**
Worcester	**	**	**	**

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Table 34.
Number of Female Breast Cancer Cases by Jurisdiction and Race, Maryland, 2005-2009

Jurisdiction	Total	Race			
		Whites	Blacks	Other	Unknown
Maryland	19,837	13,747	5,102	884	104
Allegany	286	280	<6	<6	0
Anne Arundel	1,737	1,437	222	s	<6
Baltimore City	1,991	706	1,246	27	12
Baltimore County	3,203	2,485	625	82	11
Calvert	293	243	47	<6	<6
Caroline	138	117	s	<6	0
Carroll	649	622	s	<6	0
Cecil	329	310	s	<6	0
Charles	353	206	132	s	<6
Dorchester	134	99	s	<6	0
Frederick	750	676	46	s	<6
Garrett	118	s	<6	<6	<6
Harford	861	743	98	s	<6
Howard	940	708	142	83	7
Kent	100	88	12	0	0
Montgomery †	3,516	2,605	492	396	23
Prince George's †	2,506	680	1,707	107	12
Queen Anne's	161	150	s	<6	0
Saint Mary's	293	250	34	9	0
Somerset	77	51	s	<6	0
Talbot	186	161	s	<6	0
Washington	486	469	s	<6	0
Wicomico	342	262	68	s	<6
Worcester	259	212	31	16	0
Unknown	129	s	32	<6	20

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

† 2006 case counts for Montgomery and Prince George's counties are underreported. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 35.
Female Breast Cancer Age-Adjusted Incidence Rates*
by Jurisdiction and Race, Maryland, 2005-2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	123.0	124.1	118.2	107.7
Allegany	116.9	117.8	**	**
Anne Arundel	121.7	119.8	121.9	154.4
Baltimore City	108.4	112.7	105.4	86.0
Baltimore County	130.0	128.3	139.2	102.7
Calvert	127.0	127.1	134.0	**
Caroline	145.6	145.8	149.8	**
Carroll	134.4	134.5	152.2	**
Cecil	124.0	124.5	122.9	**
Charles	101.1	90.5	124.6	**
Dorchester	119.7	117.7	123.4	**
Frederick	127.7	127.4	109.5	143.9
Garrett	120.1	118.0	**	**
Harford	127.5	124.5	153.0	94.3
Howard	127.9	130.1	119.9	102.0
Kent	148.3	157.0	**	0.0
Montgomery †	124.5	127.6	117.7	104.7
Prince George's †	114.5	103.9	119.8	98.2
Queen Anne's	115.2	120.8	**	**
Saint Mary's	120.9	126.6	94.1	**
Somerset	105.4	96.7	125.1	**
Talbot	130.1	133.1	114.6	**
Washington	116.9	118.8	**	**
Wicomico	126.3	126.1	118.1	**
Worcester	142.8	137.0	123.7	1,187.1

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

† 2005-2009 incidence rates for Montgomery County and Prince George's County are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 36.
Number of Female Breast Cancer Deaths by Jurisdiction and Race, Maryland, 2005-2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	4,040	2,697	1,269	74
Allegany	62	s	<5	0
Anne Arundel	337	278	52	7
Baltimore City	529	s	360	<5
Baltimore County	686	544	134	8
Calvert	66	55	11	0
Caroline	25	21	<5	<5
Carroll	111	s	<5	0
Cecil	63	s	<5	0
Charles	79	45	s	<5
Dorchester	20	s	<5	0
Frederick	135	122	s	<5
Garrett	32	32	0	0
Harford	169	143	s	<5
Howard	154	122	25	7
Kent	13	s	<5	0
Montgomery	587	427	132	28
Prince George's	584	149	422	13
Queen Anne's	39	s	<5	0
Saint Mary's	60	49	11	0
Somerset	21	15	s	<5
Talbot	36	31	5	0
Washington	99	96	<5	<5
Wicomico	77	66	11	0
Worcester	56	46	10	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 37.
Female Breast Cancer Age-Adjusted Mortality Rates*
by Jurisdiction and Race, Maryland, 2005-2009

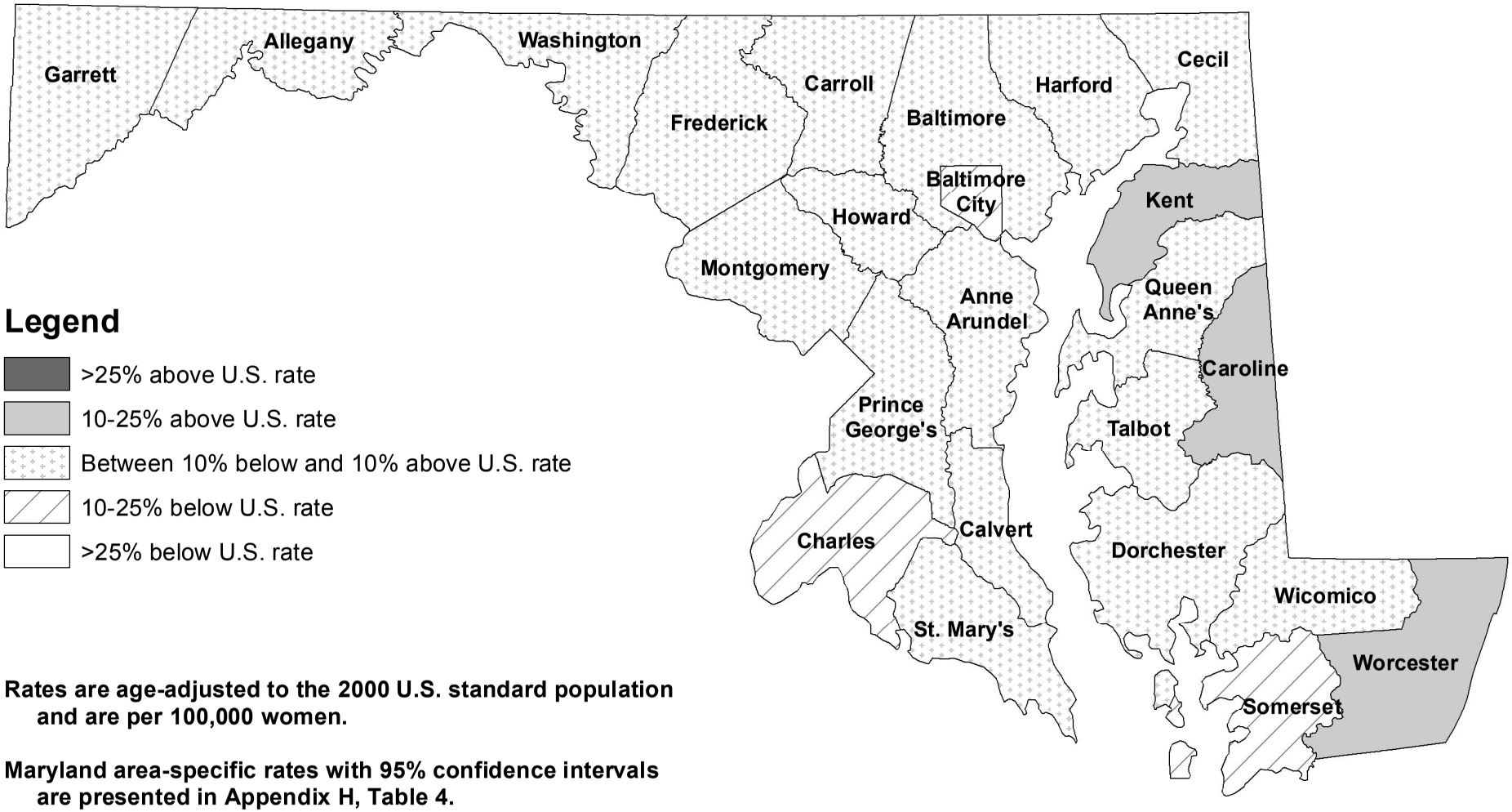
Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	24.7	23.1	30.5	9.6
Allegany	21.8	21.9	**	**
Anne Arundel	24.1	23.6	28.9	**
Baltimore City	28.0	23.6	30.5	**
Baltimore County	26.0	25.2	30.8	**
Calvert	30.0	30.2	**	**
Caroline	25.5	25.4	**	**
Carroll	22.8	22.8	**	**
Cecil	23.8	24.4	**	**
Charles	23.5	20.6	29.8	**
Dorchester	15.8	**	**	**
Frederick	23.3	23.1	**	**
Garrett	32.9	33.2	**	**
Harford	25.5	24.4	41.6	**
Howard	22.3	23.7	22.5	**
Kent	**	**	**	**
Montgomery	20.3	19.3	32.0	7.5
Prince George's	27.6	21.6	32.1	**
Queen Anne's	28.7	29.3	**	**
Saint Mary's	25.2	25.0	**	**
Somerset	27.7	**	**	**
Talbot	22.1	22.5	**	**
Washington	21.3	21.6	**	**
Wicomico	27.1	30.4	**	**
Worcester	26.6	25.8	**	**

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Maryland Female Breast Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 women.

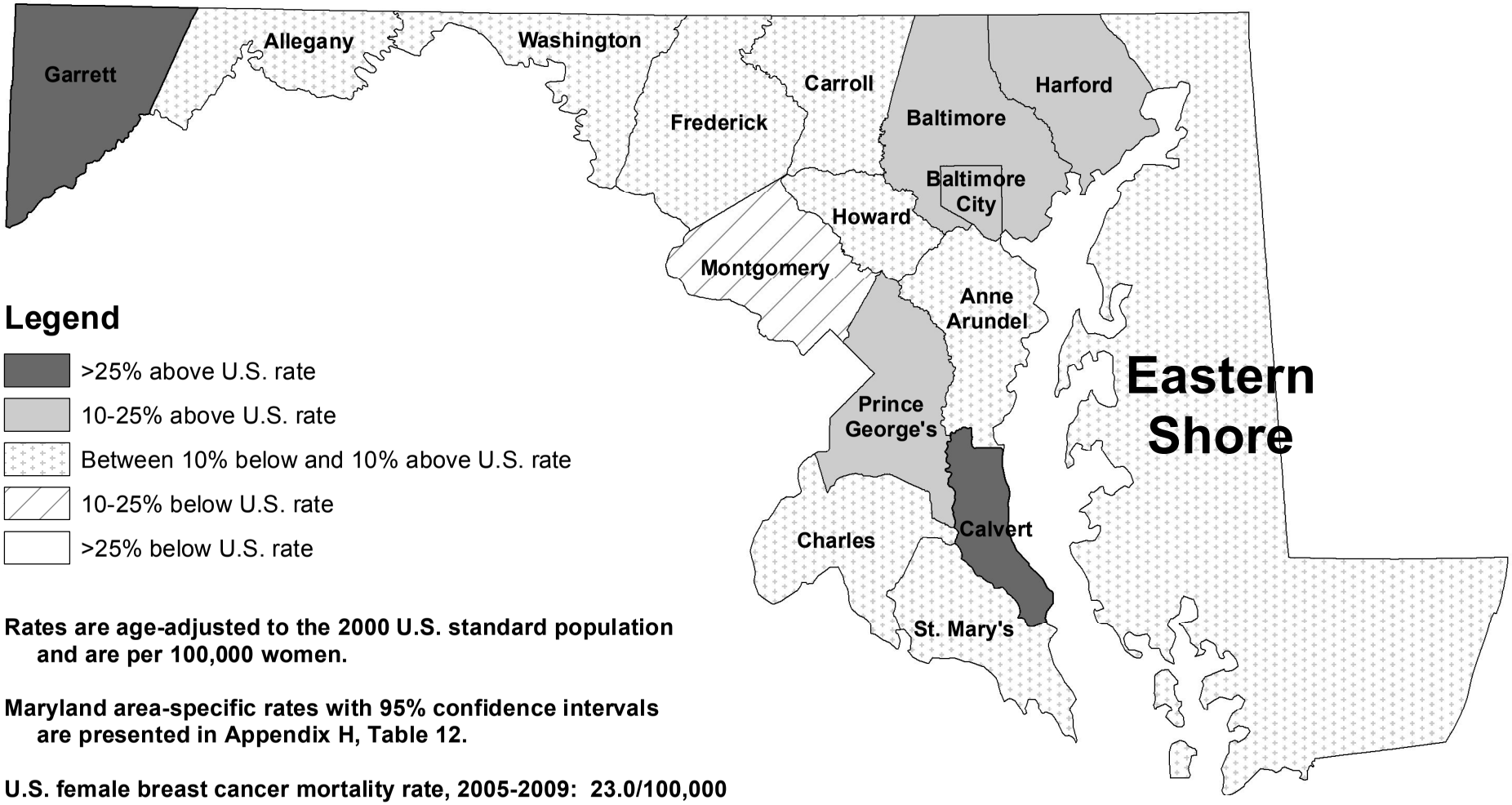
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 4.

U.S. female breast cancer incidence rate, 2005-2009: 124.3/100,000

Maryland female breast cancer incidence rate, 2005-2009: 123.0/100,000

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat

Maryland Female Breast Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 women.

Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 12.

U.S. female breast cancer mortality rate, 2005-2009: 23.0/100,000

Maryland female breast cancer mortality rate, 2005-2009: 24.7/100,000

Source: MD mortality rates from Maryland Vital Statistics Administration from MATCH, 2005-2009
U.S. rate from SEER, Cancer Statistics Review, 2005-2009

Note: Regional rates are presented when one or more counties within the region have a suppressed rate.

D. Prostate Cancer

Incidence (New Cases)

In 2009, a total of 4,221 cases of prostate cancer were reported among men in Maryland. The age-adjusted prostate cancer incidence rate in Maryland for 2009 was 148.4 per 100,000 men (143.9-153.1, 95% C.I.), which is similar to the 2009 U.S. SEER age-adjusted prostate cancer incidence rate of 145.0 per 100,000 population (143.8-146.2, 95% C.I.).

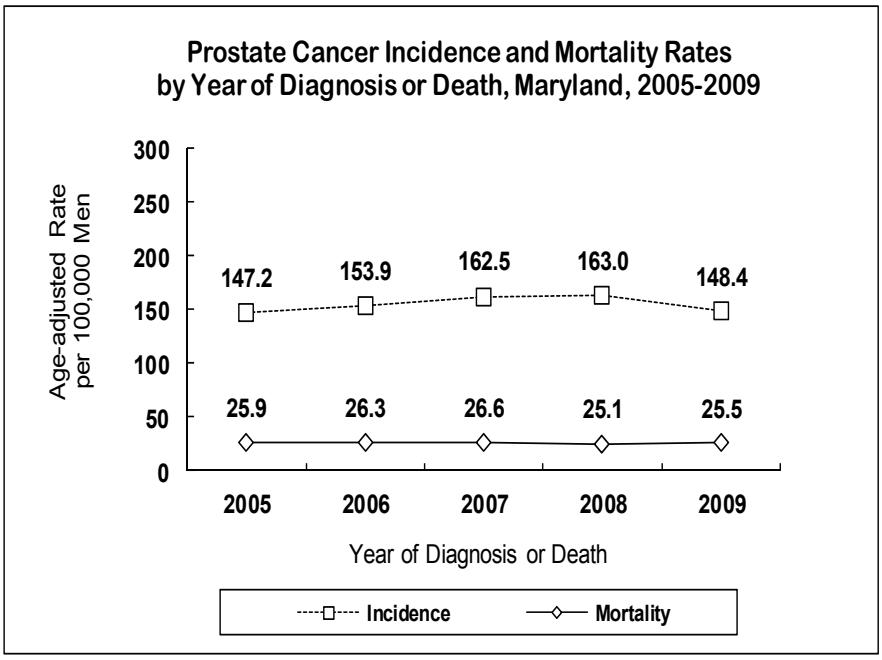
Mortality (Deaths)

Prostate cancer is the second leading cause of cancer death among men in Maryland after lung cancer. In 2009, 542 men died of prostate cancer in Maryland, accounting for 5.2% of all cancer deaths and 10.3% of cancer deaths among men in Maryland. The 2009 age-adjusted mortality rate for prostate cancer in Maryland was 25.5 per 100,000 men (23.4-27.8, 95% C.I.). This rate is statistically significantly higher than the 2009 U.S. prostate cancer mortality rate of 22.0 per 100,000 men (21.7-22.3, 95% C.I.). Maryland had the 9th highest prostate cancer mortality rate among the states and the District of Columbia for the period 2005-2009.

Table 38.
Prostate Cancer Incidence and Mortality Rates
by Race, Maryland and the United States, 2009

Incidence 2009	*Total*	*Whites*	*Blacks*	*Other*
New Cases (count)	4,221	2,604	1,408	126
MD Incidence Rate	148.4	127.2	217.9	88.4
U.S. SEER Rate	145.0	134.9	227.9	154.4
Mortality 2009	*Total*	*Whites*	*Blacks*	*Other*
Deaths (count)	542	333	202	7
MD Mortality Rate	25.5	20.7	49.6	**
U.S. Mortality Rate	22.0	20.2	50.0	N/A

Rates are per 100,000 men and are age-adjusted to 2000 U.S. standard population
Total includes unknown race
** MD mortality rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy
N/A = Data were not available
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration from MATCH
U.S. SEER, Cancer Statistics Review



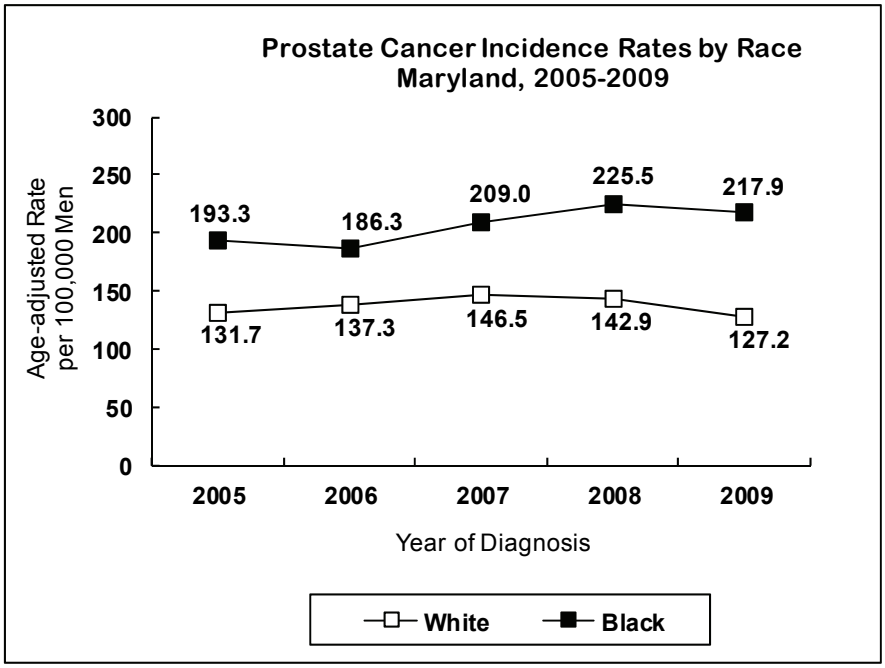
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Incidence and Mortality Trends

The prostate cancer incidence rate in Maryland increased at a rate of 0.7% per year from 2005 to 2009.

Prostate cancer mortality rates decreased from 2005 to 2009, with a yearly decline of 0.8%.

See Appendix I, Tables 1 and 2.



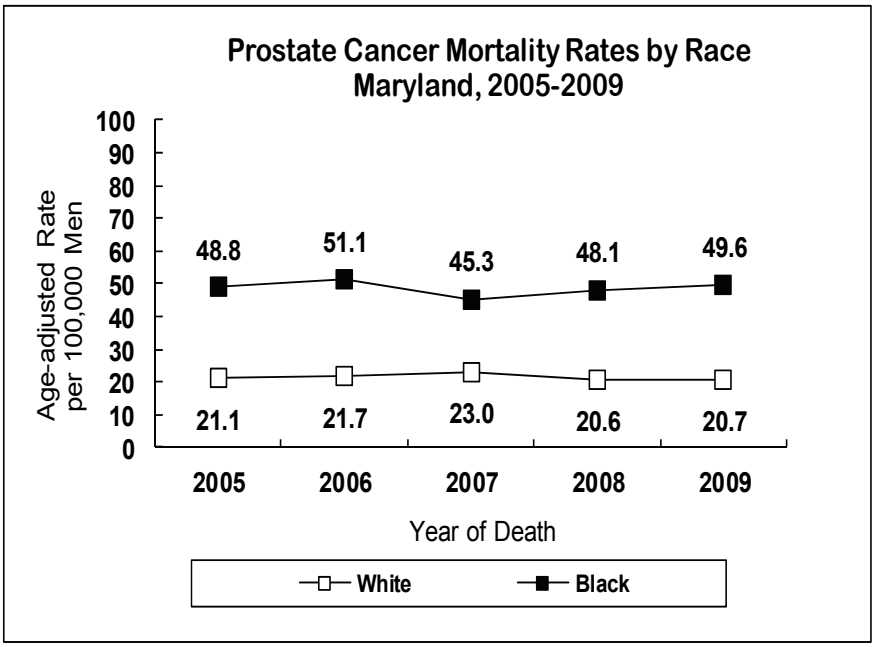
Source: Maryland Cancer Registry

Incidence Trends by Race

From 2005 to 2009, black men had consistently higher prostate cancer incidence rates than white men.

During this 5-year period, incidence rates for black men increased at a rate of 4.4% and decreased for white men at a rate of 0.3% per year, respectively.

See Appendix I, Table 3.



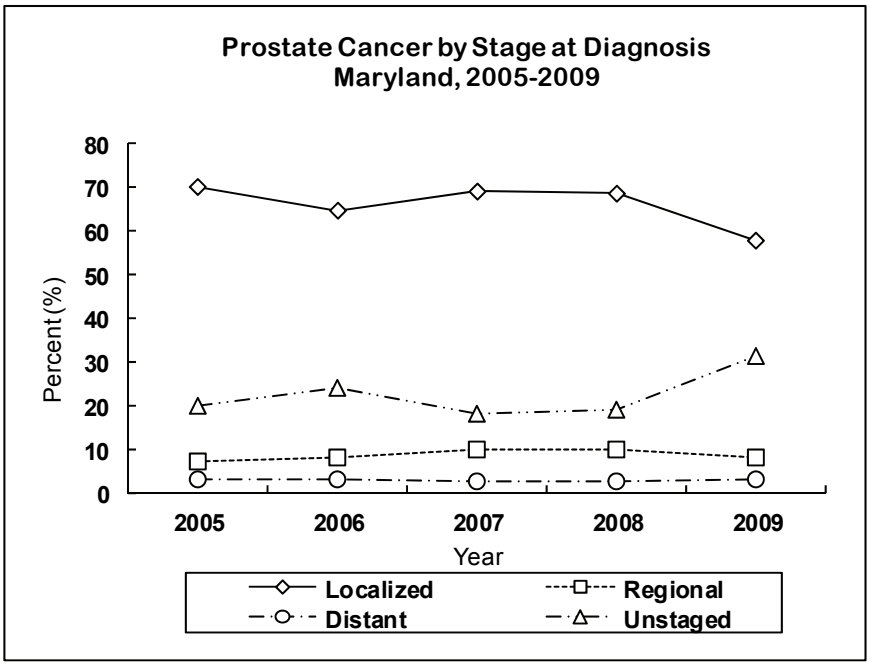
Source: NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Mortality Trends by Race

From 2005 to 2009, black men had consistently higher prostate cancer mortality rates than white men.

During this 5-year period, mortality rates for black and white men declined at a rate of 0.3% and 0.9%, respectively.

See Appendix I, Table 5.

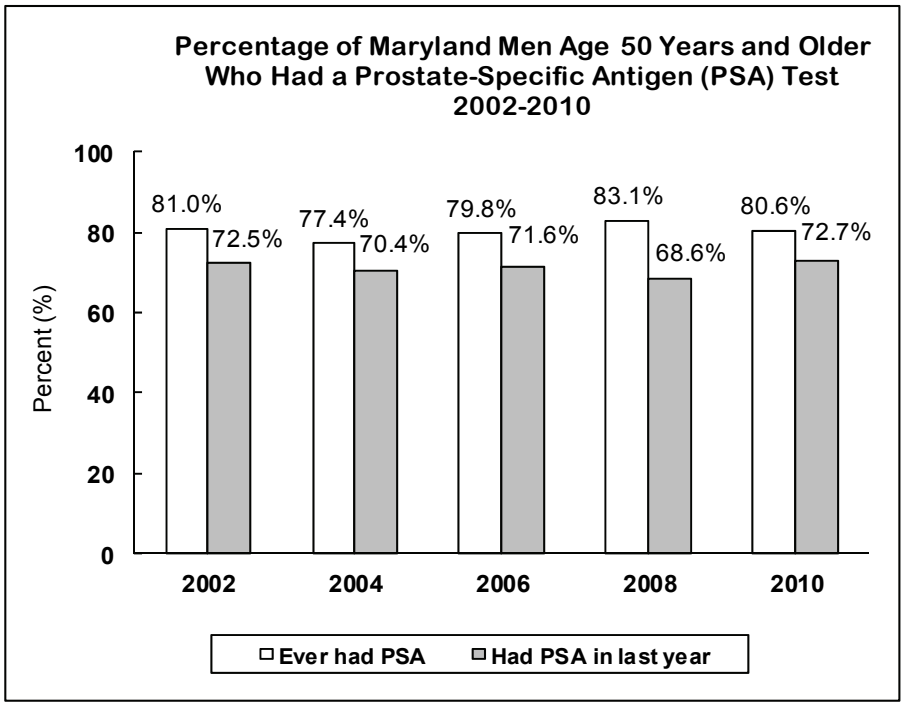


Source: Maryland Cancer Registry

Stage at Diagnosis

Of prostate cancers diagnosed in Maryland in 2009, 57.7% were detected at the localized stage, 8.0% were found at the regional stage, and 3.1% were diagnosed at the distant stage. The proportion of prostate cancers reported as unstaged increased in 2009.

See Appendix J, Table 5.



Source: Maryland BRFSS

Prostate-Specific Antigen Test

There is no Healthy People 2020 objective for prostate cancer detection.

In 2010, 80.6% of Maryland men age 50 years and older reported that they have ever had a prostate-specific antigen (PSA) test, and 72.7% of men age 50 years and older had a PSA test within the last year.

Public Health Evidence (quoted from NCI PDQ, 3/29/2012 and 6/8/2012, and USPSTF, 5/2012)

Primary Prevention

The Selenium and Vitamin E Cancer Prevention Trial failed to demonstrate that these drugs reduce the period prevalence of prostate cancer, but showed an increased risk of prostate cancer with vitamin E alone.

Screening

The evidence is insufficient to determine whether screening for prostate cancer with prostate-specific antigen (PSA) or digital rectal exam (DRE) reduces mortality from prostate cancer. The USPSTF recommends against PSA-based screening for prostate cancer. Screening tests are able to detect prostate cancer at an early stage, but it is not clear whether this earlier detection and consequent earlier treatment leads to any change in the natural history and outcome of the disease. Observational evidence shows a trend toward lower mortality for prostate cancer in some countries, but the relationship between these trends and intensity of screening is not clear, and associations with screening patterns are inconsistent. The observed trends may be due to screening or factors such as improved treatment. Based on solid evidence, screening with PSA and/or DRE detects some prostate cancers that would never have caused important clinical problems. Thus, screening leads to some degree of overtreatment. Based on solid evidence, current prostate cancer treatments, including radical prostatectomy and radiation therapy, result in permanent side effects in many men, including erectile dysfunction and urinary incontinence. The screening process itself can lead to adverse psychological effects in men who have a prostate biopsy but not prostate cancer; prostate biopsies are associated with complications.

Chemoprevention

Based on solid evidence, chemoprevention with finasteride or dutasteride reduces the incidence of prostate cancer, but the evidence is inadequate to determine whether chemoprevention with finasteride or dutasteride reduces mortality from prostate cancer. There are significant complications associated with finasteride and dutasteride including erectile dysfunction, decreased or loss of libido, male breast enlargement, and decreased semen volume (dutasteride).

Public Health Intervention for Prostate Cancer
➢ The decision to be screened for prostate cancer should be an individual one involving shared decision-making. If a patient raises the issue of PSA screening, or the clinician believes his individual circumstances warrant consideration of PSA screening, the clinician should discuss with the patient the benefits and harms thoroughly so he can make an informed decision. The decision to start or continue PSA screening should reflect the patient's understanding of the possible benefits and expected harms and should respect his preferences.

Table 39.
Number of Prostate Cancer Cases
by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race			
		Whites	Blacks	Other	Unknown
Maryland	4,221	2,604	1,408	126	83
Allegany	65	s	<6	0	0
Anne Arundel	440	355	73	s	<6
Baltimore City	432	109	309	<6	s
Baltimore County	512	350	147	<6	s
Calvert	53	41	s	<6	0
Caroline	23	s	<6	0	0
Carroll	114	102	7	<6	<6
Cecil	63	56	7	0	0
Charles	90	46	38	<6	<6
Dorchester	22	12	10	0	0
Frederick	135	113	18	<6	<6
Garrett	14	14	0	0	0
Harford	200	168	23	<6	<6
Howard	163	109	41	s	<6
Kent	25	18	7	0	0
Montgomery	732	516	130	64	22
Prince George's	630	116	483	17	14
Queen Anne's	55	s	<6	0	0
Saint Mary's	50	40	10	0	0
Somerset	27	19	8	0	0
Talbot	54	46	s	0	<6
Washington	88	83	<6	<6	0
Wicomico	99	70	s	<6	0
Worcester	60	49	s	0	<6
Unknown	75	42	25	<6	<6

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Cancer Registry

Table 40.
Prostate Cancer Age-Adjusted Incidence Rates*
by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	148.4	127.2	217.9	88.4
Allegany	143.9	141.3	**	0.0
Anne Arundel	159.3	150.3	223.8	**
Baltimore City	155.4	104.0	183.0	**
Baltimore County	119.7	102.2	209.0	**
Calvert	127.4	113.0	**	**
Caroline	125.3	111.2	**	0.0
Carroll	122.6	115.4	**	**
Cecil	127.3	117.6	**	0.0
Charles	140.6	108.9	213.4	**
Dorchester	109.2	**	**	0.0
Frederick	122.8	114.1	243.1	**
Garrett	**	**	0.0	0.0
Harford	153.9	143.8	216.3	**
Howard	115.0	100.0	218.4	**
Kent	181.5	150.0	**	0.0
Montgomery	152.8	144.2	250.1	95.0
Prince George's	180.4	100.3	233.4	101.0
Queen Anne's	191.5	188.9	**	0.0
Saint Mary's	97.0	90.4	**	0.0
Somerset	186.2	176.5	**	0.0
Talbot	176.3	171.9	**	0.0
Washington	119.2	118.9	**	**
Wicomico	211.2	192.6	293.4	**
Worcester	154.9	142.8	**	0.0

* Rates are per 100,000 men and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 41.
Number of Prostate Cancer Deaths
by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	542	333	202	7
Allegany	7	s	<5	0
Anne Arundel	48	38	10	0
Baltimore City	89	s	72	<5
Baltimore County	87	64	23	0
Calvert	6	<5	<5	0
Caroline	<5	<5	<5	0
Carroll	16	16	0	0
Cecil	7	7	0	0
Charles	10	s	<5	0
Dorchester	<5	<5	<5	0
Frederick	17	17	0	0
Garrett	<5	<5	0	0
Harford	17	s	<5	0
Howard	18	s	<5	0
Kent	7	s	<5	0
Montgomery	76	55	s	s
Prince George's	75	s	56	<5
Queen Anne's	<5	<5	<5	0
Saint Mary's	9	s	<5	0
Somerset	<5	<5	<5	0
Talbot	10	10	0	0
Washington	11	s	<5	0
Wicomico	12	s	<5	0
Worcester	<5	<5	<5	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 42.
Prostate Cancer Age-Adjusted Mortality Rates*
by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	25.5	20.7	49.6	**
Allegany	**	**	**	**
Anne Arundel	24.8	22.7	**	**
Baltimore City	40.0	**	55.3	**
Baltimore County	23.7	20.0	56.4	**
Calvert	**	**	**	**
Caroline	**	**	**	**
Carroll	**	**	**	**
Cecil	**	**	**	**
Charles	**	**	**	**
Dorchester	**	**	**	**
Frederick	**	**	**	**
Garrett	**	**	**	**
Harford	**	**	**	**
Howard	**	**	**	**
Kent	**	**	**	**
Montgomery	19.6	18.1	**	**
Prince George's	34.1	**	54.6	**
Queen Anne's	**	**	**	**
Saint Mary's	**	**	**	**
Somerset	**	**	**	**
Talbot	**	**	**	**
Washington	**	**	**	**
Wicomico	**	**	**	**
Worcester	**	**	**	**

* Rates are per 100,000 men and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Table 43.
Number of Prostate Cancer Cases
by Jurisdiction and Race, Maryland, 2005-2009

Jurisdiction	Total	Race			
		Whites	Blacks	Other	Unknown
Maryland	20,466	13,205	6,063	822	376
Allegany	321	301	s	<6	0
Anne Arundel	1,878	1,549	281	29	19
Baltimore City	2,139	648	1,378	73	40
Baltimore County	2,869	1,998	649	163	59
Calvert	248	196	48	<6	<6
Caroline	108	92	s	<6	<6
Carroll	550	498	27	17	8
Cecil	326	297	20	9	0
Charles	450	268	156	13	13
Dorchester	122	80	38	<6	<6
Frederick	664	591	54	s	<6
Garrett	106	s	0	0	<6
Harford	935	772	122	25	16
Howard	799	568	162	48	21
Kent	119	99	s	0	<6
Montgomery †	3,528	2,529	602	298	99
Prince George's †	2,896	702	2,042	98	54
Queen Anne's	212	185	21	<6	<6
Saint Mary's	325	261	57	<6	<6
Somerset	99	s	37	<6	<6
Talbot	250	209	s	0	<6
Washington	539	502	s	<6	0
Wicomico	360	252	s	<6	0
Worcester	313	255	47	s	<6
Unknown	310	188	96	10	16

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

† 2006 case counts for Montgomery and Prince George's counties are underreported. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 44.
Prostate Cancer Age-Adjusted Incidence Rates*
by Jurisdiction and Race, Maryland, 2005-2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	155.1	137.2	206.7	135.9
Allegany	147.9	142.9	386.6	**
Anne Arundel	148.5	141.4	204.7	86.7
Baltimore City	160.1	125.7	172.8	333.4
Baltimore County	141.8	121.2	217.0	247.0
Calvert	129.7	118.8	201.2	**
Caroline	130.8	129.8	**	**
Carroll	130.6	123.5	202.3	501.9
Cecil	136.6	130.5	199.4	**
Charles	162.9	137.4	215.0	**
Dorchester	126.1	106.5	175.3	**
Frederick	141.4	139.3	162.8	**
Garrett	114.3	114.0	0.0	0.0
Harford	163.6	150.6	266.0	223.4
Howard	127.0	116.0	194.2	80.2
Kent	179.2	174.8	192.3	0.0
Montgomery †	157.1	149.2	238.8	100.5
Prince George's †	176.4	119.1	217.8	127.6
Queen Anne's	158.1	151.2	207.9	**
Saint Mary's	150.5	143.9	196.1	**
Somerset	151.4	124.6	226.5	**
Talbot	187.7	178.4	233.3	0.0
Washington	151.7	148.2	231.5	**
Wicomico	161.0	142.3	249.7	**
Worcester	170.9	156.5	246.4	**

* Rates are per 100,000 men and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

† 2005-2009 incidence rates for Montgomery County and Prince George's County are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 45.
Number of Prostate Cancer Deaths
by Jurisdiction and Race, Maryland, 2005-2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	2,671	1,704	933	34
Allegany	39	s	<5	0
Anne Arundel	212	170	42	0
Baltimore City	431	s	323	<5
Baltimore County	419	331	s	<5
Calvert	41	28	13	0
Caroline	23	s	<5	0
Carroll	73	s	<5	0
Cecil	49	42	7	0
Charles	48	28	20	0
Dorchester	16	8	8	0
Frederick	75	66	9	0
Garrett	18	s	0	<5
Harford	89	78	s	<5
Howard	86	59	s	<5
Kent	27	s	<5	0
Montgomery	345	275	52	18
Prince George's	369	108	253	8
Queen Anne's	26	s	<5	0
Saint Mary's	57	35	22	0
Somerset	18	12	6	0
Talbot	43	37	s	<5
Washington	71	64	s	<5
Wicomico	55	37	18	0
Worcester	41	28	13	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 46.
Prostate Cancer Age-Adjusted Mortality Rates*
by Jurisdiction and Race, Maryland, 2005-2009

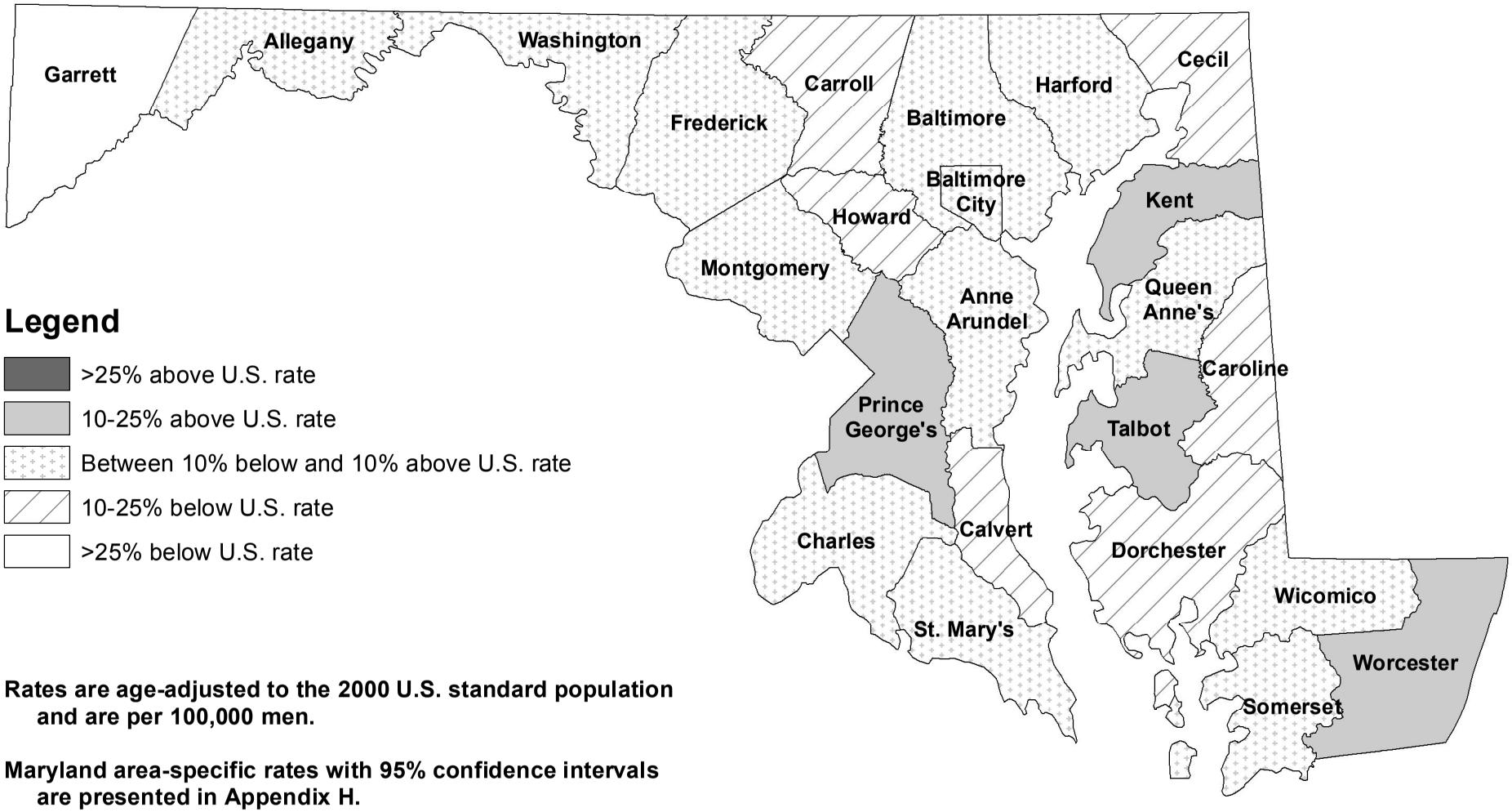
Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	25.5	21.1	47.4	8.2
Allegany	19.3	18.7	**	**
Anne Arundel	24.1	22.2	45.3	**
Baltimore City	37.7	22.3	50.5	**
Baltimore County	22.3	20.0	48.4	**
Calvert	31.1	24.3	**	**
Caroline	32.3	32.9	**	**
Carroll	23.8	24.1	**	**
Cecil	30.2	27.8	**	**
Charles	24.9	21.9	36.4	**
Dorchester	**	**	**	**
Frederick	21.0	20.2	**	**
Garrett	**	**	**	**
Harford	22.1	21.5	**	**
Howard	23.4	21.7	47.5	**
Kent	40.8	39.1	**	**
Montgomery	18.4	18.2	30.6	**
Prince George's	34.2	21.8	50.5	**
Queen Anne's	26.0	25.9	**	**
Saint Mary's	39.1	30.9	88.1	**
Somerset	**	**	**	**
Talbot	30.7	29.6	**	**
Washington	22.5	21.0	**	**
Wicomico	28.8	24.5	**	**
Worcester	22.4	16.9	**	**

* Rates are per 100,000 men and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Maryland Prostate Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 men.

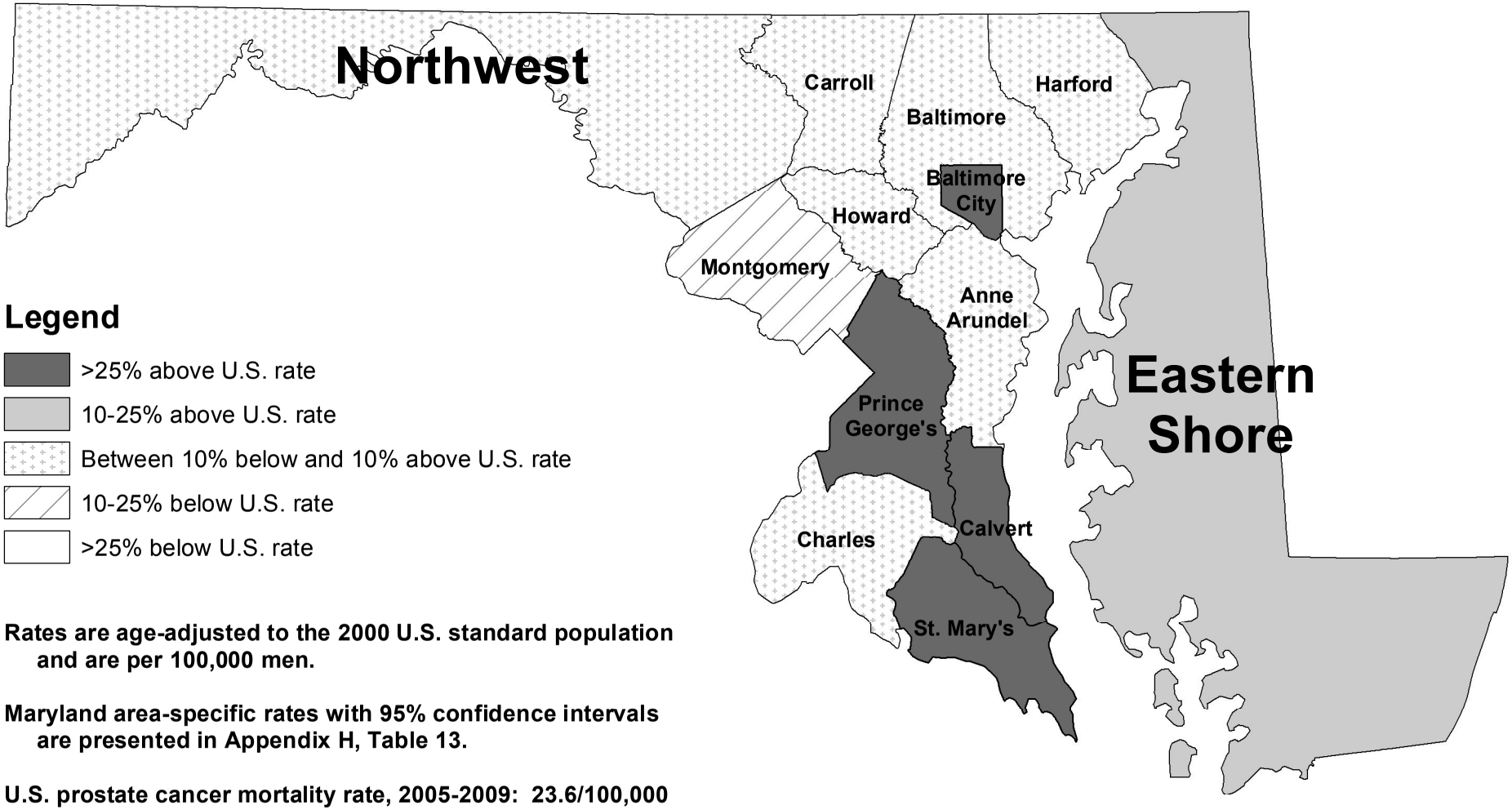
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H.

U.S. prostate cancer incidence rate, 2005-2009: 154.8/100,000

Maryland prostate cancer incidence rate, 2005-2009: 155.1/100,000

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat

Maryland Prostate Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 men.

Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 13.

U.S. prostate cancer mortality rate, 2005-2009: 23.6/100,000

Maryland prostate cancer mortality rate, 2005-2009: 25.5/100,000

Source: MD mortality rates from Maryland Vital Statistics Administration from MATCH, 2005-2009
U.S. rate from SEER, Cancer Statistics Review, 2005-2009

Note: Regional rates are presented when one or more counties within the region have a suppressed rate.

E. Oral Cancer

Incidence (New Cases)

In 2009, a total of 624 cases of cancer of the oral cavity and pharynx (called oral cancer) were reported in Maryland. The age-adjusted incidence rate for oral cancer in Maryland in 2009 was 10.0 per 100,000 population (9.3-10.9, 95% C.I.), which is statistically significantly lower than the 2009 U.S. SEER age-adjusted oral cancer incidence rate of 10.9 per 100,000 population (10.7 -11.2, 95% C.I.).

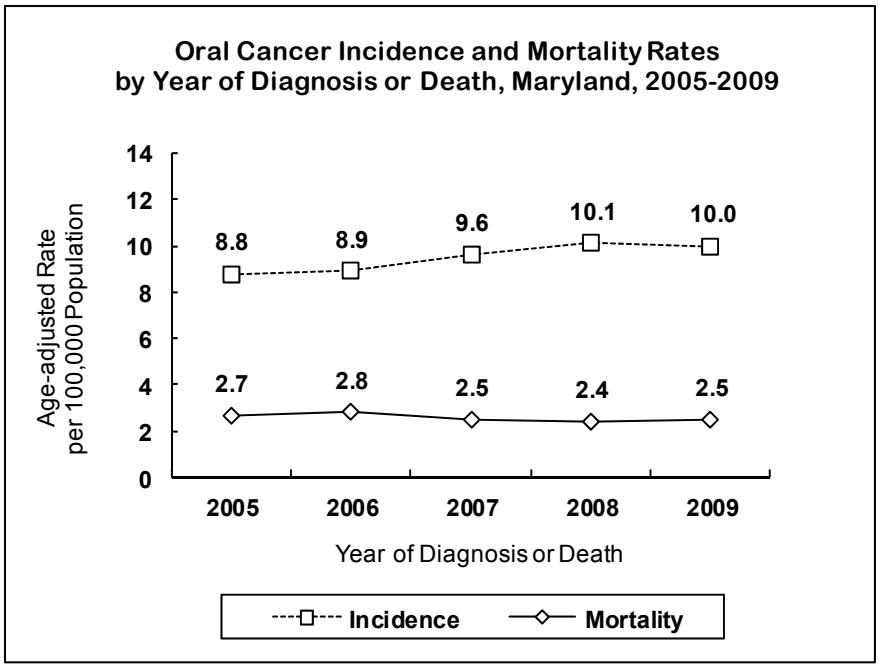
Mortality (Deaths)

In 2009, 153 persons in Maryland died of oral cancer. The 2009 age-adjusted mortality rate for oral cancer in Maryland was 2.5 per 100,000 population (2.1-2.9, 95% C.I.), which accounted for 1.5% of Maryland cancer deaths in 2009. This rate is similar to the U.S. oral cancer mortality rate of 2.4 per 100,000 population (2.3-2.4, 95% C.I.). Maryland had the 16th highest oral cancer mortality among the states and the District of Columbia for the period 2005-2009.

Table 47.
Oral Cancer Incidence and Mortality Rates
by Gender and Race, Maryland and the United States, 2009

Incidence 2009	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
New Cases (count)	624	439	184	484	120	s
MD Incidence Rate	10.0	15.4	5.6	11.2	7.5	4.9
U.S. SEER Rate	10.9	16.3	6.3	11.3	9.6	9.2
Mortality 2009	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
Deaths (count)	153	103	50	99	s	<5
MD Mortality Rate	2.5	3.9	1.4	2.3	3.3	**
U.S. Mortality Rate	2.4	3.7	1.3	2.3	2.9	N/A

Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population
Total also includes cases reported as transsexual, hermaphrodite, unknown gender, and unknown race
s = Counts are suppressed to prevent disclosure of data in other cell(s) based on Tables 48 and 50
<5 = MD death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy
** MD mortality rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy
N/A = Data were not available
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration from MATCH
U.S. SEER, Cancer Statistics Review



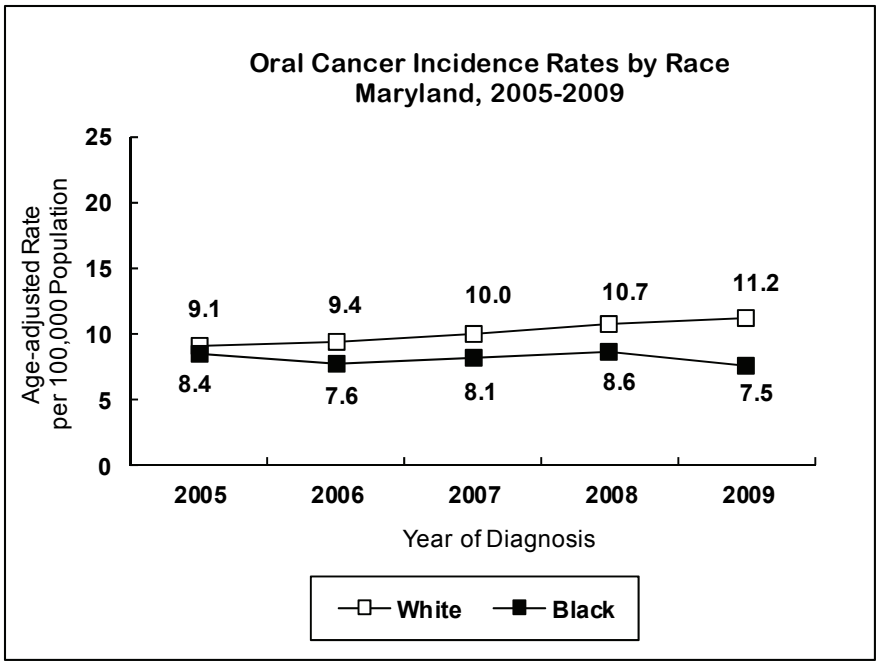
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Incidence and Mortality Trends

The incidence of oral cancer in Maryland increased at a rate of 3.9% per year from 2005 to 2009.

Oral cancer mortality rates have decreased from 2005 to 2009, with a rate decrease of 3.0% annually.

See Appendix I, Tables 1 and 2.

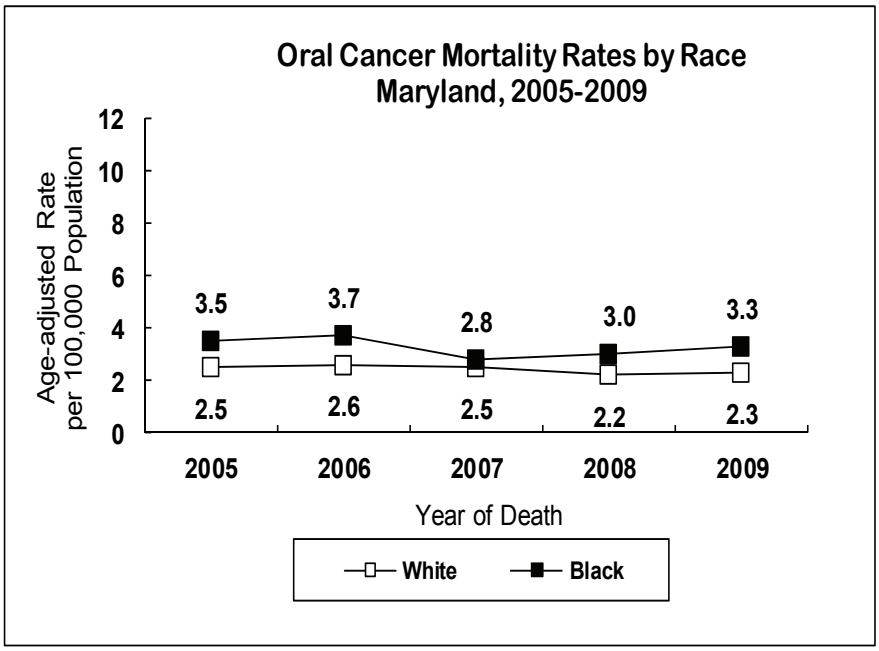


Source: Maryland Cancer Registry

Incidence Trends by Race

Over the 5-year period from 2005 to 2009, oral cancer incidence rates in Maryland decreased at a rate of 1.0% per year for blacks, and increased 5.6% per year for whites.

See Appendix I, Table 3.

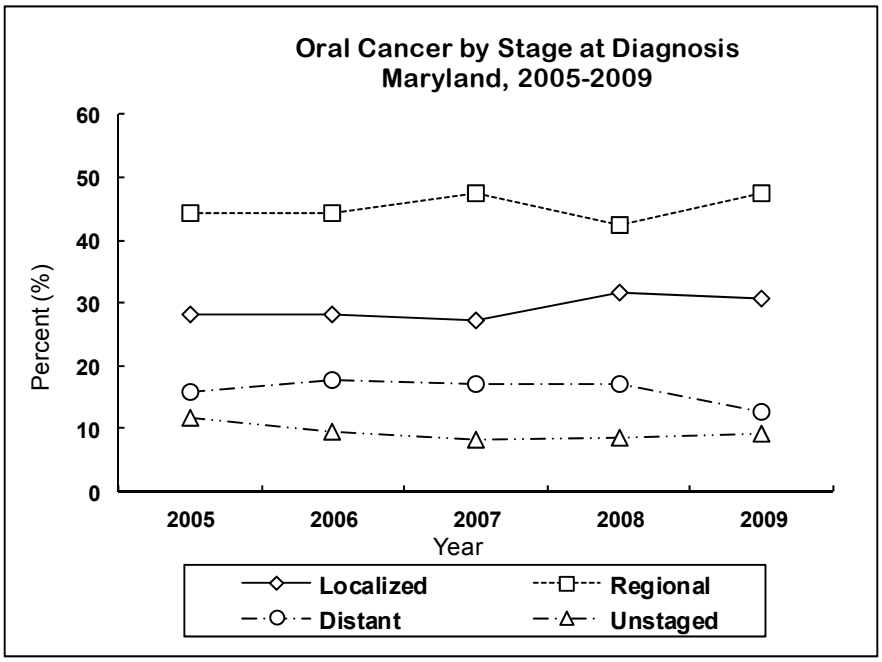


Source: NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Mortality Trends by Race

Over the 5-year period from 2005 to 2009, oral cancer mortality rates decreased at a rate of 3.2% per year for blacks and 3.3% per year for whites.

See Appendix I, Table 5.

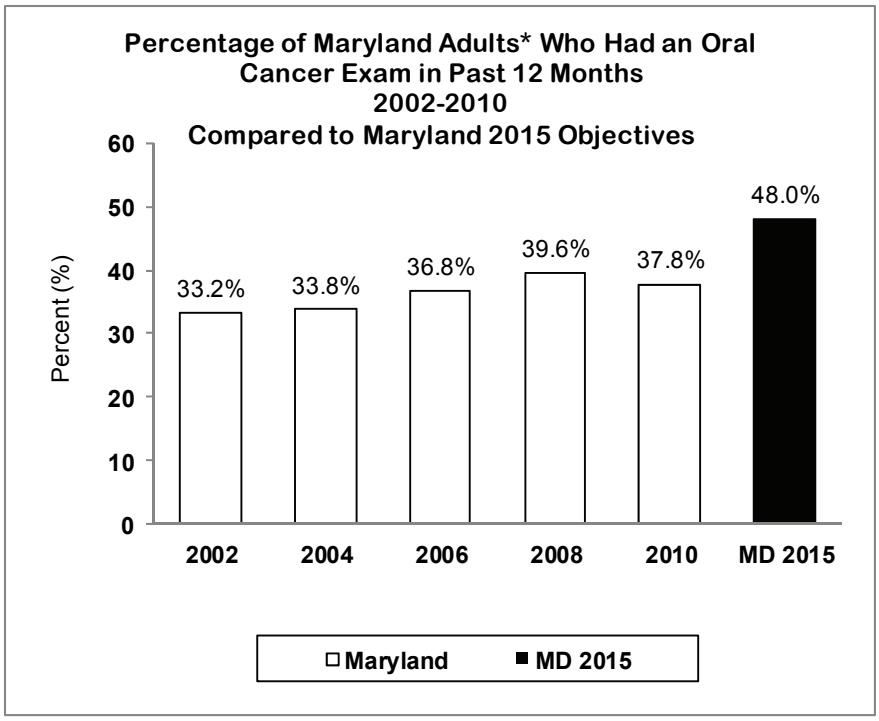


Source: Maryland Cancer Registry

Stage at Diagnosis

In 2009, 30.8% of oral cancers in Maryland were diagnosed at the localized stage, 47.4% were diagnosed at the regional stage, and 12.7% were diagnosed at the distant stage. From 2005 to 2009, the proportion of oral cancers reported as unstaged gradually decreased.

See Appendix J, Table 6.



* Adults age 40 years and older
Note: Graphic includes results from both the Maryland BRFSS and Maryland Cancer Survey. See Appendix C for a cautionary note on comparing these data.
Source: Maryland Cancer Survey 2002, 2004, 2006 and 2008
Maryland BRFSS 2010
Maryland Comprehensive Cancer Control Plan

Oral Cancer Screening

There is no current Healthy People 2020 target for oral cancer screening. The Maryland 2015 objective from the Comprehensive Cancer Control Plan is to increase to 48% the proportion of adults age 40 years and older who report having had an oral cancer screening examination in the past 12 months to detect oral cancer.

In 2010, only 37.8% of persons in Maryland 40 years of age and older reported they had an oral cancer exam in the past year, therefore not attaining the Maryland 2015 target of 48.0%.

Public Health Evidence (quoted from NCI PDQ, 1/26/2012 and 1/26/2012, and USPSTF, 2/2004)

Primary Prevention

Tobacco use (including use of cigarettes, cigars, pipes, and smokeless or spit tobacco) causes oral cancer. Tobacco use is responsible for more than 90% of oral cancer among men and 60% among women, and is responsible for more than 90% of oral cancer-related deaths in males. Alcohol use is a second independent major risk factor for oral cancer. The combined use of tobacco and alcohol increases the risks for oral cancer more than either risk behavior alone. Avoidance or cessation of tobacco use would lead to a decrease in oral cancer. A 50% reduction of oral cancer risk has been noted after 3 to 5 years of smoking cessation and a return to normal risk noted within 10 years of cessation. Although alcohol use is a risk factor for oral cancer, and by inference, its avoidance would lead to fewer cases, there is inadequate evidence that cessation of alcohol use decreases the risk of oral cancer.

Human papilloma virus (HPV) has been isolated in oropharyngeal precancerous and squamous cell carcinoma lesions and is known to act as a co-factor in cancer development in both cervical and oral cancers. HPV-associated oral cancer appears to be more prevalent in younger, non-smoking individuals, who have a different risk profile than groups traditionally at risk for oral cancer. Therefore, infection with specific carcinogenic strains of HPV, particularly HPV type 16, is a risk factor for and likely causes a subset of oral cancers. By inference, avoidance of infection would lead to fewer cases; however, there is inadequate evidence that strategies to avoid infection decrease the risk of oral cancer. It is still prudent clinical policy to include as part of the health history an assessment of risk factors such as behaviors, surgeries, medications, and sexual practices that discern possible HPV exposure.

A diet high in fruits and fiber is associated with a decreased risk of oral and pharyngeal cancer, particularly among smokers; however, there is inadequate evidence to determine whether a *change* in diet decreases the risk of oral cancer.

Sun exposure represents an important risk factor for lip cancer along with chronic direct exposure to tobacco. There is inadequate evidence to determine whether reducing sun exposure or use of sunscreens would prevent lip cancer. Sunscreen use has been associated with a lower incidence of skin cancers and thus may lower the incidence of lip cancer.

Screening

The routine examination of asymptomatic and symptomatic patients can lead to detection of earlier stage oral cancers and premalignant oral lesions. Incorporating routine oral cancer examinations (and other screening methods for oral cancer) into the daily practice of healthcare practitioners can increase the likelihood of earlier detection of oral cancer. However, the United States Preventive Services Task Force (USPSTF) concluded that the evidence is insufficient to recommend for or against routinely screening adults for oral cancer. It is unlikely that controlled trials of screening for oral cancer will ever be conducted in the general population because of the very low incidence of oral cancer in the U.S. The USPSTF has not found new good-quality evidence that could determine the benefits or harms of screening for oral cancer for either high-risk adults (i.e., those over age 50 years who use tobacco) or for average-risk adults in the general population.

Public Health Intervention for Oral Cancer (DHMH Oral Cancer Medical Advisory Committee, 2005)
➢ Avoidance or cessation of smoking and other tobacco use. ➢ Avoidance or reduction of alcohol consumption. ➢ Avoidance of sun exposure; use of ultraviolet light-blocking lip balm. ➢ Screening for oral cancer targeted to individuals age 40 years and older.

Table 48.
Number of Oral Cancer Cases
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race			
		Males	Females	Whites	Blacks	Other	Unknown
Maryland	624	439	184	484	120	s	<6
Allegany	10	s	<6	10	0	0	0
Anne Arundel	67	47	20	61	<6	<6	0
Baltimore City	78	56	21	33	45	0	0
Baltimore County	96	71	25	81	s	<6	0
Calvert	13	s	<6	s	<6	0	0
Caroline	<6	<6	0	<6	<6	0	0
Carroll	26	19	7	s	<6	0	0
Cecil	10	s	<6	10	0	0	0
Charles	13	s	<6	s	<6	0	0
Dorchester	<6	<6	<6	<6	<6	0	0
Frederick	27	19	8	s	<6	0	0
Garrett	<6	<6	0	<6	0	0	0
Harford	33	26	7	s	<6	0	0
Howard	28	20	8	22	<6	<6	0
Kent	<6	0	<6	<6	0	0	0
Montgomery	71	46	25	56	6	9	0
Prince George's	60	43	17	29	s	<6	<6
Queen Anne's	11	s	<6	s	<6	0	0
Saint Mary's	13	s	<6	s	<6	0	0
Somerset	<6	<6	<6	<6	<6	0	0
Talbot	8	<6	<6	<6	<6	0	0
Washington	21	12	9	21	0	0	0
Wicomico	7	<6	<6	7	0	0	0
Worcester	12	s	<6	9	<6	<6	0
Unknown	<6	<6	<6	<6	0	0	<6

Total includes cases reported as transexual, hermaphrodite, and unknown gender

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Cancer Registry

Table 49.
Oral Cancer Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	10.0	15.4	5.6	11.2	7.5	4.9
Allegany	**	**	**	**	0.0	0.0
Anne Arundel	11.9	17.3	7.1	12.8	**	**
Baltimore City	11.7	19.8	5.3	13.8	10.7	0.0
Baltimore County	10.7	17.6	5.2	11.8	**	**
Calvert	**	**	**	**	**	0.0
Caroline	**	**	0.0	**	**	0.0
Carroll	12.9	19.4	**	12.9	**	0.0
Cecil	**	**	**	**	0.0	0.0
Charles	**	**	**	**	**	0.0
Dorchester	**	**	**	**	**	0.0
Frederick	12.3	18.6	**	11.9	**	0.0
Garrett	**	**	0.0	**	0.0	0.0
Harford	11.6	20.4	**	12.0	**	0.0
Howard	9.6	13.4	**	10.2	**	**
Kent	**	0.0	**	**	0.0	0.0
Montgomery	6.7	10.1	4.1	7.0	**	**
Prince George's	7.0	11.0	3.8	11.1	5.1	**
Queen Anne's	**	**	**	**	**	0.0
Saint Mary's	**	**	**	**	**	0.0
Somerset	**	**	**	**	**	0.0
Talbot	**	**	**	**	**	0.0
Washington	12.5	**	**	13.5	0.0	0.0
Wicomico	**	**	**	**	0.0	0.0
Worcester	**	**	**	**	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 50.
Number of Oral Cancer Deaths
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	153	103	50	99	s	<5
Allegany	0	0	0	0	0	0
Anne Arundel	24	13	11	s	<5	0
Baltimore City	31	23	8	9	22	0
Baltimore County	23	14	9	17	s	<5
Calvert	<5	<5	0	<5	0	0
Caroline	<5	0	<5	<5	0	0
Carroll	<5	<5	0	0	<5	0
Cecil	0	0	0	0	0	0
Charles	<5	<5	<5	<5	0	0
Dorchester	<5	<5	0	0	<5	0
Frederick	<5	<5	<5	0	<5	0
Garrett	0	0	0	0	0	0
Harford	9	s	<5	9	0	0
Howard	<5	<5	<5	<5	0	0
Kent	0	0	0	0	0	0
Montgomery	15	9	6	12	<5	<5
Prince George's	18	s	<5	7	11	0
Queen Anne's	<5	<5	0	<5	0	0
Saint Mary's	<5	<5	0	<5	0	0
Somerset	<5	<5	0	0	<5	0
Talbot	<5	0	<5	<5	0	0
Washington	7	<5	<5	s	<5	<5
Wicomico	<5	<5	<5	<5	0	0
Worcester	5	<5	<5	<5	<5	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 51.
Oral Cancer Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	2.5	3.9	1.4	2.3	3.3	**
Allegany	**	**	**	**	**	**
Anne Arundel	4.5	**	**	4.7	**	**
Baltimore City	4.8	8.4	**	**	5.3	**
Baltimore County	2.4	**	**	**	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	**	**	**	**	**	**
Cecil	**	**	**	**	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	**	**	**	**	**	**
Garrett	**	**	**	**	**	**
Harford	**	**	**	**	**	**
Howard	**	**	**	**	**	**
Kent	**	**	**	**	**	**
Montgomery	**	**	**	**	**	**
Prince George's	**	**	**	**	**	**
Queen Anne's	**	**	**	**	**	**
Saint Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	**	**	**	**	**	**
Wicomico	**	**	**	**	**	**
Worcester	**	**	**	**	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Table 52.
Number of Oral Cancer Cases
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race			
		Males	Females	Whites	Blacks	Other	Unknown
Maryland	2,835	1,947	885	2,124	597	94	20
Allegany	49	37	12	49	0	0	0
Anne Arundel	303	221	82	269	27	<6	<6
Baltimore City	375	263	109	s	234	<6	0
Baltimore County	433	290	143	362	62	s	<6
Calvert	55	37	18	s	<6	0	0
Caroline	16	s	<6	s	<6	0	0
Carroll	97	69	28	93	<6	0	<6
Cecil	57	40	17	s	<6	0	0
Charles	65	48	17	51	s	0	<6
Dorchester	22	s	<6	s	<6	0	0
Frederick	111	76	35	104	<6	<6	<6
Garrett	10	s	<6	10	0	0	0
Harford	131	95	36	120	s	<6	0
Howard	118	78	40	90	s	15	<6
Kent	12	<6	s	s	<6	0	0
Montgomery †	372	238	134	291	s	40	<6
Prince George's †	298	205	93	133	152	s	<6
Queen Anne's	33	19	14	s	<6	0	0
Saint Mary's	59	37	22	50	s	0	<6
Somerset	14	s	<6	7	s	<6	0
Talbot	25	16	9	20	<6	<6	0
Washington	72	52	20	69	<6	<6	0
Wicomico	42	34	8	36	6	0	0
Worcester	42	29	13	34	<6	s	0
Unknown	24	12	12	19	<6	<6	<6

Total includes cases reported as transexual, hermaphrodite, and unknown gender

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

† 2006 case counts for Montgomery and Prince George's counties are underreported. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 53.
Oral Cancer Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	9.5	14.4	5.5	10.1	8.0	6.5
Allegany	11.0	17.9	**	11.5	0.0	0.0
Anne Arundel	11.2	17.5	5.8	11.7	8.6	**
Baltimore City	11.3	18.8	5.6	11.4	11.2	**
Baltimore County	9.6	14.3	5.7	10.1	8.3	**
Calvert	11.9	17.5	7.5	13.4	**	0.0
Caroline	9.2	**	**	**	**	0.0
Carroll	10.7	16.0	5.7	10.6	**	0.0
Cecil	11.0	15.8	6.4	11.5	**	0.0
Charles	10.5	16.5	5.5	11.4	**	0.0
Dorchester	9.9	19.1	**	10.1	**	0.0
Frederick	9.9	14.5	5.9	10.2	**	**
Garrett	**	**	**	**	0.0	0.0
Harford	10.2	15.8	5.4	10.5	**	**
Howard	8.4	11.4	5.8	8.7	**	**
Kent	**	**	**	**	**	0.0
Montgomery †	7.3	10.7	4.7	7.6	6.3	6.1
Prince George's †	7.7	11.9	4.5	10.4	6.2	**
Queen Anne's	11.5	13.8	**	12.0	**	0.0
Saint Mary's	11.9	16.1	8.1	12.5	**	0.0
Somerset	**	**	**	**	**	**
Talbot	9.5	14.1	**	9.0	**	**
Washington	9.0	14.2	4.6	9.2	**	**
Wicomico	8.5	15.3	**	9.5	**	0.0
Worcester	12.2	18.4	**	10.7	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

† 2005-2009 incidence rates for Montgomery County and Prince George's County are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 54.
Number of Oral Cancer Deaths
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	757	526	231	510	226	21
Allegany	12	6	6	12	0	0
Anne Arundel	83	60	23	71	s	<5
Baltimore City	127	96	31	43	84	0
Baltimore County	124	69	55	105	s	<5
Calvert	14	s	<5	s	<5	0
Caroline	<5	<5	<5	<5	0	0
Carroll	16	s	<5	s	<5	0
Cecil	14	s	<5	14	0	0
Charles	15	s	<5	s	<5	0
Dorchester	7	s	<5	<5	<5	0
Frederick	11	s	<5	s	<5	0
Garrett	<5	<5	<5	<5	0	0
Harford	35	25	10	s	<5	0
Howard	22	17	5	16	<5	<5
Kent	6	<5	<5	s	<5	0
Montgomery	83	58	25	60	13	10
Prince George's	99	69	30	s	68	<5
Queen Anne's	10	s	<5	s	<5	0
Saint Mary's	9	s	<5	s	<5	0
Somerset	5	<5	<5	<5	<5	0
Talbot	7	<5	<5	7	0	0
Washington	24	15	9	21	<5	<5
Wicomico	17	s	<5	11	s	<5
Worcester	12	s	<5	s	<5	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 55.
Oral Cancer Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2005-2009

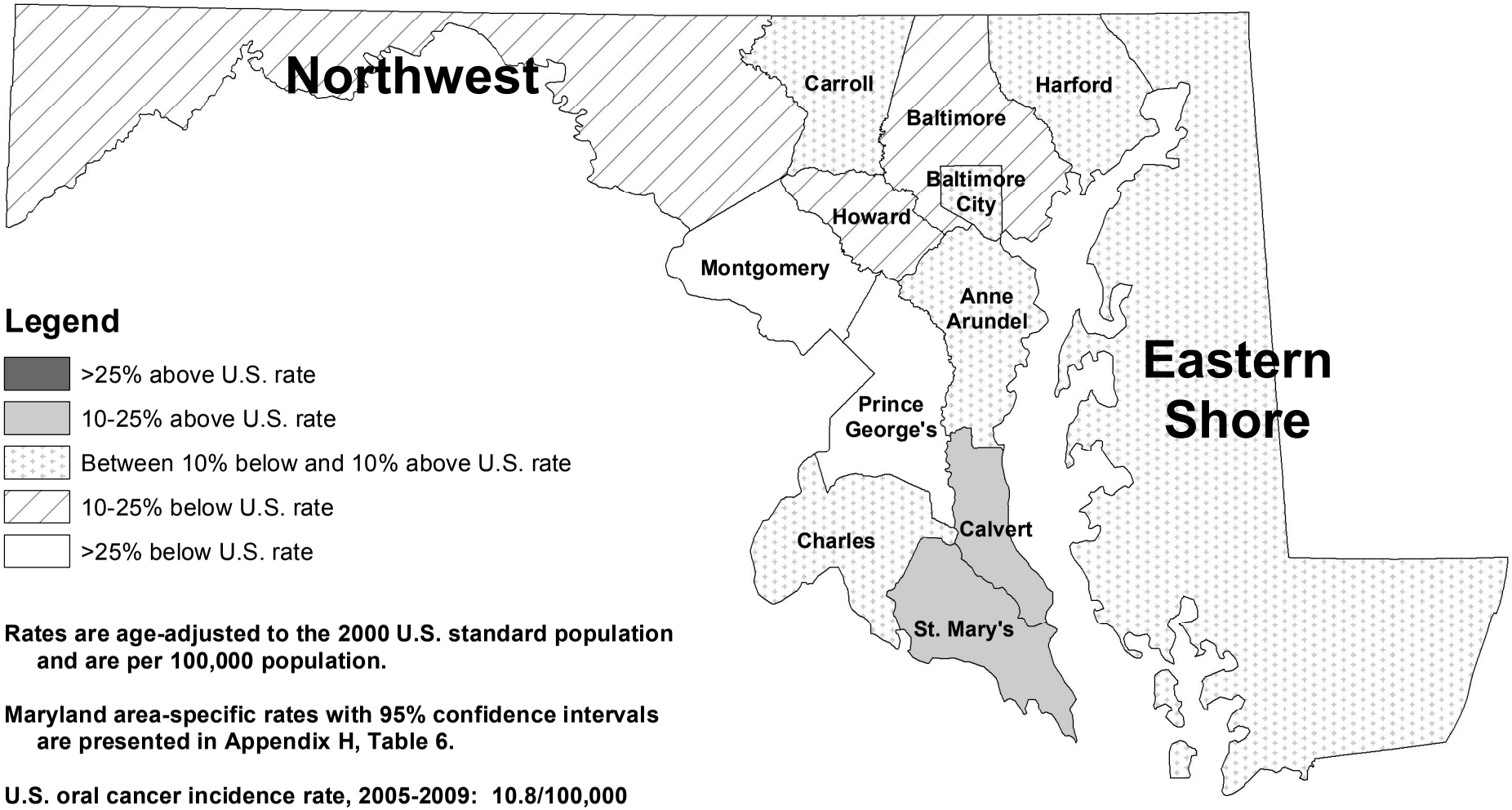
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	2.6	4.1	1.4	2.4	3.3	1.6
Allegany	**	**	**	**	**	**
Anne Arundel	3.2	5.3	1.6	3.2	**	**
Baltimore City	3.9	7.1	1.5	3.4	4.2	**
Baltimore County	2.7	3.4	2.0	2.8	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	**	**	**	**	**	**
Cecil	**	**	**	**	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	**	**	**	**	**	**
Garrett	**	**	**	**	**	**
Harford	2.9	4.4	**	3.1	**	**
Howard	1.8	**	**	**	**	**
Kent	**	**	**	**	**	**
Montgomery	1.6	2.8	0.8	1.5	**	**
Prince George's	2.8	4.6	1.5	2.2	3.4	**
Queen Anne's	**	**	**	**	**	**
Saint Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	3.0	**	**	2.8	**	**
Wicomico	**	**	**	**	**	**
Worcester	**	**	**	**	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Maryland Oral Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Legend

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate

Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 6.

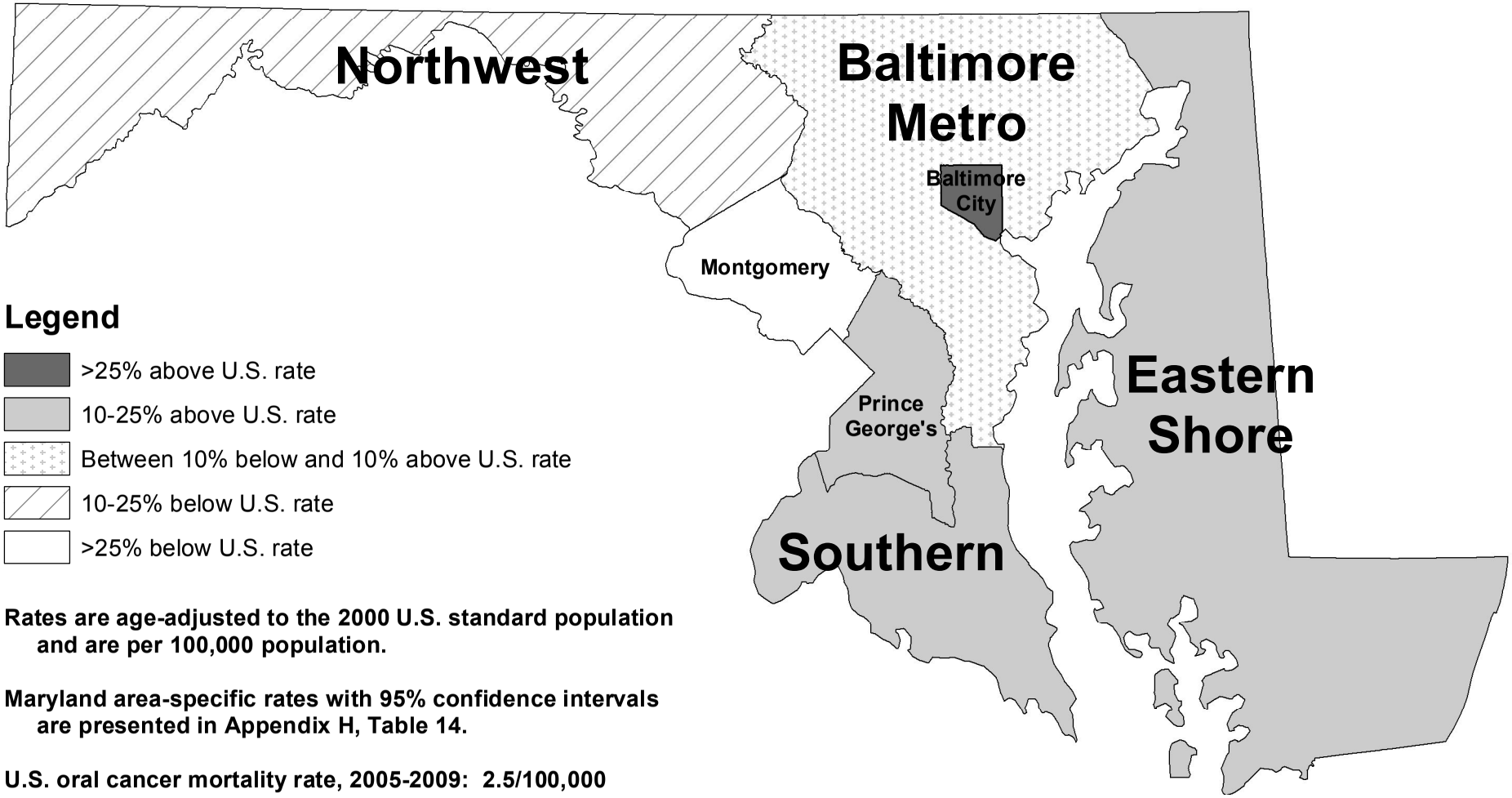
U.S. oral cancer incidence rate, 2005-2009: 10.8/100,000

Maryland oral cancer incidence rate, 2005-2009: 9.5/100,000

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat

Note: Regional rates are presented when one or more counties within the region have a suppressed rate.

Maryland Oral Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Legend

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate

Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 14.

U.S. oral cancer mortality rate, 2005-2009: 2.5/100,000

Maryland oral cancer mortality rate, 2005-2009: 2.6/100,000

Source: MD mortality rates from Maryland Vital Statistics Administration from MATCH, 2005-2009
U.S. rate from SEER, Cancer Statistics Review, 2005-2009

Note: Regional rates are presented when one or more counties within the region have a suppressed rate.

F. Melanoma of the Skin

There are three major types of skin cancer: basal cell carcinoma, squamous cell carcinoma, and melanoma. Basal cell and squamous cell carcinoma are the most common forms of skin cancer and are not reportable to the Maryland Cancer Registry (MCR). Melanoma is the less frequent but the most serious type of skin cancer (NCI PDQ) and is reportable to the MCR.

Incidence (New Cases)

In 2009, a total of 1,192 cases of melanoma of the skin were reported in Maryland. The age-adjusted incidence rate for melanoma for 2009 was 20.0 per 100,000 population (18.9-21.2, 95% C.I.), which is similar to the 2009 U.S. SEER age-adjusted melanoma incidence rate of 20.8 per 100,000 population (20.5-21.1, 95% C.I.).

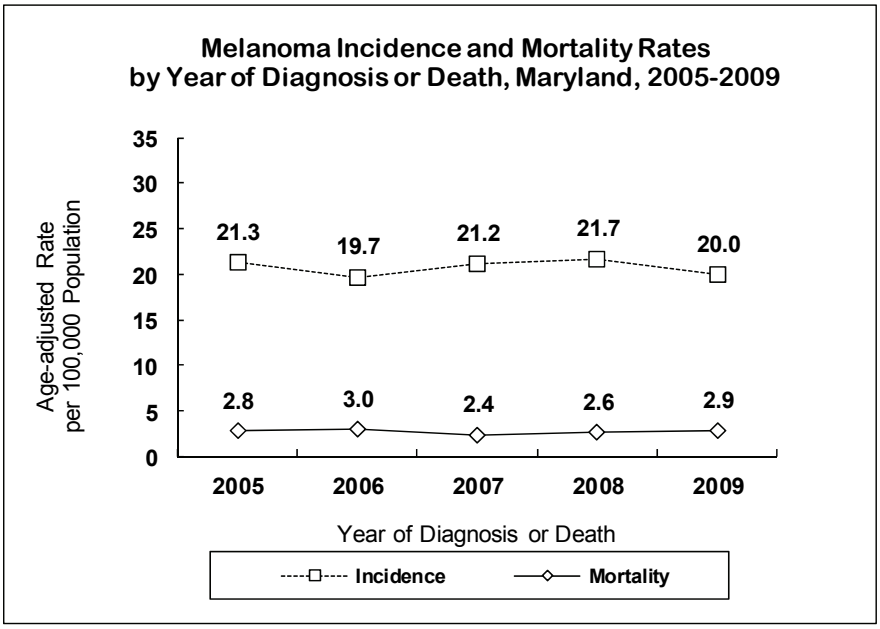
Mortality (Deaths)

In 2009, a total of 172 persons died of melanoma in Maryland. The 2009 age-adjusted mortality rate for melanoma in Maryland was 2.9 per 100,000 population (2.5-3.4, 95% C.I.). This rate is similar to the 2009 U.S. melanoma of the skin cancer mortality rate of 2.8 per 100,000 population (2.8-2.9, 95% C.I.). Maryland had the 28th highest melanoma cancer mortality rate among the states and the District of Columbia for the period 2005-2009.

Table 56.
Melanoma Incidence and Mortality Rates
by Gender and Race, Maryland and the United States, 2009

Incidence 2009	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
New Cases (count)	1,192	694	495	1,157	13	<6
MD Incidence Rate	20.0	26.5	15.5	28.2	**	**
U.S. SEER Rate	20.8	27.1	16.4	24.3	0.9	13.0
Mortality 2009	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
Deaths (count)	172	109	63	163	9	0
MD Mortality Rate	2.9	4.7	1.8	3.9	**	**
U.S. Mortality Rate	2.8	4.2	1.8	3.2	0.4	N/A

Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population
Total also includes cases reported as transsexual, hermaphrodite, unknown gender, and unknown race
<6 = MD incidence counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures
** MD incidence rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures; MD mortality rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy
N/A = Data were not available
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration from MATCH
U.S. SEER, Cancer Statistics Review



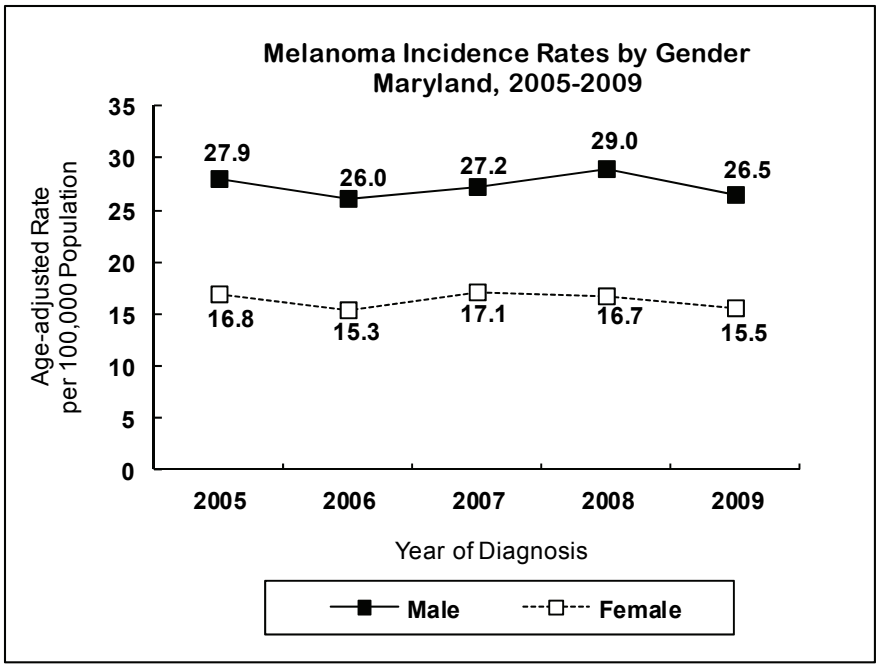
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Incidence and Mortality Trends

Melanoma incidence rates in Maryland decreased at a rate of 0.3% per year from 2005 to 2009.

Melanoma mortality rates decreased at a rate of 0.7% per year from 2005 to 2009.

See Appendix I, Tables 1 and 2.

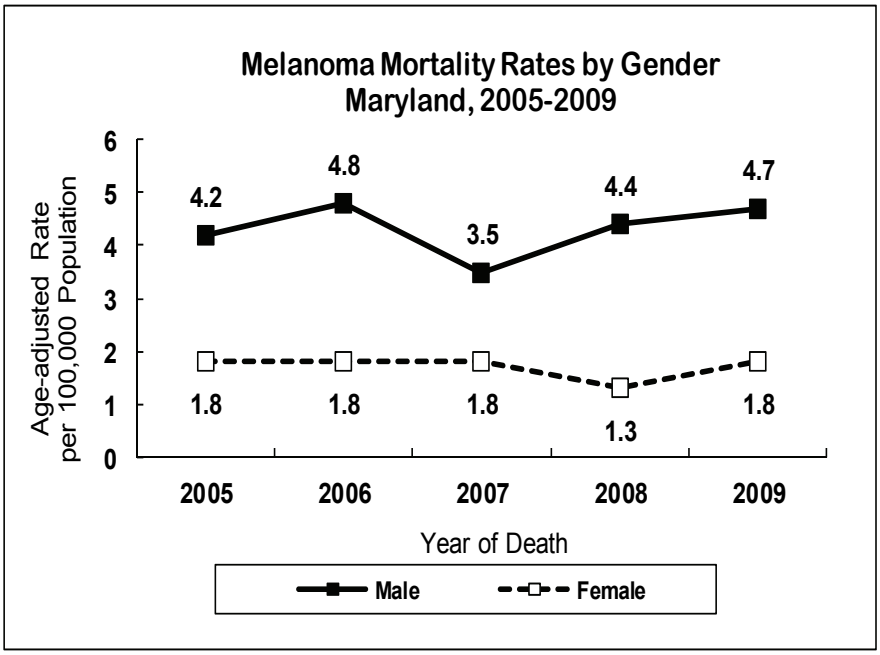


Source: Maryland Cancer Registry

Incidence Trends by Gender

Over the period 2005 to 2009, incidence rates for males increased at a rate of 0.1% per year, and rates among females decreased at a rate of 0.7% per year. In 2009, melanoma incidence rates were almost 71% higher among males than females in Maryland.

See Appendix I, Table 4.

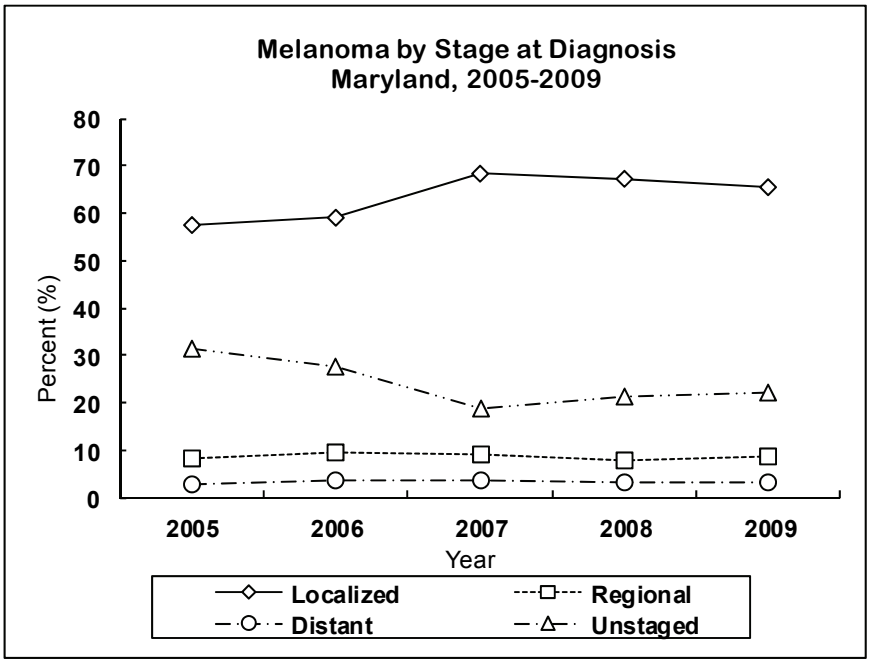


Source: NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Mortality Trends by Gender

Melanoma mortality rates in males increased at a rate of 1.4% per year from 2005 to 2009. Female melanoma mortality rates decreased at a rate of 3.2% per year.

See Appendix I, Table 6.

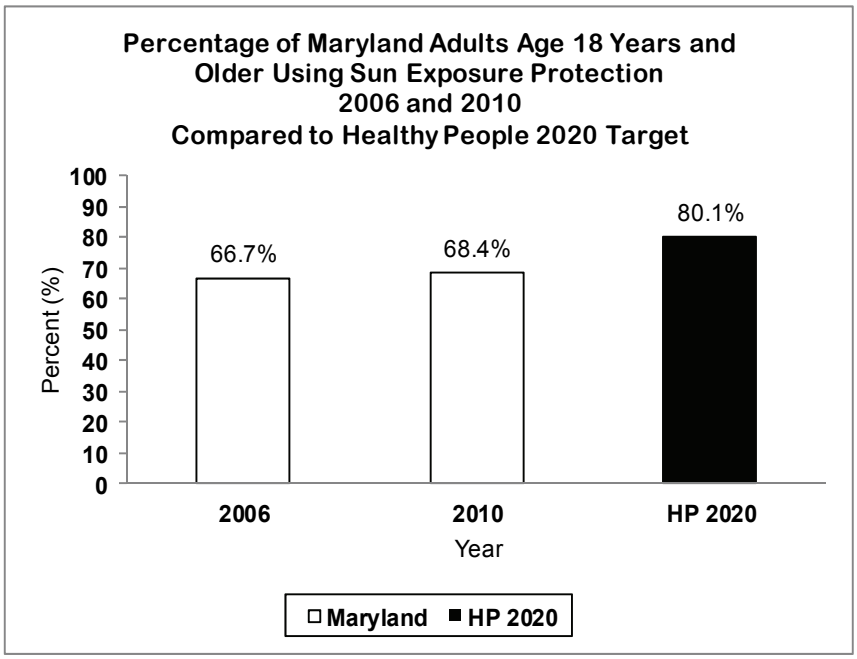


Source: Maryland Cancer Registry

Stage at Diagnosis

In 2009, 65.6% of all melanoma was diagnosed at the localized stage, 8.6% was found at the regional stage, and 3.4% was found at the distant stage. The proportion of melanoma reported as unstaged decreased from 2005 to 2009.

See Appendix J, Table 7.



Note: See Appendix C for a cautionary note on comparing these data to Healthy People 2020.
Source: Maryland BRFSS
Healthy People 2020, U.S. Department of Health and Human Services

Sun Exposure Protection

The Healthy People (HP) 2020 target is to increase to 80.1% the percentage of persons age 18 years and older who follow sun exposure protective measures that may reduce the risk of skin cancer.

In 2006, 66.7% of adults age 18 years and older used at least one method of protection against sun exposure. In 2010, the percentage slightly increased to 68.4%.

Public Health Evidence (quoted from NCI PDQ, 1/26/2012 and 1/26/2012, and USPSTF, 2/2009)

Primary Prevention

Melanoma skin cancer is less common but more aggressive than the other two types of skin cancer, basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), which are known together as "nonmelanoma skin cancer." Individuals whose skin tans poorly, freckles, or burns easily after sun exposure are particularly susceptible to developing skin cancer. Epidemiologic studies have consistently shown that increased cumulative sun exposure is a risk factor for nonmelanoma skin cancer. Organ transplant recipients receiving immunosuppressive drugs are at an elevated risk of skin cancer, particularly SCC. Arsenic exposure also increases the risk of cutaneous SCC. In the case of melanoma, it seems that intermittent acute sun exposure leading to sunburn (especially during childhood or adolescence) is more important than cumulative sun exposure. Nonmodifiable host factors, such as a large number of benign melanocytic nevi (moles) and atypical nevi may also increase the risk of developing melanoma skin cancer.

Based on solid evidence, sun and ultraviolet radiation exposure are associated with an increased risk of SCC and BCC. Based on fair evidence, intermittent acute sun exposure leading to sunburn is associated with an increased risk of melanoma.

The best defense against skin cancer is protection from sun exposure, sunburn, and UV light. However, there is inadequate evidence that interventions designed to reduce exposure to UV radiation (such as use of sunscreen, wearing protective clothing, or limiting sun exposure time) decrease the incidence of nonmelanoma skin cancer. There is also inadequate evidence that avoiding sunburns or using sunscreen alters the incidence of cutaneous melanoma. The harms of sunscreen use are poorly quantified but are likely to be small, including allergic reactions to skin creams and lower production of vitamin D by the skin with less sun exposure.

As of October 2008, an owner, employee, or operator of a tanning facility in Maryland may not allow a minor under the age of 18 years to use a tanning device unless the minor's parent or legal guardian provides written consent on the premises and in the presence of an owner, employee, or operator of the facility.

There is inadequate evidence to determine whether the use of chemopreventive agents reduces the incidence of SCC or BCC of the skin.

Screening

The United States Preventive Services Task Force (USPSTF) concludes that the current evidence is insufficient to assess the balance of benefits and harms of using a whole-body skin examination by a primary care clinician or a patient skin self-examination for the early detection of melanoma of the skin, basal cell cancer, or squamous cell skin cancer in the adult general population.

Public Health Intervention for Skin Cancer
Reduction of exposure to the sun and other UV light by practicing sun-protective and UV-protective behaviors: ➢ Avoiding sun exposure, especially between 10 a.m. and 4 p.m. ➢ Wearing sun-protective clothing, hat, and sunglasses when exposed to sunlight. ➢ Avoiding artificial sources of UV light (e.g., tanning booths). ➢ If sun cannot be avoided, using sunscreen with a SPF of 15 or higher.

Table 57.
Number of Melanoma Cases
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race			
		Males	Females	Whites	Blacks	Other	Unknown
Maryland	1,192	694	495	1,157	13	<6	s
Allegany	19	12	7	19	0	0	0
Anne Arundel	153	98	55	148	<6	0	<6
Baltimore City	64	37	27	s	<6	0	0
Baltimore County	229	130	99	223	<6	0	<6
Calvert	17	10	7	17	0	0	0
Caroline	10	s	<6	10	0	0	0
Carroll	66	40	26	66	0	0	0
Cecil	22	14	8	22	0	0	0
Charles	18	12	6	s	<6	0	0
Dorchester	8	<6	<6	8	0	0	0
Frederick	52	32	20	s	0	0	<6
Garrett	<6	<6	<6	<6	0	0	0
Harford	77	39	38	s	0	0	<6
Howard	61	34	25	s	<6	0	<6
Kent	<6	<6	<6	<6	0	0	0
Montgomery	174	104	70	169	<6	0	<6
Prince George's	40	24	16	37	<6	0	<6
Queen Anne's	15	7	8	s	0	0	<6
Saint Mary's	21	9	12	21	0	0	0
Somerset	9	s	<6	9	0	0	0
Talbot	19	12	7	19	0	0	0
Washington	38	16	22	s	0	<6	<6
Wicomico	44	24	19	s	0	<6	0
Worcester	21	13	8	s	0	<6	<6
Unknown	6	<6	<6	6	0	0	0

Total includes cases reported as transexual, hermaphrodite, and unknown gender

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Cancer Registry

Table 58.
Melanoma Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	20.0	26.5	15.5	28.2	**	**
Allegany	22.6	**	**	24.8	0.0	0.0
Anne Arundel	27.3	36.9	19.8	31.7	**	0.0
Baltimore City	10.0	14.7	7.4	27.4	**	0.0
Baltimore County	25.7	33.1	20.7	32.7	**	0.0
Calvert	19.6	**	**	23.5	0.0	0.0
Caroline	**	**	**	**	0.0	0.0
Carroll	35.6	50.6	25.7	37.5	0.0	0.0
Cecil	20.9	**	**	22.3	0.0	0.0
Charles	13.4	**	**	19.7	**	0.0
Dorchester	**	**	**	**	0.0	0.0
Frederick	22.2	28.6	16.4	24.6	0.0	0.0
Garrett	**	**	**	**	0.0	0.0
Harford	30.4	34.0	27.8	33.6	0.0	0.0
Howard	20.0	24.4	14.7	25.7	**	0.0
Kent	**	**	**	**	0.0	0.0
Montgomery	16.9	22.9	12.6	23.0	**	0.0
Prince George's	6.1	10.1	3.8	15.2	**	0.0
Queen Anne's	**	**	**	**	0.0	0.0
Saint Mary's	20.4	**	**	24.8	0.0	0.0
Somerset	**	**	**	**	0.0	0.0
Talbot	34.9	**	**	40.7	0.0	0.0
Washington	23.2	21.7	24.9	23.6	0.0	**
Wicomico	46.2	57.9	37.2	56.0	0.0	**
Worcester	29.6	**	**	30.7	0.0	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 59.
Number of Melanoma Cancer Deaths
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	172	109	63	163	9	0
Allegany	<5	<5	<5	<5	0	0
Anne Arundel	23	16	7	s	<5	0
Baltimore City	6	<5	<5	s	<5	0
Baltimore County	34	20	14	s	<5	0
Calvert	<5	<5	<5	<5	0	0
Caroline	0	0	0	0	0	0
Carroll	5	<5	<5	5	0	0
Cecil	<5	<5	<5	<5	0	0
Charles	<5	0	<5	<5	<5	0
Dorchester	<5	<5	0	<5	0	0
Frederick	10	<5	s	10	0	0
Garrett	<5	<5	0	<5	0	0
Harford	17	10	7	17	0	0
Howard	6	6	0	6	0	0
Kent	<5	<5	0	<5	0	0
Montgomery	20	15	5	s	<5	0
Prince George's	10	s	<5	s	<5	0
Queen Anne's	5	<5	<5	5	0	0
Saint Mary's	<5	0	<5	<5	0	0
Somerset	0	0	0	0	0	0
Talbot	0	0	0	0	0	0
Washington	s	<5	<5	s	0	0
Wicomico	<5	<5	<5	<5	0	0
Worcester	<5	<5	0	<5	0	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 60.
Melanoma Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	2.9	4.7	1.8	3.9	**	**
Allegany	**	**	**	**	**	**
Anne Arundel	4.5	**	**	4.7	**	**
Baltimore City	**	**	**	**	**	**
Baltimore County	3.7	5.2	**	4.4	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	**	**	**	**	**	**
Cecil	**	**	**	**	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	**	**	**	**	**	**
Garrett	**	**	**	**	**	**
Harford	**	**	**	**	**	**
Howard	**	**	**	**	**	**
Kent	**	**	**	**	**	**
Montgomery	1.9	**	**	**	**	**
Prince George's	**	**	**	**	**	**
Queen Anne's	**	**	**	**	**	**
Saint Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	**	**	**	**	**	**
Wicomico	**	**	**	**	**	**
Worcester	**	**	**	**	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Table 61.
Number of Melanoma Cases
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race			
		Males	Females	Whites	Blacks	Other	Unknown
Maryland	6,039	3,487	2,544	5,775	63	54	147
Allegany	75	43	32	s	0	0	<6
Anne Arundel	811	502	307	777	s	<6	23
Baltimore City	323	177	146	304	11	<6	<6
Baltimore County	1,050	601	449	1,012	9	7	22
Calvert	166	113	52	161	<6	0	<6
Caroline	48	29	19	s	<6	0	<6
Carroll	281	147	134	274	0	0	7
Cecil	113	63	50	s	0	0	<6
Charles	84	52	32	79	<6	0	<6
Dorchester	36	24	12	36	0	0	0
Frederick	270	147	123	257	<6	0	s
Garrett	23	14	9	23	0	0	0
Harford	364	206	158	356	0	0	8
Howard	373	217	153	359	<6	<6	7
Kent	34	25	9	s	<6	0	<6
Montgomery †	860	482	378	810	10	14	26
Prince George's †	279	163	116	251	15	6	7
Queen Anne's	90	58	32	s	0	0	<6
Saint Mary's	133	63	70	s	0	0	<6
Somerset	40	23	17	s	0	<6	<6
Talbot	82	47	35	s	<6	<6	<6
Washington	181	100	81	178	0	<6	<6
Wicomico	148	87	60	142	<6	<6	0
Worcester	127	81	46	118	0	s	<6
Unknown	48	23	24	39	0	<6	s

Total includes cases reported as transexual, hermaphrodite, and unknown gender

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

† 2006 case counts for Montgomery and Prince George's counties are underreported. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 62.
Melanoma Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	20.8	27.3	16.3	28.7	0.9	3.7
Allegany	16.9	21.2	14.2	17.6	0.0	0.0
Anne Arundel	30.7	41.5	22.4	35.1	**	**
Baltimore City	9.9	13.2	8.0	25.8	**	**
Baltimore County	24.0	30.9	19.4	30.3	**	**
Calvert	39.1	58.9	23.3	45.0	**	0.0
Caroline	28.6	36.4	21.0	32.4	**	0.0
Carroll	31.5	36.4	29.3	32.4	0.0	0.0
Cecil	22.8	28.8	18.9	23.8	0.0	0.0
Charles	12.6	17.4	9.0	18.1	**	0.0
Dorchester	17.2	27.2	**	23.1	0.0	0.0
Frederick	24.3	30.1	20.5	25.9	**	0.0
Garrett	14.1	**	**	14.2	0.0	0.0
Harford	29.9	37.4	24.7	33.1	0.0	0.0
Howard	26.9	35.3	20.1	34.9	**	**
Kent	27.4	43.6	**	30.1	**	0.0
Montgomery †	17.2	21.8	14.0	22.3	**	**
Prince George's †	8.0	12.6	5.4	20.0	**	**
Queen Anne's	35.5	48.2	24.9	38.4	0.0	0.0
Saint Mary's	28.2	29.4	28.2	33.6	0.0	0.0
Somerset	29.3	32.6	30.8	43.1	0.0	**
Talbot	33.0	41.5	25.9	36.9	**	**
Washington	23.3	27.9	20.3	24.9	0.0	**
Wicomico	30.5	41.1	23.8	38.1	**	**
Worcester	36.5	48.1	27.1	38.8	0.0	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

† 2005-2009 incidence rates for Montgomery County and Prince George's County are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 63.
Number of Melanoma Deaths
by Jurisdiction, Gender and Race, Maryland, 2005-2009

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	785	506	279	754	s	<5
Allegany	19	10	9	19	0	0
Anne Arundel	101	69	32	s	<5	0
Baltimore City	53	32	21	47	6	0
Baltimore County	145	91	54	s	<5	0
Calvert	14	8	6	s	<5	0
Caroline	7	<5	<5	7	0	0
Carroll	26	18	8	26	0	0
Cecil	14	9	5	14	0	0
Charles	s	s	<5	s	<5	0
Dorchester	7	<5	<5	7	0	0
Frederick	38	21	17	38	0	0
Garrett	6	6	0	6	0	0
Harford	54	37	17	s	<5	0
Howard	36	24	12	s	<5	<5
Kent	10	5	5	10	0	0
Montgomery	103	66	37	98	<5	<5
Prince George's	41	26	15	33	8	0
Queen Anne's	15	10	5	15	0	0
Saint Mary's	13	s	<5	13	0	0
Somerset	<5	<5	<5	<5	0	0
Talbot	10	s	<5	s	<5	0
Washington	26	15	11	26	0	0
Wicomico	18	10	8	s	<5	0
Worcester	17	s	<5	17	0	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 64.
Melanoma Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2005-2009

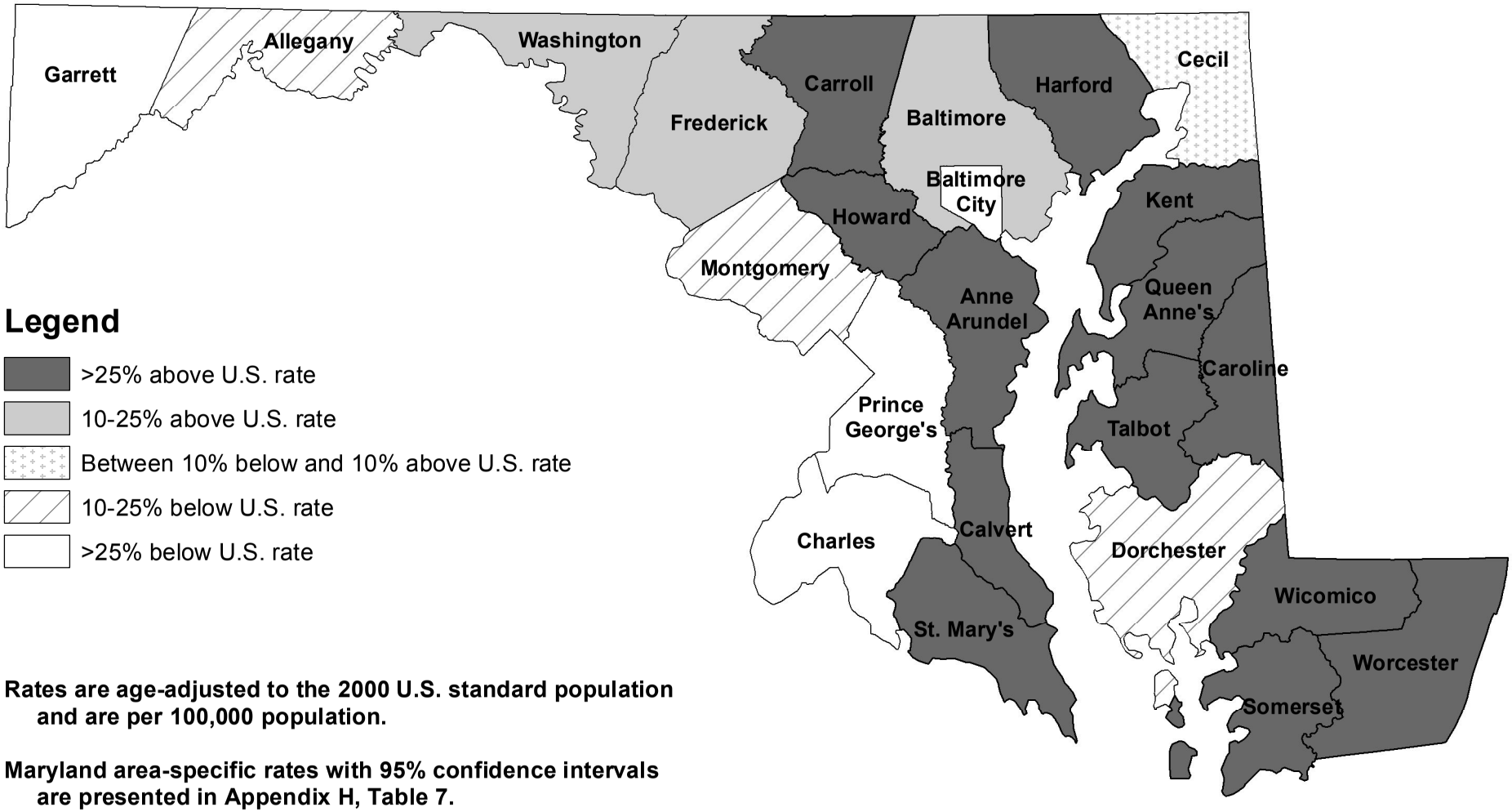
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	2.7	4.3	1.7	3.6	0.4	**
Allegany	**	**	**	**	**	**
Anne Arundel	4.1	6.8	2.3	4.7	**	**
Baltimore City	1.7	2.7	1.1	3.9	**	**
Baltimore County	3.1	4.6	2.0	3.8	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	2.8	**	**	2.9	**	**
Cecil	**	**	**	**	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	3.6	4.6	**	4.0	**	**
Garrett	**	**	**	**	**	**
Harford	4.5	7.1	**	4.9	**	**
Howard	2.9	4.8	**	3.7	**	**
Kent	**	**	**	**	**	**
Montgomery	2.0	3.1	1.3	2.5	**	**
Prince George's	1.3	2.0	**	2.6	**	**
Queen Anne's	**	**	**	**	**	**
Saint Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	3.3	**	**	3.5	**	**
Wicomico	**	**	**	**	**	**
Worcester	**	**	**	**	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Maryland Melanoma Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Legend

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate

Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

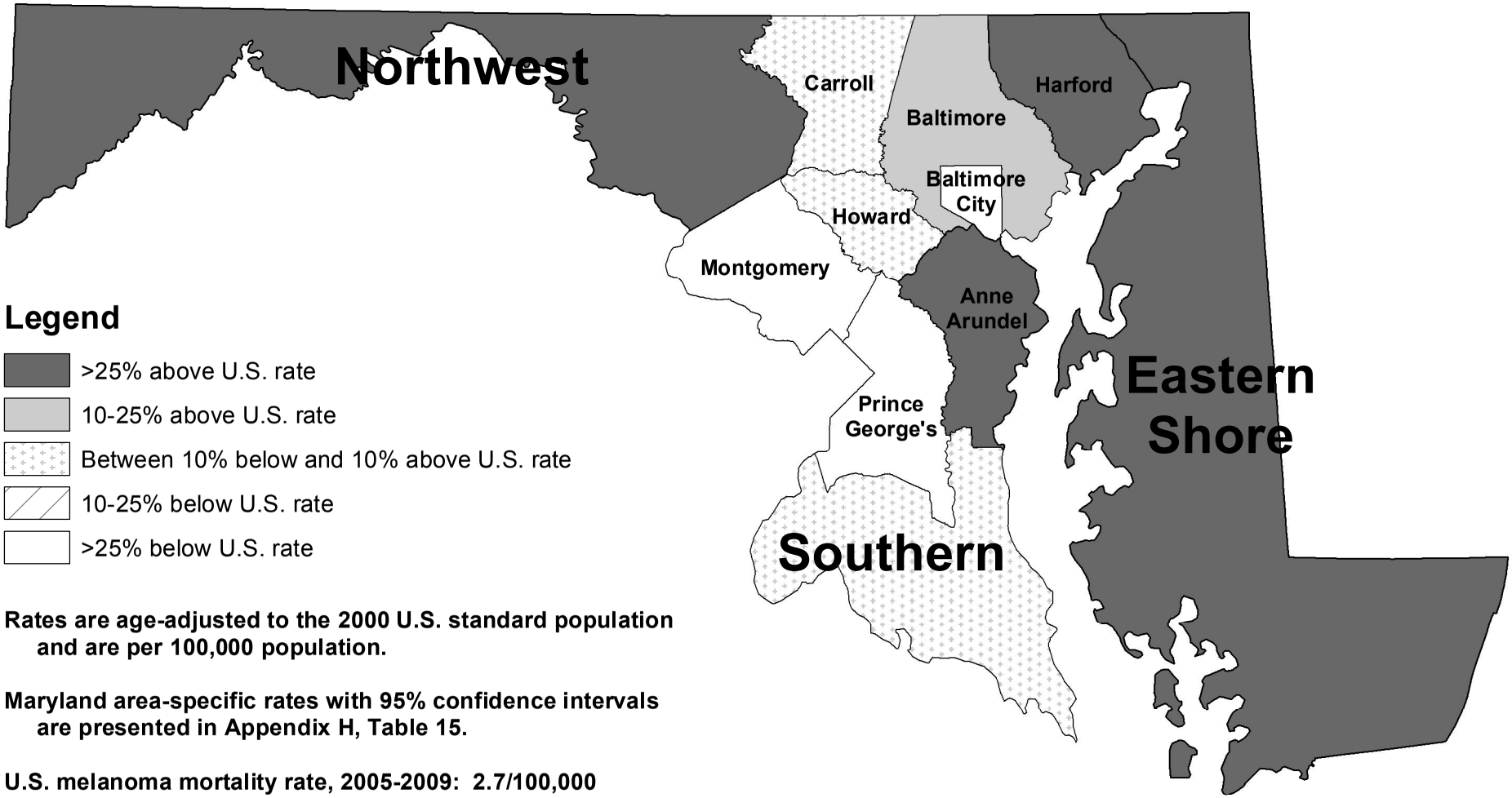
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 7.

U.S. melanoma incidence rate, 2005-2009: 21.0/100,000

Maryland melanoma incidence rate, 2005-2009: 20.8/100,000

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat

Maryland Melanoma Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Legend

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate

Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 15.

U.S. melanoma mortality rate, 2005-2009: 2.7/100,000

Maryland melanoma mortality rate, 2005-2009: 2.7/100,000

Source: MD mortality rates from Maryland Vital Statistics Administration from MATCH, 2005-2009
U.S. rate from SEER, Cancer Statistics Review, 2005-2009

Note: Regional rates are presented when one or more counties within the region have a suppressed rate.

G. Cervical Cancer

Incidence (New Cases)

A total of 208 cases of cervical cancer among women in Maryland were reported in 2009. The age-adjusted incidence rate for cervical cancer in Maryland in 2009 was 6.8 per 100,000 population of women (5.9-7.8, 95% C.I.), which is statistically significantly lower than the 2009 U.S. SEER age-adjusted cervical cancer incidence rate of 7.9 per 100,000 population (7.6-8.1, 95% C.I.).

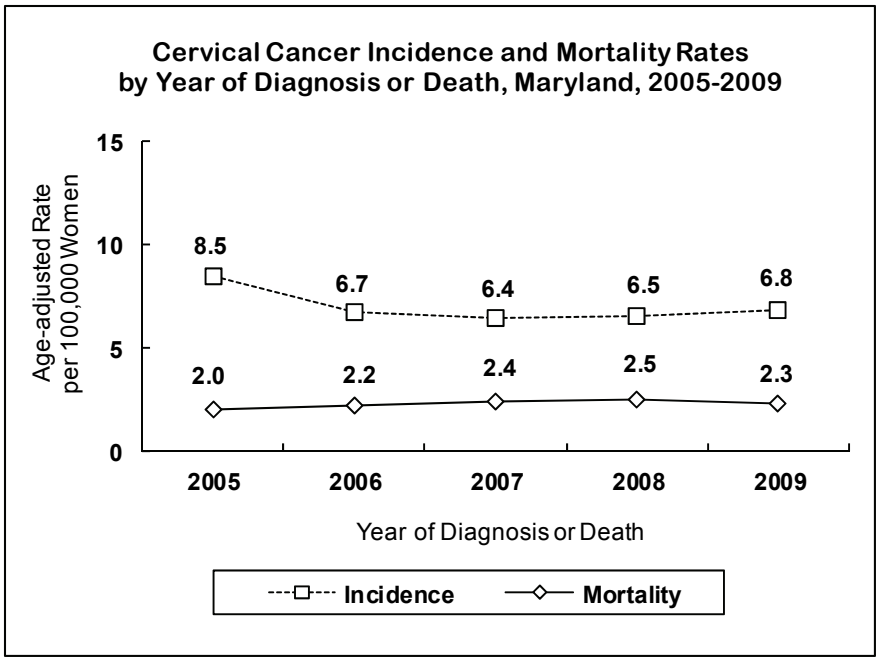
Mortality (Deaths)

In 2009, a total of 77 women died of cervical cancer in Maryland. The age-adjusted cervical cancer mortality rate in Maryland in 2009 was 2.3 per 100,000 women (1.8-2.9, 95% C.I.). This rate is similar to the 2009 U.S. cervical cancer mortality rate of 2.3 per 100,000 women (2.2-2.4, 95% C.I.). Maryland had the 25th highest cervical cancer mortality rate among the states and the District of Columbia for the period 2005-2009.

Table 65.
Cervical Cancer Incidence and Mortality Rates
by Race, Maryland and the United States, 2009

Incidence 2009	*Total*	*Whites*	*Blacks*	*Other*
New Cases (count)	208	110	73	s
MD Incidence Rate	6.8	5.8	7.8	11.4
U.S. SEER Rate	7.9	7.8	9.2	7.6
Mortality 2009	*Total*	*Whites*	*Blacks*	*Other*
Deaths (count)	77	38	33	6
MD Mortality Rate	2.3	1.7	3.8	**
U.S. Mortality Rate	2.3	2.1	4.2	N/A

Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population
Total includes unknown race
s = Counts are suppressed to prevent disclosure of data in other cell(s) based on Table 66
** MD mortality rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat software
Maryland Vital Statistics Administration from MATCH
U.S. SEER, Cancer Statistics Review



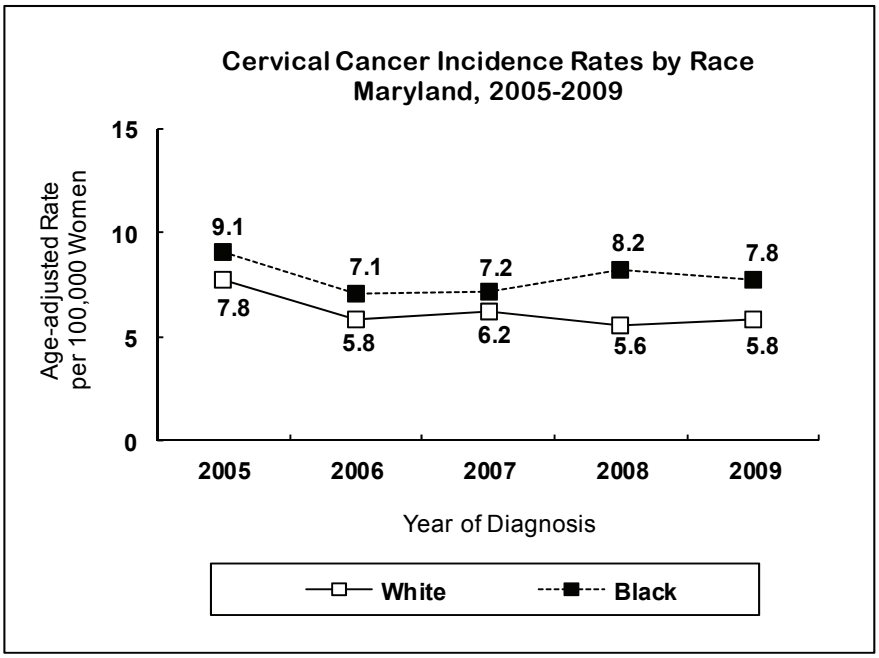
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Incidence and Mortality Trends

Cervical cancer incidence rates among Maryland women decreased at a rate of 4.7% per year from 2005 to 2009.

Cervical cancer mortality rates increased at a rate of 4.2% per year from 2005 to 2009.

See Appendix I, Tables 1 and 2.

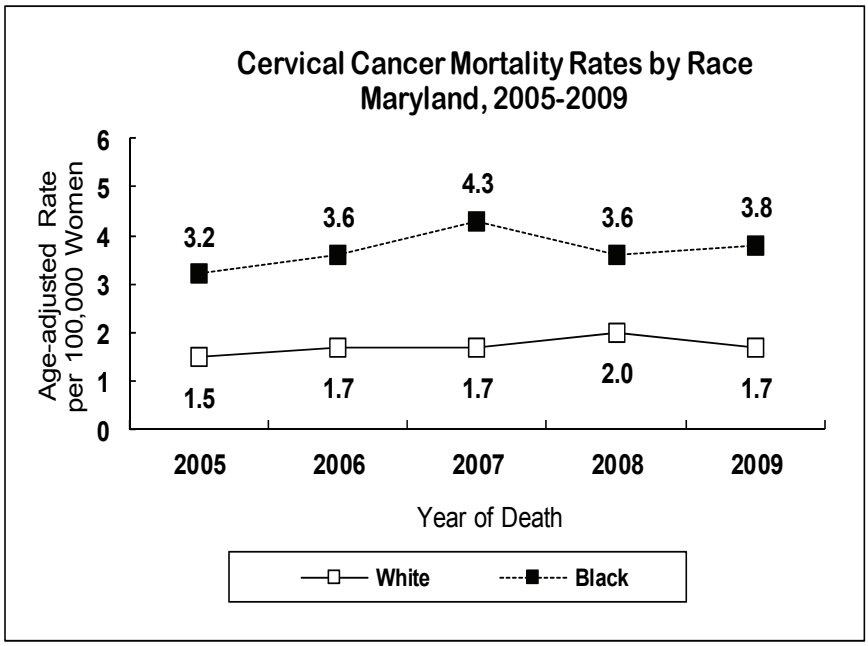


Source: Maryland Cancer Registry

Incidence Trends by Race

From 2005 to 2009, cervical cancer incidence rates among black women decreased at a rate of 1.6% per year, compared to a decrease of 6.1% per year among white women.

See Appendix I, Table 3.

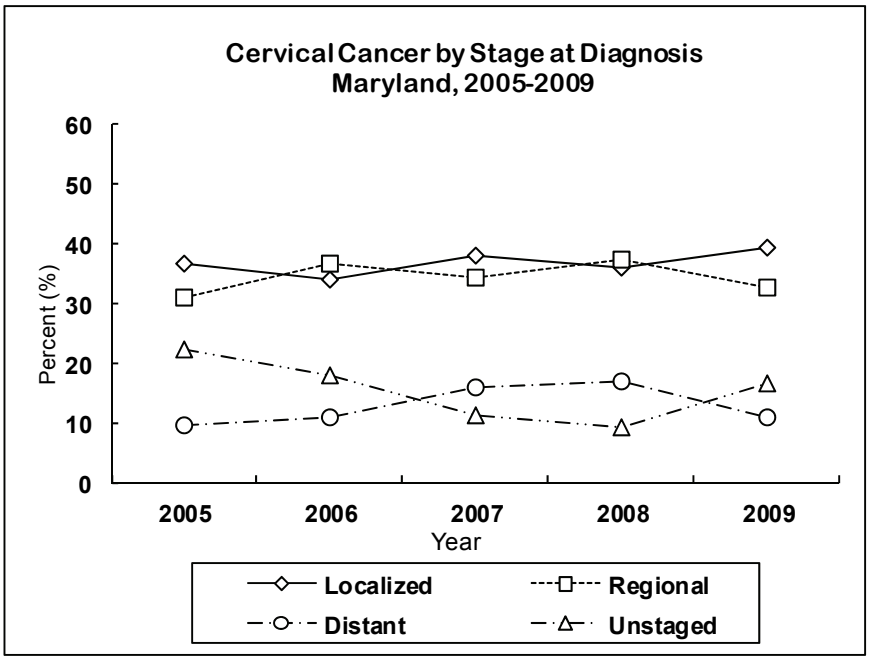


Source: NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Mortality Trends by Race

From 2005 to 2009, mortality rates for black women increased at a rate of 3.5% per year, while mortality rates for white women increased at a rate of 4.2% per year.

See Appendix I, Table 5.

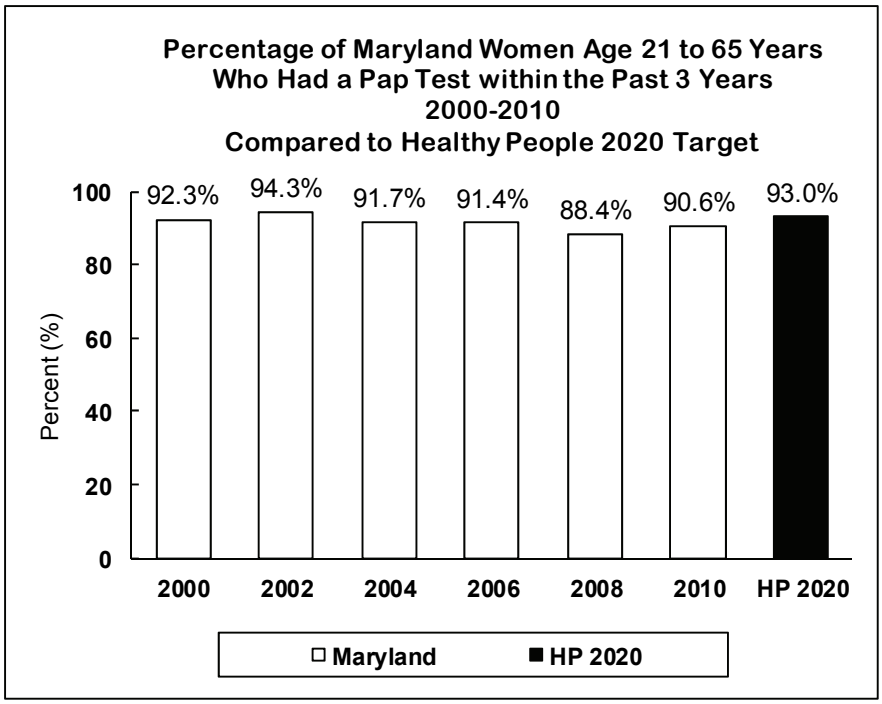


Source: Maryland Cancer Registry

Stage at Diagnosis

In 2009, 39.4% of all cervical cancer cases in Maryland were diagnosed at the localized stage, 32.7% were diagnosed at the regional stage, and 11.1% were found at the distant stage. The proportion of cervical cancer cases reported as unstaged decreased from 2005 to 2008, and increased in 2009.

See Appendix J, Table 8.



Source: Maryland BRFSS
Healthy People 2020, U.S. Department of Health and Human Services

Cervical Cancer Screening

One Healthy People 2020 target for cervical cancer is to increase to 93.0% the percentage of women who have had a cervical cancer screening test based on the most recent guidelines. The U.S. Preventive Task Force guidelines recommend screening for cervical cancer in women ages 21 to 65 years with a Pap test 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.

In 2010, 90.6% of Maryland women age 21 to 65 years reported they had a Pap test within the past 3 years.

Public Health Evidence (quoted from NCI PDQ, 1/13/2012 and 2/6/2012; Advisory Committee on Immunization Practices [ACIP] 3/23/2007, 5/28/2010, 5/28/2010, 12/23/2011; and USPSTF, 3/1/2012)

Primary Prevention

Human papillomavirus (HPV) is an oncogenic virus and the etiologic agent of cervical cancer and related premalignant disease. HPV is transmitted by sexual contact. Approximately 15 cancer-associated (high-risk or carcinogenic) HPV genotypes cause virtually all cases of cervical cancer and precursor lesions.

Based on solid evidence, the following measures are effective to minimize the risk of HPV infection and thus cervical cancer: abstinence from sexual activity; barrier protection and/or spermicidal gel during sexual intercourse; (based on fair evidence) vaccination against HPV-16/HPV-18; and screening via gynecologic exam and Papanicolaou (Pap) test with treatment of precancerous abnormalities. Based on solid evidence, the following factors are associated with increased risk of cervical cancer: cigarette smoking (both active and passive), having 7 or more full-term pregnancies, and using oral contraceptives for 5+ years. The Advisory Committee on Immunization Practices (ACIP) recommends routine HPV vaccination (with three doses of bivalent or quadrivalent vaccine) in females age 11 or 12 years (vaccine can be administered as young as age 9 years). HPV vaccination is recommended for females age 13 through 26 years who previously have not been vaccinated. ACIP also recommends routine HPV vaccination (with three doses of quadrivalent vaccine) in males age 11 or 12 years. HPV vaccination is recommended for males age 13-21 years who have not been vaccinated previously or who have not completed the 3-dose series; males age 22 through 26 may be vaccinated.

Screening

Benefits: Based on solid evidence, screening of appropriate women via regular gynecologic examinations and cytology test (Pap test, either conventional or liquid-based cytology), with treatment of precancerous abnormalities, reduces mortality from cervical cancer. The United States Preventive Services Task Force (USPSTF) recommends screening for cervical cancer in women age 21-65 years who have a cervix with the Pap test every 3 years, or for women age 30-65 years who want to lengthen the screening interval, screen with Pap test and HPV testing every 5 years. The USPSFT recommends against screening for cervical cancer in women younger than age 21 years and in women over age 65 years who have had adequate prior screening and who are not otherwise at high risk for cervical cancer. Harms: Based on solid evidence, regular screening with the Pap test leads to additional diagnostic procedures and treatment for low-grade squamous intraepithelial lesions with uncertain long-term consequences on fertility and pregnancy. Screening is not helpful in women who do not have a cervix as a result of a hysterectomy for a benign condition.

Public Health Intervention for Cervical Cancer (USPSTF and ACIP)
➢ Screen women age 21-65 years who have a cervix with the Pap test every 3 years, or for women age 30-65 years who want to lengthen the screening interval, screen with Pap test and HPV testing every 5 years. ➢ Vaccinate females and males according to ACIP recommendations.

Table 66.
Number of Cervical Cancer Cases
by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race			
		Whites	Blacks	Other	Unknown
Maryland	208	110	73	s	<6
Allegany	<6	<6	0	0	0
Anne Arundel	22	s	<6	0	0
Baltimore City	31	<6	23	<6	0
Baltimore County	19	11	s	<6	0
Calvert	<6	<6	0	0	0
Caroline	<6	<6	0	0	0
Carroll	<6	<6	<6	0	0
Cecil	<6	<6	<6	0	0
Charles	<6	<6	<6	<6	0
Dorchester	0	0	0	0	0
Frederick	9	9	0	0	0
Garrett	<6	<6	0	0	0
Harford	14	s	<6	0	0
Howard	6	<6	0	<6	0
Kent	0	0	0	0	0
Montgomery	34	18	<6	10	<6
Prince George's	35	6	25	<6	<6
Queen Anne's	<6	<6	0	0	0
Saint Mary's	<6	<6	<6	0	0
Somerset	<6	<6	<6	0	0
Talbot	<6	<6	0	0	0
Washington	<6	<6	0	0	0
Wicomico	<6	<6	<6	0	0
Worcester	<6	<6	0	0	0
Unknown	0	0	0	0	0

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Cancer Registry

Table 67.
Cervical Cancer Age-Adjusted Incidence Rates*
by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	6.8	5.8	7.8	11.4
Allegany	**	**	0.0	0.0
Anne Arundel	8.4	8.4	**	0.0
Baltimore City	8.4	**	9.9	**
Baltimore County	4.3	**	**	**
Calvert	**	**	0.0	0.0
Caroline	**	**	0.0	0.0
Carroll	**	**	**	0.0
Cecil	**	**	**	0.0
Charles	**	**	**	**
Dorchester	0.0	0.0	0.0	0.0
Frederick	**	**	0.0	0.0
Garrett	**	**	0.0	0.0
Harford	**	**	**	0.0
Howard	**	**	0.0	**
Kent	0.0	0.0	0.0	0.0
Montgomery	6.3	5.3	**	**
Prince George's	8.2	**	8.0	**
Queen Anne's	**	**	0.0	0.0
Saint Mary's	**	**	**	0.0
Somerset	**	**	**	0.0
Talbot	**	**	0.0	0.0
Washington	**	**	0.0	0.0
Wicomico	**	**	**	0.0
Worcester	**	**	0.0	0.0

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 68.
Number of Cervical Cancer Deaths
by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	77	38	33	6
Allegany	<5	<5	0	0
Anne Arundel	6	<5	<5	0
Baltimore City	16	<5	s	0
Baltimore County	11	6	5	0
Calvert	0	0	0	0
Caroline	0	0	0	0
Carroll	<5	<5	0	0
Cecil	<5	<5	0	0
Charles	<5	0	<5	0
Dorchester	<5	<5	0	0
Frederick	<5	<5	0	0
Garrett	0	0	0	0
Harford	<5	<5	0	0
Howard	<5	0	0	<5
Kent	0	0	0	0
Montgomery	8	5	<5	<5
Prince George's	17	s	8	<5
Queen Anne's	<5	<5	0	0
Saint Mary's	<5	<5	0	0
Somerset	<5	<5	0	0
Talbot	0	0	0	0
Washington	<5	<5	0	0
Wicomico	<5	0	<5	0
Worcester	0	0	0	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 69.
Cervical Cancer Age-Adjusted Mortality Rates*
by Jurisdiction and Race, Maryland, 2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	2.3	1.7	3.8	**
Allegany	**	**	**	**
Anne Arundel	**	**	**	**
Baltimore City	**	**	**	**
Baltimore County	**	**	**	**
Calvert	**	**	**	**
Caroline	**	**	**	**
Carroll	**	**	**	**
Cecil	**	**	**	**
Charles	**	**	**	**
Dorchester	**	**	**	**
Frederick	**	**	**	**
Garrett	**	**	**	**
Harford	**	**	**	**
Howard	**	**	**	**
Kent	**	**	**	**
Montgomery	**	**	**	**
Prince George's	**	**	**	**
Queen Anne's	**	**	**	**
Saint Mary's	**	**	**	**
Somerset	**	**	**	**
Talbot	**	**	**	**
Washington	**	**	**	**
Wicomico	**	**	**	**
Worcester	**	**	**	**

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Table 70.
Number of Cervical Cancer Cases
by Jurisdiction and Race, Maryland, 2005-2009

Jurisdiction	Total	Race			
		Whites	Blacks	Other	Unknown
Maryland	1,055	609	339	77	30
Allegany	21	s	<6	0	0
Anne Arundel	90	69	16	<6	<6
Baltimore City	163	48	107	<6	<6
Baltimore County	149	94	44	s	<6
Calvert	14	s	<6	0	0
Caroline	6	6	0	0	0
Carroll	25	s	<6	<6	<6
Cecil	27	s	<6	0	0
Charles	17	<6	9	<6	<6
Dorchester	<6	<6	0	0	0
Frederick	49	44	<6	<6	<6
Garrett	<6	<6	0	0	0
Harford	46	37	9	0	0
Howard	37	23	<6	8	<6
Kent	<6	<6	0	0	0
Montgomery †	158	83	29	37	9
Prince George's †	145	43	89	7	6
Queen Anne's	8	s	<6	0	0
Saint Mary's	16	s	<6	0	0
Somerset	<6	<6	<6	0	0
Talbot	6	6	0	0	0
Washington	26	s	<6	<6	<6
Wicomico	20	10	s	<6	0
Worcester	9	s	<6	0	0
Unknown	7	<6	<6	0	<6

<6 = Case counts of 1-5 are suppressed per DHMH/MCR Data Use Policy and Procedures

s = Case counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

† 2006 case counts for Montgomery and Prince George's counties are underreported. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 71.
Cervical Cancer Age-Adjusted Incidence Rates*
by Jurisdiction and Race, Maryland, 2005-2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	6.9	6.2	7.9	9.0
Allegany	11.3	10.9	**	0.0
Anne Arundel	6.7	6.4	8.1	**
Baltimore City	9.4	8.9	9.6	**
Baltimore County	6.8	6.3	9.3	**
Calvert	**	**	**	0.0
Caroline	**	**	0.0	0.0
Carroll	5.4	4.9	**	**
Cecil	10.4	9.1	**	0.0
Charles	4.6	**	**	**
Dorchester	**	**	0.0	0.0
Frederick	8.4	8.5	**	**
Garrett	**	**	0.0	0.0
Harford	7.2	6.8	**	0.0
Howard	5.3	4.5	**	**
Kent	**	**	0.0	0.0
Montgomery †	6.0	4.7	6.6	9.2
Prince George's †	6.8	7.5	6.5	**
Queen Anne's	**	**	**	0.0
Saint Mary's	6.4	**	**	0.0
Somerset	**	**	**	0.0
Talbot	**	**	0.0	0.0
Washington	7.1	6.8	**	**
Wicomico	8.5	**	**	**
Worcester	**	**	**	0.0

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy and Procedures

† 2005-2009 incidence rates for Montgomery County and Prince George's County are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Table 72.
Number of Cervical Cancer Deaths
by Jurisdiction and Race, Maryland, 2005-2009

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	361	191	156	14
Allegany	11	s	<5	0
Anne Arundel	25	17	s	<5
Baltimore City	81	25	56	0
Baltimore County	48	28	s	<5
Calvert	<5	<5	<5	0
Caroline	<5	<5	0	0
Carroll	5	5	0	0
Cecil	5	5	0	0
Charles	11	5	s	<5
Dorchester	<5	<5	0	0
Frederick	11	s	<5	0
Garrett	<5	<5	0	0
Harford	13	13	0	0
Howard	9	5	<5	<5
Kent	<5	<5	0	0
Montgomery	37	19	13	5
Prince George's	63	s	41	<5
Queen Anne's	<5	<5	0	0
Saint Mary's	6	<5	<5	0
Somerset	<5	<5	0	0
Talbot	<5	<5	0	0
Washington	9	9	0	0
Wicomico	14	8	s	<5
Worcester	<5	<5	0	0

<5 = Death counts of 1-4 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s). (See Appendix C for methods.)

Source: Maryland Vital Statistics Administration from MATCH

Table 73.
Cervical Cancer Age-Adjusted Mortality Rates*
by Jurisdiction and Race, Maryland, 2005-2009

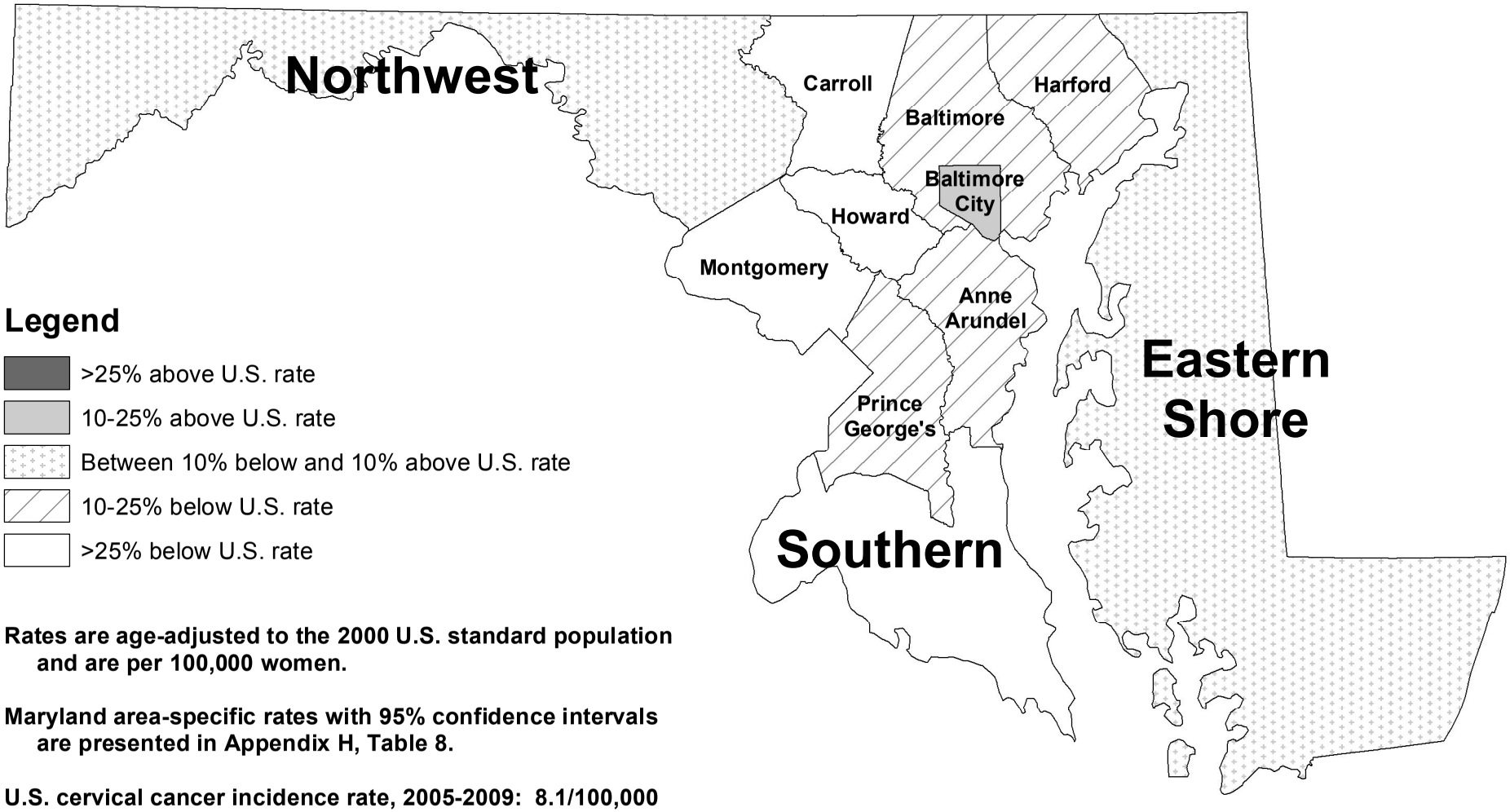
Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	2.3	1.7	3.7	**
Allegany	**	**	**	**
Anne Arundel	1.8	**	**	**
Baltimore City	4.5	4.1	4.9	**
Baltimore County	2.0	1.6	**	**
Calvert	**	**	**	**
Caroline	**	**	**	**
Carroll	**	**	**	**
Cecil	**	**	**	**
Charles	**	**	**	**
Dorchester	**	**	**	**
Frederick	**	**	**	**
Garrett	**	**	**	**
Harford	**	**	**	**
Howard	**	**	**	**
Kent	**	**	**	**
Montgomery	1.3	**	**	**
Prince George's	2.9	**	3.2	**
Queen Anne's	**	**	**	**
Saint Mary's	**	**	**	**
Somerset	**	**	**	**
Talbot	**	**	**	**
Washington	**	**	**	**
Wicomico	**	**	**	**
Worcester	**	**	**	**

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration from MATCH

Maryland Cervical Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Legend

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate

Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 women.

Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 8.

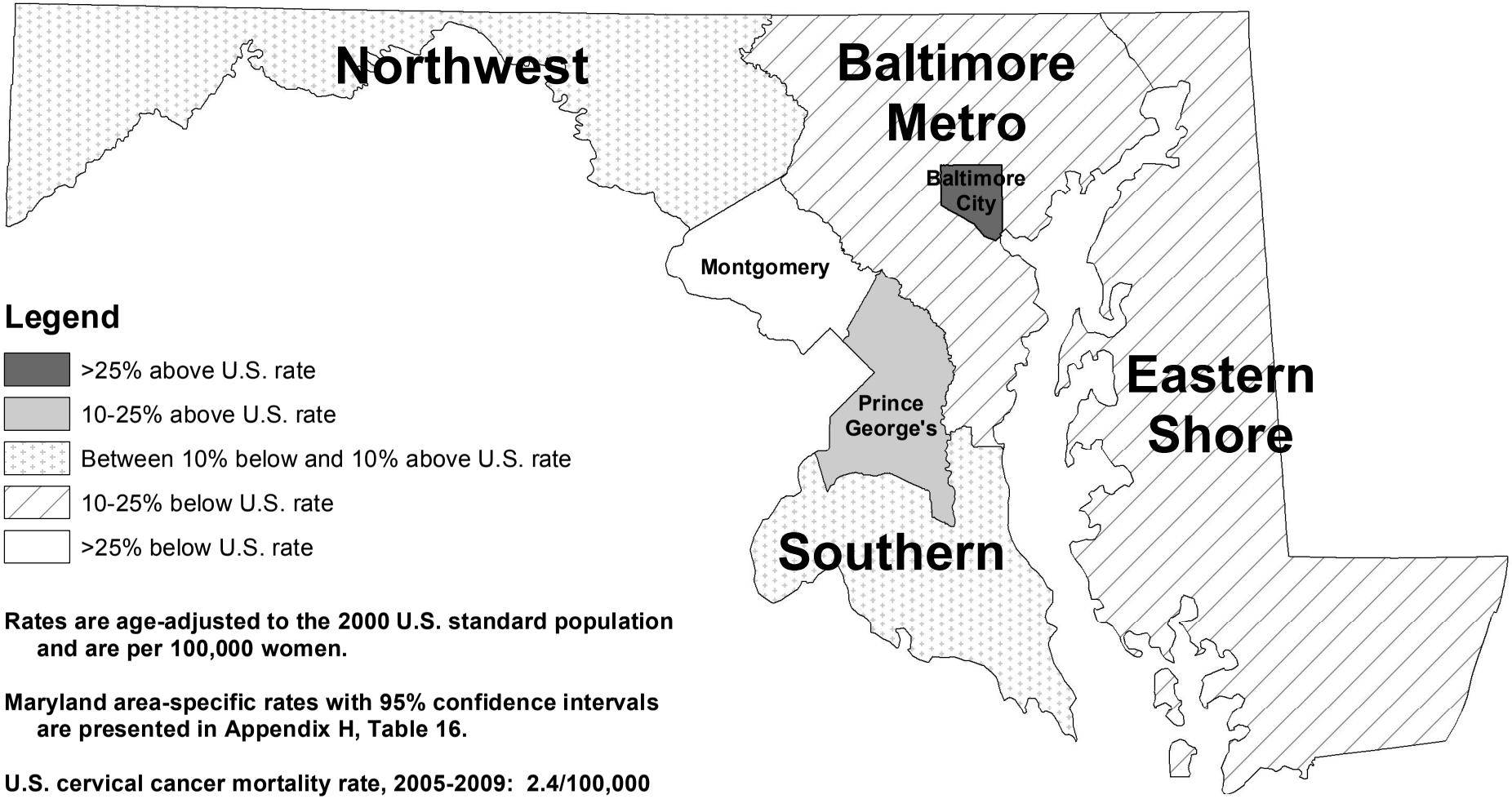
U.S. cervical cancer incidence rate, 2005-2009: 8.1/100,000

Maryland cervical cancer incidence rate, 2005-2009: 6.9/100,000

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat

Note: Regional rates are presented when one or more counties within the region have a suppressed rate.

Maryland Cervical Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2005-2009



Legend

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate

Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 women.

Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 16.

U.S. cervical cancer mortality rate, 2005-2009: 2.4/100,000

Maryland cervical cancer mortality rate, 2005-2009: 2.3/100,000

Source: MD mortality rates from Maryland Vital Statistics Administration from MATCH, 2005-2009
U.S. rate from SEER, Cancer Statistics Review, 2005-2009

Note: Regional rates are presented when one or more counties within the region have a suppressed rate.

Appendix A

Cigarette Restitution Fund
Cancer Report Requirements

Cigarette Restitution Fund Cancer Report Requirements

The Maryland General Assembly established the Cigarette Restitution Fund (CRF) to provide for the distribution of funds from the tobacco settlement (House Bill 1425, Chapter 17 of the Acts of 2000 and Senate Bill 896, Chapter 18 of the Acts of 2000). The law created the Tobacco Use Prevention and Cessation Program and the Cancer Prevention, Education, Screening and Treatment Program, and provides parameters on how the funds may be spent. One provision of the law requires the Maryland Department of Health and Mental Hygiene (DHMH) to conduct a baseline cancer survey (2000) as well as cancer surveys at least every other year thereafter.

The law requires that the survey include:

(1) The number and percentage of individuals who have each targeted cancer, both Statewide and in each county;
(2) The number and percentage of individuals within each minority population who have each targeted cancer, both Statewide and in each county;
(3) The mortality rate for each targeted cancer, both Statewide and in each county;
(4) The mortality rate for the different minority populations for each targeted cancer, both Statewide and in each county;
(5) The number of identifiable cancers with a high incidence in the State for which there are effective methods of prevention and early detection, and treatment after detection;
(6) Any aspect of targeted and non-targeted cancers that DHMH seeks to measure; and
(7) Any other factor that DHMH determines to be important for measuring rates of cancer in the State or for evaluating whether the program meets its objectives.

This information is provided in this Cancer Report as follows:

Required Component of the Cancer Report	***Location of Information in this Report***
1. Number and percentage of individuals having each targeted cancer, both Statewide and in each jurisdiction.	Tables 1, 2, 3, 4, 7, 8, 11, 12, 13, 16, 17, 20, 21, 22, 25, 26, 29, 30, 31, 34, 35, 38, 39, 40, 43, 44, 47, 48, 49, 52, 53, 56, 57, 58, 61, 62, 65, 66, 67, 70, 71
2. Number and percentage of individuals within each minority population having each targeted cancer, both Statewide and in each jurisdiction.	Same as above.
3. Mortality rate for each targeted cancer, both Statewide and in each jurisdiction.	Tables 1, 5, 6, 9, 10, 11, 14, 15, 18, 19, 20, 23, 24, 27, 28, 29, 32, 33, 36, 37, 38, 41, 42, 45, 46, 47, 50, 51, 54, 55, 56, 59, 60, 63, 64, 65, 68, 69, 72, 73
4. Mortality rate for the different minority populations for each targeted cancer, both Statewide and in each county.	Same as above.
5. Number of identifiable cancers with a high incidence in the State for which there are effective methods of prevention and early detection, and treatment after detection.	High incidence and effective prevention: Lung cancer: Tables 11, 12, 13, 16, 17 High incidence and effective detection: Colorectal and breast cancer: Tables 20, 21, 22, 25, 26, 29, 30, 31, 34, 35

6. Other aspects of targeted and non-targeted cancers that DHMH seeks to measure.	For all cancer sites and for each targeted cancer, the report: 1. Compares Maryland incidence and mortality rates to that of the U.S. 2. Delineates incidence and mortality trends by race. 3. Shows 5-year mortality trends and 5-year combined data. 4. Presents 5-year incidence trends and 5-year combined data. 5. Tracks stage of disease at diagnosis over a 5-year period. 6. Lists appropriate objective(s) and target(s) showing trend data for each targeted cancer and identifies Maryland's progress in meeting the respective objective(s). 7. Describes the evidence for screening, primary prevention and chemoprevention for each targeted cancer, based on current scientific literature. 8. Describes the recommended public health intervention for each targeted cancer based on the evidence referenced above. This information is located throughout the report.
7. Other factors that DHMH determines to be important for measuring rates of cancer in the State or for evaluating whether the program meets its objectives.	Same as above.

Appendix B

Cancer Report Format

Cancer Report Format

1. Selection of Targeted Cancers

Under the Cigarette Restitution Fund (CRF) Program, Cancer Prevention, Education, Screening and Treatment (CPEST) Program, the Maryland Department of Health and Mental Hygiene targeted seven cancer sites: lung and bronchus, colon and rectum, female breast, prostate, oral, melanoma of the skin, and cervix. These cancers have been targeted because they can be prevented (lung and bronchus and melanoma of the skin) or detected early and treated (colon and rectum, female breast, cervical, and oral), or are a major cause of cancer death (prostate).

2. Report Format

Information provided in this report focuses on all cancer sites reported in Maryland and the seven specific cancer sites targeted by the CPEST Program. The main body of the 2012 CRF Cancer Report focuses on the most recent data (2009 and 5-year combined data for the period 2005-2009).

Section I of the 2012 CRF Cancer Report is an Executive Summary, including an introduction to the report, highlights of major findings for each cancer, and a brief description of major changes to this report from the last (2010) CRF Cancer Report.

Section II of the report describes overall cancer incidence and mortality in Maryland for all cancer sites combined. This section includes graphs comparing long-term trends (2000-2009) in overall cancer incidence and mortality rates for Maryland and the U.S.; 5-year incidence and mortality trends (2005-2009) for all cancer sites (overall and by race); and trends in stage for all cancers diagnosed in Maryland (2005-2009).

Section III presents cancer incidence and mortality data for the seven cancers targeted under the Cigarette Restitution Fund Program. Each chapter includes a comparison of the Maryland 2009 incidence and mortality rates (with 95% confidence intervals [95% C.I.]) and U.S. rates in the overview text and table. Maryland mortality rankings among the 50 states and the District of Columbia, based on 5-year mortality rates, are also described. Graphics are included in each chapter to depict the following: Trends in cancer incidence and Maryland mortality rates for the 5-year period 2005-2009; 5-year trends in cancer incidence and mortality rates by race (gender used for melanoma); 5-year trends in cancer stage at time of diagnosis; and prevalence of cancer screening and cancer-risk behaviors in Maryland compared to Healthy People 2020 targets or Maryland Comprehensive Cancer Control Plan 2015 targets. Public health evidence and recommended areas for public health intervention are also described for each targeted cancer. The number of new cancer cases, number of cancer deaths, and age-adjusted cancer incidence and mortality rates for each cancer are tabulated by gender, race, and jurisdiction for 2009 and for the 5-year period 2005-2009. All rates are age-adjusted to the 2000 U.S. standard population. Maps included in each cancer chapter display Maryland incidence and

mortality rates compared to corresponding U.S. rates for the combined years 2005-2009, by geographical area (see Appendix H for map data).

Appendix A describes the legal basis for the Cancer Report and includes a crosswalk between each required component and its location in this report. Appendix C describes the sources of data used to prepare the 2012 Cancer Report and specific data considerations (e.g., data confidentiality and statistical methods). A glossary of terms used in the 2012 Cancer Report is included as Appendix D. Maryland population estimates for 2009, by race and gender, are presented in Appendix E. The population data in these tables can be used as denominators for calculating crude incidence and mortality rates. Appendix F depicts the 2000 U.S. standard population organized by age groupings. Appendix G contains a listing of International Classification of Diseases for Oncology (ICD-O-3) codes for incidence, along with corresponding ICD-10 codes for mortality for the cancer sites included in the report. Appendix H presents age-adjusted incidence and mortality rates with 95% confidence intervals, by Maryland geographical area (state, region, and county). Appendix I tables display trends in cancer incidence and mortality rates, by cancer site and race (gender used for melanoma), over the 5-year period (2005-2009). Appendix J tables show the distribution of cancer stage at diagnosis for all cancer sites and the targeted cancers, by year, from 2005 to 2009. Appendix K tables depict trends in incidence and mortality rates for all cancer sites from 2000 to 2009 in Maryland and the U.S.

Appendix C

Cancer Report Data Sources, References, and Data Considerations

2012 Cigarette Restitution Fund (CRF) Cancer Report
Data Sources, References, and Data Considerations

I. DATA SOURCES

Data and information presented in the 2012 Cigarette Restitution Fund (CRF) Cancer Report were obtained from a variety of sources, including:

- Maryland Department of Health and Mental Hygiene (DHMH)
  - Center for Cancer Prevention and Control
  - Center for Chronic Disease Prevention and Control
  - Center of Tobacco Prevention and Control
  - Vital Statistics Administration
  - Maryland Assessment Tool for Community Health (MATCH)
- National Cancer Institute (NCI, part of the National Institutes of Health)
- Centers for Disease Control and Prevention (CDC)
- Office of Disease Prevention and Health Promotion at the U.S. Department of Health and Human Services

These sources and the types of information provided for the 2012 CRF Cancer Report are described in the following sections.

A. Cancer Incidence and Stage Data

1. Maryland Cancer Registry

The Maryland Cancer Registry (MCR), Center for Cancer Prevention and Control, DHMH, is the source for all Maryland-specific cancer incidence and cancer stage data used in this report. The MCR is a computerized data system that registers (i.e., collects and consolidates reports) all new cases of reportable cancers (excluding non-genital squamous cell or basal cell skin cancer) that are diagnosed or treated in Maryland and reported to the MCR. Incidence rates used in this report were calculated using cases reported to the MCR as of February 7, 2012, for diagnosis year 2009.

The Maryland cancer reporting law and regulations mandate the collection of cancer information from hospitals, radiation therapy centers, diagnostic pathology laboratories licensed in Maryland, freestanding ambulatory care facilities, surgical centers, and physicians whose non-hospitalized cancer patients are not otherwise reported. MCR also participates in data exchange agreements with 13 other states/jurisdictions, including Delaware, Pennsylvania, Virginia, West Virginia, and the District of Columbia. Information on Maryland residents diagnosed or treated for cancer in these jurisdictions is included in this report. Note: The 2006 case counts included in this report in 2005-2009 data for Montgomery and Prince George's counties are underreported by approximately 8% and 6% respectively for all cancer sites combined due to delay in case reporting. Cancers reported to the MCR after the annual cutoff date are not included in the MCR official Maryland case counts and rates. The case undercounts resulted in slightly lower than actual age-adjusted incidence rates for Montgomery and Prince

George's counties, for the National Capital geographic region, and to a lesser degree, for Maryland, for 5-year period 2005-2009.

2. Surveillance, Epidemiology, and End Results Program (SEER)

The Surveillance, Epidemiology, and End Results (SEER) Program, managed by the NCI, is an authoritative source of information on cancer incidence, stage, and survival in the U.S. SEER incidence rates representative of the U.S. are used in the 2012 CRF Cancer Report for comparisons with Maryland incidence rates.

The SEER Program, which began in 1973, collects, analyzes, and publishes cancer incidence and survival data from population-based cancer registries participating in the program. In 1992, the SEER Program was expanded to increase representation of minority and rural low-income populations including Hispanics, American Indian populations, and rural African Americans (creating the SEER 13 registry database). The SEER Program further expanded coverage in 2001 and 2010. Since 2000, SEER incidence data have been collected from 17 SEER registries throughout the U.S. (SEER 17 registry database) and covers approximately 28% of the U.S. population. The SEER Program includes select geographic areas based on their ability to operate and maintain a high quality population-based cancer reporting system and for their epidemiologically significant population subgroups. The population covered by SEER is comparable to the general U.S. population with regard to measures of poverty and education. The SEER population tends to be somewhat more urban and has a higher proportion of foreign-born persons than the general U.S. population.

SEER 17 incidence data are used in this report for comparisons with the most recent Maryland data (2005-2009) because they provide the broadest population coverage that is currently available. All SEER incidence rates were obtained by the MCR from SEER*Stat (version 7.0.5), a statistical software tool for the analysis of SEER and other cancer-related databases. Additional information about SEER can also be found at www.seer.cancer.gov.

The Maryland population estimates for 2009 presented in Appendix E were obtained from SEER*Stat.

B. Cancer Mortality Data

The Maryland mortality data for 2009 and the 5-year aggregate data (2005-2009) in the report, with the exception of colorectal cancer (CRC), are from MATCH that obtains data from the Maryland Vital Statistics Administration. CRC mortality data were obtained directly from the Maryland Vital Statistics Administration due to the different definition of CRC in MATCH, which includes anal cancer. MATCH is an interactive online database sponsored by the DHMH Cancer and Chronic Disease Bureau, Center for Chronic Disease Prevention and Control, which features statistics for Maryland resident health events. County level births, deaths, population estimates and hospitalizations can be obtained through a query of the MATCH online database. MATCH was developed in

partnership with the Maryland Vital Statistics Administration and the Maryland Health Care Commission. It can be accessed at http://www.matchstats.org. The official annual reports from the Maryland Vital Statistics Administration can be obtained online at http://dhmh.maryland.gov/vsa/SitePages/reports.aspx. Note: The definition of lung and bronchus cancer in MATCH includes trachea. Comparisons can still be made between the different data sources for lung and bronchus cancer due to the small number of deaths due to cancer of the trachea over the period 2005-2009 (<5 deaths in 2009 and 5 deaths for 2005-2009).

The Maryland mortality data through 2007 and the U.S. mortality data through 2008 presented in this report were obtained from the National Center for Health Statistics (NCHS) Compressed Mortality Files (CMF) in the Centers for Disease Control and Prevention (CDC) Wide-ranging Online Data for Epidemiologic Research (WONDER) system. CDC WONDER is an easy-to-use web-based system that makes information from CDC available to public health professionals and the public at large. It provides access to a wide array of public health information, including resources for Healthy People (HP) 2020 targets (see Section C.4. of this appendix) and cancer mortality data. The U.S. mortality rates for single year 2009 and 5-year aggregate data (2005-2009) were obtained from SEER, Cancer Statistics Review (CSR), which are provided by NCHS.

The NCHS CMF is a county-level national mortality and population database spanning the years 1979-2008. The number of deaths, crude death rates, and age-adjusted death rates can be obtained by place of residence (total U.S., state, and county), age group, race, gender, year of death, and underlying cause of death (based on International Classification of Diseases [ICD] code or group of codes). Mortality data presented in this report for the individual years 2000 to 2007 for Maryland and 2000 to 2008 for U.S. were obtained from the 1999-2008 CMF using ICD Tenth Revision (ICD-10) codes.

C. Behavioral and Risk Factor Data

The 2012 CRF Cancer Report includes data on the prevalence of cancer screening and prevalence of various risk factors for cancer (e.g., smoking) in Maryland. These data are obtained from several different sources, as described below.

1. Maryland Behavioral Risk Factor Surveillance System (BRFSS)

The Maryland Behavioral Risk Factor Surveillance System (BRFSS) is used for the 2012 CRF Cancer Report as a source of data on the prevalence of cancer screening (e.g., mammograms) and cancer risk behaviors (e.g., tobacco use) in Maryland. The BRFSS is an annual telephone survey conducted on a random sample of Maryland adult residents. This survey, managed by the Maryland DHMH Prevention and Health Promotion Administration, Center for Chronic Disease Prevention and Control, provided risk behavior and cancer screening information for this report. Maryland data can be accessed online at http://www.marylandbrfss.org. In addition, both Maryland and state-aggregated national data on health risk behavior can be obtained from the CDC BRFSS website at http://www.cdc.gov/brfss.

2. Maryland Youth Tobacco Survey

Data from the Maryland Youth Tobacco Survey (MYTS) are used in the CRF Cancer Report to monitor trends in tobacco use (as a risk factor for lung cancer) by Maryland youth. The MYTS, managed by the DHMH Cancer and Chronic Disease Bureau, Center of Tobacco Prevention and Control, is administered to gather information regarding attitudes, usage, and exposure to tobacco products among public middle and high school students Statewide and within each of Maryland's 23 counties and Baltimore City. Survey results are also used in apportioning Local Tobacco Use Prevention and Cessation grants among Maryland's 24 major political subdivisions. To date, the MYTS has been conducted in 2000, 2002, 2006, 2008, and 2010. Published survey reports are available on the DHMH website at http://crf.maryland.gov/tobacco_behaviors.cfm. Additional information can be obtained from the Center for Health Promotion, Education, and Tobacco Use Prevention at 410-767-1362.

3. Maryland Cancer Survey

The Maryland Cancer Survey (MCS) is a biennial survey managed by the DHMH Center for Cancer Prevention and Control, Surveillance and Evaluation Unit. The purpose of the MCS is to determine cancer screening rates and to measure cancer risk behaviors among persons age 40 years and older living in Maryland, for selected cancers targeted by DHMH. Completed surveys are available for 2002, 2004, 2006, and 2008. MCS data are used in the 2012 CRF Cancer Report to supplement BRFSS data on prevalence of cancer screening and cancer risk behaviors among adults age 40 years and older in Maryland.

Some charts in this report include both MCS and Maryland BRFSS data, as a basis for comparison with HP 2020 targets. Caution should be used when comparing results from the MCS and BRFSS. Although they are similar, these surveys have certain design and methodological differences, including targeted age groups, scope and timing of the surveys, and weighting. The MCS reports, including detailed information on the survey methods, are available at:
http://fha.dhmh.maryland.gov/cancer/SitePages/surv_data-reports.aspx.

4. Healthy People (HP) 2020

HP 2020 is a collaboration of local and national governmental agencies and private organizations that have developed prevention-oriented national objectives to improve the health of Americans. The HP initiative is under the Office of Disease Prevention and Health Promotion at the U.S. Department of Health and Human Services (DHHS). The overarching HP 2020 goal for cancer prevention is to "reduce the number of new cases as well as the illness, disability, and death caused by cancer." To achieve this goal, measurable objectives related to cancer screening and cancer risk behaviors were established, each with a specific quantitative target. Several of these targets are used in this CRF Cancer Report as benchmarks by which Maryland progress can be measured.

The HP 2020 objectives were released in late 2010. Additional information can be found at http://www.healthypeople.gov.

5. Maryland Comprehensive Cancer Control Plan (MCCCP)

The MCCCP is the coordinated effort of 14 committees consisting of nearly 250 individuals with the aim to develop a resource for individuals, health care providers, and organizations. The MCCCP contains goals and set targets to be met by the year 2015, which serve as a guide for health professionals who are involved in planning, directing, implementing, evaluating, or performing research on cancer control in Maryland. The MCCCP was directed by the Department of Health and Mental Hygiene with broad input from a partnership of public and private stakeholders. Several of the targets were used in the CRF Cancer Report as benchmarks by which Maryland progress can be measured when HP 2020 objectives were not available or behavior data that applied to HP 2020 were not available. Additional information can be found at: http://fha.dhmh.maryland.gov/cancer/cancerplan.

II. REFERENCES USED FOR PUBLIC HEALTH EVIDENCE AND PUBLIC HEALTH INTERVENTION SECTIONS

A. National Cancer Institute Physician Data Query (NCI PDQ)

Information provided in the individual cancer chapters under the sections for "Public Health Evidence" and "Public Health Intervention" was taken primarily from the NCI PDQ® website. While the United States Preventive Services Task Force (USPSTF) reviews its recommendations every few years, the information presented in the PDQ on cancer prevention and screening is updated more frequently and the date of the most recent revision can be found on each Web page for that topic. Prevention and screening sections from this source provide information for health professionals and the public on various aspects of cancer control such as prevention, screening, treatment, genetics, and clinical trials. For some cancer types, the information is reviewed by a scientific editorial board and is updated as new research becomes available. The PDQ Editorial Board evaluates evidence in two steps: (1) description of the evidence, and (2) assessment of the evidence. The Board conducts the same process for potential benefits and potential harms of each intervention.

Step 1: Description of the evidence
Step 1 involves evaluating the levels of evidence in five domains.

1. Study Design: study designs in order of strongest evidence to weakest evidence, are described as follows:
    a. Evidence obtained from at least one randomized controlled trial (this is considered the gold standard for scientific research);
    b. Evidence obtained from controlled trials without randomization;
    c. Evidence obtained from well-designed and conducted cohort or case-control studies, preferably from more than one center or research group;
    d. Evidence obtained from multiple time series with or without intervention; and

e. Opinions of respected authorities based on clinical experience, descriptive studies, or reports of expert committees.

2. Internal validity
3. Consistency (coherence)/volume of the evidence
4. Magnitude of effects on health outcomes (both absolute and relative risks, as quantitative as possible, may vary for different populations)
5. External validity

Step 2: Assessment of the evidence
Step 2 is a judgment of the level of certainty (solid, fair, inadequate) and is based on the Board's understanding of the direction and magnitude of the health effects (both benefits and harms) of widespread implementation.

More information about NCI PDQ can be accessed at:

Levels of evidence
http://www.cancer.gov/cancertopics/pdq/screening/levels-of-evidence

Prevention and screening/detection
http://www.cancer.gov/cancertopics/pdq/prevention
http://www.cancer.gov/cancertopics/pdq/screening

The PDQ reference is used throughout the report for consistency in interpreting the results of scientific literature and the PDQ Summary of Evidence is often quoted verbatim and sometimes paraphrased. PDQ definitions are included in Appendix D (Glossary). For additional information, the website is http://www.cancer.gov/cancertopics/pdq.

B. Maryland Department of Health and Mental Hygiene, Medical Advisory Committees for Breast, Cervical, Colorectal, Oral, and Prostate Cancers

The Center for Cancer Prevention and Control has convened four Medical Advisory Committees to formulate guidelines for breast, cervical, colorectal, and prostate cancer screening, diagnosis, and treatment. The Office of Oral Health has convened a Medical Advisory Committee to formulate guidelines for oral cancer for screening, diagnosis, and treatment. All guidelines are located at:
http://fha.dhmh.maryland.gov/cancer/SitePages/guidelines.aspx.

C. Additional Medical Literature

<u>Lung and Bronchus Cancer</u>
Centers for Disease Control and Prevention. *Best Practices for Comprehensive Tobacco Control Programs – 2007* (October 2007). National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, Atlanta, GA. http://www.cdc.gov/tobacco/stateandcommunity/best_practices/index.htm. Last accessed June 13, 2012.

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Prostate Cancer
Screening for Prostate Cancer, Topic Page. May 2012. U.S. Preventive Services Task Force. http://www.uspreventiveservicestaskforce.org/prostatecancerscreening.htm. Last accessed June 11, 2012.

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Maryland Comprehensive Cancer Control Plan. July 2011. Maryland Department of Health and Mental Hygiene. Baltimore, MD. Available at: http://fha.dhmh.maryland.gov/cancer/cancerplan/SitePages/publications.aspx. Last accessed June 13, 2012.

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U.S. Preventive Services Task Force. *Screening for Skin Cancer,* Topic Page. February 2009. http://www.uspreventiveservicestaskforce.org/uspstf/uspsskca.htm. Last accessed June 13, 2012.

Cervical Cancer
Screening for Cervical Cancer, Topic Page. April 2012. U.S. Preventive Services Task Force. http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm. Last accessed June 13, 2012.

CDC. Quadrivalent Human Papillomavirus Vaccine: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2007;56 (No. RR-02); March 23, 2007.

CDC. FDA Licensure of Bivalent Human Papillomavirus Vaccine (HPV2, Cervarix) for Use in Females and Updated HPV Vaccination Recommendations from the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2010;59(20); May 28, 2010.

III. DATA CONSIDERATIONS

A. Data Confidentiality

DHMH regards all data reported to, and received and processed by the MCR as confidential. Data are secured from unauthorized access and disclosure. The MCR manages and releases cancer information in accordance with the laws and regulations established by the State of Maryland, as set forth in the Annotated Code of Maryland, Health-General Article, §§18-203 – 204 and §4-101 et seq., and Code of Maryland Regulations, COMAR 10.14.01 (Cancer Registry).

Because incidence data and mortality data come from different sources, separate suppression procedures were employed. For the number of cancer cases collected by MCR and for incidence rates calculated using case and population data, the following protocols apply: To ensure patient confidentiality and to comply with the *MCR Data Use Policy and Procedures,* July 2008, available at: http://fha.dhmh.maryland.gov/cancer/SitePages/mcr_data.aspx, cells with counts of 1-5 cases are suppressed and presented as "<6." Complementary suppression of case counts in additional cell(s) is used, denoted by "s," to prevent back-calculation of numbers in those cells with primary suppression. Incidence rates based on 15 or fewer (non-zero) cases are presented with asterisks (**) because the rates are unstable and do not provide reliable information.

Mortality data for the report were from the Maryland Vital Statistics Administration; either directly from the Maryland Vital Statistics Administration or from the web-based interactive data query database MATCH (see Section I.B above). ICD-10 codes listed in Appendix G of this report were used for identifying type of cancer for extraction. Data obtained from MATCH are subject to Maryland Vital Statistics Administration data use restrictions, which differ slightly from those of the *DHMH/MCR Data Use Policy* used for incidence data. To ensure that individual identity is protected in the use and re-release of mortality data from the Maryland Vital Statistics Administration, including MATCH, and WONDER, and that reliable mortality rates are presented in this and other CCPC publications, the DHMH Center for Cancer Prevention and Control (CCPC) developed the *Mortality Data Suppression Policy* (September 2011). In accordance with this policy, the following protocols are applied to mortality data in this report: Death counts of 1-4 are suppressed, and denoted by "<5." Complementary suppression of death counts in additional cell(s) is used, as denoted by the letter "s," to prevent back-calculation of numbers in cells with primary suppression. Age-adjusted mortality rates

based on counts less than 20 (i.e., 0-19 deaths) are suppressed (denoted by ** symbol) because the rates are unstable and do not provide reliable information. This threshold is more stringent than the criteria used in the *DHMH/MCR Data Use Policy* for incidence rate suppression.

B. Gender

Gender is reported to the MCR as: a) male; b) female; c) hermaphrodite; d) transsexual; and e) unknown (not stated). The totals shown in the count for number of cancer cases may not equal the sum of males and females because of cases in these other gender categories.

C. Rate Analysis

Individual year incidence rates for 2009 presented in this report were calculated using Maryland resident cancer cases diagnosed from January 1 through December 31 of that year, and reported to the MCR as of February 7, 2012. The individual year mortality data (2009) consist of deaths that occurred between January 1 and December 31 of that year. Multiple year incidence rates presented were calculated for 5-year collapsed rates using MCR 2005-2009 data. Corresponding mortality rates were extracted from MATCH; CRC rates were obtained directly from the Maryland Vital Statistics Administration, as 5-year combined data from 2005-2009.

Age-adjustment, also called age-standardization, is one of the tools used to control for the different and changing age distributions of the population in states, counties, etc., and to enable meaningful comparisons of vital rates over time. Age-adjusted rates do not include cancer cases on which age has not been reported. Federal agencies have adopted the year 2000 U.S. standard population as the standard for age-adjusting incidence and mortality rates. For consistency and ease of comparison, incidence and mortality rates in this report were calculated and age-adjusted using the 2000 U.S. standard population. Additional information on age-adjustment can be found at: http://www.cdc.gov/nchs/data/statnt/statnt20.pdf.

The Annual Percent Change (APC) is calculated for incidence and mortality trends and for tracking incidence and mortality rates by race and gender over time. See Appendix D, Glossary, for the definition of APC.

D. Confidence Intervals and Statistical Significance

Age-adjusted rates for specific geographic areas (e.g., U.S., states, regions, counties) can be compared to determine whether differences in incidence or mortality exist between those areas. However, incidence and mortality rates, particularly those based on small numbers of events (cases or deaths) or small population sizes, can be highly variable from year to year. The rate from one year may not be typical of the usual rate for a geographic area when compared to other years. For this reason, two rates cannot simply be compared side-by-side to determine whether they are statistically significantly

different. Confidence intervals are useful in defining a range within which the typical rate for a geographic area can be expected to lie.
A confidence interval is used to describe the range of uncertainty around a point estimate (e.g., an incidence or mortality rate) and serves as an indicator of the precision or stability of a rate. Most confidence intervals are, by convention, calculated at the 95% level; at this level, there is a 95% probability that the interval covers the true value. The smaller the number of events upon which a rate is based, the wider the confidence interval will be.

Confidence intervals for incidence and mortality rates are included in this report to facilitate comparisons between rates, such as the comparison of Maryland rates to U.S. rates. Confidence intervals for Maryland and SEER 17 incidence rates, provided by the MCR, are developed from the SEER*Stat software. Confidence intervals for mortality rates were generated as part of the query of MATCH. The following formula can also be used to approximate the 95% confidence interval for age-adjusted rates:

$$\text{Lower limit} = R - [1.96\ (R/\sqrt{n})]$$

$$\text{Upper limit} = R + [1.96\ (R/\sqrt{n})]$$

R = age-adjusted cancer incidence or mortality rate
n = number of events (cancer cases or deaths)

When the confidence intervals around two rates (e.g., state and county rates) do not overlap, it can be stated with 95% confidence that the two rates are statistically significantly different. For example, Maryland's 2009 colorectal cancer (CRC) incidence rate was 38.0 per 100,000, with a confidence interval of 36.4-39.6. The 2009 U.S. SEER-reported CRC incidence rate was 43.5 per 100,000 population, with a 95% confidence interval of 43.0-43.9. Since these confidence intervals do not overlap, the two rates are considered to be statistically significantly different (i.e., the difference between these rates is more than that expected by chance).

If the two confidence intervals overlap and if the rate for one area is included in the confidence interval of the other rate, then the rates are not statistically significantly different. However, when there is overlap in the confidence intervals for two rates, and the rate for the comparison area is not included in the interval for the rate of interest, the two rates may or may not be statistically significantly different. In this situation, statistical testing methods described by the North American Association of Central Cancer Registries (NAACCR), Cancer in North America (May 2010) are used in this report to determine whether the differences between the two rates are statistically significant. An approximate confidence interval for the rate ratio of two age-adjusted rates can be calculated using the following formula:

$(R_1/R_2)^{1 \pm z/x}$

where,
R_1 and R_2 are the age-adjusted rates being compared;
SE_1 and SE_2 are the standard errors for the respective rates;
z = 1.96 for 95% limits; and
$x = (R1-R2)/\sqrt{(SE_1^2 + SE_2^2)}$

If the confidence interval for the rate ratio includes the value of one, then the two rates are not statistically significantly different (p-value greater than 0.05).

In this report, when two rates are not statistically significantly different, they are described as being "similar."

E. National Comparison Data

Maryland (statewide) and county incidence and mortality rates are compared to U.S. SEER incidence and mortality rates (see Sections I.A and I.B).

Data used for Maryland cancer mortality ranking by site are from SEER, CSR, which are based on NCHS mortality data. Maryland's mortality ranking among the 50 states and the District of Columbia for all cancer sites combined and for specific targeted cancers is based on a 5-year average (2005-2009) of age-adjusted rates. Because mortality rates describe the cancer burden better than incidence rates, only Maryland rankings for mortality are presented for each targeted cancer.

Maps in this report display comparisons of Maryland incidence and mortality rates, by geographical area, to U.S. rates. For both incidence and mortality rate maps, the 5-year (2005-2009) U.S. rate was used as a basis for comparison with rates for Maryland jurisdictions (counties and regions). A ramp is used for grouping Maryland data into categories in reference to U.S. rates. The ramp groups data into five divisions: >25% above U.S. rate; 10-25% above U.S. rate; between 10% below and 10% above U.S. rate; 10-25% below U.S. rate; and >25% below U.S. rate. Note that 10-25% includes the 10% and 25%, but less than 10% and more than 25% do not include the endpoints of the range. Where 5-year incidence or mortality rates for any given jurisdiction are suppressed due to a small number of cases or deaths, aggregated regional rates for the affected area are used in lieu of county rates as a basis for comparison in maps.

F. Race and Hispanic Ethnicity

The MCR began requiring submission of more detailed data on race and ethnicity in August 1998. Incidence data provided by the MCR for this report include the following race categories: White, Black, and Other. The "Other" race category includes cases reported as American Indian or Alaska Native, Asian or Pacific Islander, and any other

race category except those cases with unknown or missing race. The MCR uses the National Cancer Institute SEER*Stat software to compile incidence data.

Hispanic ethnicity is captured in a separate data field. Data presented in Table 4 are derived using the NAACCR Hispanic Identification Algorithm. This algorithm uses a combination of NAACCR variables to classify cases as Hispanic. In Table 5, "Hispanic" includes people reported to the MCR as Spanish/Hispanic origin plus those with "derived" Hispanic origin. The derivation is an algorithm based on the person's surname (last or maiden name) and their place of birth, race, and sex.

Mortality data (death counts and rates) in this report were obtained from the NCHS CMF in CDC WONDER, SEER, CSR and the Maryland Vital Statistics Administration. Race data in the CMF are based on information collected on death certificates. CDC WONDER reports race in four categories (White, Black, Asian or Pacific Islander, and Native American or Alaska Native). NCHS, in collaboration with the Census Bureau, developed a race-bridging methodology for assigning multiple-race groups to single-race categories. The Maryland Vital Statistics Administration reports race in the same four categories as CDC WONDER, along with an additional category "All Other Races." The category of "Other" races in this report includes the American Indian or Alaska Native race category, the Asian or Pacific Islander race category, and the All Other Races category.

U.S. mortality data from SEER, CSR are reported with only two race categories (White and Black). As a result, single year 2009 and 5-year aggregate data (2005-2009) obtained from SEER,CSR only report U.S. mortality for Whites and Blacks.

G. Healthy People 2020 Targets

In the CRF Cancer Report, quantitative HP 2020 targets are compared to Maryland data related to cancer risk behaviors and adherence to cancer screening recommendations (see Section I.C.4). Specifically, HP 2020 targets are compared to data from the Maryland BRFSS and the MCS. The data from these Maryland surveys are weighted to the age, race, and gender of the Maryland population. Unlike the national data that serve as the basis for HP 2020 targets, Maryland BRFSS and MCS data are not age-adjusted to the 2000 U.S. standard population.

Furthermore, the target setting method used for the HP 2020 objective for sun exposure protection was a 10% improvement from the national baseline in 2008 using data from the National Health Interview Survey (NHIS). The questions used to define sun protective measures used slightly differed from the questions used by the Maryland BRFSS, although the information gathered by both surveys are similar. Therefore, one could use the sun exposure protection data from the Maryland BRFSS to compare to the HP 2020; however, one should be aware of the different measures used for data gathering.

H. Appendices

Please refer to additional appendices for:

- Cigarette Restitution Fund Cancer Report Requirements (Appendix A)
- Cancer Report Format (Appendix B)
- Glossary (technical terms and definitions; Appendix D)
- Maryland Population Estimates, 2009 (Appendix E)
- U.S. Standard Population, 2000 (Appendix F)
- Definitions of International Classification of Diseases (ICD) Codes Used for Cancer Incidence and Mortality (Appendix G)
- Maryland Cancer Incidence and Mortality Rates by Geographical Area, 2005-2009 (Appendix H)
- Trends in Cancer Incidence and Mortality Rates in Maryland by Cancer Site, Race or Gender, and Year, 2005-2009 (Appendix I)
- Trends in Cancer Stage of Disease at Diagnosis in Maryland by Cancer Site and Year, 2005-2009 (Appendix J)
- Trends in All Cancer Sites Incidence and Mortality Rates in Maryland and U.S. by Year, 2000-2009 (Appendix K)

Appendix D

Glossary

Glossary

- **Age-adjustment:** Age is the most important risk factor for the incidence of most cancers. Cancer rates derived from populations that differ in underlying age structure are not comparable. Age-adjustment is a statistical technique that allows for the comparison of rates among populations having different age distributions, by weighting the age-specific rates in each population to one standard population. Additional information on age-adjustment can be found on the following Web sites:
  http://seer.cancer.gov/seerstat/tutorials/aarates/definition.html
  http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

- **Annual Percent Change (APC):** APC is a measure of the annual percent increase or decrease in cancer rates over time and is used for analyzing trends. This measure assumes that cancer rates change at a constant percentage of the rate of the previous year. Rates that change at a constant percentage every year change linearly on a log scale. A more detailed description of the method can be found at:
  http://surveillance.cancer.gov/joinpoint/aapc.html.

- **Ascertainment:** Ascertainment refers to the quality assurance procedures that Maryland Cancer Registry staff use to ensure completeness of cancer cases in the registry database. These activities include: a review of disease indices from all reporting hospitals to identify possible missed cases; a random sample of records from reporting facilities; and review of death certificate data to identify cancer cases not previously reported.

- **Cancer:** Cancer is a disease characterized by the uncontrolled, abnormal growth of cells in different parts of the body that can spread to other parts of the body.

- **Chemoprevention:** Chemoprevention is the use of drugs, vitamins, or other agents to try to reduce the risk of cancer or to delay the development or recurrence of cancer.

- **Confidence Interval (CI):** A confidence interval is the range of values for a calculated estimate that will include the true value a given percentage of the time. A 95% CI for a rate includes the true rate 95% of the time.

- **Incidence:** Incidence is the number of new cases of a given cancer or other event during a defined period, usually one year. For the purpose of this report, cancer incidence refers to the number of new cases diagnosed during individual calendar year 2009. Cancer incidence data are also presented in aggregated form as the average annual incidence for the 5-year period from 2005 through 2009.

- **International Classification of Diseases (ICD):** The ICD is the international standard diagnostic classification for all general epidemiological, health management and clinical use. It is used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and health records.

- **International Classification of Diseases for Oncology (ICD-O):** The ICD-O is the classification system used by tumor or cancer registries to code the site and the histology of the cancer, usually from a pathology report.

- **Invasive cancer:** Invasive cancer is a stage of cancer in which cancer cells have spread to healthy tissue adjacent to the tumor. It may still be considered localized if it has not spread to other parts of the body. Stage data presented in this report involve a diagnosis of invasive cancer: localized, regional, or distant. A diagnosis "in situ" is noninvasive and is not included in the staging data.

- **Mortality:** Mortality refers to the number of deaths during a defined time, usually one year. For the purposes of this report, cancer mortality data are presented for individual calendar year 2009. Data for cancer mortality are also presented in an aggregated form, as the average annual mortality for the 5-year period from 2005 through 2009.

- **Primary prevention:** Primary prevention is preventing cancer before it has developed, such as through avoiding carcinogens (e.g., avoiding tobacco), promoting a healthy lifestyle through exercise and diet, preventing the harmful effects of carcinogens (e.g., using sunscreen), and detecting and removing precancerous lesions (e.g., removing polyps in the colon).

- **Race bridging:** Race bridging refers to the process of making data collected using one set of race categories consistent with data collected using a different set of race categories. This consistency allows estimation and comparison of race-specific statistics at a given point in time or over a period of time. More specifically, race bridging is a method used to make systems sufficiently comparable to permit estimation and analysis of race-specific statistics. Race-bridging algorithms are generally applied to population data, which are used in this report for calculating rates and for describing race categories of Maryland population estimates (see Appendix E).

- **Rate:** A rate is an estimate of the burden of a given disease on a defined population at risk over a specified period of time. A crude rate is calculated by dividing the number of cases or deaths (events) by the population at risk during a given time period. Cancer incidence and mortality rates are usually presented per 100,000 population during a given time period. An incidence rate is the number of new cases during a specific period (usually one year) divided by the population at risk per 100,000 population. A mortality rate is the number of deaths for a given period divided by the population at risk per 100,000 population. All rates presented in this report are age-adjusted to the 2000 U.S. standard population.

- **Region:** The following are regional categories in Maryland.

  <u>Baltimore Metropolitan Area</u>
  Anne Arundel, Baltimore City, Baltimore County, Carroll, Harford, Howard

  Note: The Baltimore Metropolitan Area does not include Baltimore City when used in Appendix H and for the incidence and mortality maps.

Eastern Shore Region
Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, Worcester

National Capital Area
Montgomery, Prince George's

Northwest Region
Allegany, Frederick, Garrett, Washington

Southern Region
Calvert, Charles, Saint Mary's

- **Screening:** Screening is checking for disease when there are no symptoms, resulting in detection of pre-cancer, or cancer in situ or at an early stage.

- **Stage at Diagnosis:** Cancer stage is the extent to which the cancer has spread from the organ of origin at the time of diagnosis. The stage information used in this report is based on the SEER Summary Stage Guidelines:

    1. **In situ:** the cancerous cells have not invaded the tissue basement membrane and no stromal invasion. In situ cancers are not considered malignant (with the exception of bladder cancers) and are not included in incidence rate calculations.
    2. **Localized:** the tumor is confined to the organ of origin.
    3. **Regional:** the tumor has spread to adjacent organs or tissue. Regional lymph nodes may also be involved.
    4. **Distant:** the tumor has spread beyond the adjacent organs or tissues. Distant lymph nodes, organs and/or tissues may also be involved.
    5. **Unstaged:** the stage of disease at diagnosis was unable to be classified (often due to insufficient information) or was not reported to the cancer registry.

Appendix E

Maryland Population Estimates, 2009

Maryland Population Estimates by Jurisdiction, 2009

	Total All Genders	Total Males	Total Females	Total Whites	White Males	White Females	Total Blacks	Black Males	Black Females
Maryland	**5,699,478**	**2,763,806**	**2,935,672**	**3,630,268**	**1,789,244**	**1,841,024**	**1,726,477**	**809,212**	**917,265**
Baltimore Metropolitan Area	**2,642,928**	**1,273,081**	**1,369,847**	**1,728,445**	**847,447**	**880,998**	**789,722**	**365,260**	**424,462**
Anne Arundel County	521,209	258,780	262,429	415,711	207,149	208,562	84,568	41,657	42,911
Baltimore City	637,418	296,904	340,514	213,216	104,331	108,885	407,598	184,637	222,961
Baltimore County	789,814	375,580	414,234	543,755	261,028	282,727	206,436	94,994	111,442
Carroll County	170,089	84,191	85,898	159,257	78,817	80,440	7,234	3,701	3,533
Harford County	242,514	118,743	123,771	204,019	100,337	103,682	31,651	15,254	16,397
Howard County	281,884	138,883	143,001	192,487	95,785	96,702	52,235	25,017	27,218
Eastern Shore Region	**439,976**	**214,855**	**225,121**	**358,666**	**175,570**	**183,096**	**74,404**	**35,848**	**38,556**
Caroline County	33,367	16,360	17,007	27,974	13,808	14,166	4,912	2,304	2,608
Cecil County	100,796	49,899	50,897	92,854	46,049	46,805	6,396	3,119	3,277
Dorchester County	32,043	15,162	16,881	22,611	10,845	11,766	9,041	4,133	4,908
Kent County	20,247	9,628	10,619	16,723	8,029	8,694	3,329	1,496	1,833
Queen Anne's County	47,958	23,791	24,167	43,135	21,481	21,654	4,090	1,972	2,118
Somerset County	25,959	13,915	12,044	14,687	7,503	7,184	10,920	6,244	4,676
Talbot County	36,262	17,320	18,942	30,680	14,682	15,998	5,051	2,364	2,687
Wicomico County	94,222	44,998	49,224	68,924	33,127	35,797	23,188	10,783	12,405
Worcester County	49,122	23,782	25,340	41,078	20,046	21,032	7,477	3,433	4,044
National Capital Area	**1,806,160**	**873,259**	**932,901**	**886,571**	**441,511**	**445,060**	**732,093**	**341,326**	**390,767**
Montgomery County	971,600	470,947	500,653	649,791	317,729	332,062	175,165	82,660	92,505
Prince George's County	834,560	402,312	432,248	236,780	123,782	112,998	556,928	258,666	298,262
Northwest Region	**475,977**	**238,174**	**237,803**	**420,301**	**207,038**	**213,263**	**42,282**	**24,619**	**17,663**
Allegany County	72,532	36,794	35,738	66,794	32,568	34,226	5,060	3,894	1,166
Frederick County	227,980	112,667	115,313	196,045	97,003	99,042	21,966	10,839	11,127
Garrett County	29,555	14,601	14,954	29,149	14,379	14,770	296	168	128
Washington County	145,910	74,112	71,798	128,313	63,088	65,225	14,960	9,718	5,242
Southern Region	**334,437**	**164,437**	**170,000**	**236,285**	**117,678**	**118,607**	**87,976**	**42,159**	**45,817**
Calvert County	89,212	43,992	45,220	74,012	36,763	37,249	13,466	6,447	7,019
Charles County	142,226	69,199	73,027	78,390	38,801	39,589	58,450	27,937	30,513
St Mary's County	102,999	51,246	51,753	83,883	42,114	41,769	16,060	7,775	8,285

Source: SEER*Stat static data as of February 7, 2012 (www.seer.cancer.gov).

Appendix F

U.S. Standard Population, 2000

2000 U.S. Standard Population

Age Group	2000 Population
Less than 01 years	3,794,901
01-04 years	15,191,619
05-09 years	19,919,840
10-14 years	20,056,779
15-19 years	19,819,518
20-24 years	18,257,225
25-29 years	17,722,067
30-34 years	19,511,370
35-39 years	22,179,956
40-44 years	22,479,229
45-49 years	19,805,793
50-54 years	17,224,359
55-59 years	13,307,234
60-64 years	10,654,272
65-69 years	9,409,940
70-74 years	8,725,574
75-79 years	7,414,559
80-84 years	4,900,234
85+ years	4,259,173
Total	274,633,642

Source: National Cancer Institute, SEER, 2000

Appendix G

Definitions of International Classification of Diseases (ICD) Codes Used for Cancer Incidence and Mortality

International Classification of Diseases for Oncology, 3rd Edition (ICD-O-3) Codes Used for Cancer Incidence and International Classification of Diseases, 10th Revision (ICD-10) Codes Used for Cancer Mortality

Cancer Site	Incidence (ICD-O-3)		Mortality (ICD-10)
	Topography (Site)	Histology	
All Cancer Sites	C00.0 – C80.9	Includes all invasive cancers of all sites except basal and squamous cell skin cancers, and includes in situ cancer of the urinary bladder	C00 – C97
Lung and Bronchus	C34.0 - C34.9	Excludes codes 9050-9055, 9140, and 9590-9989	C33-C34 (MATCH)* C34 (WONDER)
Colon and Rectum	C18.0 – C20.9, C26.0	Excludes codes 9050-9055, 9140, and 9590-9989	C18 – C20, C26.0
Female Breast	C50.0 - C50.9 (female only)	Excludes codes 9050-9055, 9140, and 9590-9989	C50 (female only)
Prostate	C61.9	Excludes codes 9050-9055, 9140, and 9590-9990	C61
Oral Cavity and Pharynx	C00.0 - C14.8	Excludes codes 9050-9055, 9140, and 9590-9989	C00 – C14
Melanoma of the Skin	C44.0 - C44.9	Includes only codes 8720-8790	C43
Cervix	C53.0 - C53.9	Excludes codes 9050-9055, 9140, and 9590-9989	C53

Note: Most cancer mortality (ICD-10) codes are similar to cancer incidence (ICD-O-3) topography (site) codes.
* Mortality data from MATCH include C33, which are deaths from cancer of the trachea.

Appendix H

Maryland Cancer Incidence and Mortality Rates by Geographical Area, 2005-2009

Appendix H

Table 1: All Cancer Sites Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	450.8	448.3	453.2
Northwest Region	473.5	465.0	482.2
Allegany	500.7	480.4	521.7
Frederick	479.1	465.7	492.8
Garrett	408.3	379.4	438.8
Washington	472.0	456.9	487.5
Baltimore Metropolitan Area ^	467.2	463.0	471.4
Anne Arundel	472.5	464.0	481.1
Baltimore City	462.0	454.6	469.6
Baltimore County	470.8	464.5	477.3
Carroll	474.1	459.6	488.9
Harford	489.7	477.1	502.5
Howard	421.1	409.4	433.0
National Capital Area †	400.6	396.3	404.9
Montgomery †	398.6	393.0	404.3
Prince George's †	402.2	395.5	409.0
Southern Region	445.7	434.6	456.9
Calvert	470.7	449.4	492.8
Charles	412.8	396.0	430.1
Saint Mary's	466.7	446.6	487.5
Eastern Shore Region	487.2	478.6	495.9
Caroline	481.2	449.1	515.1
Cecil	496.6	476.9	517.0
Dorchester	447.5	419.0	477.6
Kent	493.7	456.2	533.6
Queen Anne's	464.1	438.1	491.3
Somerset	476.0	440.3	513.9
Talbot	471.6	445.3	499.2
Wicomico	509.4	489.6	529.8
Worcester	507.5	484.1	531.9

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

^ Area rate does not include Baltimore City

† 2005-2009 incidence rates for Montgomery County, Prince George's County, and the National Capital Area are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Appendix H

Table 2: Lung and Bronchus Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	63.3	62.4	64.3
Northwest Region	69.8	66.5	73.2
Allegany	83.6	75.7	92.3
Frederick	67.5	62.3	72.9
Garrett	48.3	38.9	59.4
Washington	71.4	65.6	77.6
Baltimore Metropolitan Area ^	67.7	66.1	69.4
Anne Arundel	72.5	69.1	76.0
Baltimore City	79.7	76.6	82.9
Baltimore County	70.1	67.7	72.6
Carroll	69.2	63.6	75.1
Harford	69.4	64.6	74.4
Howard	49.7	45.5	54.1
National Capital Area †	44.6	43.2	46.1
Montgomery †	40.2	38.4	42.1
Prince George's †	50.3	47.9	52.9
Southern Region	64.0	59.7	68.5
Calvert	68.0	59.9	77.0
Charles	56.5	50.2	63.4
Saint Mary's	69.9	62.1	78.4
Eastern Shore Region	77.9	74.5	81.3
Caroline	79.1	66.4	93.6
Cecil	89.6	81.2	98.6
Dorchester	75.8	64.7	88.5
Kent	75.4	61.7	91.6
Queen Anne's	70.6	60.7	81.8
Somerset	82.6	68.3	99.2
Talbot	60.1	51.6	69.8
Wicomico	85.5	77.5	94.0
Worcester	73.3	65.0	82.6

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

^ Area rate does not include Baltimore City

† 2005-2009 incidence rates for Montgomery County, Prince George's County, and the National Capital Area are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Appendix H

Table 3: Colorectal Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	41.9	41.1	42.7
Northwest Region	47.3	44.7	50.1
Allegany	52.4	46.1	59.4
Frederick	50.8	46.4	55.4
Garrett	41.9	33.2	52.5
Washington	42.2	37.8	47.0
Baltimore Metropolitan Area ^	42.1	40.8	43.4
Anne Arundel	39.7	37.2	42.3
Baltimore City	44.9	42.6	47.3
Baltimore County	43.6	41.7	45.6
Carroll	43.1	38.7	47.7
Harford	46.8	42.9	51.0
Howard	37.7	34.2	41.5
National Capital Area †	35.8	34.5	37.2
Montgomery †	33.2	31.6	34.9
Prince George's †	39.1	37.0	41.3
Southern Region	46.1	42.5	49.9
Calvert	44.3	37.9	51.6
Charles	48.3	42.4	54.8
Saint Mary's	45.4	39.3	52.2
Eastern Shore Region	47.2	44.6	50.0
Caroline	45.2	35.7	56.5
Cecil	48.9	42.8	55.6
Dorchester	47.7	38.8	58.1
Kent	44.5	34.3	57.2
Queen Anne's	45.7	37.7	54.9
Somerset	44.9	34.5	57.7
Talbot	45.4	37.7	54.5
Wicomico	51.4	45.2	58.1
Worcester	44.3	37.8	51.8

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

^ Area rate does not include Baltimore City

† 2005-2009 incidence rates for Montgomery County, Prince George's County, and the National Capital Area are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Appendix H

Table 4: Female Breast Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	123.0	121.3	124.8
Northwest Region	121.6	115.7	127.7
Allegany	116.9	103.2	132.1
Frederick	127.7	118.6	137.3
Garrett	120.1	99.0	144.6
Washington	116.9	106.6	128.0
Baltimore Metropolitan Area ^	128.0	125.1	131.0
Anne Arundel	121.7	116.0	127.7
Baltimore City	108.4	103.6	113.3
Baltimore County	130.0	125.5	134.7
Carroll	134.4	124.1	145.3
Harford	127.5	119.1	136.4
Howard	127.9	119.7	136.6
National Capital Area †	120.3	117.3	123.5
Montgomery †	124.5	120.4	128.8
Prince George's †	114.5	110.0	119.2
Southern Region	114.0	106.7	121.7
Calvert	127.0	112.6	142.7
Charles	101.1	90.6	112.6
Saint Mary's	120.9	107.3	135.7
Eastern Shore Region	127.7	121.6	134.0
Caroline	145.6	122.0	172.6
Cecil	124.0	110.9	138.3
Dorchester	119.7	99.7	142.8
Kent	148.3	119.0	182.9
Queen Anne's	115.2	97.8	134.8
Somerset	105.4	82.8	132.7
Talbot	130.1	110.9	152.1
Wicomico	126.3	113.1	140.6
Worcester	142.8	125.0	162.7

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

^ Area rate does not include Baltimore City

† 2005-2009 incidence rates for Montgomery County, Prince George's County, and the National Capital Area are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Appendix H

Table 5: Prostate Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	155.1	152.9	157.3
Northwest Region	143.4	136.4	150.7
Allegany	147.9	132.1	165.2
Frederick	141.4	130.3	153.1
Garrett	114.3	93.3	139.0
Washington	151.7	139.0	165.1
Baltimore Metropolitan Area ^	143.3	139.8	146.7
Anne Arundel	148.5	141.6	155.7
Baltimore City	160.1	153.2	167.2
Baltimore County	141.8	136.6	147.1
Carroll	130.6	119.5	142.4
Harford	163.6	152.8	174.9
Howard	127.0	117.7	136.8
National Capital Area †	164.9	160.8	169.2
Montgomery †	157.1	151.8	162.5
Prince George's †	176.4	169.5	183.4
Southern Region	149.2	139.6	159.2
Calvert	129.7	113.1	148.1
Charles	162.9	146.9	180.0
Saint Mary's	150.5	133.9	168.5
Eastern Shore Region	156.2	149.2	163.4
Caroline	130.8	106.8	158.5
Cecil	136.6	121.6	152.9
Dorchester	126.1	104.5	151.1
Kent	179.2	148.2	215.5
Queen Anne's	158.1	137.0	181.6
Somerset	151.4	122.7	185.0
Talbot	187.7	164.9	213.2
Wicomico	161.0	144.6	178.8
Worcester	170.9	152.3	191.5

* Rates are per 100,000 men and are age-adjusted to 2000 U.S. standard population

^ Area rate does not include Baltimore City

† 2005-2009 incidence rates for Montgomery County, Prince George's County, and the National Capital Area are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Appendix H

Table 6: Oral Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	9.5	9.1	9.9
Northwest Region	9.4	8.2	10.7
Allegany	11.0	8.1	14.7
Frederick	9.9	8.1	12.0
Garrett	**	**	**
Washington	9.0	7.0	11.4
Baltimore Metropolitan Area ^	10.0	9.4	10.6
Anne Arundel	11.2	9.9	12.5
Baltimore City	11.3	10.2	12.6
Baltimore County	9.6	8.7	10.6
Carroll	10.7	8.6	13.1
Harford	10.2	8.5	12.1
Howard	8.4	6.9	10.2
National Capital Area †	7.5	7.0	8.2
Montgomery †	7.3	6.6	8.1
Prince George's †	7.7	6.8	8.7
Southern Region	11.3	9.7	13.2
Calvert	11.9	8.9	15.7
Charles	10.5	8.0	13.5
Saint Mary's	11.9	9.0	15.4
Eastern Shore Region	10.2	9.0	11.5
Caroline	9.2	5.2	15.1
Cecil	11.0	8.3	14.3
Dorchester	9.9	6.2	15.3
Kent	**	**	**
Queen Anne's	11.5	7.8	16.3
Somerset	**	**	**
Talbot	9.5	6.1	14.5
Wicomico	8.5	6.1	11.5
Worcester	12.2	8.6	16.8

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy

^ Area rate does not include Baltimore City

† 2005-2009 incidence rates for Montgomery County, Prince George's County, and the National Capital Area are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Appendix H

Table 7: Melanoma Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	20.8	20.3	21.3
Northwest Region	22.1	20.3	24.0
Allegany	16.9	13.2	21.4
Frederick	24.3	21.5	27.5
Garrett	14.1	8.8	21.4
Washington	23.3	20.0	27.0
Baltimore Metropolitan Area ^	27.5	26.5	28.5
Anne Arundel	30.7	28.6	33.0
Baltimore City	9.9	8.9	11.1
Baltimore County	24.0	22.6	25.6
Carroll	31.5	27.9	35.5
Harford	29.9	26.8	33.2
Howard	26.9	24.1	29.9
National Capital Area †	13.1	12.3	13.9
Montgomery †	17.2	16.0	18.4
Prince George's †	8.0	7.1	9.1
Southern Region	24.9	22.4	27.6
Calvert	39.1	33.2	45.8
Charles	12.6	10.0	15.7
Saint Mary's	28.2	23.5	33.5
Eastern Shore Region	29.0	26.9	31.2
Caroline	28.6	21.0	38.0
Cecil	22.8	18.8	27.5
Dorchester	17.2	12.0	24.2
Kent	27.4	18.5	39.2
Queen Anne's	35.5	28.4	43.8
Somerset	29.3	20.8	40.1
Talbot	33.0	25.9	41.5
Wicomico	30.5	25.8	35.9
Worcester	36.5	30.1	43.9

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

^ Area rate does not include Baltimore City

† 2005-2009 incidence rates for Montgomery County, Prince George's County, and the National Capital Area are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Appendix H

Table 8: Cervical Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	6.9	6.5	7.4
Northwest Region	8.0	6.5	9.8
Allegany	11.3	6.8	17.7
Frederick	8.4	6.2	11.1
Garrett	**	**	**
Washington	7.1	4.6	10.5
Baltimore Metropolitan Area ^	6.5	5.8	7.2
Anne Arundel	6.7	5.4	8.3
Baltimore City	9.4	8.0	11.0
Baltimore County	6.8	5.8	8.0
Carroll	5.4	3.4	8.0
Harford	7.2	5.3	9.6
Howard	5.3	3.7	7.4
National Capital Area †	6.3	5.6	7.1
Montgomery †	6.0	5.1	7.0
Prince George's †	6.8	5.7	8.0
Southern Region	5.6	4.1	7.5
Calvert	**	**	**
Charles	4.6	2.7	7.5
Saint Mary's	6.4	3.6	10.4
Eastern Shore Region	7.6	6.1	9.4
Caroline	**	**	**
Cecil	10.4	6.9	15.2
Dorchester	**	**	**
Kent	**	**	**
Queen Anne's	**	**	**
Somerset	**	**	**
Talbot	**	**	**
Wicomico	8.5	5.2	13.2
Worcester	**	**	**

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

** Rates based on case counts of 1-15 are suppressed per DHMH/MCR Data Use Policy

^ Area rate does not include Baltimore City

† 2005-2009 incidence rates for Montgomery County, Prince George's County, and the National Capital Area are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source: Maryland Cancer Registry

Appendix H

Table 9: All Cancer Sites Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	182.4	180.8	184.0
Northwest Region	180.2	175.0	185.6
Allegany	190.2	178.1	202.9
Frederick	177.9	169.6	186.5
Garrett	169.2	151.1	188.8
Washington	183.7	174.4	193.3
Baltimore Metropolitan Area ^	186.6	184.0	189.3
Anne Arundel	195.5	189.9	201.2
Baltimore City	221.8	216.6	227.1
Baltimore County	191.6	187.6	195.6
Carroll	181.6	172.6	191.0
Harford	187.1	179.2	195.3
Howard	158.3	150.8	166.1
National Capital Area	153.0	150.3	155.7
Montgomery	134.0	130.8	137.3
Prince George's	178.6	173.9	183.4
Southern Region	199.4	191.7	207.3
Calvert	200.0	185.8	215.0
Charles	201.3	189.0	214.2
Saint Mary's	197.4	184.0	211.5
Eastern Shore Region	207.3	201.8	212.9
Caroline	215.0	193.7	238.1
Cecil	219.0	205.7	232.9
Dorchester	197.2	178.9	216.9
Kent	198.5	176.3	222.8
Queen Anne's	199.9	182.7	218.3
Somerset	217.7	193.8	243.8
Talbot	180.9	165.7	197.2
Wicomico	228.9	215.8	242.6
Worcester	194.7	180.9	209.3

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

^ Area rate does not include Baltimore City

Source: Maryland Vital Statistics Administration from MATCH

Appendix H

Table 10: Lung and Bronchus Cancer Mortality¥
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	51.1	50.3	52.0
Northwest Region	53.0	50.2	56.0
Allegany	57.0	50.5	64.1
Frederick	51.2	46.8	56.0
Garrett	44.8	35.9	55.3
Washington	56.5	51.4	62.0
Baltimore Metropolitan Area ^	54.4	53.0	55.9
Anne Arundel	61.9	58.8	65.2
Baltimore City	67.0	64.2	69.9
Baltimore County	54.9	52.8	57.1
Carroll	53.9	49.0	59.1
Harford	55.6	51.4	60.1
Howard	38.0	34.3	42.0
National Capital Area	35.6	34.3	36.9
Montgomery	30.0	28.5	31.6
Prince George's	42.9	40.6	45.3
Southern Region	58.8	54.7	63.2
Calvert	57.7	50.2	66.0
Charles	58.4	51.8	65.6
Saint Mary's	60.7	53.4	68.8
Eastern Shore Region	63.7	60.7	66.8
Caroline	69.7	57.8	83.4
Cecil	67.0	59.8	74.9
Dorchester	64.8	54.5	76.4
Kent	53.0	41.8	66.3
Queen Anne's	64.3	54.8	75.0
Somerset	68.7	55.6	83.9
Talbot	52.1	44.1	61.1
Wicomico	70.8	63.6	78.6
Worcester	59.2	51.8	67.3

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

^ Area rate does not include Baltimore City

¥ 2005-2009 mortality data include deaths due to cancer of the trachea (See Appendix C, Section I.B.)

Source: Maryland Vital Statistics Administration from MATCH

Appendix H

Table 11: Colorectal Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	17.5	16.4	18.6
Northwest Region	17.7	14.0	21.4
Allegany	17.9	9.6	26.2
Frederick	17.1	11.3	23.0
Garrett	20.7	6.3	35.1
Washington	17.8	11.3	24.3
Baltimore Metropolitan Area ^	17.5	15.7	19.4
Anne Arundel	16.8	13.0	20.5
Baltimore City	21.5	17.9	25.0
Baltimore County	18.2	15.5	21.0
Carroll	19.7	12.9	26.5
Harford	17.4	11.8	23.0
Howard	16.6	10.9	22.2
National Capital Area	14.6	12.7	16.5
Montgomery	11.9	9.7	14.0
Prince George's	18.5	15.1	21.9
Southern Region	21.4	15.7	27.2
Calvert	20.8	10.3	31.3
Charles	26.4	16.0	36.8
Saint Mary's	16.1	7.4	24.8
Eastern Shore Region	19.8	16.0	23.7
Caroline	18.0	3.8	32.2
Cecil	20.4	11.1	29.7
Dorchester	21.2	7.2	35.3
Kent	17.0	1.6	32.4
Queen Anne's	20.2	7.6	32.7
Somerset	21.3	3.9	38.6
Talbot	15.2	5.2	25.3
Wicomico	25.4	15.6	35.2
Worcester	16.4	7.4	25.4

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

^ Area rate does not include Baltimore City

Source: Maryland Vital Statistics Administration

Appendix H

Table 12: Female Breast Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	24.7	23.9	25.5
Northwest Region	22.9	20.5	25.6
Allegany	21.8	16.5	28.3
Frederick	23.3	19.5	27.6
Garrett	32.9	22.3	46.8
Washington	21.3	17.2	26.0
Baltimore Metropolitan Area ^	24.8	23.5	26.1
Anne Arundel	24.1	21.6	26.8
Baltimore City	28.0	25.6	30.5
Baltimore County	26.0	24.0	28.1
Carroll	22.8	18.7	27.5
Harford	25.5	21.8	29.7
Howard	22.3	18.8	26.2
National Capital Area	23.5	22.2	24.9
Montgomery	20.3	18.7	22.0
Prince George's	27.6	25.4	30.0
Southern Region	25.9	22.4	29.8
Calvert	30.0	23.1	38.3
Charles	23.5	18.5	29.4
Saint Mary's	25.2	19.2	32.5
Eastern Shore Region	24.6	22.1	27.4
Caroline	25.5	16.4	37.8
Cecil	23.8	18.3	30.5
Dorchester	15.8	9.5	24.8
Kent	**	**	**
Queen Anne's	28.7	20.3	39.3
Somerset	27.7	17.0	42.6
Talbot	22.1	15.0	31.5
Wicomico	27.1	21.3	34.0
Worcester	26.6	19.9	34.9

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 deaths are suppressed per DHMH/CCSC Mortality Data Suppression Policy

^ Area rate does not include Baltimore City

Source: Maryland Vital Statistics Administration from MATCH

Appendix H

Table 13: Prostate Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	25.5	24.5	26.5
Northwest Region	21.3	18.5	24.5
Allegany	19.3	13.7	26.4
Frederick	21.0	16.4	26.5
Garrett	**	**	**
Washington	22.5	17.6	28.4
Baltimore Metropolitan Area ^	22.8	21.3	24.4
Anne Arundel	24.1	20.9	27.7
Baltimore City	37.7	34.2	41.5
Baltimore County	22.3	20.2	24.6
Carroll	23.8	18.5	30.1
Harford	22.1	17.6	27.4
Howard	23.4	18.5	29.2
National Capital Area	24.1	22.3	26.0
Montgomery	18.4	16.5	20.5
Prince George's	34.2	30.6	38.1
Southern Region	32.0	26.8	37.9
Calvert	31.1	22.1	42.6
Charles	24.9	17.9	33.8
Saint Mary's	39.1	29.3	51.1
Eastern Shore Region	28.1	25.0	31.5
Caroline	32.3	20.4	48.7
Cecil	30.2	22.1	40.3
Dorchester	**	**	**
Kent	40.8	26.9	59.4
Queen Anne's	26.0	16.9	38.3
Somerset	**	**	**
Talbot	30.7	22.2	41.4
Wicomico	28.8	21.6	37.6
Worcester	22.4	16.0	30.5

* Rates are per 100,000 men and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 deaths are suppressed per DHMH/CCSC Mortality Data Suppression Policy

^ Area rate does not include Baltimore City

Source: Maryland Vital Statistics Administration from MATCH

Appendix H

Table 14: Oral Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	2.6	2.4	2.8
Northwest Region	1.9	1.4	2.5
Allegany	**	**	**
Frederick	**	**	**
Garrett	**	**	**
Washington	3.0	1.9	4.5
Baltimore Metropolitan Area ^	2.6	2.3	2.9
Anne Arundel	3.2	2.5	4.0
Baltimore City	3.9	3.3	4.6
Baltimore County	2.7	2.3	3.2
Carroll	**	**	**
Harford	2.9	2.0	4.1
Howard	1.8	1.1	2.8
National Capital Area	2.2	1.9	2.5
Montgomery	1.6	1.3	2.0
Prince George's	2.8	2.3	3.4
Southern Region	2.8	2.0	3.9
Calvert	**	**	**
Charles	**	**	**
Saint Mary's	**	**	**
Eastern Shore Region	3.1	2.5	3.9
Caroline	**	**	**
Cecil	**	**	**
Dorchester	**	**	**
Kent	**	**	**
Queen Anne's	**	**	**
Somerset	**	**	**
Talbot	**	**	**
Wicomico	**	**	**
Worcester	**	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 deaths are suppressed per DHMH/CCSC Mortality Data Suppression Policy

^ Area rate does not include Baltimore City

Source: Maryland Vital Statistics Administration from MATCH

Appendix H

Table 15: Melanoma Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	2.7	2.5	2.9
Northwest Region	3.5	2.8	4.3
Allegany	**	**	**
Frederick	3.6	2.5	5.0
Garrett	**	**	**
Washington	3.3	2.2	4.8
Baltimore Metropolitan Area ^	3.5	3.2	3.9
Anne Arundel	4.1	3.3	5.0
Baltimore City	1.7	1.3	2.2
Baltimore County	3.1	2.6	3.7
Carroll	2.8	1.8	4.1
Harford	4.5	3.4	5.9
Howard	2.9	2.0	4.1
National Capital Area	1.7	1.4	2.0
Montgomery	2.0	1.6	2.4
Prince George's	1.3	0.9	1.8
Southern Region	2.5	1.7	3.5
Calvert	**	**	**
Charles	**	**	**
Saint Mary's	**	**	**
Eastern Shore Region	3.9	3.2	4.8
Caroline	**	**	**
Cecil	**	**	**
Dorchester	**	**	**
Kent	**	**	**
Queen Anne's	**	**	**
Somerset	**	**	**
Talbot	**	**	**
Wicomico	**	**	**
Worcester	**	**	**

* Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 deaths are suppressed per DHMH/CCSC Mortality Data Suppression Policy

^ Area rate does not include Baltimore City

Source: Maryland Vital Statistics Administration from MATCH

Appendix H

Table 16: Cervical Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2005-2009

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	2.3	2.1	2.6
Northwest Region	2.4	1.6	3.4
Allegany	**	**	**
Frederick	**	**	**
Garrett	**	**	**
Washington	**	**	**
Baltimore Metropolitan Area ^	1.8	1.5	2.2
Anne Arundel	1.8	1.2	2.7
Baltimore City	4.5	3.6	5.6
Baltimore County	2.0	1.5	2.7
Carroll	**	**	**
Harford	**	**	**
Howard	**	**	**
National Capital Area	2.0	1.6	2.5
Montgomery	1.3	0.9	1.8
Prince George's	2.9	2.2	3.7
Southern Region	2.5	1.5	3.9
Calvert	**	**	**
Charles	**	**	**
Saint Mary's	**	**	**
Eastern Shore Region	2.1	1.4	3.1
Caroline	**	**	**
Cecil	**	**	**
Dorchester	**	**	**
Kent	**	**	**
Queen Anne's	**	**	**
Somerset	**	**	**
Talbot	**	**	**
Wicomico	**	**	**
Worcester	**	**	**

* Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 deaths are suppressed per DHMH/CCSC Mortality Data Suppression Policy

^ Area rate does not include Baltimore City

Source: Maryland Vital Statistics Administration from MATCH

Appendix I

Trends in Cancer Incidence and Mortality Rates in Maryland by Cancer Site, Race or Gender, and Year, 2005-2009

Appendix I

Table 1: Cancer Incidence Rates by Cancer Site and Year
Maryland, 2005-2009

Cancer Site	2005	2006 †	2007	2008	2009	APC 2005-2009	MD Trend
All Cancer Sites	457.4	426.3	455.3	470.8	443.7	0.4%	↑
Lung	68.0	63.4	62.5	64.6	58.6	-2.7%	↓
Colorectal	46.3	41.3	41.6	42.5	38.0	-3.6%	↓
Female Breast	118.6	112.8	123.2	132.7	127.4	3.1%	↑
Prostate	147.2	153.9	162.5	163.0	148.4	0.7%	↑
Oral	8.8	8.9	9.6	10.1	10.0	3.9%	↑
Melanoma	21.3	19.7	21.2	21.7	20.0	-0.3%	↓
Cervical	8.5	6.7	6.4	6.5	6.8	-4.7%	↓

† 2006 Maryland incidence rates are lower than actual due to case underreporting for Montgomery and Prince George's counties. (See Appendix C, Section I.A.1.)

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: Maryland Cancer Registry

Table 2: Cancer Mortality Rates by Cancer Site and Year
Maryland, 2005-2009

Cancer Site	2005	2006	2007	2008	2009	APC 2005-2009	MD Trend
All Cancer Sites	190.2	186.7	180.4	180.6	177.7	-1.7%	↓
Lung	54.9	52.6	50.1	50.0	48.7	-2.9%	↓
Colorectal	18.7	18.4	17.5	16.6	16.6	-3.4%	↓
Female Breast	25.8	25.0	24.8	25.1	23.5	-1.8%	↓
Prostate	25.9	26.3	26.6	25.1	25.5	-0.8%	↓
Oral	2.7	2.8	2.5	2.4	2.5	-3.0%	↓
Melanoma	2.8	3.0	2.4	2.6	2.9	-0.7%	↓
Cervical	2.0	2.2	2.4	2.5	2.3	4.2%	↑

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009
Maryland Vital Statistics Administration, 2008-2009 (Colorectal)

Appendix I

Table 3: Cancer Incidence Rates by Race and Year
Maryland, 2005-2009

Cancer Site	Race	2005	2006 †	2007	2008	2009	APC 2005-2009
All Cancer Sites	White	466.4	434.3	460.5	472.2	446.5	0.0%
	Black	434.9	395.7	444.0	467.9	431.8	1.5%
Lung	White	69.5	67.1	64.3	66.1	60.7	-2.8%
	Black	66.2	55.3	60.3	63.0	55.6	-2.2%
Colorectal	White	45.5	40.2	40.6	41.0	36.0	-4.4%
	Black	49.4	42.7	44.8	47.5	42.4	-2.0%
Female Breast	White	121.1	115.0	125.4	130.7	127.8	2.4%
	Black	108.7	109.7	117.2	132.4	121.7	4.2%
Prostate	White	131.7	137.3	146.5	142.9	127.2	-0.3%
	Black	193.3	186.3	209.0	225.5	217.9	4.4%
Oral	White	9.1	9.4	10.0	10.7	11.2	5.6%
	Black	8.4	7.6	8.1	8.6	7.5	-1.0%
Cervical	White	7.8	5.8	6.2	5.6	5.8	-6.1%
	Black	9.1	7.1	7.2	8.2	7.8	-1.6%

† 2006 Maryland incidence rates are lower than actual due to case underreporting for Montgomery and Prince George's counties. (See Appendix C, Section I.A.1.)

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: Maryland Cancer Registry

Table 4: Melanoma Incidence Rates by Gender and Year
Maryland, 2005-2009

Cancer Site	Gender	2005	2006 †	2007	2008	2009	APC 2005-2009
Melanoma	Male	27.9	26.0	27.2	29.0	26.5	0.1%
	Female	16.8	15.3	17.1	16.7	15.5	-0.7%

† 2006 Maryland incidence rates are lower than actual due to case underreporting for Montgomery and Prince George's counties. (See Appendix C, Section I.A.1.)

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: Maryland Cancer Registry

Appendix I

Table 5: Mortality Rates by Race and Year
Maryland, 2005-2009

Cancer Site	Race	2005	2006	2007	2008	2009	APC 2005-2009
All Cancer Sites	White	187.6	183.6	176.6	175.0	176.6	-1.7%
	Black	210.4	211.1	207.7	212.8	193.0	-1.6%
Lung	White	55.9	53.7	51.4	51.1	50.6	-2.5%
	Black	55.5	53.2	51.2	51.8	46.2	-3.9%
Colorectal	White	17.5	17.6	15.7	15.4	15.2	-4.1%
	Black	24.9	22.7	24.1	21.8	21.8	-3.0%
Female Breast	White	24.9	23.7	22.8	22.0	22.6	-2.6%
	Black	28.8	30.2	32.4	35.3	27.1	0.3%
Prostate	White	21.1	21.7	23.0	20.6	20.7	-0.9%
	Black	48.8	51.1	45.3	48.1	49.6	-0.3%
Oral	White	2.5	2.6	2.5	2.2	2.3	-3.3%
	Black	3.5	3.7	2.8	3.0	3.3	-3.2%
Cervical	White	1.5	1.7	1.7	2.0	1.7	4.2%
	Black	3.2	3.6	4.3	3.6	3.8	3.5%

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009
Maryland Vital Statistics Administration, 2008-2009 (Colorectal)

Table 6: Melanoma Mortality Rates by Gender and Year
Maryland, 2005-2009

Cancer Site	Gender	2005	2006	2007	2008	2009	APC 2005-2009
Melanoma	Male	4.2	4.8	3.5	4.4	4.7	1.4%
	Female	1.8	1.8	1.8	1.3	1.8	-3.2%

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: NCHS Compressed Mortality File in CDC WONDER, 2005-2007
Maryland Vital Statistics Administration from MATCH, 2008-2009

Appendix J

Trends in Cancer Stage of Disease at Diagnosis in Maryland by Cancer Site and Year, 2005-2009

Appendix J

Table 1: All Cancer Sites
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2005-2009

Stage	2005	2006	2007	2008	2009
	%	%	%	%	%
Local	42.5	42.9	45.9	45.8	43.8
Regional	20.1	20.8	21.1	21.0	20.2
Distant	20.2	20.5	20.9	21.1	20.7
Unstaged	17.3	15.8	12.1	12.1	15.2

Source: Maryland Cancer Registry

Table 2: Lung Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2005-2009

Stage	2005	2006	2007	2008	2009
	%	%	%	%	%
Local	18.5	17.1	18.7	20.2	20.5
Regional	23.9	23.8	23.7	24.8	23.8
Distant	44.1	45.6	47.8	45.6	46.9
Unstaged	13.5	13.5	9.8	9.4	8.8

Source: Maryland Cancer Registry

Table 3: Colorectal Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2005-2009

Stage	2005	2006	2007	2008	2009
	%	%	%	%	%
Local	37.0	35.7	39.3	38.3	35.8
Regional	31.6	33.1	32.8	33.7	33.5
Distant	17.9	17.7	18.1	19.5	19.4
Unstaged	13.5	13.5	9.8	8.5	11.3

Source: Maryland Cancer Registry

Table 4: Female Breast Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2005-2009

Stage	2005	2006	2007	2008	2009
	%	%	%	%	%
Local	54.9	57.1	58.4	58.0	59.4
Regional	31.2	31.9	31.6	30.8	29.3
Distant	4.7	5.0	5.8	5.8	4.8
Unstaged	9.2	6.0	4.2	5.4	6.6

Source: Maryland Cancer Registry

Appendix J

Table 5: Prostate Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2005-2009

Stage	2005	2006	2007	2008	2009
	%	%	%	%	%
Local	70.1	64.7	69.1	68.6	57.7
Regional	7.2	8.3	10.0	9.8	8.0
Distant	2.9	2.9	2.7	2.4	3.1
Unstaged	19.8	24.1	18.1	19.1	31.2

Source: Maryland Cancer Registry

Table 6: Oral Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2005-2009

Stage	2005	2006	2007	2008	2009
	%	%	%	%	%
Local	28.3	28.1	27.3	31.6	30.8
Regional	44.2	44.4	47.4	42.5	47.4
Distant	15.7	17.9	17.0	17.2	12.7
Unstaged	11.8	9.6	8.4	8.7	9.1

Source: Maryland Cancer Registry

Table 7: Melanoma
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2005-2009

Stage	2005	2006	2007	2008	2009
	%	%	%	%	%
Local	57.7	59.1	68.4	67.3	65.6
Regional	8.2	9.7	9.2	7.8	8.6
Distant	2.8	3.7	3.6	3.4	3.4
Unstaged	31.3	27.5	18.8	21.5	22.4

Source: Maryland Cancer Registry

Table 8: Cervical Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2005-2009

Stage	2005	2006	2007	2008	2009
	%	%	%	%	%
Local	36.6	34.2	38.1	36.0	39.4
Regional	31.1	36.7	34.5	37.5	32.7
Distant	9.8	11.1	16.0	17.0	11.1
Unstaged	22.4	18.1	11.3	9.5	16.8

Source: Maryland Cancer Registry

Appendix K

Trends in All Cancer Sites Incidence and Mortality Rates in Maryland and U.S. by Year, 2000-2009

Appendix K

Table 1: All Cancer Sites Incidence Rates by Year
Maryland and U.S., 2000-2009

	2000	2001	2002	2003	2004	2005	2006 †	2007	2008	2009	APC 2000-2009	Trend
Maryland	483.6	444.4	495.8	494.5	462.6	457.4	426.3	455.3	470.8	443.7	-0.8%	↓
U.S.	473.8	477.2	472.5	461.1	461.9	455.5	454.5	459.9	449.9	456.4	-0.6%	↓

† 2006 Maryland incidence rates are lower than actual due to case underreporting for Montgomery and Prince George's counties. (See Appendix C, Section I.A.1.)

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: Maryland Cancer Registry

Table 2: All Cancer Sites Mortality Rates by Year
Maryland and U.S., 2000-2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	APC 2000-2009	Trend
Maryland	207.7	205.1	201.7	195.7	189.9	190.2	186.7	180.4	180.6	177.7	-1.8%	↓
U.S.	199.6	196.0	193.5	190.1	185.8	183.8	180.7	178.4	175.3	173.1	-1.6%	↓

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: NCHS Compressed Mortality File in CDC WONDER, 2000-2007 (MD)
Maryland Vital Statistics Administration from MATCH, 2008-2009 (MD)
NCHS Compressed Mortality File in CDC WONDER, 2000-2008 (U.S.)
U.S. SEER, Cancer Statistics Review, 2009 (U.S.)

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