STATE OF MARYLAND

DHMH

Maryland Department of Health and Mental Hygiene

Martin O'Malley, Governor – Anthony G. Brown, Lt. Governor – Laura Herrera Scott, MD, MPH, Acting Secretary

January 20, 2015

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: Chapter 203 of the Acts of 2003 (HB 935) and Health-General Article, Section 13-1104(e)
2014 Cigarette Restitution Fund Program Cancer Biennial 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 (Department) 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 Program Cancer Report for 2014. This report includes the most currently available Maryland data on cancer incidence and mortality for 2011 and highlights recommended public health interventions designed to reduce the impact of this disease on Maryland citizens.

This report was due to the General Assembly on September 1, 2014. However, the Department sent a letter on September 8, 2014 explaining that due to delays in availability of United States cancer mortality data required for the report, the Department was unable to submit the 2014 CRF Cancer Report by the due date.

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

Sincerely,

Laura Herrera Scott, MD, MPH
Acting Secretary

Enclosure

cc: Allison Taylor, Director, Office of Governmental Affairs
Michelle Spencer, Director, Prevention and Health Promotion Administration
Donna Gugel, Deputy Director, PHPA, Cigarette Restitution Fund Director
Courtney Lewis, Director, Center for Cancer Prevention and Control
Sarah Albert, MSAR #2251

STATE OF MARYLAND

DHMH

Maryland Department of Health and Mental Hygiene

Martin O'Malley, Governor – Anthony G. Brown, Lt. Governor – Laura Herrera Scott, MD, MPH, Acting Secretary

Dear Fellow Marylanders:

Cancer is the second leading cause of death in Maryland and in the nation. Over 27,000 Marylanders were diagnosed with cancer in the year 2011, 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 (Department). 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 2014 Cancer Report of the CRFP 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). A copy of this report is available on the Department's website at http://phpa.dhmh.maryland.gov/cancer/SitePages/surv_data-reports.aspx.

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,

Laura Herrera Scott, MD, MPH
Acting Secretary

Enclosure

Maryland Department of Health and Mental Hygiene

2014 Cancer Report

Cigarette Restitution Fund Program

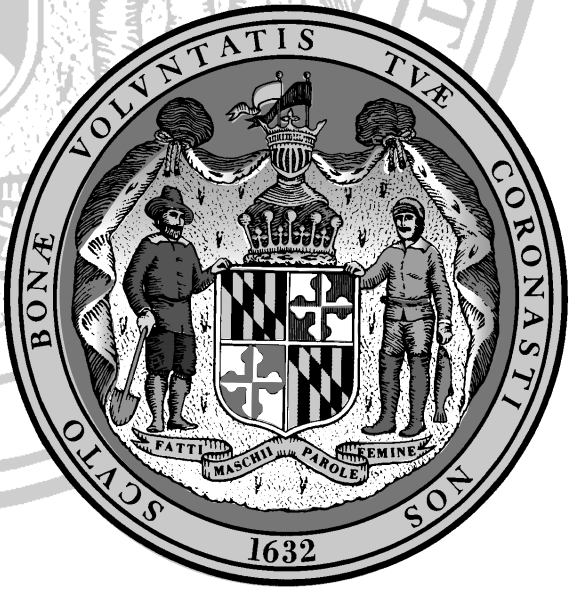
Cancer Prevention, Education, Screening and Treatment Program

Health-General Article, Section 13-1104(e)

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



December 2014

Maryland Department of Health and Mental Hygiene

2014 Cancer Report

Cigarette Restitution Fund Program

Cancer Prevention, Education, Screening and Treatment Program

Prepared by:

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Director
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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 2014 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, CCPC, 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.
  - Center for Chronic Disease Prevention and Control, for data from the Maryland Behavioral Risk Factor Surveillance System (BRFSS).
  - 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 data from the Maryland Youth Tobacco and Risk Behavior Survey.
- Hal Sommers, M.A., and Helen Espitallier, M.S., Maryland Vital Statistics, DHMH, for providing 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.

Table of Contents

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I. Executive Summary

A. Introduction

This publication is the Cigarette Restitution Fund Program (CRFP) 2014 Cancer Report. The primary purpose of the Cancer Report, 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 and provided approximately $24.9 million in Fiscal Year 2014 to combat cancer. The CRFP statute established the Cancer Prevention, Education, Screening and Treatment (CPEST) Program within the Maryland Department of Health and Mental Hygiene (DHMH), whose primary goal is to reduce mortality and morbidity rates for cancer and tobacco-related diseases in the State of Maryland.

The CRFP statute 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 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).

Additionally, the CRFP statute 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 statute as women or individuals of African, Hispanic, Native American, and Asian descent) and in rural areas, and 2) increase availability of and access to health care services for medically underserved populations and uninsured individuals.

This 2014 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 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://phpa.dhmh.maryland.gov/cancer/cancerplan/SitePages/Home.aspx.

B. Major Highlights of the Report for the State of Maryland

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

- In 2011, a total of 27,916 new cases of cancer were diagnosed in Maryland.
- From 2002 to 2011, overall cancer incidence rates declined at a pace greater than the decline in the U.S. rate.
- In 2011, the incidence rate for all cancer sites among blacks fell below the incidence rate for whites, continuing the trend seen prior to 2010; rates decreased for both blacks and whites for the period 2007-2011.
- Mortality rates for all cancer sites decreased from 2002 to 2011 in Maryland and in the U.S.
- Blacks have higher mortality rates than whites from 2007 to 2011; 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, accounting for 26.9% of all cancer deaths in 2011.
- Lung cancer incidence and mortality rates decreased from 2007 to 2011.
- From 2007 to 2011, lung cancer incidence rates 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, and smoking rates among adults also declined from 2011 to 2012. In 2012, 16.2% 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 12.0%.

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

- Incidence and mortality rates for colorectal cancer declined in Maryland from 2007 to 2011. Mortality rates had a greater decrease among whites than blacks over this period, while incidence rates declined at a comparable rate for both race groups.
- 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.
- 69.1% of Maryland adults age 50 years and older reported being up-to-date with colorectal cancer screening.

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

- Breast cancer is the second leading cause of cancer deaths in Maryland among women after lung cancer.
- Incidence rates for female breast cancer increased from 2007 to 2011 with the incidence rate for black females increasing at a greater rate per year than white females.
- From 2007 to 2011, mortality rates for female breast cancer declined for both white females and 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 2012, 83.2% of women age 50 to 74 years reported having 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 and mortality rates for prostate cancer decreased sharply from 2007 to 2011.
- 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 2007 to 2011.
- From 2007 to 2011, mortality rates had a greater decrease for white men than for black men (-4.9% vs. -7.3%).
- 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 2007 to 2011, Maryland oral cancer incidence rates increased overall; however, 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; elimination of betel nut; avoidance and reduction of alcohol consumption; avoidance of sun exposure; use of lip balm that blocks ultraviolet (UV) light; eating a diet with a high proportion of fruits and vegetables; screening for oral cancer during routine dental and medical visits; and screening in public health settings adults at increased risk who are unlikely to have routine dental or medical care.
- Marylanders were below the Maryland Comprehensive Cancer Control Plan target of 48% for 2015 for oral cancer screening: in 2012, 30% 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 decreased slightly from 2007 to 2011. The incidence rate slightly decreased among both males and females, however males had incidence rates 79% higher than females.
- From 2007 to 2011, melanoma mortality rates increased among males and remained stable among females.
- The recommended public health intervention for skin cancer is reduction of exposure to the sun and other UV light by practicing sun- and UV-protective behaviors including: avoiding the sun, 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); and using sunscreens with a SPF of 15 or higher, if sun exposure cannot be avoided.
- In 2012, 67.7% 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 73.7%.

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

- Cervical cancer incidence rates among Maryland women increased from 2007 to 2011.
- The increase in incidence rates for black women was greater than for white women.
- Mortality rates for cervical cancer decreased from 2007 to 2011 and differed by race; mortality rates among black women remained higher than among white women, but experienced greater decline during this time period.
- 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, but 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 2012, close to 88% of Maryland women age 21 to 65 years had a Pap test within the past 3 years, below the Healthy People 2020 target of 93%.

C. Major Changes to this Report from the 2012 Cancer Report

- This report presents Maryland and U.S. incidence and mortality data for 2011 and 5-year aggregate data for 2007-2011.
- The Maryland mortality data for 2011 and 5 year aggregate data for 2007-2011 were obtained directly from the Maryland Vital Statistics Administration. The Maryland mortality data for single years 2008, 2009, and 2010 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 2002 through 2007.

- Incidence and mortality data is shown for three race categories: whites, blacks, and Asians or Pacific Islanders (A/PI). In previous reports, a race category of "other" was shown that consisted of Asian or Pacific Islander, American Indian and Alaskan Native, and all other races. Please refer to Appendix C, section III for more information.
- Incidence data tables no longer show counts and rates for unknown race and unknown county groups, however, these groups are still included within the total.
- Due to methodology changes in 2011, graphs showing cancer screening and risk factor data obtained from the Behavioral Risk Factor Surveillance System only include data from 2011 and 2012. Comparison to prior years cannot be made.

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.

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II. All Cancer Sites

Incidence (New Cases)

A total of 27,916 new cases of cancer diagnosed in 2011 in Maryland residents were reported to the Maryland Cancer Registry. The total age-adjusted cancer incidence rate for Maryland was 440.7 per 100,000 population (435.4-446.0, 95% Confidence Interval [C.I.]) in 2011. The 2011 Maryland cancer incidence rate is similar to the 2011 U.S. Surveillance Epidemiology and End Results (SEER) rate of 443.7 per 100,000 population (442.3-445.1, 95% C.I.).

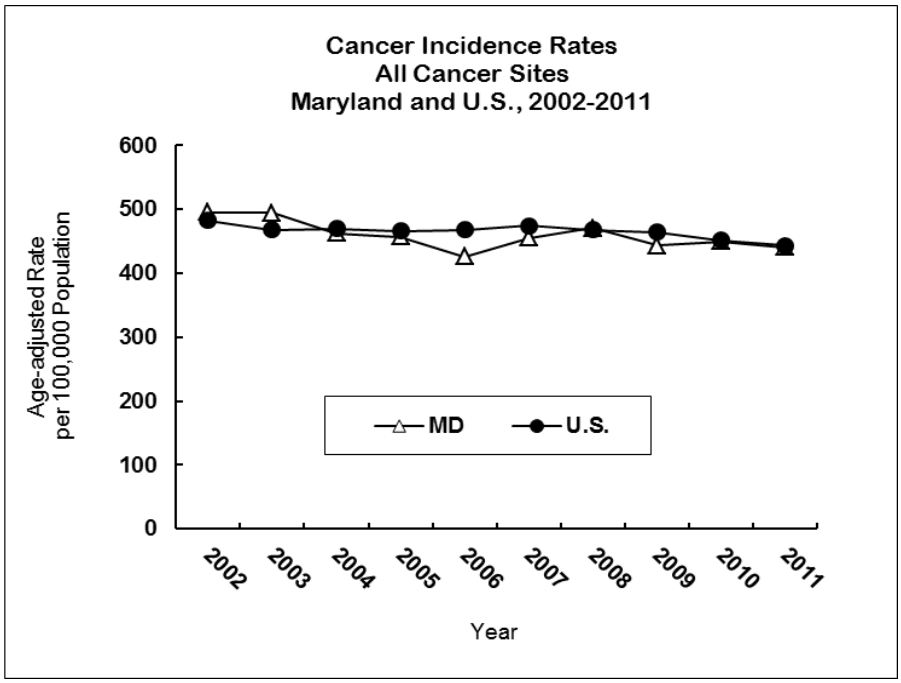
Mortality (Deaths)

Cancer is the second leading cause of death in Maryland, accounting for 23% of all deaths in 2011. A total of 10,223 Maryland residents died from cancer in 2011. The Maryland mortality rate for all cancer sites was 165.7 per 100,000 population (162.4-168.9, 95% C.I.) for 2011. This rate is similar to the 2011 U.S. mortality rate for all cancer sites of 168.7 per 100,000 population (168.3-169.1, 95% C.I.). Maryland ranks 26th highest among all states and the District of Columbia in total cancer mortality for the period 2007-2011.

Table 1.
All Cancer Sites Incidence and Mortality Rates
by Gender and Race, Maryland and the United States, 2011

Incidence 2011	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*A/PI**
New Cases (count)	27,916	13,857	14,047	19,381	7,137	826
MD Incidence Rate	440.7	489.9	407.3	444.1	437.7	260.6
U.S. SEER Rate	443.7	502.1	402.5	450.5	457.1	296.7
Mortality 2011	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*A/PI**
Deaths (count)	10,223	5,214	5,009	7,112	2,843	233
MD Mortality Rate	165.7	199.4	143.3	161.3	190.0	82.7
U.S. Mortality Rate	168.7	204.3	143.5	168.5	199.2	N/A

Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population
Total also includes cases reported as transexual, hermaphrodite, unknown gender, and unknown race
*Asian/Pacific Islander
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration
U.S. SEER, Cancer Statistics Review

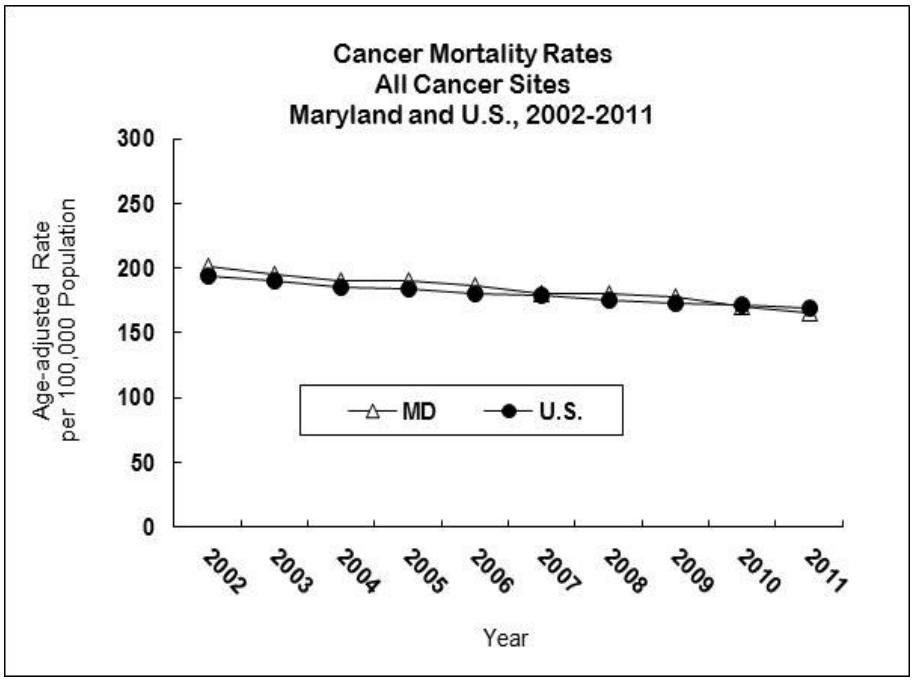


Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat

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 2002 to 2011. Maryland incidence rates decreased at a rate of 1.1% per year; U.S. incidence rates decreased at a rate of 0.6% per year.

See Appendix K, Table 1.

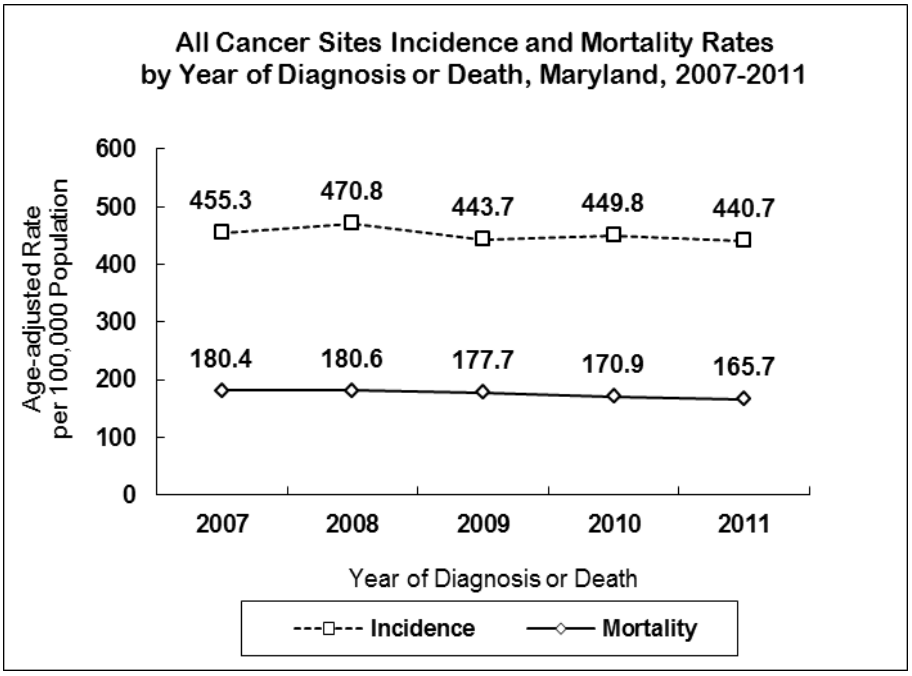


Source: NCHS Compressed Mortality File in CDC WONDER, 2001-2007 (MD)
Maryland Vital Statistics Administration from MATCH, 2008-2010 (MD)
Maryland Vital Statistics Administration, 2011 (MD)
NCHS Compressed Mortality File in CDC WONDER, 2001-2008 (U.S.)
U.S. SEER, Cancer Statistics Review, 2009-2011 (U.S.)

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

Maryland cancer mortality rates have declined since 2002. From 2002 to 2011, all cancer sites mortality rates in Maryland decreased at a rate of 1.9% per year, a greater decrease than the U.S. mortality rates which decreased at a rate of 1.5% for the same time period.

See Appendix K, Table 2.



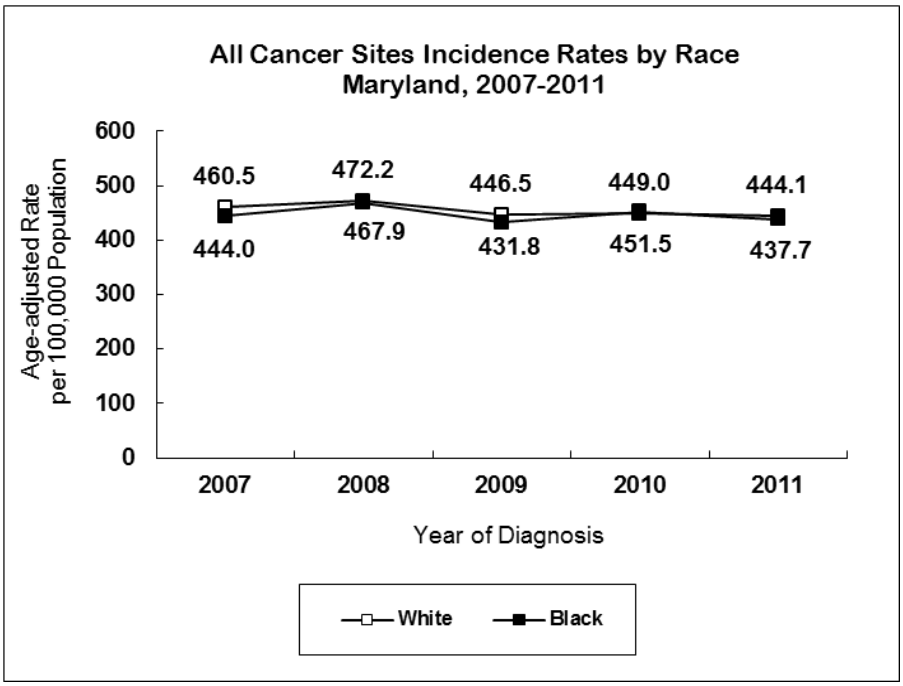
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Incidence and Mortality Trends

In Maryland, the incidence rate for all cancer sites decreased at a rate of 1.1% per year from 2007 to 2011.

Cancer mortality rates decreased at a rate of 2.2% per year from 2007 to 2011.

See Appendix I, Tables 1 and 2.

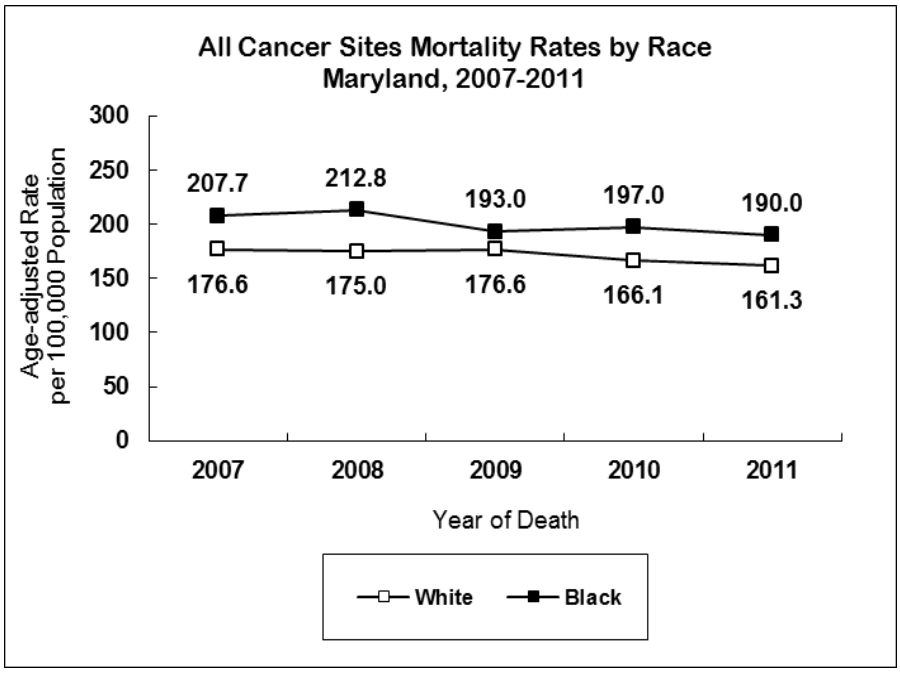


Source: Maryland Cancer Registry

Incidence Trends by Race

In 2011, the incidence rate for all cancer sites among blacks fell below the incidence rate for whites in Maryland, continuing the trend seen prior to 2010. From 2007 to 2011, incidence rates for all cancer sites decreased at a rate of 1.2% among whites and 0.6% per year among blacks.

See Appendix I, Table 3.



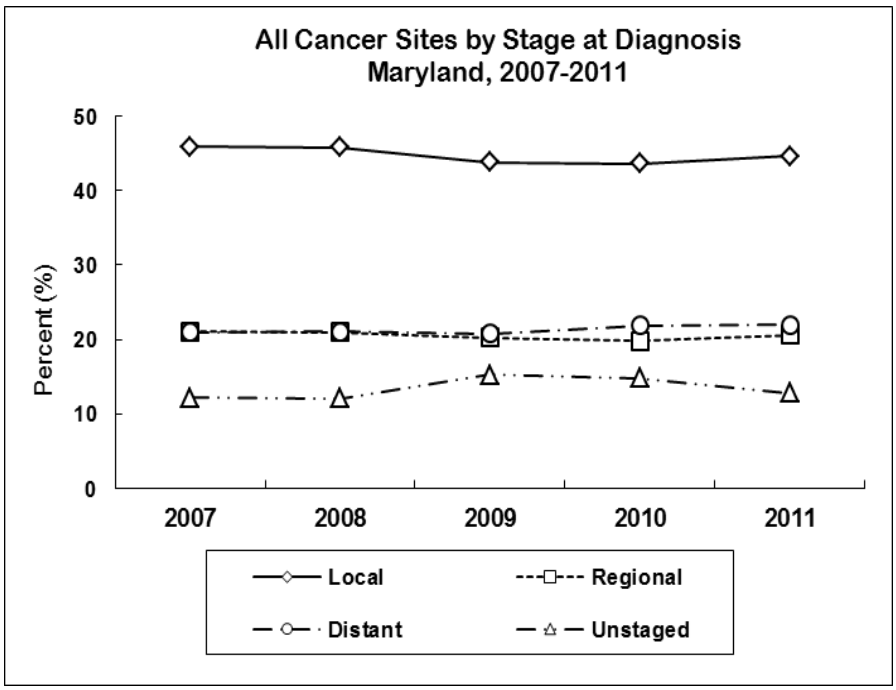
Source: NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Mortality Trends by Race

Both blacks and whites showed declines in cancer mortality from 2007 to 2011, with a decrease of 2.5% per year for blacks and 2.3% per year for whites.

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

See Appendix I, Table 5.

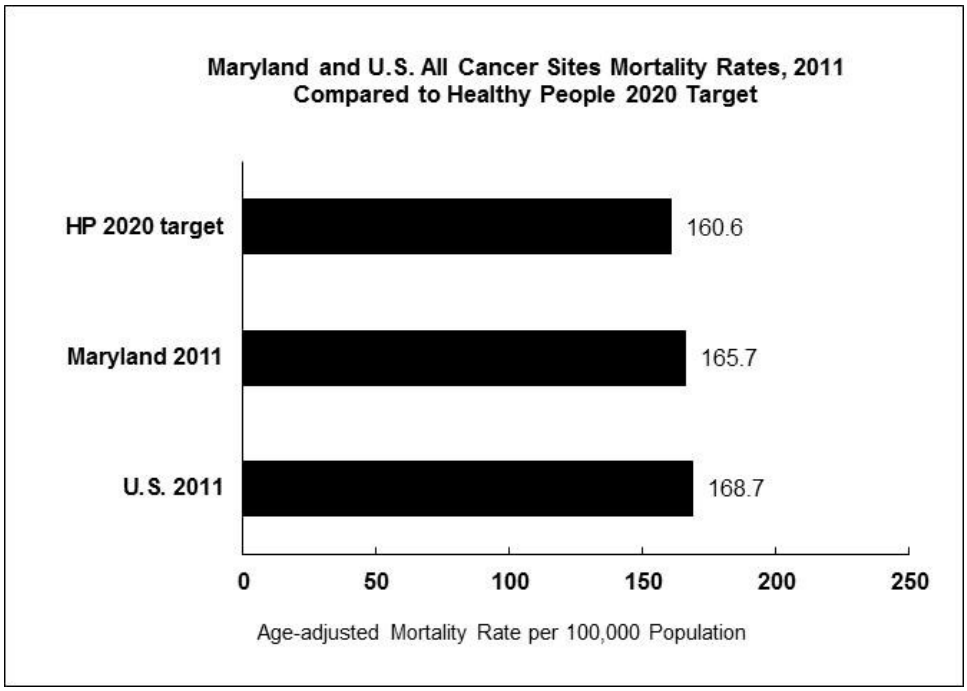


Source: Maryland Cancer Registry

Stage at Diagnosis

Of all cancers diagnosed in Maryland in 2011, 44.6% were found at the local (early) stage, 20.6% at the regional stage, and 22.0% at the distant (late) stage. The proportion of all cancers reported as unstaged has decreased in 2011.

See Appendix J, Table 1.



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

Mortality Rates Compared to Healthy People 2020 Target

For the second time since 2000, Maryland's all cancer mortality rate has fallen below the U.S. rate. The mortality rate for all cancer sites in Maryland for 2011 was 165.7 per 100,000 population and the U.S. rate was 168.7 per 100,000 population. The Healthy People 2020 target is 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
- being physically active
- eating a healthy diet
- limiting alcohol use
- staying at a healthy weight

» Early detection (screening) and treatment of:
- colon and rectum cancer
- female breast cancer
- cervical 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, 2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	27,916	13,857	14,047	19,381	7,137	826
Allegany	492	255	237	462	27	<6
Anne Arundel	2,658	1,339	1,319	2,246	314	60
Baltimore City	3,047	1,457	1,586	1,054	1,946	20
Baltimore County	4,379	2,076	2,302	3,404	852	81
Calvert	442	219	222	373	59	<6
Caroline	175	93	82	147	27	0
Carroll	805	390	414	764	23	<6
Cecil	515	270	245	489	16	<6
Charles	628	329	298	400	201	12
Dorchester	241	124	117	191	s	<6
Frederick	1,046	525	521	929	82	15
Garrett	169	87	82	168	0	0
Harford	1,322	679	643	1,159	128	15
Howard	1,231	632	598	936	194	81
Kent	131	70	61	118	13	0
Montgomery	4,263	2,003	2,259	2,991	636	416
Prince George's	3,235	1,676	1,559	869	2,184	90
Queen Anne's	237	131	106	218	18	0
Saint Mary's	427	213	213	360	58	6
Somerset	166	93	73	118	42	0
Talbot	270	130	140	238	s	<6
Washington	807	397	410	757	38	6
Wicomico	606	306	300	477	114	6
Worcester	402	221	181	353	42	<6

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

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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, 2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	440.7	489.9	407.3	444.1	437.7	260.6
Allegany	484.7	545.1	446.1	471.3	981.2	**
Anne Arundel	455.4	503.5	422.0	459.0	416.8	354.7
Baltimore City	478.2	534.1	440.8	493.0	474.3	154.7
Baltimore County	453.6	490.0	430.0	458.4	470.2	224.3
Calvert	464.0	505.3	436.2	465.5	444.5	**
Caroline	457.1	519.9	409.3	450.7	521.0	0.0
Carroll	414.4	449.8	396.9	411.8	432.8	**
Cecil	464.9	518.1	427.9	470.7	292.9	**
Charles	436.3	518.5	379.5	435.2	437.2	**
Dorchester	534.2	597.3	480.0	563.0	476.2	**
Frederick	422.6	458.7	392.5	417.9	495.7	**
Garrett	424.8	490.9	388.2	425.0	0.0	0.0
Harford	480.6	535.7	438.3	479.1	471.4	**
Howard	422.3	487.8	380.2	444.4	452.2	226.5
Kent	429.0	492.6	384.0	444.2	**	0.0
Montgomery	394.6	419.8	380.9	386.7	405.1	279.1
Prince George's	390.0	475.5	333.1	368.0	393.4	253.1
Queen Anne's	387.4	460.8	321.5	389.8	400.4	0.0
Saint Mary's	408.3	424.3	395.0	411.9	402.0	**
Somerset	545.1	627.8	503.2	548.9	533.3	0.0
Talbot	424.8	439.0	417.8	424.7	415.5	**
Washington	464.2	493.4	451.3	466.8	422.9	**
Wicomico	553.7	632.0	504.6	568.0	512.2	**
Worcester	484.1	532.4	449.3	479.3	487.1	**

* 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/Maryland Cancer Registry 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, 2011

Jurisdiction	Cases	Rate
Maryland	690	284.3
Allegany	<6	**
Anne Arundel	37	236.2
Baltimore City	34	263.7
Baltimore County	61	373.1
Calvert	<6	**
Caroline	<6	**
Carroll	6	**
Cecil	8	**
Charles	11	**
Dorchester	0	0.0
Frederick	19	211.0
Garrett	0	0.0
Harford	14	**
Howard	31	381.3
Kent	<6	**
Montgomery	287	277.9
Prince George's	137	264.5
Queen Anne's	0	0.0
St. Mary's	<6	**
Somerset	0	0.0
Talbot	0	0.0
Washington	10	**
Wicomico	10	**
Worcester	<6	**
Region	**Cases**	**Rate**
Baltimore Metropolitan Area ^	183	309.3
Eastern Shore Region	28	334.6
National Capital Area	424	270.0
Northwest Region	33	295.6
Southern Region	15	**

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

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

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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

^ Includes Baltimore City (See Appendix D)

Source: Maryland Cancer Registry

Table 5.
Number of Deaths for All Cancer Sites
by Jurisdiction, Gender and Race, Maryland, 2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	10,223	5,214	5,009	7,112	2,843	233
Allegany	177	91	86	s	<5	0
Anne Arundel	921	483	438	789	110	19
Baltimore City	1,330	650	680	396	924	7
Baltimore County	1,706	824	882	1,346	332	24
Calvert	151	83	68	133	15	<5
Caroline	61	31	30	s	10	<5
Carroll	323	168	155	312	s	<5
Cecil	193	114	79	188	5	0
Charles	251	122	129	148	99	<5
Dorchester	80	44	36	57	s	<5
Frederick	365	200	165	326	33	6
Garrett	74	45	29	74	0	0
Harford	435	233	202	393	39	<5
Howard	381	195	186	288	70	23
Kent	50	29	21	42	8	0
Montgomery	1,315	643	672	984	205	115
Prince George's	1,226	607	619	377	816	22
Queen Anne's	109	54	55	95	14	0
Saint Mary's	186	104	82	169	15	<5
Somerset	75	45	30	59	15	0
Talbot	119	67	52	98	20	0
Washington	296	154	142	285	s	<5
Wicomico	242	130	112	189	51	<5
Worcester	157	98	59	138	19	0

*Total includes deaths reported as transexual, hermaphrodite, unknown gender, and unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 6.
All Cancer Sites Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	165.7	199.4	143.3	161.3	190.0	82.7
Allegany	168.0	199.3	142.0	172.7	**	**
Anne Arundel	165.5	200.3	142.5	166.7	169.7	**
Baltimore City	213.2	251.8	189.6	181.8	233.5	**
Baltimore County	172.0	200.6	153.4	168.9	197.8	75.9
Calvert	169.4	234.3	132.4	175.6	**	**
Caroline	164.0	194.5	143.0	158.5	**	**
Carroll	171.6	210.7	141.0	172.0	**	**
Cecil	182.7	248.9	135.4	187.8	**	**
Charles	191.8	213.5	175.6	168.8	257.0	**
Dorchester	173.3	221.5	137.6	158.0	225.7	**
Frederick	154.9	200.1	123.0	151.4	242.3	**
Garrett	173.8	229.7	120.3	174.8	**	**
Harford	162.7	199.0	135.2	165.4	167.0	**
Howard	146.4	184.5	126.8	151.1	179.1	83.9
Kent	151.5	206.9	106.7	144.0	**	**
Montgomery	123.5	144.1	110.8	123.1	145.5	87.6
Prince George's	163.3	197.7	143.9	161.7	165.7	64.9
Queen Anne's	190.3	213.5	180.5	182.4	**	**
Saint Mary's	195.3	233.0	162.4	211.8	**	**
Somerset	246.9	317.4	181.4	268.6	**	**
Talbot	182.1	240.8	137.7	166.8	319.4	**
Washington	166.8	201.5	145.0	169.1	**	**
Wicomico	220.5	286.3	176.0	217.7	239.2	**
Worcester	177.1	243.2	123.2	175.5	**	**

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

** Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Table 7.
Number of Cancer Cases for All Cancer Sites by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	136,590	68,532	67,956	96,161	33,727	3,644
Allegany	2,517	1,302	1,214	2,397	104	7
Anne Arundel	13,159	6,758	6,391	11,251	1,519	197
Baltimore City	15,368	7,479	7,877	5,385	9,687	117
Baltimore County	21,790	10,519	11,258	17,250	3,830	385
Calvert	2,027	999	1,018	1,727	265	6
Caroline	831	424	406	717	107	0
Carroll	4,106	2,090	2,011	3,907	110	23
Cecil	2,524	1,310	1,212	2,382	112	9
Charles	2,783	1,476	1,301	1,766	893	43
Dorchester	1,013	537	475	763	240	<6
Frederick	4,984	2,467	2,515	4,482	338	77
Garrett	807	411	396	801	0	<6
Harford	6,435	3,290	3,144	5,671	599	69
Howard	5,789	2,865	2,919	4,361	865	421
Kent	687	379	308	585	99	<6
Montgomery	20,801	10,081	10,709	15,104	2,979	1,755
Prince George's	15,638	7,976	7,652	4,595	10,144	419
Queen Anne's	1,289	686	602	1,176	98	<6
Saint Mary's	2,140	1,102	1,036	1,822	269	22
Somerset	765	429	336	547	187	<6
Talbot	1,396	754	642	1,233	150	<6
Washington	3,902	2,021	1,880	3,653	195	23
Wicomico	2,798	1,480	1,315	2,194	543	19
Worcester	2,076	1,174	900	1,760	209	6

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

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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

Source: Maryland Cancer Registry

Table 8.
All Cancer Sites Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	451.8	513.2	409.1	454.2	446.1	256.2
Allegany	518.1	599.7	464.1	513.2	861.5	**
Anne Arundel	479.2	538.3	434.6	485.0	450.6	259.6
Baltimore City	480.2	557.9	429.6	479.5	478.5	265.1
Baltimore County	468.6	517.1	436.4	471.1	472.2	246.4
Calvert	457.9	502.8	426.9	464.0	421.8	**
Caroline	454.9	512.1	410.7	461.4	426.4	0.0
Carroll	442.0	496.3	404.4	440.3	388.7	233.6
Cecil	480.5	536.0	439.5	483.9	414.6	**
Charles	427.3	514.4	361.5	413.4	447.1	249.7
Dorchester	468.0	557.3	399.1	465.6	471.7	**
Frederick	439.0	486.4	407.2	438.4	439.3	252.8
Garrett	415.7	455.2	389.4	415.9	0.0	**
Harford	496.9	561.8	450.5	494.8	502.2	266.0
Howard	421.2	462.4	393.0	430.4	419.9	279.7
Kent	463.3	559.5	391.8	463.5	459.2	**
Montgomery	399.4	443.3	371.5	397.3	421.7	257.6
Prince George's	403.5	483.5	349.9	374.1	415.0	247.4
Queen Anne's	452.6	507.5	405.1	458.3	395.2	**
Saint Mary's	438.2	475.0	407.9	450.0	386.8	209.2
Somerset	524.8	625.0	462.3	531.3	478.7	**
Talbot	472.7	556.0	406.0	478.3	422.1	**
Washington	469.7	539.2	425.8	468.1	498.7	274.1
Wicomico	541.3	655.7	461.8	549.4	510.4	189.1
Worcester	518.6	616.2	442.5	499.4	453.1	**

* 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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 9.
Number of Cancer Deaths for All Cancer Sites
by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	51,335	26,082	25,253	36,374	13,729	1,110
Allegany	928	460	468	912	s	<5
Anne Arundel	4,684	2,416	2,268	4,069	541	64
Baltimore City	6,862	3,455	3,407	2,207	4,612	31
Baltimore County	8,733	4,295	4,438	7,113	1,482	124
Calvert	743	385	358	632	105	5
Caroline	347	189	158	292	52	<5
Carroll	1,596	877	719	1,547	43	6
Cecil	1,030	594	436	982	s	<5
Charles	1,131	585	546	749	366	13
Dorchester	417	226	191	299	s	<5
Frederick	1,789	913	876	1,624	139	25
Garrett	344	187	157	s	<5	0
Harford	2,189	1,135	1,054	1,966	204	19
Howard	1,806	869	937	1,412	283	109
Kent	305	171	134	248	57	0
Montgomery	6,645	3,189	3,456	5,065	983	556
Prince George's	6,084	3,037	3,047	1,952	3,972	126
Queen Anne's	519	288	231	466	51	0
Saint Mary's	825	455	370	715	103	7
Somerset	321	170	151	228	90	<5
Talbot	550	300	250	474	75	0
Washington	1,535	823	712	1,466	61	8
Wicomico	1,157	610	547	928	222	7
Worcester	795	453	342	685	108	<5

*Total includes deaths reported as transexual, hermaphrodite, unknown gender, and unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 10.
All Cancer Sites Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2007-2011

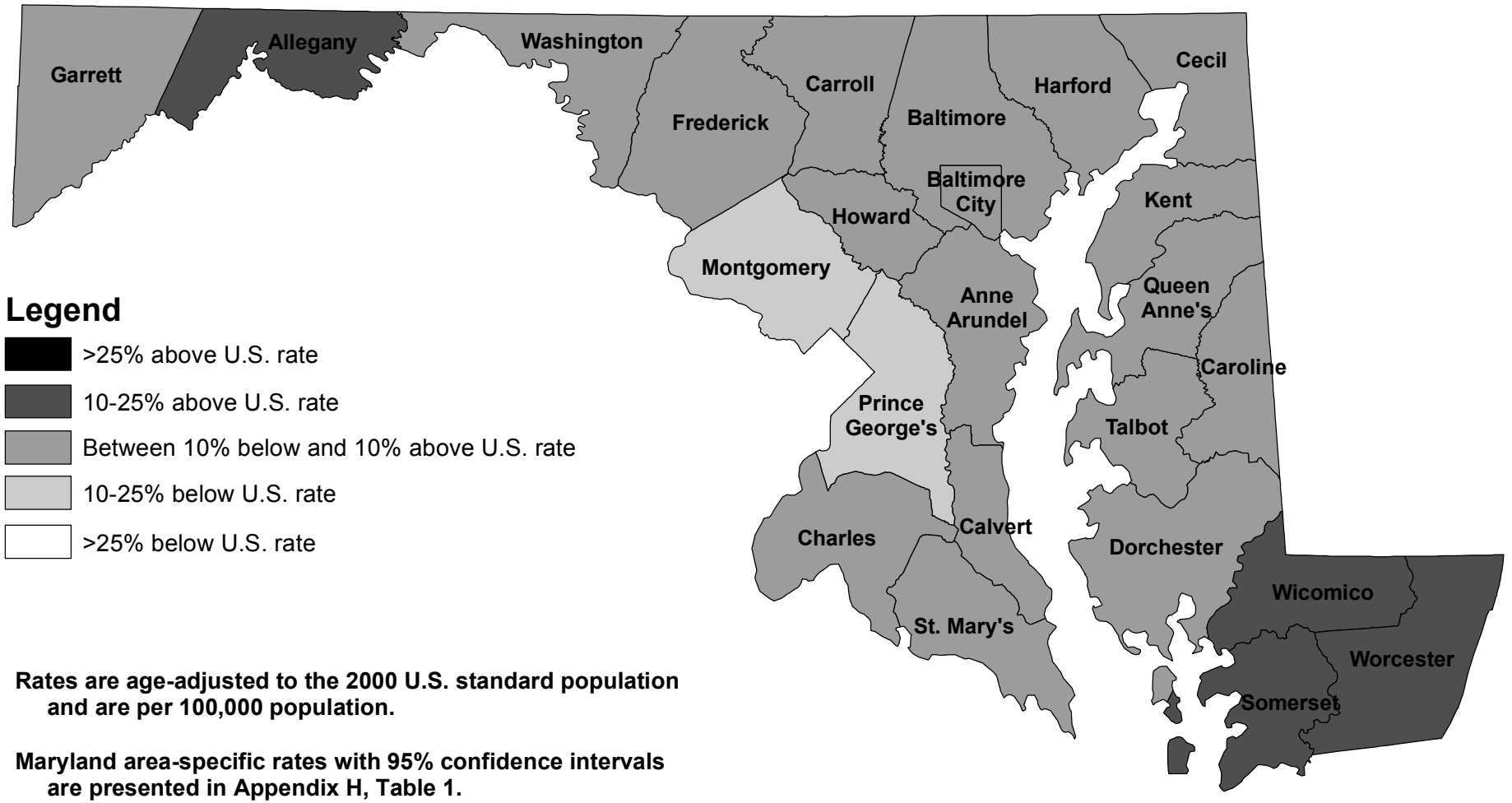
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	175.8	215.5	150.4	172.0	201.0	88.8
Allegany	182.5	221.6	159.5	184.4	**	**
Anne Arundel	183.4	219.0	159.5	186.4	182.9	93.6
Baltimore City	217.1	279.7	179.8	194.8	232.8	88.4
Baltimore County	186.2	222.7	163.4	184.2	212.6	90.3
Calvert	181.0	224.2	154.7	183.0	180.3	**
Caroline	195.2	252.5	154.5	194.9	201.0	**
Carroll	173.0	224.4	136.9	175.1	147.1	**
Cecil	202.8	267.2	156.3	205.6	185.7	**
Charles	193.2	237.8	163.9	186.1	224.2	**
Dorchester	183.6	238.7	145.6	172.2	220.3	**
Frederick	168.7	204.8	144.0	169.3	192.0	83.5
Garrett	173.1	211.6	142.2	173.9	**	**
Harford	177.5	211.1	153.0	179.1	187.4	**
Howard	146.4	168.9	134.3	151.5	152.1	96.4
Kent	198.7	269.1	152.8	190.3	247.0	**
Montgomery	129.5	153.1	116.0	129.5	155.1	90.4
Prince George's	174.4	217.8	149.7	154.2	198.0	81.0
Queen Anne's	193.1	237.1	158.0	195.6	189.2	**
Saint Mary's	183.2	226.4	151.7	193.1	153.0	**
Somerset	223.7	275.1	185.8	219.1	240.8	**
Talbot	176.8	231.6	139.3	174.4	200.3	**
Washington	182.5	233.8	150.1	183.3	188.8	**
Wicomico	226.2	291.9	184.2	234.9	206.7	**
Worcester	198.9	261.7	151.2	198.2	212.9	**

* 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/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Maryland All Cancer Sites Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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

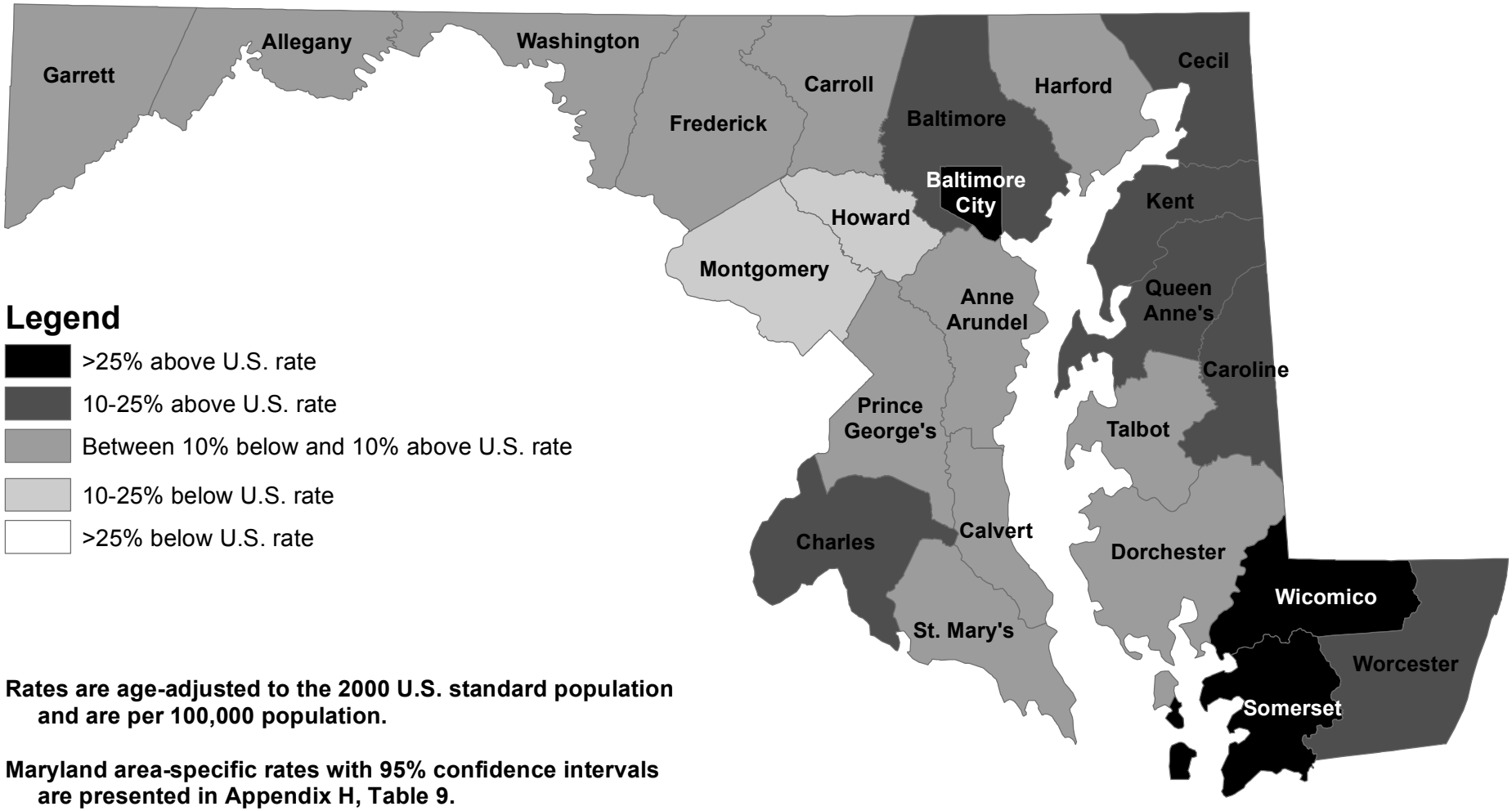
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 1.

U.S. all cancer sites incidence rate, 2007-2011: 460.4/100,000

Maryland all cancer sites incidence rate, 2007-2011: 451.8/100,000

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

Maryland All Cancer Sites Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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, 2007-2011: 168.7/100,000

Maryland all cancer sites mortality rate, 2007-2011: 165.7/100,000

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

III. Targeted Cancers

A. Lung and Bronchus Cancer

Incidence (New Cases)

There were 3,519 new cases of lung and bronchus cancer (called lung cancer) reported among Maryland residents in 2011. The 2011 Maryland age-adjusted lung cancer incidence rate was 56.8 per 100,000 population (54.9-58.8, 95% C.I.), which is similar to the 2011 U.S. SEER lung cancer incidence rate of 55.9 per 100,000 population (55.4-56.4, 95% C.I.).

Mortality (Deaths)

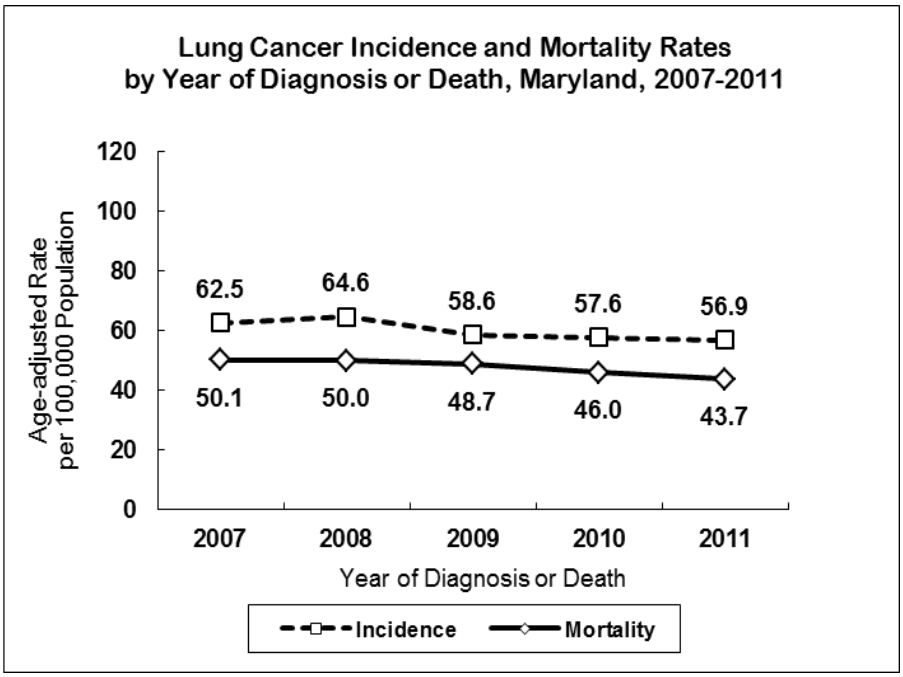
There were 2,685 lung cancer deaths among Maryland residents in 2011. In 2011, lung cancer accounted for 26.9% of all cancer deaths in Maryland and was the leading cause of cancer death in both men and women. The 2011 age-adjusted lung cancer mortality rate was 43.7 per 100,000 population (42.0-45.4, 95% C.I.) in Maryland. This rate is statistically significantly lower than the 2011 U.S. mortality rate for lung and bronchus cancer of 46.0 per 100,000 population (45.8-46.2, 95% C.I.). Maryland had the 30th highest lung cancer mortality rate among the states and the District of Columbia for the period 2007-2011.

Note: Maryland 2008, 2009, and 2010 lung cancer mortality data include lung, bronchus, and trachea primary sites. Incidence data only include lung and bronchus primary sites.

Table 11.
Lung Cancer Incidence and Mortality Rates
by Gender and Race, Maryland and the United States, 2011

Incidence 2011	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*A/PI*
New Cases (count)	3,519	1,742	1,777	2,610	821	73
MD Incidence Rate	56.8	64.1	51.5	59.7	53.4	26.9
U.S. SEER Rate	55.9	66.2	48.2	57.5	62.5	35.4
Mortality 2011	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*A/PI*
Deaths (count)	2,685	1,394	1,291	1,937	698	47
MD Mortality Rate	43.7	52.3	37.4	44.2	47.2	16.6
U.S. Mortality Rate	46.0	57.9	37.0	46.7	49.4	N/A

Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population
Total also includes cases reported as transexual, hermaphrodite, unknown gender, and unknown race
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration
U.S. SEER, Cancer Statistics Review



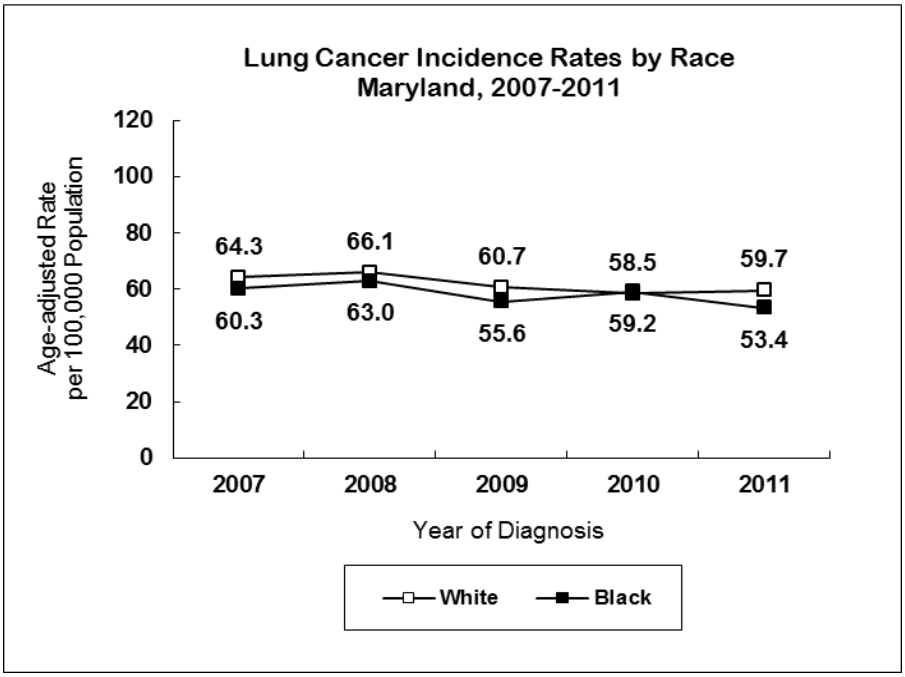
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Incidence and Mortality Trends

Lung cancer incidence rates in Maryland decreased at a rate of 3.0% per year from 2007 to 2011.

Lung cancer mortality rates decreased at a rate of 3.5% per year from 2007 to 2011.

See Appendix I, Tables 1 and 2.

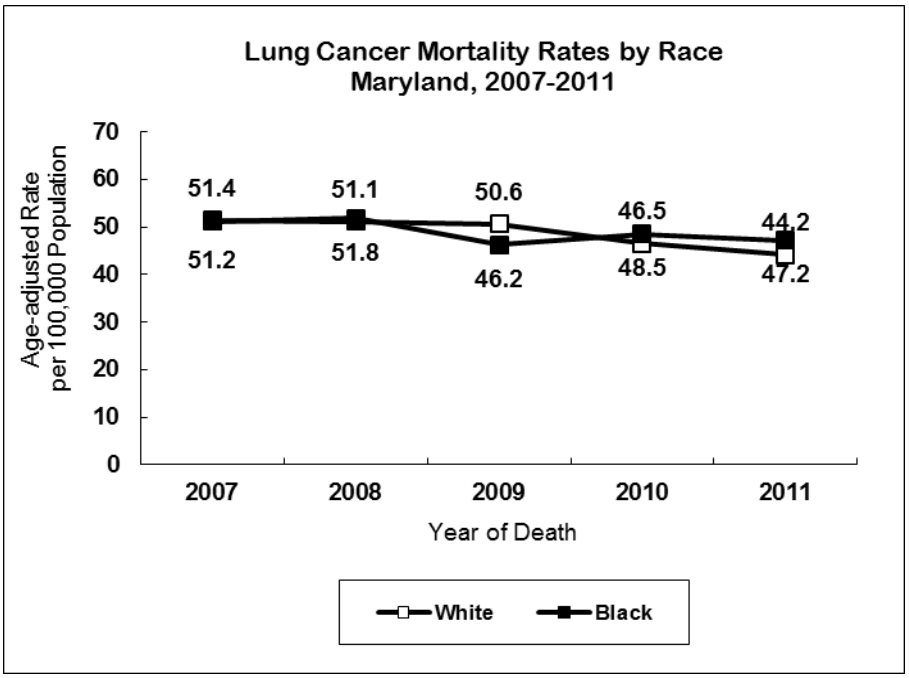


Source: Maryland Cancer Registry

Incidence Trends by Race

From 2007 to 2011, lung cancer incidence rates for blacks decreased at a rate of 3.0% per year, compared to a decline of 2.7% per year among whites.

See Appendix I, Table 3.

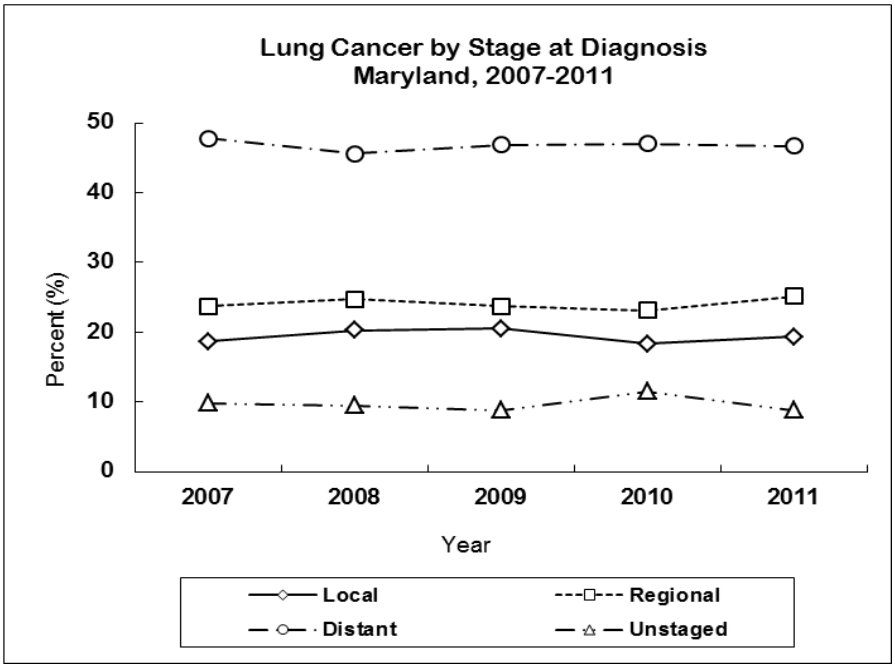


Source: NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Mortality Trends by Race

Lung cancer mortality rates are declining for both blacks and whites. From 2007 to 2011, rates decreased at a rate of 2.3% per year for blacks, and 3.9% per year for whites.

See Appendix I, Table 5.

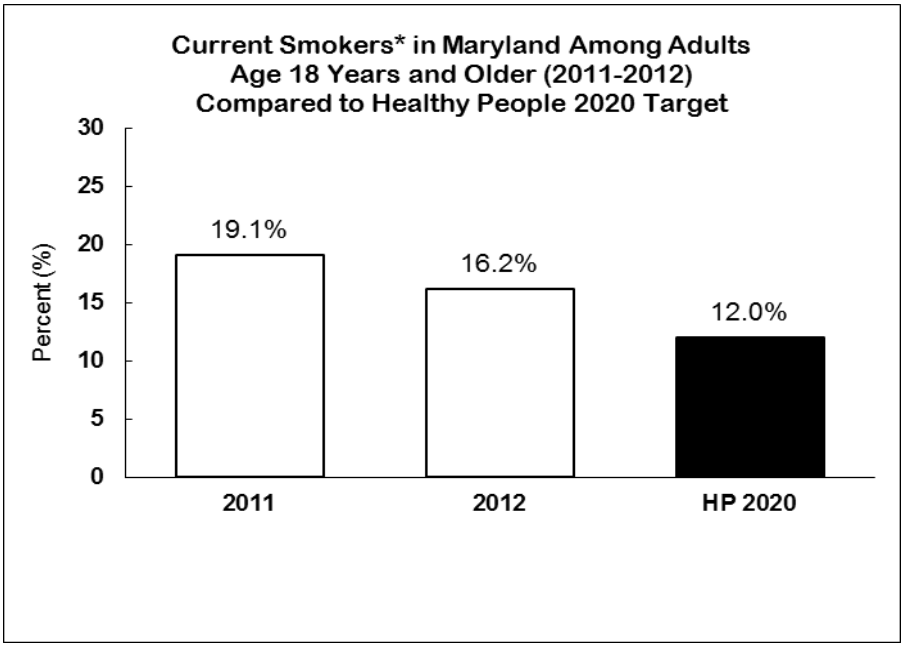


Source: Maryland Cancer Registry

Stage at Diagnosis

A higher proportion of lung cancer cases were diagnosed at the distant stage than at the local or regional stage of cancer. In 2011, 19.3% of lung cancer cases in Maryland were diagnosed at the local stage, 25.2% were detected at the regional stage, and 46.7% were found at the distant stage. The proportion of lung cancers reported as unstaged declined in 2011.

See Appendix J, Table 2.

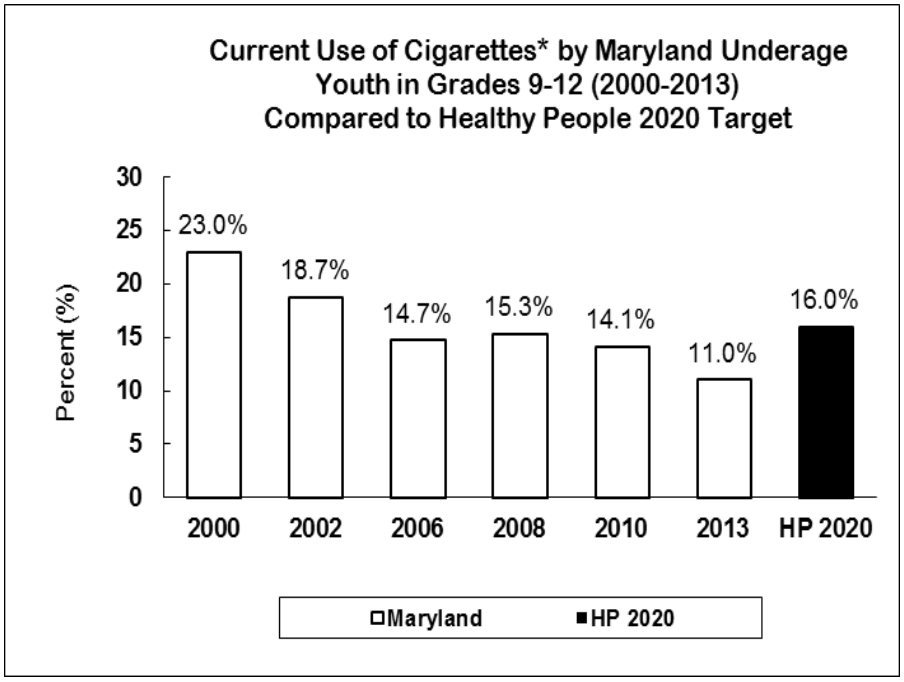


* Current smoker is defined as a person who smokes cigarettes every day or some days.

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 12.0%. Although Maryland has not yet attained this goal, the percentage of adult smokers has decreased from 19.1% in 2011 to 16.2% in 2012.



* Current use of cigarettes is defined as smoking cigarettes on 1 or more days in the previous 30 days.

Source: Maryland Youth Tobacco Survey (2000, 2002, 2006, 2008, 2010)
Maryland Youth Tobacco and Risk Behavior Survey (2013)
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 16.0%.

Based on results of the 2006, 2008, 2010 Maryland Youth Tobacco Surveys and the 2013 Maryland Youth Tobacco and Risk Behavior Survey, 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], 1/30/2014 and 2/21/2014, and United States Preventive Services Task Force [USPSTF], 12/31/2013)

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. 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.

Environmental, or secondhand, tobacco smoke contains the same components as inhaled mainstream smoke at 1% to 10% of the concentration, depending on the component. Based on solid evidence, exposure to secondhand smoke causes lung cancer and therefore, preventing exposure to secondhand smoke would result in decreased incidence and mortality from primary lung cancers. Exposure to radon increases lung cancer incidence and mortality. Workplace exposure to asbestos, arsenic, beryllium, cadmium, chromium, and nickel increases lung cancer incidence and mortality and reducing or eliminating workplace exposures to known lung carcinogens would be expected to result in a corresponding decreased risk of lung cancer. Cigarette smoking also potentiates the effect of many of these lung carcinogens so that the lung cancer risk is even greater in smokers. Based on solid evidence, exposure to outdoor air pollution, specifically small particles, increases lung cancer incidence and mortality.

Screening

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

In 2013, the USPSTF recommended annual lung cancer screening with LDCT for asymptomatic adults aged 55 to 80 years who have a 30 pack-year smoking history and who currently smoke or have quit smoking within the past 15 years (Grade B). Screening is recommended to be discontinued when the patient has not smoked for 15 years. The harms of screening must be balanced with the benefits.

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, January 2014)

- Prevent initiation among youth and young adults.
- Promote quitting among adults and youth.
- Eliminate exposure to secondhand smoke.
- Identify and eliminate tobacco-related disparities among population groups.

The CDC Best Practice Guidelines for Comprehensive Tobacco Control Programs addresses the following five components:

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

✓ Support and implement programs and policies to influence societal organizations, systems, and networks that encourage and support individuals to make behavior choices consistent with tobacco-free norms.
✓ Integrate state and community population-wide approaches and interventions aimed at tobacco use cessation, preventing tobacco use initiation, and eliminating secondhand smoke exposure.
✓ Combine state and community approaches with mass-reach health communication campaigns, as well as efforts to mobilize communities.

- ***Mass-Reach Health Communication Interventions:***

✓ Deliver strategic, culturally appropriate, and high-impact messages in sustained and adequately funded campaigns that are integrated into a comprehensive state tobacco control program.
✓ 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:***

✓ Focus on three goals: (1) promote health systems change; (2) expand insurance coverage of evidence-based cessation treatments; and (3) support state quitline capacity.
✓ Make quitline counseling available to all tobacco users willing to access the service.

- ***Surveillance and Evaluation:***

✓ Monitor tobacco-related attitudes, behaviors, and health outcomes.
✓ Monitor and document key short-term, intermediate, and long-term outcomes within populations.
✓ Use data to inform program and policy directions, demonstrate program effectiveness, monitor progress on reducing health disparities, ensure accountability, and engage stakeholders.

- ***Infrastructure, 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://phpa.dhmh.maryland.gov/cancer/cancerplan/SitePages/Home.aspx
- The Maryland Tobacco Quitline, 1-800-QUIT-NOW – www.SmokingStopsHere.com
- CDC Best Practices for Comprehensive Tobacco Control Programs – 2014: http://www.cdc.gov/tobacco/stateandcommunity/best_practices/index.htm?source=govdelivery

Table 12.
Number of Lung and Bronchus Cancer Cases by Jurisdiction, Gender and Race, Maryland, 2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	3,519	1,742	1,777	2,610	821	73
Allegany	78	49	29	74	<6	0
Anne Arundel	361	171	190	316	33	10
Baltimore City	480	253	227	s	304	<6
Baltimore County	602	262	340	503	94	<6
Calvert	49	22	27	41	6	<6
Caroline	30	15	15	27	<6	0
Carroll	107	53	54	103	<6	0
Cecil	64	34	30	s	<6	0
Charles	80	39	41	60	19	0
Dorchester	35	13	22	28	7	0
Frederick	128	61	67	122	6	0
Garrett	28	16	12	28	0	0
Harford	177	86	91	164	s	<6
Howard	124	66	58	103	14	7
Kent	18	11	7	16	<6	0
Montgomery	361	173	188	272	47	37
Prince George's	341	195	146	116	214	9
Queen Anne's	31	17	14	29	<6	0
Saint Mary's	73	43	30	58	13	<6
Somerset	37	17	20	26	9	0
Talbot	29	13	16	26	<6	0
Washington	121	56	65	112	7	<6
Wicomico	90	36	54	75	15	0
Worcester	64	34	30	62	<6	0

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

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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, 2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	56.8	64.1	51.5	59.7	53.4	26.9
Allegany	75.7	106.4	52.2	74.2	**	0.0
Anne Arundel	63.8	67.5	61.2	65.3	50.0	**
Baltimore City	75.1	94.3	62.3	80.5	73.6	**
Baltimore County	61.9	62.3	61.2	65.3	57.1	**
Calvert	53.2	54.2	50.9	54.2	**	**
Caroline	75.8	**	**	78.9	**	0.0
Carroll	55.7	61.8	51.9	55.8	**	0.0
Cecil	58.0	65.3	51.7	60.5	**	0.0
Charles	56.9	62.0	53.4	63.7	50.2	0.0
Dorchester	77.9	**	94.2	80.6	**	0.0
Frederick	55.3	58.2	53.7	57.6	**	0.0
Garrett	65.4	87.8	**	65.8	0.0	0.0
Harford	66.7	70.2	63.1	69.1	**	**
Howard	48.0	59.3	40.7	53.2	**	**
Kent	52.9	**	**	54.2	**	0.0
Montgomery	35.0	40.3	31.4	36.2	35.0	27.0
Prince George's	44.2	58.8	33.7	49.8	41.4	**
Queen Anne's	51.7	62.6	**	52.1	**	0.0
Saint Mary's	76.9	101.6	57.9	73.9	**	**
Somerset	120.6	119.2	128.8	115.9	**	0.0
Talbot	43.3	**	46.7	43.6	**	0.0
Washington	69.7	70.7	70.2	67.9	**	**
Wicomico	82.5	76.1	87.5	86.6	**	0.0
Worcester	69.2	79.1	60.8	74.9	**	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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 14.
Number of Lung and Bronchus Cancer Deaths by Jurisdiction, Gender and Race, Maryland, 2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	2,685	1,394	1,291	1,937	698	47
Allegany	51	28	23	51	0	0
Anne Arundel	255	141	114	224	26	5
Baltimore City	376	193	183	111	261	<5
Baltimore County	462	227	235	378	s	<5
Calvert	47	22	25	44	<5	<5
Caroline	19	9	10	16	<5	0
Carroll	90	47	43	85	5	0
Cecil	57	35	22	57	0	0
Charles	51	28	23	32	19	0
Dorchester	26	14	12	18	8	0
Frederick	89	50	39	82	s	<5
Garrett	20	15	5	20	0	0
Harford	141	79	62	126	s	<5
Howard	89	43	46	63	20	6
Kent	16	9	7	14	<5	0
Montgomery	267	126	141	200	45	21
Prince George's	266	137	129	103	156	6
Queen Anne's	35	13	22	30	5	0
Saint Mary's	55	36	19	48	s	<5
Somerset	34	16	18	24	10	0
Talbot	28	14	14	21	7	0
Washington	89	46	43	84	5	0
Wicomico	68	33	35	58	s	<5
Worcester	54	33	21	48	6	0

*Total includes deaths reported as transexual, hermaphrodite, unknown gender, and unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 15.
Lung and Bronchus Cancer Age-Adjusted Mortality Rates* by Jurisdiction, Gender and Race, Maryland, 2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	43.7	52.3	37.4	44.2	47.2	16.6
Allegany	48.4	60.7	39.5	49.8	**	**
Anne Arundel	46.2	57.4	37.4	47.5	38.0	**
Baltimore City	60.2	74.4	50.5	51.0	65.7	**
Baltimore County	47.5	54.5	42.1	49.1	52.6	**
Calvert	50.2	57.3	47.2	55.0	**	**
Caroline	**	**	**	**	**	**
Carroll	48.4	57.4	40.7	47.7	**	**
Cecil	53.1	73.7	36.8	56.2	**	**
Charles	38.5	46.4	31.8	35.8	**	**
Dorchester	54.6	**	**	**	**	**
Frederick	38.5	50.2	29.9	38.8	**	**
Garrett	45.9	**	**	46.2	**	**
Harford	51.8	64.4	40.8	52.1	**	**
Howard	34.2	39.4	32.4	33.3	50.1	**
Kent	**	**	**	**	**	**
Montgomery	25.7	28.7	23.8	25.6	35.2	15.8
Prince George's	35.5	42.8	30.5	44.0	30.6	**
Queen Anne's	59.8	**	71.9	56.4	**	**
Saint Mary's	58.7	79.1	**	62.1	**	**
Somerset	114.2	**	**	112.6	**	**
Talbot	41.0	**	**	33.5	**	**
Washington	50.9	61.0	45.3	50.5	**	**
Wicomico	62.9	74.5	55.0	67.7	**	**
Worcester	60.7	80.5	45.0	60.4	**	**

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

** Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Table 16.
Number of Lung and Bronchus Cancer Cases by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	17,701	8,938	8,751	13,078	4,130	364
Allegany	416	219	197	400	16	0
Anne Arundel	1,817	903	910	1,620	166	26
Baltimore City	2,459	1,247	1,211	866	1,570	16
Baltimore County	3,163	1,533	1,630	2,675	437	41
Calvert	245	112	131	212	30	<6
Caroline	128	73	55	111	17	0
Carroll	551	306	245	532	16	<6
Cecil	398	199	199	381	12	<6
Charles	331	181	149	235	85	<6
Dorchester	155	87	68	110	43	0
Frederick	616	326	290	570	41	<6
Garrett	106	62	44	s	0	<6
Harford	854	432	422	780	60	10
Howard	567	277	290	461	65	37
Kent	107	52	55	87	20	0
Montgomery	1,864	844	1,019	1,392	278	167
Prince George's	1,703	899	802	635	1,012	41
Queen Anne's	187	101	86	174	13	0
Saint Mary's	318	180	138	267	44	<6
Somerset	147	77	70	106	29	0
Talbot	164	68	96	141	23	0
Washington	589	323	265	553	33	<6
Wicomico	451	231	220	368	77	<6
Worcester	309	173	136	256	35	0

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

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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

Source: Maryland Cancer Registry

Table 17.
Lung and Bronchus Cancer Age-Adjusted Incidence Rates* by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	59.9	69.9	52.8	61.8	58.2	28.9
Allegany	82.0	100.6	67.7	81.2	158.5	0.0
Anne Arundel	68.7	76.5	63.0	71.5	54.2	40.6
Baltimore City	77.5	95.3	65.5	78.3	77.7	41.7
Baltimore County	67.5	76.7	60.9	70.4	60.0	30.4
Calvert	58.9	62.3	56.1	60.7	48.9	**
Caroline	69.8	91.8	54.2	71.2	65.6	0.0
Carroll	60.3	75.4	49.5	60.8	52.8	**
Cecil	77.4	85.2	72.0	78.9	**	**
Charles	54.5	66.7	44.7	56.6	49.8	**
Dorchester	68.8	86.2	55.7	63.6	83.4	0.0
Frederick	57.4	68.8	49.2	58.2	66.7	**
Garrett	52.3	68.3	40.1	52.2	0.0	**
Harford	67.7	77.4	60.8	69.1	55.4	**
Howard	46.2	51.4	42.9	49.9	36.5	30.0
Kent	69.1	75.8	64.9	65.8	89.7	0.0
Montgomery	37.1	39.6	35.6	36.9	44.4	26.7
Prince George's	47.7	59.8	39.5	52.3	45.9	26.6
Queen Anne's	66.6	78.3	56.5	68.6	**	0.0
Saint Mary's	69.7	85.1	57.1	71.0	65.5	**
Somerset	99.4	113.8	87.9	98.7	74.8	0.0
Talbot	49.6	45.5	53.4	48.9	61.6	0.0
Washington	70.6	88.2	58.0	69.7	91.6	**
Wicomico	86.7	104.1	74.6	90.6	73.1	**
Worcester	72.0	88.1	59.0	67.3	72.2	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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 18.
Number of Lung and Bronchus Cancer Deaths by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	13,924	7,369	6,555	10,309	3,359	235
Allegany	274	147	127	271	<5	0
Anne Arundel	1,420	745	675	1,278	123	18
Baltimore City	1,941	1,033	908	658	1,270	8
Baltimore County	2,460	1,264	1,196	2,077	356	24
Calvert	215	106	109	190	23	<5
Caroline	105	66	39	88	s	<5
Carroll	452	259	193	433	s	<5
Cecil	310	169	141	297	s	<5
Charles	294	160	134	219	70	<5
Dorchester	130	71	59	93	37	0
Frederick	493	272	221	450	37	6
Garrett	98	59	39	98	0	0
Harford	668	362	306	613	48	7
Howard	408	200	208	324	59	24
Kent	95	50	45	70	25	0
Montgomery	1,415	689	726	1,097	208	105
Prince George's	1,431	778	653	540	858	29
Queen Anne's	156	88	68	143	12	0
Saint Mary's	241	136	105	208	31	<5
Somerset	103	52	51	82	21	0
Talbot	154	77	77	128	26	0
Washington	447	246	201	429	18	0
Wicomico	357	184	173	300	55	<5
Worcester	257	156	101	223	s	<5

*Total includes deaths reported as transexual, hermaphrodite, unknown gender, and unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 19.
Lung and Bronchus Cancer Age-Adjusted Mortality Rates* by Jurisdiction, Gender and Race, Maryland, 2007-2011

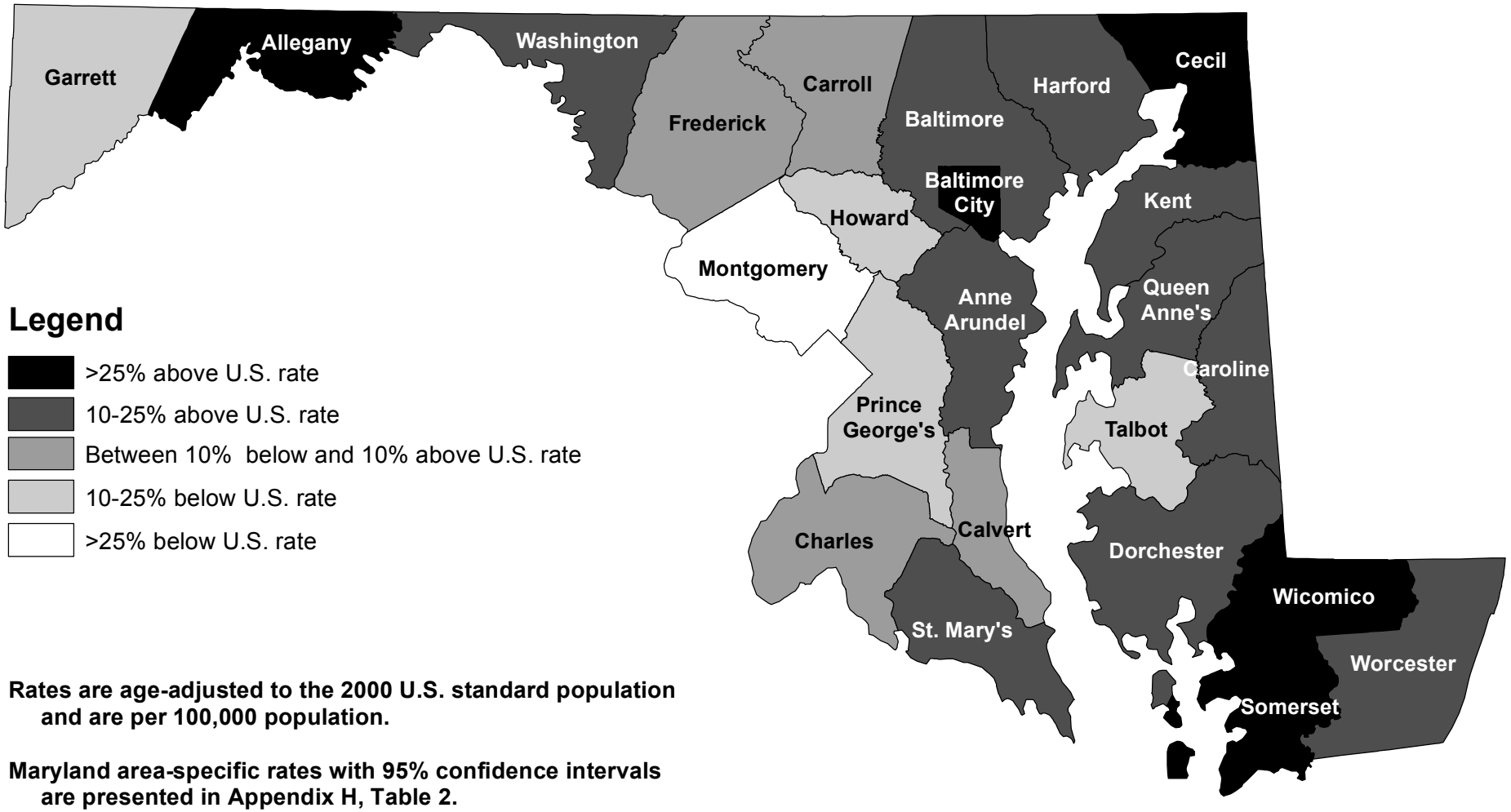
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	47.7	59.5	39.4	48.9	49.0	19.2
Allegany	53.8	70.0	43.4	54.6	**	**
Anne Arundel	55.2	65.6	47.6	57.9	41.9	**
Baltimore City	61.2	81.8	47.9	59.2	63.2	**
Baltimore County	52.9	64.9	44.8	54.5	52.5	17.1
Calvert	51.2	57.1	47.1	53.5	39.2	**
Caroline	58.5	87.7	38.1	58.1	**	**
Carroll	48.6	64.0	37.6	48.8	**	**
Cecil	59.9	72.2	50.4	61.1	**	**
Charles	50.7	63.7	41.5	54.3	43.5	**
Dorchester	56.5	70.9	45.8	53.7	67.8	**
Frederick	46.9	60.1	36.9	47.1	52.8	**
Garrett	49.0	64.4	36.1	49.4	**	**
Harford	53.4	64.9	44.3	54.8	45.1	**
Howard	33.9	37.5	31.7	35.9	31.0	20.3
Kent	61.6	77.3	51.2	53.1	106.7	**
Montgomery	28.1	33.0	24.7	28.6	35.0	17.6
Prince George's	41.3	54.3	32.7	42.9	41.8	19.2
Queen Anne's	57.6	71.2	46.5	59.9	**	**
Saint Mary's	54.0	64.0	44.6	57.0	45.5	**
Somerset	72.4	83.9	62.3	79.2	56.1	**
Talbot	48.1	56.0	42.3	45.4	70.1	**
Washington	53.5	68.7	42.8	53.9	**	**
Wicomico	69.3	86.1	58.4	75.1	51.4	**
Worcester	62.3	86.7	44.1	62.0	65.3	**

* 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/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Maryland Lung Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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

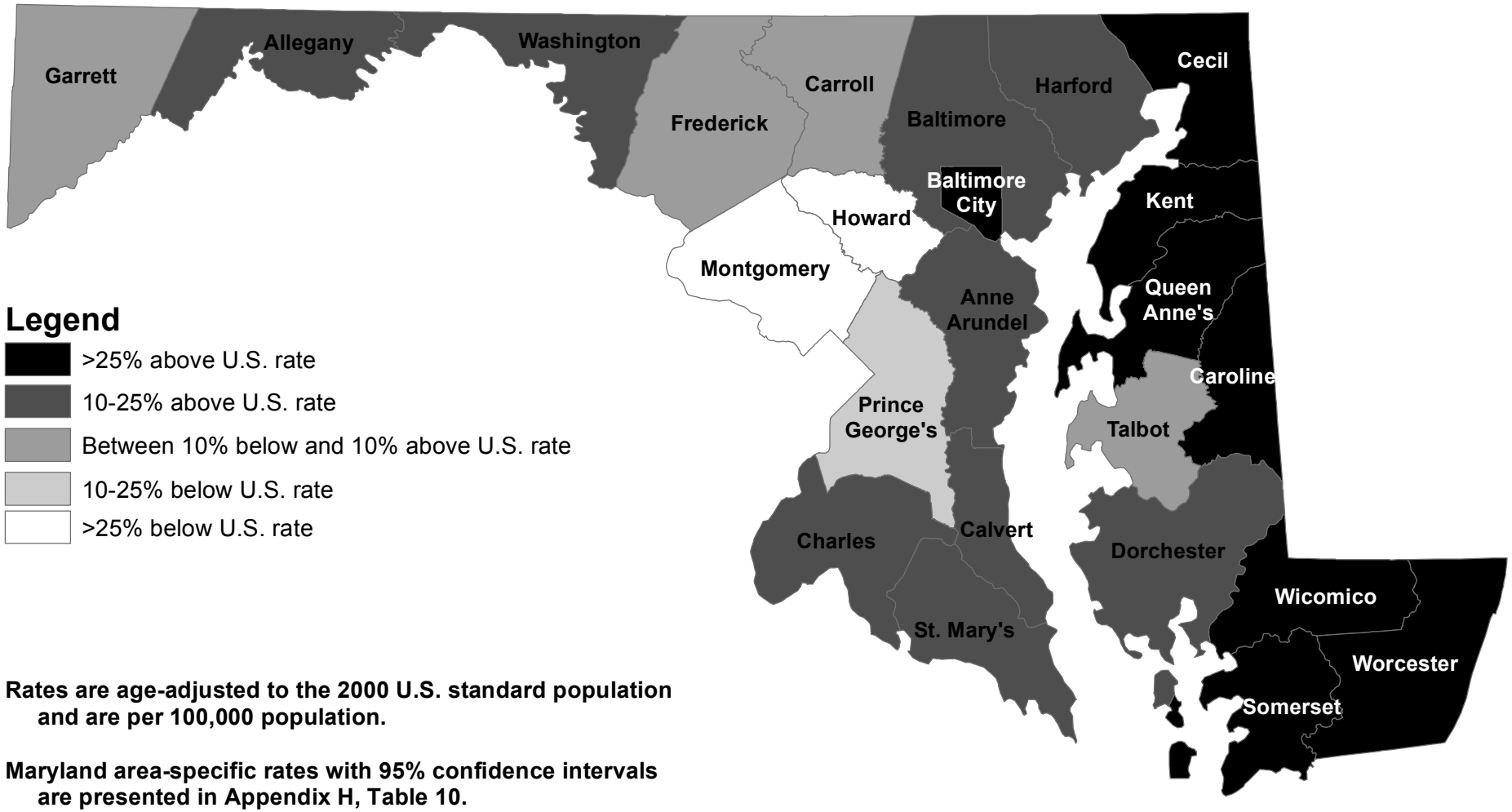
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 2.

U.S. lung cancer incidence rate, 2007-2011: 60.1/100,000

Maryland lung cancer incidence rate, 2007-2011: 59.9/100,000

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

Maryland Lung Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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, 2007-2011: 46.0/100,000

Maryland lung cancer mortality rate, 2007-2011: 43.7/100,000

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

B. Colon and Rectum Cancer

Incidence (New Cases)

In 2011, there were 2,352 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 2011 was 37.3 per 100,000 population (35.8-38.9, 95% C.I.), which is statistically significantly lower than the 2011 U.S. SEER age-adjusted colorectal cancer incidence rate of 40.3 per 100,000 population (39.9-40.7, 95% C.I.).

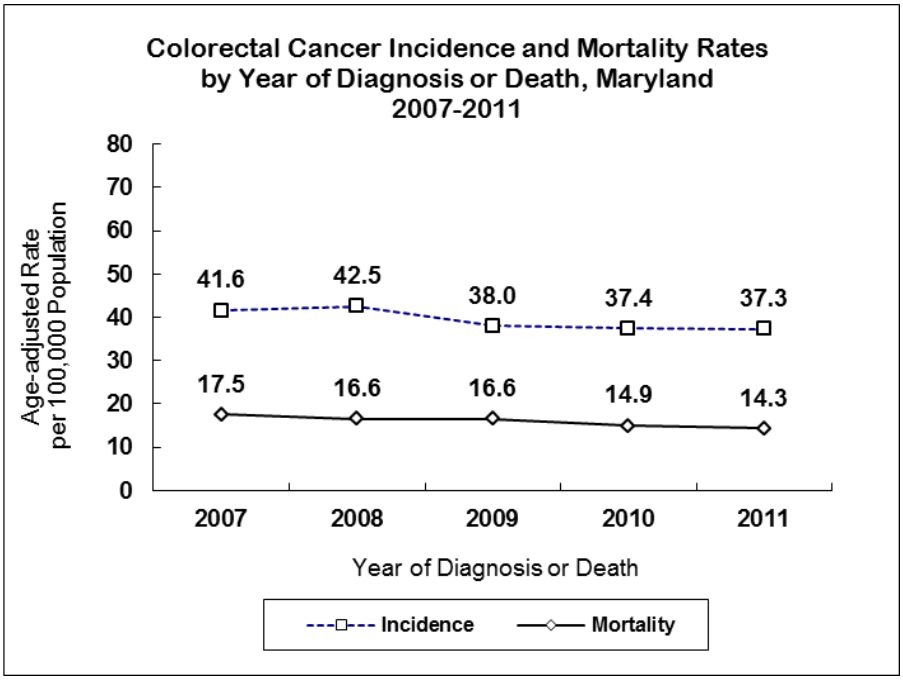
Mortality (Deaths)

A total of 885 persons died of colorectal cancer in 2011 in Maryland. In 2011, colorectal cancer accounted for 8.7% 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 14.3 per 100,000 population (13.3-15.2, 95% C.I.). This rate is similar to the 2011 U.S. colorectal cancer mortality rate of 15.1 per 100,000 population (15.0-15.2, 95% C.I.). Maryland had the 28th highest colorectal cancer mortality rate among the states and the District of Columbia for the period 2007-2011.

Table 20.
Colorectal Cancer Incidence and Mortality Rates
by Gender and Race, Maryland and the United States, 2011

Incidence 2011	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*A/PI*
New Cases (count)	2,352	1,187	1,163	1,603	632	76
MD Incidence Rate	37.3	42.6	33.1	36.6	39.9	25.8
U.S. SEER Rate	40.3	46.5	35.3	39.3	48.9	34.8
Mortality 2011	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*A/PI*
Deaths (count)	885	455	430	578	277	27
MD Mortality Rate	14.3	17.4	12.1	13.0	19.0	9.7
U.S. Mortality Rate	15.1	18.1	12.8	14.6	21.1	N/A

Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population
Total also includes cases reported as transexual, hermaphrodite, unknown gender, and unknown race
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration
U.S. SEER, Cancer Statistics Review



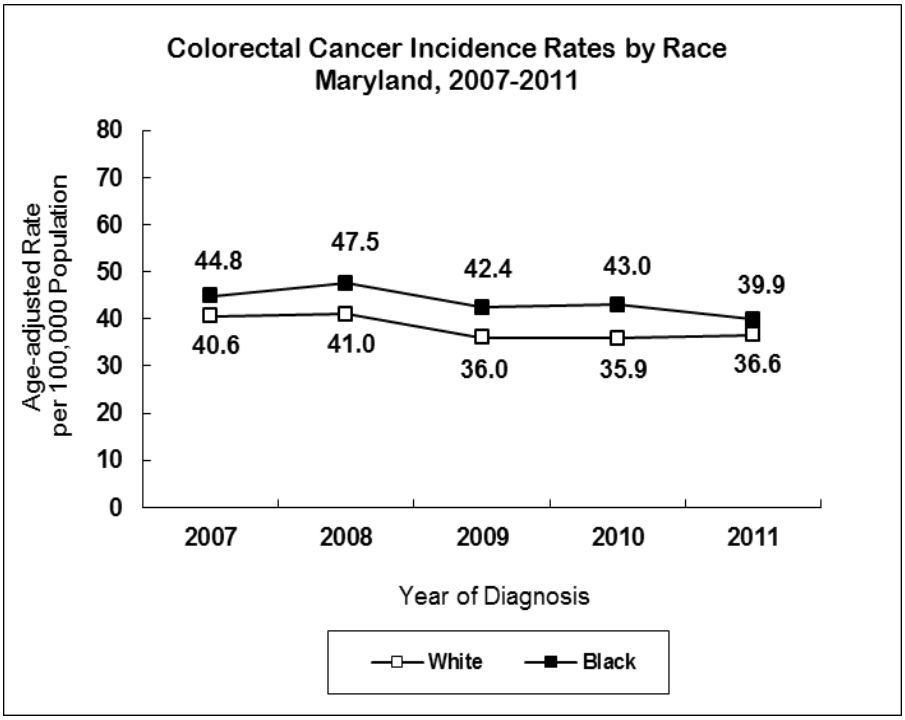
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration, 2008-2011

Incidence and Mortality Trends

Incidence rates for colorectal cancer have been declining in Maryland. From 2007 to 2011, incidence rates declined at a rate of 3.4% per year.

Colorectal cancer mortality rates declined at a rate of 5.0% per year from 2007 to 2011.

See Appendix I, Tables 1 and 2.

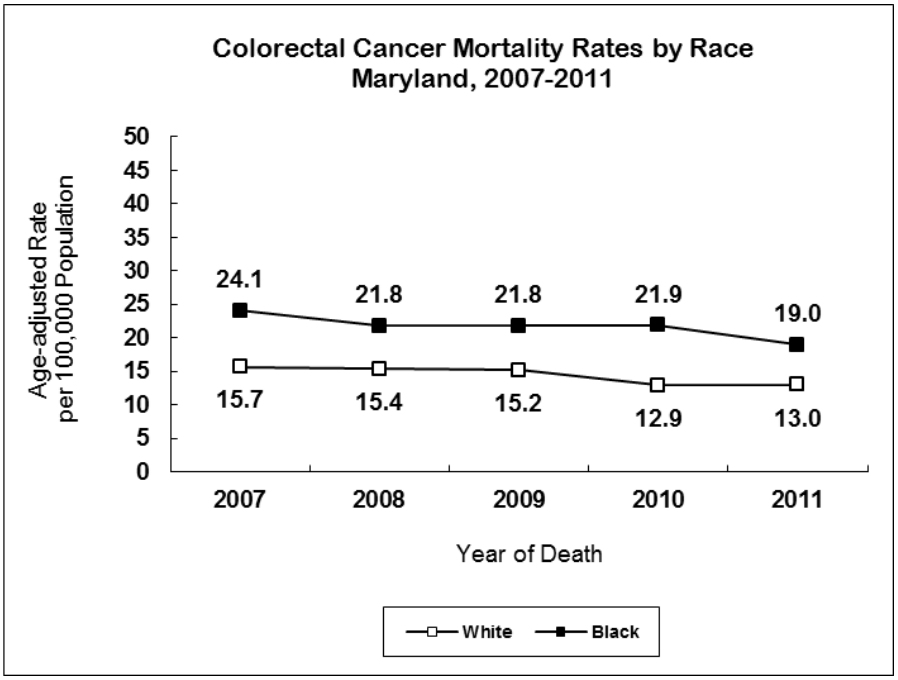


Source: Maryland Cancer Registry

Incidence Trends by Race

From 2007 to 2011, colorectal cancer incidence rates declined at a rate of 3.3% per year for both blacks and whites. In 2011, the incidence rate for colorectal cancer was 36.6 for whites and 39.9 for blacks in Maryland.

See Appendix I, Table 3.

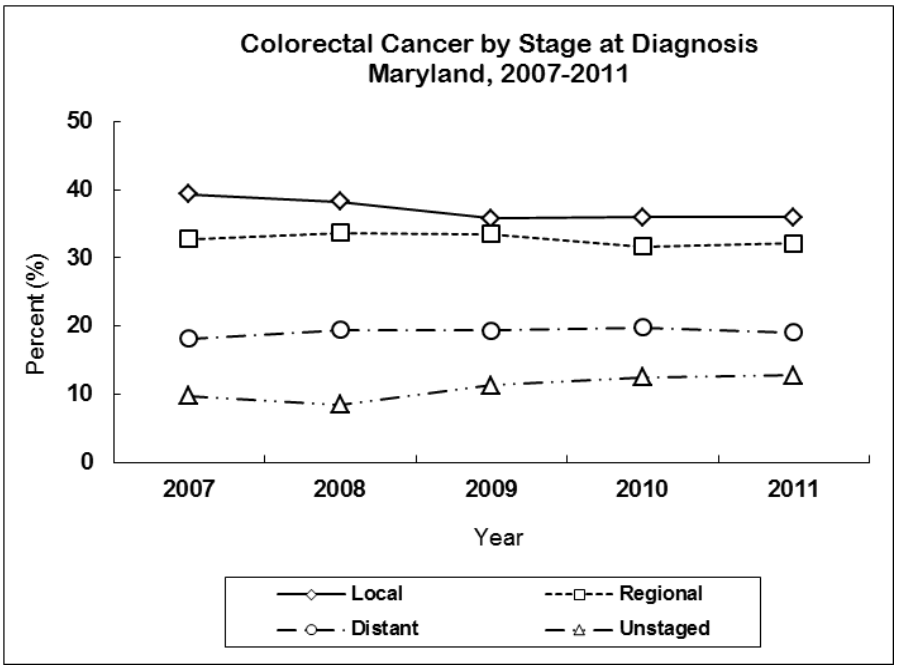


Source: NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration, 2008-2011

Mortality Trends by Race

From 2007 to 2011, colorectal cancer mortality rates declined for blacks and whites. Mortality rates in blacks decreased at a rate of 4.6% per year; whereas, among whites, the decline was 5.4% per year.

See Appendix I, Table 5.

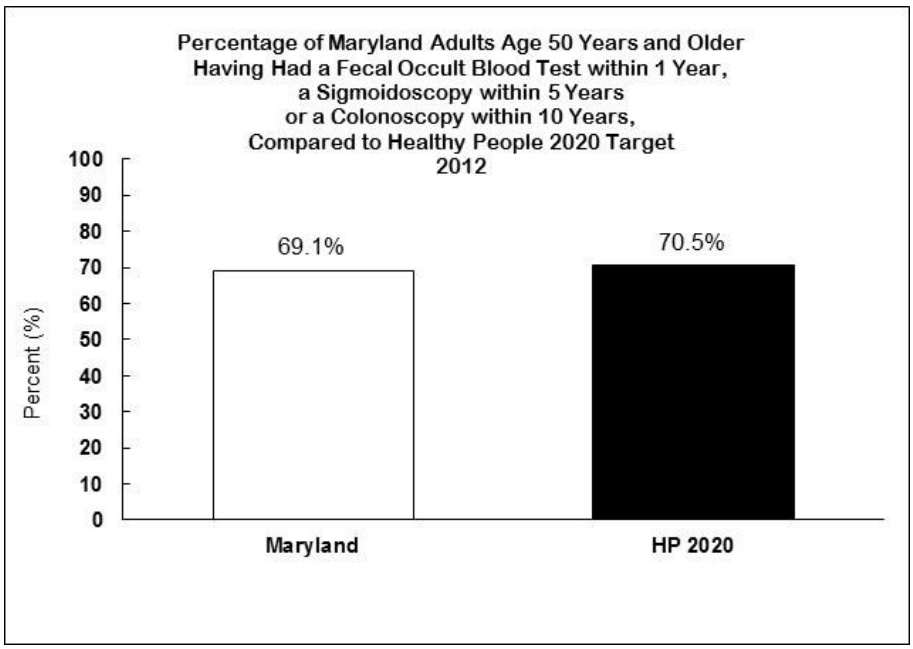


Source: Maryland Cancer Registry

Stage at Diagnosis

In 2011, 36.0% of colorectal cancers diagnosed in Maryland were detected at the local stage, 32.1% were detected at the regional stage, and 19.1% were found at the distant stage. The proportion of colorectal cancers reported as unstaged remained stable in 2011.

See Appendix J, Table 3.



Source: Maryland BRFSS
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. In 2012, 69.1% of Maryland adults age 50 years and older were up-to-date with colorectal cancer screening, which was slightly below the Healthy People 2020 target of 70.5%.

Public Health Evidence (quoted from NCI PDQ, 2/13/2014 and 2/21/2014, 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. Much of this reduction likely comes from removal of large polyps (≥1 cm). 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

Based on solid evidence, 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 USPSTF recommends screening for CRC using colonoscopy every 10 years, sensitive fecal blood tests annually (high sensitivity fecal occult blood testing [FOBT] or fecal immunochemical testing [FIT]), or sigmoidoscopy every 5 years with interval fecal blood testing, begin-ning at age 50 years and continuing until age 75 years. The USPSTF recommends against routine screen-ing 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 thereis 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 invasive CRC. However, harms of postmenopausal combined estrogen plus progestin hormone use include increased risk of breast cancer, coronary heart disease, and thromboembolic events. Based on fair evidence postmenopausal hormones have little or no benefit in reducing mortality from CRC.

Public Health Intervention for CRC (USPSTF 2008; DHMH CRC Medical Advisory Committee, 2013)
➢ For those age 50 to 75 years at average risk, screen with colonoscopy or with fecal blood testing with 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, fecal blood testing 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, 2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	2,352	1,187	1,163	1,603	632	76
Allegany	54	29	25	51	<6	0
Anne Arundel	197	99	98	173	20	<6
Baltimore City	292	126	165	103	187	0
Baltimore County	397	178	219	308	69	13
Calvert	24	14	10	19	<6	0
Caroline	12	6	6	12	0	0
Carroll	67	36	31	64	<6	0
Cecil	52	33	19	47	<6	0
Charles	59	30	29	37	15	<6
Dorchester	24	17	7	16	8	0
Frederick	95	59	36	83	7	<6
Garrett	9	<6	<6	9	0	0
Harford	115	63	52	99	13	<6
Howard	97	49	47	76	16	<6
Kent	13	<6	8	s	<6	0
Montgomery	305	149	156	205	50	39
Prince George's	299	165	134	83	203	7
Queen Anne's	17	8	9	17	0	0
Saint Mary's	32	18	14	27	<6	0
Somerset	17	9	8	14	<6	0
Talbot	21	11	10	s	<6	0
Washington	72	37	35	67	<6	<6
Wicomico	49	24	25	35	11	<6
Worcester	26	14	12	20	<6	<6

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

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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, 2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	37.3	42.6	33.1	36.6	39.9	25.8
Allegany	52.5	60.6	44.0	52.2	**	0.0
Anne Arundel	34.1	38.6	31.0	35.6	27.1	**
Baltimore City	45.9	46.7	45.2	49.0	45.3	0.0
Baltimore County	40.6	41.9	39.4	40.7	37.4	**
Calvert	26.6	**	**	24.9	**	0.0
Caroline	**	**	**	**	0.0	0.0
Carroll	36.1	43.8	29.6	35.6	**	0.0
Cecil	46.1	63.3	30.6	44.2	**	0.0
Charles	41.6	44.3	37.6	40.9	**	**
Dorchester	54.3	84.4	**	50.1	**	0.0
Frederick	38.3	52.8	26.0	37.4	**	**
Garrett	**	**	**	**	0.0	0.0
Harford	42.5	52.0	34.8	41.7	**	**
Howard	35.5	42.6	31.1	37.4	42.0	**
Kent	**	**	**	**	**	0.0
Montgomery	28.5	31.3	26.0	26.9	32.5	27.4
Prince George's	37.7	49.6	29.4	35.3	39.7	**
Queen Anne's	25.6	**	**	28.1	0.0	0.0
Saint Mary's	32.1	35.8	**	32.6	**	0.0
Somerset	56.4	**	**	**	**	0.0
Talbot	36.8	**	**	41.2	**	0.0
Washington	42.0	46.9	35.8	41.3	**	**
Wicomico	43.1	47.7	41.5	39.7	**	**
Worcester	28.9	**	**	24.2	**	**

* 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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 23.
Number of Colorectal Cancer Deaths
by Jurisdiction, Gender and Race, Maryland, 2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	885	455	430	578	277	27
Allegany	18	11	7	18	0	0
Anne Arundel	60	31	29	50	s	<5
Baltimore City	125	56	69	37	86	<5
Baltimore County	140	64	76	100	37	<5
Calvert	13	8	5	s	<5	0
Caroline	6	<5	<5	s	0	<5
Carroll	33	17	16	s	<5	<5
Cecil	18	12	6	s	<5	0
Charles	28	17	11	16	12	0
Dorchester	<5	0	<5	<5	<5	0
Frederick	42	24	18	37	<5	<5
Garrett	<5	<5	<5	<5	0	0
Harford	26	16	10	24	<5	0
Howard	28	14	14	20	6	<5
Kent	<5	<5	<5	<5	0	0
Montgomery	122	66	56	84	23	15
Prince George's	123	59	64	36	85	<5
Queen Anne's	<5	<5	<5	<5	<5	0
Saint Mary's	15	10	5	s	<5	0
Somerset	7	s	<5	<5	<5	0
Talbot	7	5	<5	s	<5	0
Washington	30	15	15	s	0	<5
Wicomico	19	8	11	16	<5	0
Worcester	12	7	5	s	<5	0

*Total includes deaths reported as transexual, hermaphrodite, unknown gender, and unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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, 2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	14.3	17.4	12.1	13.0	19.0	9.7
Allegany	**	**	**	**	**	**
Anne Arundel	10.5	12.3	9.6	10.4	**	**
Baltimore City	20.1	22.4	19.1	16.6	22.4	**
Baltimore County	13.7	15.6	12.4	12.0	21.0	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	17.3	**	**	16.6	**	**
Cecil	**	**	**	**	**	**
Charles	22.2	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	17.8	24.4	**	17.0	**	**
Garrett	**	**	**	**	**	**
Harford	9.9	**	**	10.2	**	**
Howard	10.7	**	**	10.3	**	**
Kent	**	**	**	**	**	**
Montgomery	11.2	14.5	9.2	10.3	15.8	**
Prince George's	16.6	18.9	15.3	15.5	18.5	**
Queen Anne's	**	**	**	**	**	**
Saint Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	17.3	**	**	17.6	**	**
Wicomico	**	**	**	**	**	**
Worcester	**	**	**	**	**	**

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

** Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Table 25.
Number of Colorectal Cancer Cases
by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	11,752	5,875	5,868	8,086	3,114	346
Allegany	267	144	123	254	12	0
Anne Arundel	953	485	468	790	132	20
Baltimore City	1,460	663	795	488	953	10
Baltimore County	1,964	944	1,019	1,526	377	39
Calvert	158	82	73	127	29	<6
Caroline	74	31	42	69	<6	0
Carroll	336	178	157	321	11	<6
Cecil	233	139	94	216	14	0
Charles	255	142	113	158	80	6
Dorchester	103	54	49	72	31	0
Frederick	519	284	235	469	39	6
Garrett	76	44	32	75	0	0
Harford	590	302	288	520	61	<6
Howard	454	241	212	328	74	45
Kent	64	37	27	56	8	0
Montgomery	1,587	774	813	1,123	233	169
Prince George's	1,364	666	698	392	901	35
Queen Anne's	109	48	61	97	12	0
Saint Mary's	184	97	87	163	18	0
Somerset	76	45	31	56	20	0
Talbot	113	59	54	97	16	0
Washington	349	181	168	333	12	<6
Wicomico	257	120	137	201	48	<6
Worcester	166	94	72	130	16	<6

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

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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

Source: Maryland Cancer Registry

Table 26.
Colorectal Cancer Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	39.3	45.1	34.8	37.9	43.3	26.3
Allegany	52.7	66.0	42.2	51.6	**	0.0
Anne Arundel	35.7	39.8	32.1	34.7	43.6	29.0
Baltimore City	45.8	51.2	42.4	43.1	47.8	**
Baltimore County	41.4	46.7	37.4	40.1	48.7	26.7
Calvert	37.1	41.7	32.0	35.6	47.4	**
Caroline	41.1	38.5	41.7	44.6	**	0.0
Carroll	37.2	43.8	31.2	37.0	**	**
Cecil	44.3	56.6	33.3	44.0	**	0.0
Charles	40.9	53.4	31.9	38.8	40.6	**
Dorchester	46.7	55.8	38.9	42.7	61.9	0.0
Frederick	47.0	57.5	38.4	47.1	47.9	**
Garrett	38.0	49.8	29.3	37.8	0.0	0.0
Harford	47.2	54.3	41.3	46.8	52.3	**
Howard	35.3	41.5	30.6	33.9	40.4	33.5
Kent	41.9	55.0	31.7	42.7	**	0.0
Montgomery	30.4	34.4	27.3	29.0	34.3	26.1
Prince George's	36.7	42.0	32.9	32.0	40.4	22.9
Queen Anne's	38.2	35.2	40.9	38.1	**	0.0
Saint Mary's	38.2	40.3	35.3	40.7	26.7	0.0
Somerset	53.2	70.9	42.2	54.3	53.3	0.0
Talbot	38.3	45.9	31.5	37.1	48.6	0.0
Washington	41.8	49.2	35.6	42.1	**	**
Wicomico	49.7	53.7	46.9	49.8	45.4	**
Worcester	39.8	49.5	31.1	35.3	35.6	**

* 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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 27.
Number of Colorectal Cancer Deaths
by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	4,687	2,434	2,253	3,094	1,457	127
Allegany	95	57	38	s	<5	0
Anne Arundel	365	194	171	301	61	<5
Baltimore City	676	335	341	199	470	6
Baltimore County	772	373	399	602	155	12
Calvert	69	34	35	55	14	0
Caroline	36	16	20	32	<5	<5
Carroll	151	78	73	145	s	<5
Cecil	87	59	28	82	5	0
Charles	112	66	46	65	47	0
Dorchester	29	11	18	19	10	0
Frederick	178	93	85	164	10	<5
Garrett	34	22	12	s	<5	0
Harford	172	94	78	149	19	<5
Howard	164	73	91	118	36	9
Kent	21	13	8	18	<5	0
Montgomery	567	287	280	400	99	67
Prince George's	638	330	308	171	447	18
Queen Anne's	41	23	18	34	7	0
Saint Mary's	68	39	29	63	5	0
Somerset	39	21	18	23	15	0
Talbot	47	25	22	38	9	0
Washington	146	92	54	139	5	<5
Wicomico	113	61	52	89	24	0
Worcester	67	38	29	61	6	0

*Total includes deaths reported as transexual, hermaphrodite, unknown gender, and unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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, 2007-2011

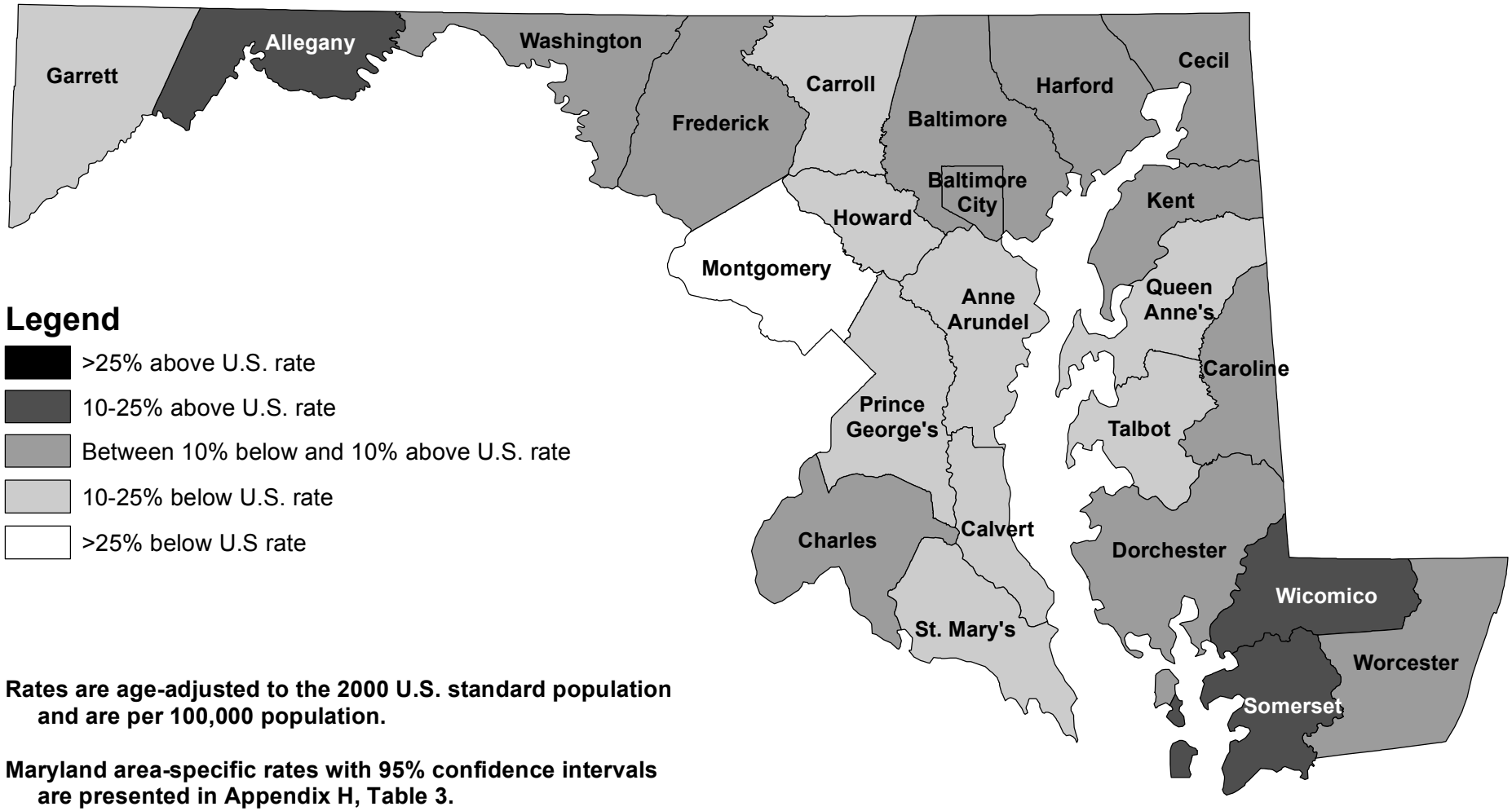
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	16.0	20.0	13.2	14.5	21.8	10.4
Allegany	18.1	27.6	11.6	18.3	**	**
Anne Arundel	14.5	17.2	12.3	14.0	21.9	**
Baltimore City	21.5	28.2	17.7	17.2	24.2	**
Baltimore County	16.2	19.2	14.0	15.2	21.7	**
Calvert	17.3	20.7	15.7	16.7	**	**
Caroline	20.6	**	19.8	21.6	**	**
Carroll	16.5	20.3	13.9	16.6	**	**
Cecil	17.6	27.0	9.9	17.5	**	**
Charles	19.4	29.9	13.3	16.6	30.5	**
Dorchester	12.5	**	**	**	**	**
Frederick	17.0	21.2	13.5	17.3	**	**
Garrett	17.4	25.4	**	17.0	**	**
Harford	14.4	17.4	11.6	14.1	**	**
Howard	13.2	13.4	12.9	12.2	20.6	**
Kent	13.2	**	**	**	**	**
Montgomery	10.8	13.4	9.1	10.0	15.0	11.2
Prince George's	18.2	22.0	15.4	13.4	22.8	**
Queen Anne's	14.6	17.3	**	14.0	**	**
Saint Mary's	14.8	18.5	12.0	16.6	**	**
Somerset	27.0	32.5	**	21.8	**	**
Talbot	15.7	20.2	11.9	14.4	**	**
Washington	17.2	26.5	10.7	17.2	**	**
Wicomico	22.0	29.3	16.8	22.5	21.8	**
Worcester	16.4	21.0	12.1	17.2	**	**

* 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/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Maryland Colorectal Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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

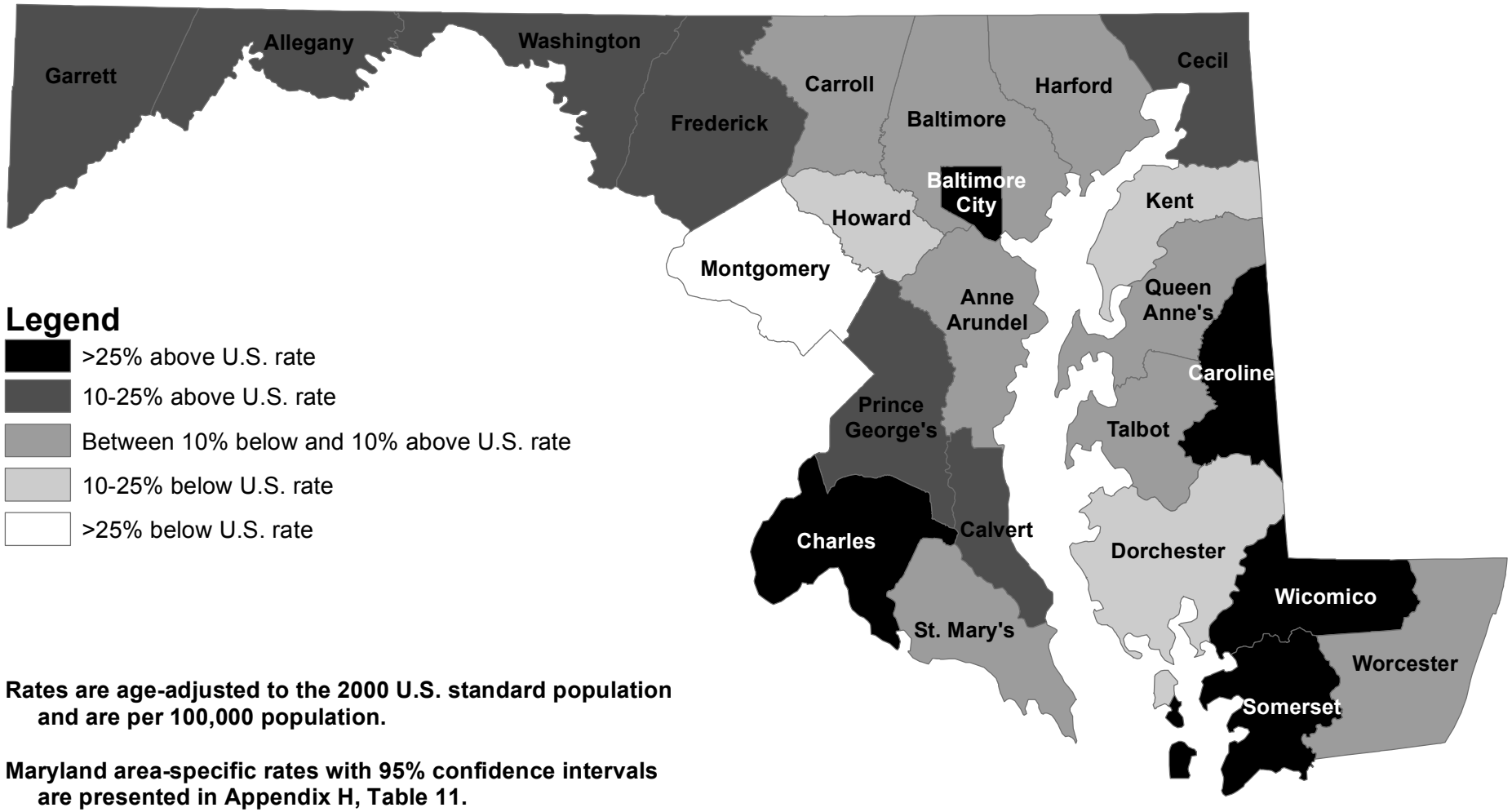
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 3.

U.S. colorectal cancer incidence rate, 2007-2011: 43.7/100,000

Maryland colorectal cancer incidence rate, 2007-2011: 39.3/100,000

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

Maryland Colorectal Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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 11.

U.S. colorectal cancer mortality rate, 2007-2011: 15.1/100,000

Maryland colorectal cancer mortality rate, 2007-2011: 14.3/100,000

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

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C. Female Breast Cancer

Incidence (New Cases)

In 2011, a total of 4,395 cases of breast cancer were reported among Maryland women. The 2011 age-adjusted incidence rate in Maryland was 126.6 per 100,000 women (122.8-130.5, 95% C.I.), which is statistically significantly higher than the 2011 U.S. SEER age-adjusted female breast cancer incidence rate of 124.3 per 100,000 women (123.3-125.3, 95% C.I.).

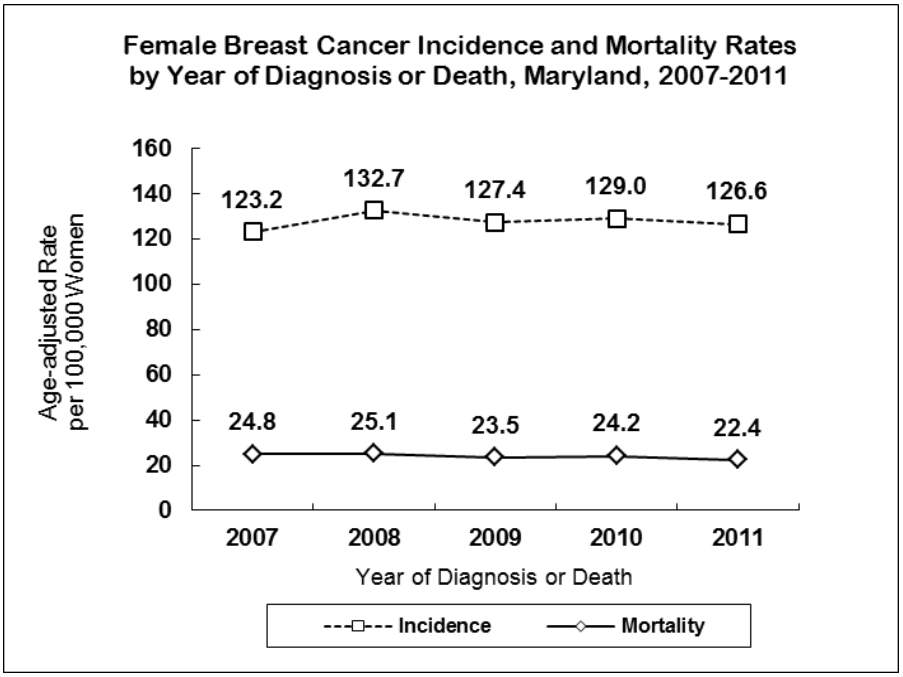
Mortality (Deaths)

In 2011, a total of 786 women died of breast cancer in Maryland. Female breast cancer accounted for 15.7% of cancer deaths among women and 7.7% of all cancer deaths in Maryland in 2011. Breast cancer is the second leading cause of cancer death among women in Maryland after lung cancer. The 2011 age-adjusted mortality rate for female breast cancer in Maryland was 22.4 per 100,000 women (20.8-24.0, 95% C.I.). This rate is similar to the U.S. female breast cancer mortality rate of 21.5 per 100,000 women (21.3-21.8, 95% C.I.). Maryland had the 6th highest female breast cancer mortality rate among the states and the District of Columbia for the period 2007-2011.

Table 29.
Female Breast Cancer Incidence and Mortality Rates
by Race, Maryland and the United States, 2011

Incidence 2011	*Total*	*Whites*	*Blacks*	*A/PI*
New Cases (count)	4,395	2,965	1,208	167
MD Incidence Rate	126.6	128.3	124.0	87.1
U.S. SEER Rate	124.3	127.2	122.7	95.1
Mortality 2011	*Total*	*Whites*	*Blacks*	*A/PI*
Deaths (count)	786	483	287	14
MD Mortality Rate	22.4	19.9	29.5	**
U.S. Mortality Rate	21.5	20.9	30.2	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/Center for Cancer Prevention and Control Mortality Data Suppression Policy
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration
U.S. SEER, Cancer Statistics Review



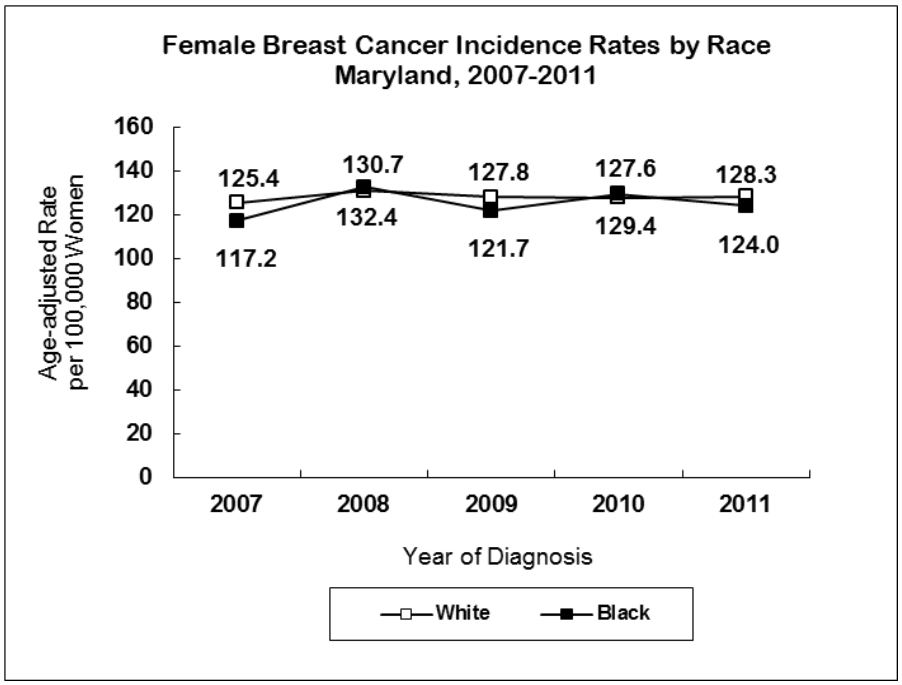
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Incidence and Mortality Trends

From 2007 to 2011, incidence rates for female breast cancer increased in Maryland at a rate of 0.3% annually.

Breast cancer mortality rates for females decreased at a rate of 2.4% per year.

See Appendix I, Tables 1 and 2.

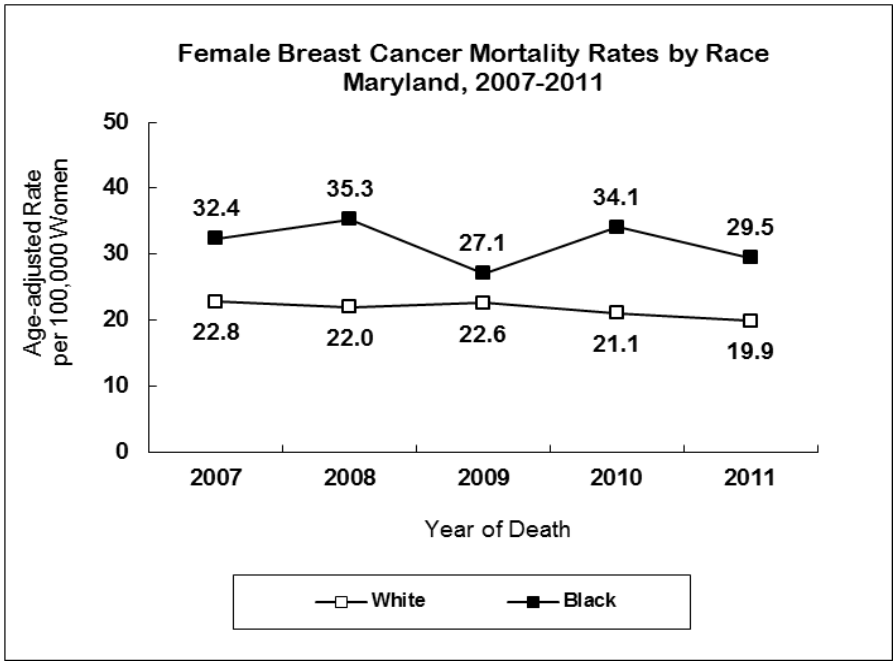


Source: Maryland Cancer Registry

Incidence Trends by Race

The increase in female breast cancer incidence rates differed by race in Maryland from 2007 to 2011. Incidence rates increased at a rate of 0.2% per year among white females and 0.9% among black females. In 2011, the breast cancer incidence rate for white females in Maryland was 128.3 per 100,000 women compared to 124.0 per 100,000 women for black females.

See Appendix I, Table 3.

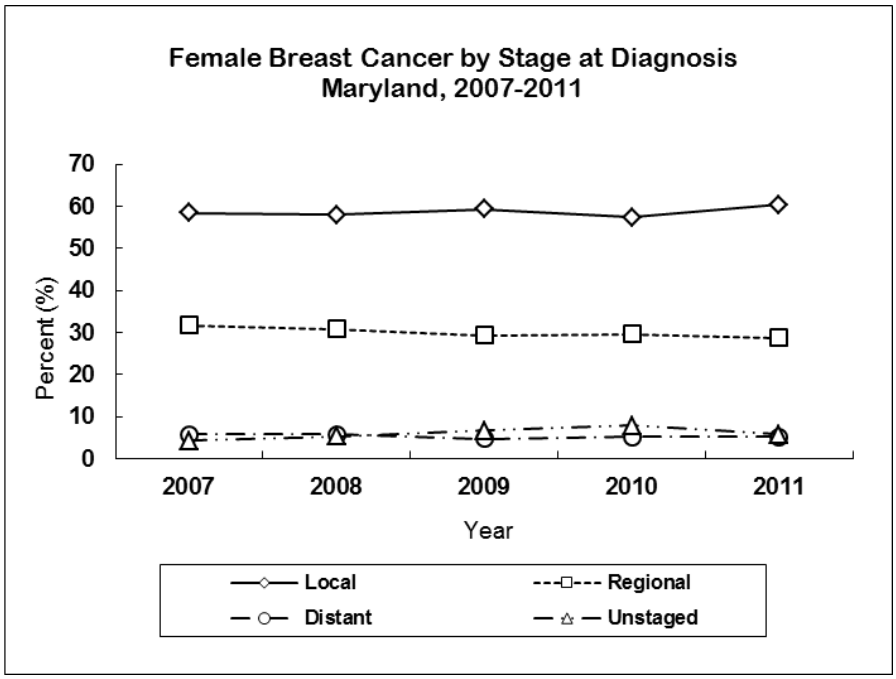


Source: NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Mortality Trends by Race

Female breast cancer mortality trends differed by race from 2007 to 2011. Mortality rates in blacks decreased in 2011 and decreased at a rate of 2.2% per year, compared to whites who had a decrease of 3.1% per year between 2007-2011.

See Appendix I, Table 5.

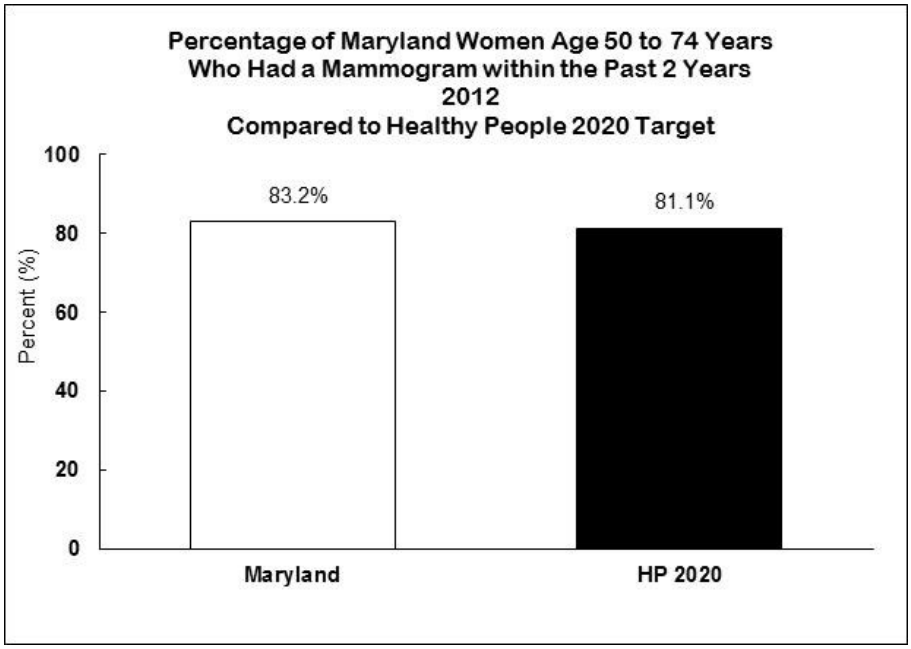


Source: Maryland Cancer Registry

Stage at Diagnosis

In 2011, 60.4% of all female breast cancer cases in Maryland were diagnosed at the local stage, 28.7% were found at the regional stage, and 5.1% were diagnosed at the distant stage. The proportion of female breast cancers reported as unstaged decreased in 2011 to 5.8%.

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 USPSTF guideline includes biennial mammography for women age 50 to 74 years. Maryland women have consistently surpassed this target. In 2012, 83.2% of Maryland women age 50 to 74 years reported receiving a mammogram within the past 2 years.

Public Health Evidence (quoted from NCI PDQ, 2/21/2014 and 2/21/2014; USPSTF Chemoprevention 9/2013, Screening 11/2009)

Primary Prevention
Factors associated with increased female breast cancer risk are: combination hormone therapy (HT) with estrogen-progestin; ionizing radiation exposure to the breast; obesity in postmenopausal women who have not used HT; alcohol (dose-dependent association); and inherited gene mutations associated with breast cancer. Evidence shows that exercising vigorously more than 4 hours per week, breast-feeding, having a full-term pregnancy before age 20, and estrogen-only use after menopause among women with a hysterectomy are associated with reduced breast cancer risk. It is uncertain whether reducing weight or decreasing alcohol exposure would decrease the risk of breast cancer.

Screening
Based on solid evidence, screening mammography may lead to a decrease in breast cancer mortality. For women aged 40 to 74 years, screening with mammography has been associated with a 15-20% relative reduction in mortality due to breast cancer. Absolute mortality benefit for women screened annually for 10 years is approximately 1% overall, ranging from 4 per 10,000 women who start screening at age 40 years to 50 per 10,000 women who start at age 50 years. The USPSTF recommends biennial screening mammography for women aged 50 to 74 years and that the deci-sion to start regular, biennial screening mammography before the age of 50 years should be an individual one and take patient context into account, including the patient's values regarding specific benefits and harms.Based on solid evidence, screening mammography may lead to the following harms: overdiagnosis and resulting treatment of insignificant cancers; false positives and additional testing; false negatives with false sense of security and potential delay in cancer diagnosis; and radiation-induced mutations that can cause breast cancer, especially if exposed before age 30 years and at high dose. Clinical breast examination (CBE) has not been tested independently, thus it is not possible to assess the efficacy of CBE compared to no screening. CBE may lead to false positives and additional testing or false negatives with a false reassurance and delay cancer diagnosis. Based on solid evidence, formal instruction and encouragement to perform breast self-examination leads to more breast biopsies and to the diagnosis of more benign breast lesions.

Chemoprevention
The USPSTF recommends that clinicians engage in shared, informed decision making with women who are at increased risk for breast cancer about medications to reduce their risk. For women who are at increased risk for breast cancer and at low risk for adverse medication effects, clinicians should offer to prescribe risk-reducing medications, such as tamoxifen or raloxifene (selective estrogen receptor modulators). The USPSTF recommends against the routine use of medications, such as tamoxifen or raloxifene, for risk reduction of primary breast cancer in women who are not at increased risk for breast cancer. Based on solid evidence for tamoxifen and fair evidence for raloxifene, treatment reduces the incidence of breast cancer in postmenopausal women. Tamoxifen also reduced the risk of breast cancer in high-risk premenopausal women. Treatment with tamoxifen reduced breast cancer by about 50%. Treatment with raloxifene has a similar effect on reduction of invasive breast cancer but appears to be less effective for prevention of noninvasive tumors. Based on solid evidence, tamoxifen treatment increases the risk of endometrial cancer (which was apparent in the first 5 years but not beyond), thrombotic vascular events (pulmonary embolism, stroke, deep venous thrombosis), and cataracts. Based on fair evidence, raloxifene also increases venous pulmonary embolism and deep venous thrombosis but *not* endometrial cancer. Based on solid evidence, aromatase inhibitors or inactivators reduce the incidence of new breast cancers in postmenopausal women who have an increased risk of breast cancer. Based on fair evidence, exemestane is associated with slightly increased hot flashes and fatigue but no difference in the occurrence of fractures or cardiovascular events.

Public Health Intervention for Breast Cancer (DHMH Breast Cancer Medical Advisory Committee, 2014)

Early detection of breast cancer:

- Screen using mammography and a clinical breast examination by a health professional every 1-2 years for women age 40 years and older.

Table 30.
Number of Female Breast Cancer Cases by Jurisdiction and Race, Maryland, 2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	4,395	2,965	1,208	167
Allegany	55	s	<6	0
Anne Arundel	409	342	56	10
Baltimore City	455	163	284	<6
Baltimore County	667	498	148	17
Calvert	79	72	7	0
Caroline	18	13	<6	0
Carroll	109	106	<6	<6
Cecil	77	75	<6	0
Charles	105	55	48	<6
Dorchester	32	22	10	0
Frederick	168	144	19	<6
Garrett	19	19	0	0
Harford	190	162	24	<6
Howard	192	136	38	16
Kent	22	s	<6	0
Montgomery	802	569	116	88
Prince George's	549	124	398	16
Queen Anne's	33	29	<6	0
Saint Mary's	55	48	<6	<6
Somerset	16	11	<6	0
Talbot	55	48	7	0
Washington	115	113	<6	0
Wicomico	92	73	15	<6
Worcester	54	46	7	0

*Total includes cases reported as unknown race

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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, 2011

Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	126.6	128.3	124.0	87.1
Allegany	102.8	103.9	**	0.0
Anne Arundel	126.0	126.9	123.8	**
Baltimore City	126.3	146.8	117.5	**
Baltimore County	128.3	130.4	127.8	85.0
Calvert	148.0	159.7	**	0.0
Caroline	89.0	**	**	0.0
Carroll	101.9	103.7	**	**
Cecil	134.7	139.5	**	0.0
Charles	128.3	110.8	163.6	**
Dorchester	136.1	130.8	**	0.0
Frederick	125.0	120.8	185.2	**
Garrett	90.5	91.0	0.0	0.0
Harford	126.6	124.7	159.6	**
Howard	115.6	117.2	143.6	79.3
Kent	127.8	140.5	**	0.0
Montgomery	134.1	136.0	117.5	99.3
Prince George's	114.2	100.2	116.0	82.3
Queen Anne's	97.2	94.0	**	0.0
Saint Mary's	98.8	103.8	**	**
Somerset	109.0	**	**	0.0
Talbot	172.1	170.6	**	0.0
Washington	125.6	131.5	**	0.0
Wicomico	153.8	162.3	**	**
Worcester	139.1	138.8	**	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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 32.
Number of Female Breast Cancer Deaths by Jurisdiction and Race, Maryland, 2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	786	483	287	14
Allegany	15	15	0	0
Anne Arundel	62	52	s	<5
Baltimore City	94	27	67	0
Baltimore County	136	94	40	<5
Calvert	8	6	<5	0
Caroline	<5	<5	<5	0
Carroll	24	24	0	0
Cecil	15	15	0	0
Charles	22	13	9	0
Dorchester	7	<5	<5	0
Frederick	25	s	<5	0
Garrett	6	6	0	0
Harford	23	21	<5	0
Howard	37	23	s	<5
Kent	7	<5	<5	0
Montgomery	106	74	23	9
Prince George's	133	29	101	<5
Queen Anne's	6	<5	<5	0
Saint Mary's	10	s	<5	0
Somerset	<5	<5	0	0
Talbot	9	s	<5	0
Washington	22	s	<5	0
Wicomico	10	<5	6	0
Worcester	5	<5	<5	0

*Total includes deaths reported as unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 33.
Female Breast Cancer Age-Adjusted Mortality Rates* by Jurisdiction and Race, Maryland, 2011

Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	22.4	19.9	29.5	**
Allegany	**	**	**	**
Anne Arundel	20.2	20.3	**	**
Baltimore City	26.3	24.9	27.8	**
Baltimore County	24.3	21.6	33.0	**
Calvert	**	**	**	**
Caroline	**	**	**	**
Carroll	20.6	21.4	**	**
Cecil	**	**	**	**
Charles	26.8	**	**	**
Dorchester	**	**	**	**
Frederick	18.5	19.6	**	**
Garrett	**	**	**	**
Harford	15.6	16.0	**	**
Howard	23.5	21.8	**	**
Kent	**	**	**	**
Montgomery	17.6	16.9	23.1	**
Prince George's	29.2	22.6	31.9	**
Queen Anne's	**	**	**	**
Saint Mary's	**	**	**	**
Somerset	**	**	**	**
Talbot	**	**	**	**
Washington	22.7	22.7	**	**
Wicomico	**	**	**	**
Worcester	**	**	**	**

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

** Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Table 34.
Number of Female Breast Cancer Cases by Jurisdiction and Race, Maryland, 2007-2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	21,330	14,460	5,712	727
Allegany	285	279	<6	<6
Anne Arundel	1,960	1,644	239	46
Baltimore City	2,204	737	1,425	15
Baltimore County	3,347	2,541	679	81
Calvert	351	300	48	<6
Caroline	120	98	21	0
Carroll	663	639	14	7
Cecil	344	325	19	0
Charles	437	239	179	8
Dorchester	149	105	s	<6
Frederick	773	693	48	26
Garrett	108	106	0	<6
Harford	982	833	124	13
Howard	999	715	177	84
Kent	89	78	11	0
Montgomery	3,734	2,695	555	336
Prince George's	2,639	619	1,874	80
Queen Anne's	183	168	12	<6
Saint Mary's	302	253	39	7
Somerset	87	61	25	0
Talbot	219	197	20	0
Washington	524	502	17	<6
Wicomico	364	276	73	7
Worcester	278	229	33	<6

*Total includes cases reported as unknown race

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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

Source: Maryland Cancer Registry

Table 35.
Female Breast Cancer Age-Adjusted Incidence Rates* by Jurisdiction and Race, Maryland, 2007-2011

Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	127.8	127.9	125.0	85.3
Allegany	112.6	113.5	**	**
Anne Arundel	129.3	130.2	118.7	86.7
Baltimore City	121.8	124.4	120.3	**
Baltimore County	132.9	131.8	132.9	93.3
Calvert	142.0	145.7	132.3	**
Caroline	121.6	116.7	154.5	0.0
Carroll	131.3	132.3	**	**
Cecil	123.1	124.3	123.8	0.0
Charles	116.5	101.7	145.6	**
Dorchester	131.4	124.1	152.5	**
Frederick	122.2	122.4	102.7	133.9
Garrett	108.8	107.8	0.0	**
Harford	138.1	133.6	175.2	**
Howard	128.2	127.6	136.0	91.8
Kent	115.6	119.2	**	0.0
Montgomery	128.3	130.3	123.5	84.4
Prince George's	116.1	98.1	122.7	80.1
Queen Anne's	122.5	126.2	**	**
Saint Mary's	116.0	119.2	101.0	**
Somerset	118.1	114.7	126.0	0.0
Talbot	147.6	155.9	97.9	0.0
Washington	120.4	121.8	92.3	**
Wicomico	128.7	127.1	119.6	**
Worcester	141.6	136.8	129.6	**

* 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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 36.
Number of Female Breast Cancer Deaths by Jurisdiction and Race, Maryland, 2007-2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	4,048	2,582	1,391	68
Allegany	57	s	<5	0
Anne Arundel	330	269	53	5
Baltimore City	521	144	375	<5
Baltimore County	675	498	165	12
Calvert	54	42	12	0
Caroline	22	15	s	<5
Carroll	117	114	<5	0
Cecil	69	66	<5	0
Charles	89	52	37	0
Dorchester	28	20	8	0
Frederick	143	128	s	<5
Garrett	31	31	0	0
Harford	167	147	20	0
Howard	169	129	32	8
Kent	16	10	6	0
Montgomery	595	426	138	30
Prince George's	609	136	463	8
Queen Anne's	35	32	<5	0
Saint Mary's	59	49	10	0
Somerset	17	s	7	<5
Talbot	35	31	<5	0
Washington	95	91	<5	<5
Wicomico	60	44	16	0
Worcester	55	43	12	0

*Total includes deaths reported as unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 37.
Female Breast Cancer Age-Adjusted Mortality Rates*
by Jurisdiction and Race, Maryland, 2007-2011

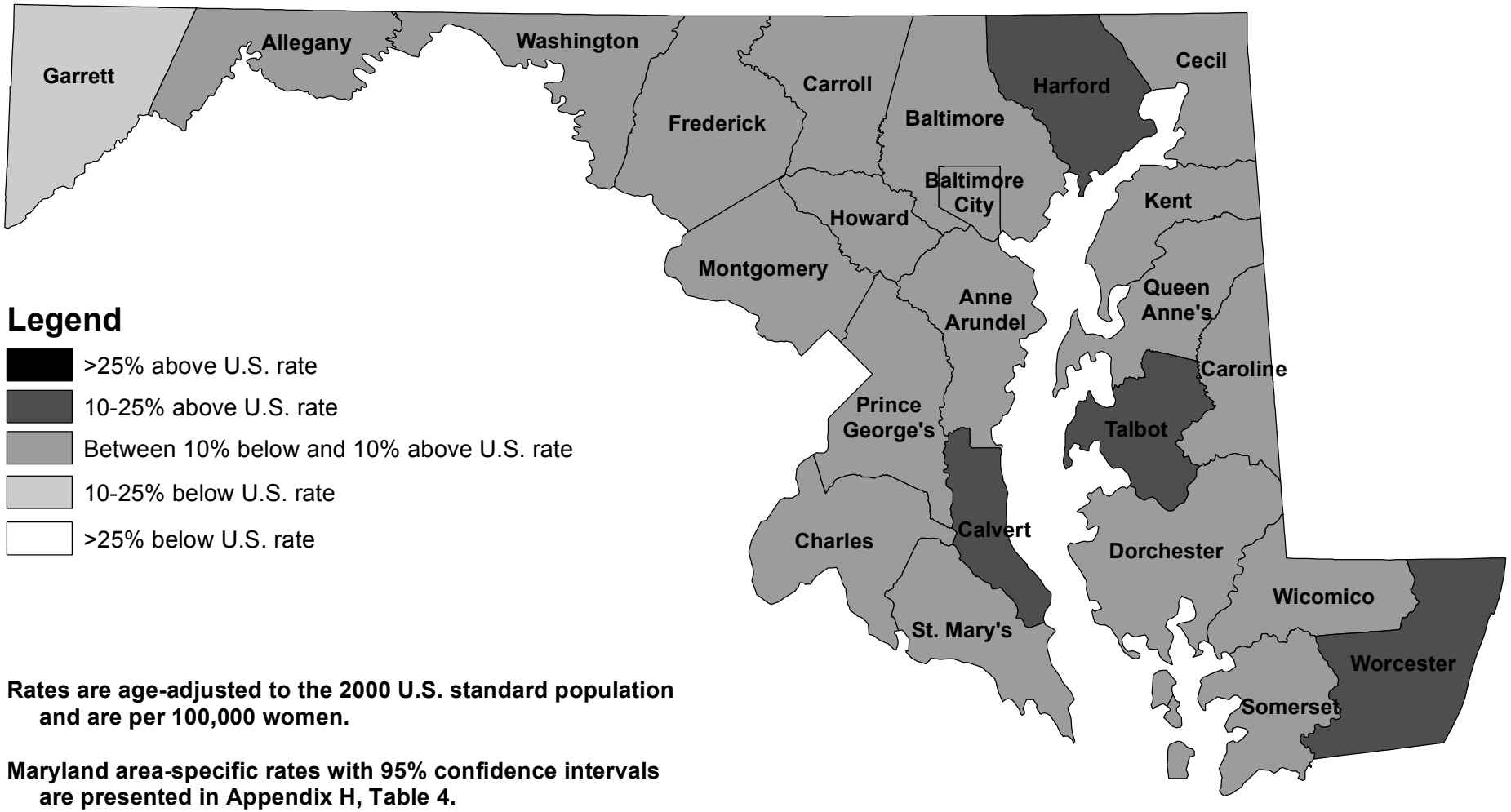
Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	24.0	21.7	31.7	8.6
Allegany	20.3	20.4	**	**
Anne Arundel	23.0	22.4	28.5	**
Baltimore City	28.1	22.2	31.6	**
Baltimore County	25.7	23.5	34.4	**
Calvert	23.3	22.5	**	**
Caroline	21.9	**	**	**
Carroll	21.9	22.3	**	**
Cecil	24.0	24.5	**	**
Charles	25.0	22.5	31.7	**
Dorchester	22.2	20.4	**	**
Frederick	22.9	22.9	**	**
Garrett	29.2	29.4	**	**
Harford	23.8	23.8	29.7	**
Howard	22.8	23.5	25.3	**
Kent	**	**	**	**
Montgomery	20.0	19.0	31.3	7.7
Prince George's	28.2	20.0	34.5	**
Queen Anne's	23.7	24.9	**	**
Saint Mary's	22.9	23.3	**	**
Somerset	**	**	**	**
Talbot	22.2	23.2	**	**
Washington	20.0	20.2	**	**
Wicomico	20.7	19.9	**	**
Worcester	25.1	23.1	**	**

* 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/Center for Cancer Prevention and Control Mortality Data Suppresion Policy

Source: Maryland Vital Statistics Administration

Maryland Female Breast Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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

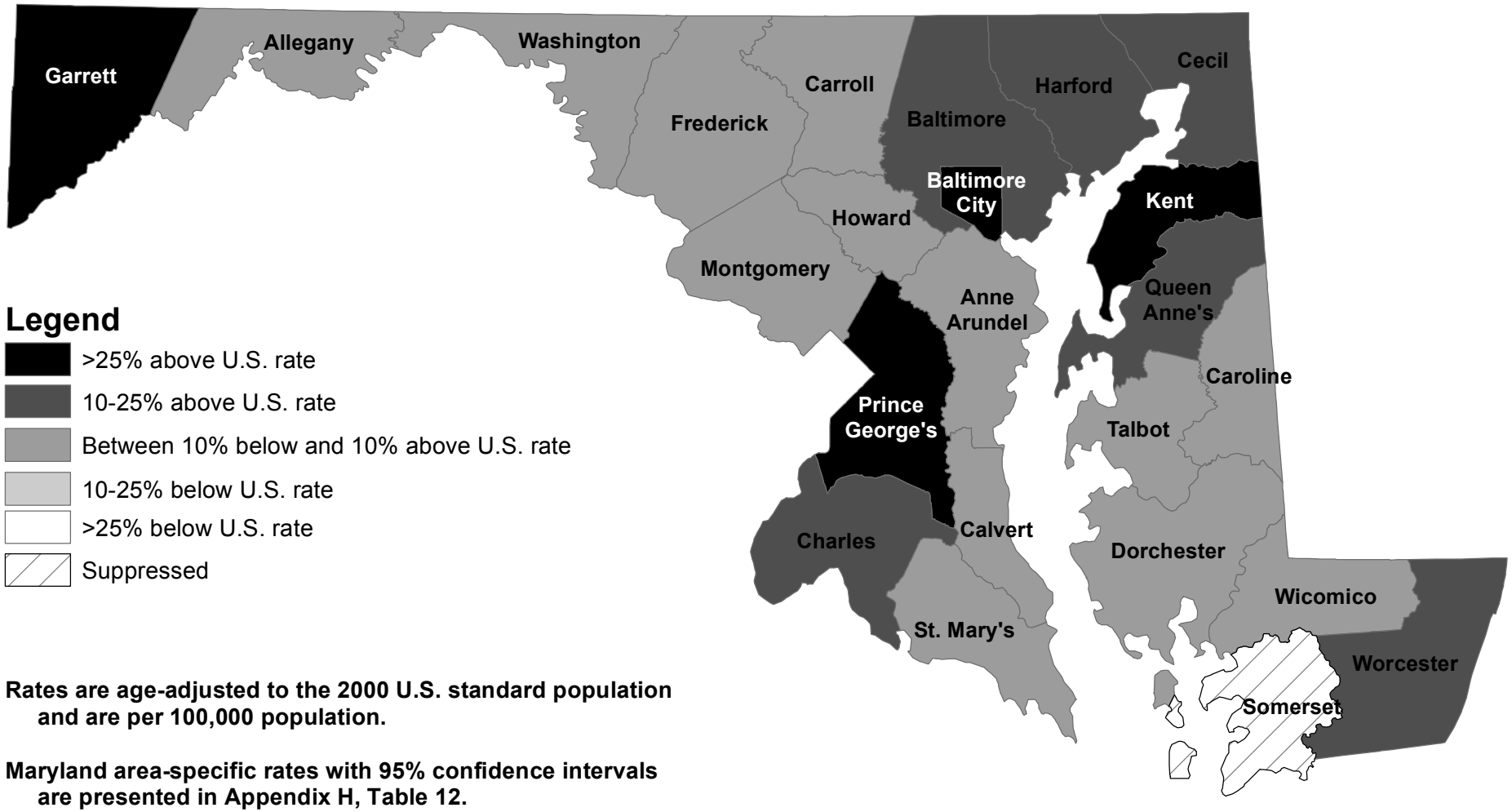
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 4.

U.S. female breast cancer incidence rate, 2007-2011: 124.6/100,000

Maryland female breast cancer incidence rate, 2007-2011: 127.8/100,000

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

Maryland Female Breast Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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. female breast cancer mortality rate, 2007-2011: 21.5/100,000

Maryland female breast cancer mortality rate, 2007-2011: 22.4/100,000

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

D. Prostate Cancer

Incidence (New Cases)

In 2011, a total of 3,961 cases of prostate cancer were reported among men in Maryland. The age-adjusted prostate cancer incidence rate in Maryland for 2011 was 131.7 per 100,000 men (127.5-136.0, 95% C.I.), which is similar to the 2011 U.S. SEER age-adjusted prostate cancer incidence rate of 135.7 per 100,000 men (134.6-136.9, 95% C.I.).

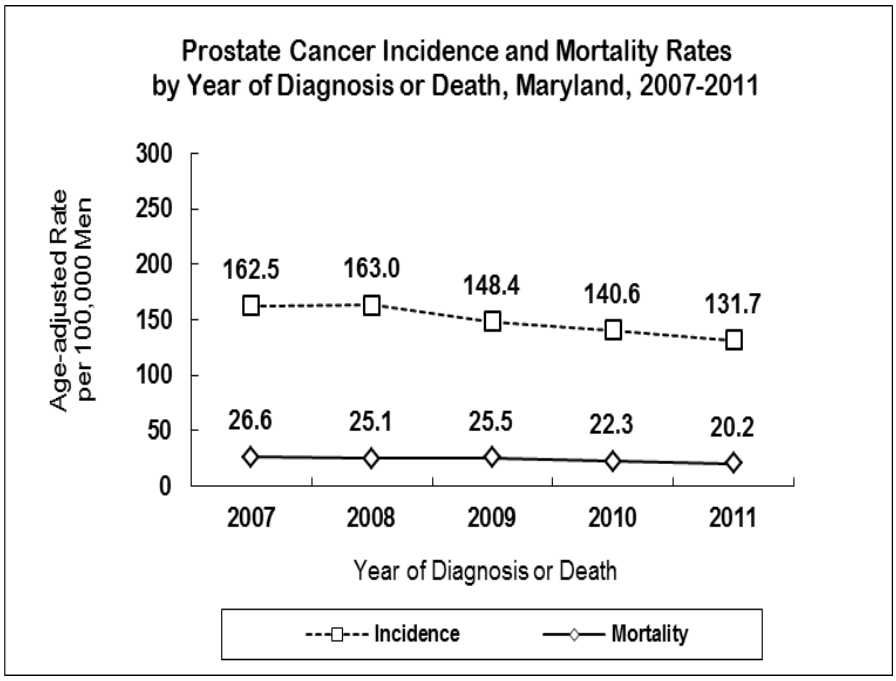
Mortality (Deaths)

Prostate cancer is the second leading cause of cancer death among men in Maryland after lung cancer. In 2011, 475 men died of prostate cancer in Maryland, accounting for 4.6% of all cancer deaths and 9.1% of cancer deaths among men in Maryland. The 2011 age-adjusted mortality rate for prostate cancer in Maryland was 20.2 per 100,000 men (18.4-22.1, 95% C.I.). This rate is similar to the 2011 U.S. prostate cancer mortality rate of 20.8 per 100,000 men (20.5-21.0, 95% C.I.). Maryland had the 16th highest prostate cancer mortality rate among the states and the District of Columbia for the period 2007-2011.

Table 38.
Prostate Cancer Incidence and Mortality Rates
by Race, Maryland and the United States, 2011

Incidence 2011	*Total*	*Whites*	*Blacks*	*A/PI*
New Cases (count)	3,961	2,359	1,341	84
MD Incidence Rate	131.7	110.2	191.4	64.3
U.S. SEER Rate	135.7	125.9	202.6	72.5
Mortality 2011	*Total*	*Whites*	*Blacks*	*A/PI*
Deaths (count)	475	302	170	<5
MD Mortality Rate	20.2	17.0	36.6	**
U.S. Mortality Rate	20.8	19.2	44.1	N/A

Rates are per 100,000 men and are age-adjusted to 2000 U.S. standard population
Total includes unknown race
<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy
** MD mortality rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration
U.S. SEER, Cancer Statistics Review



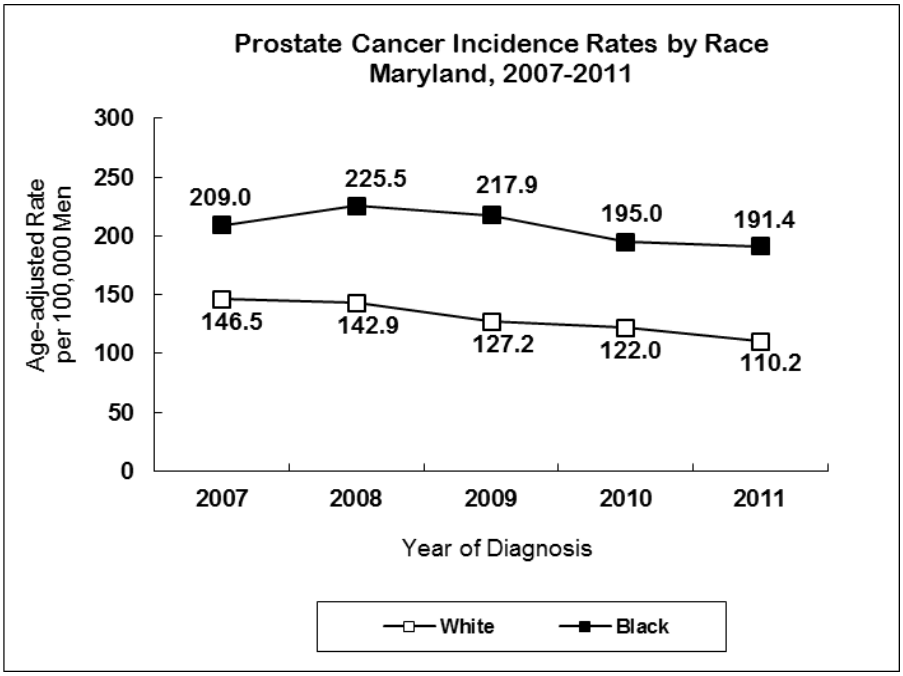
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Incidence and Mortality Trends

The prostate cancer incidence rate in Maryland decreased at a rate of 5.5% per year from 2007 to 2011.

Prostate cancer mortality rates decreased from 2007 to 2011, with a yearly decline of 6.5%.

See Appendix I, Tables 1 and 2.



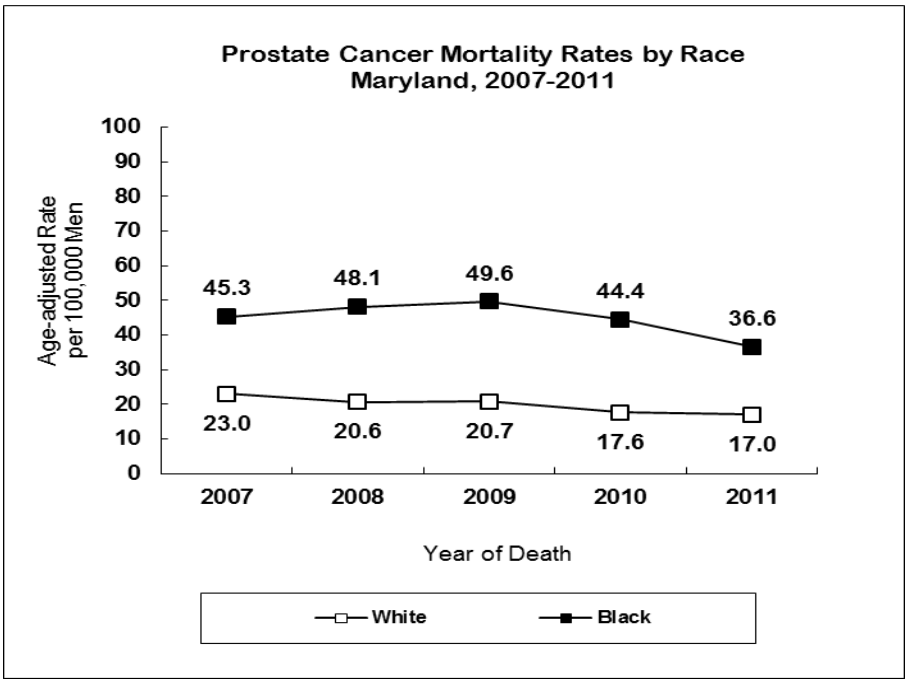
Source: Maryland Cancer Registry

Incidence Trends by Race

From 2007 to 2011, black men had consistently higher prostate cancer incidence rates than white men.

During this 5-year period, incidence rates for black men decreased at a rate of 3.2% and decreased for white men at a rate of 7.0% per year, respectively.

See Appendix I, Table 3.



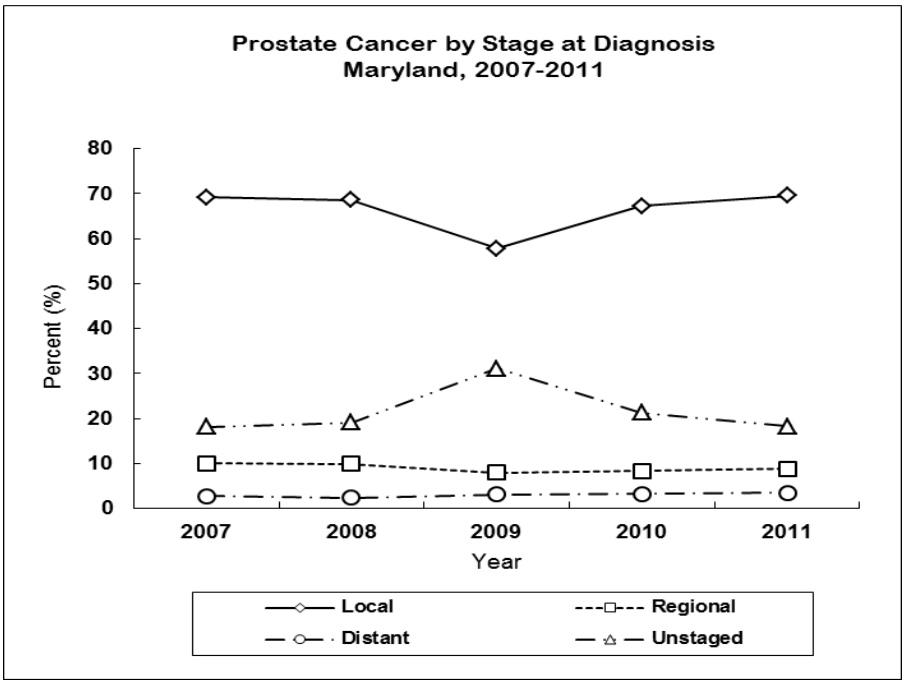
Source: NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Mortality Trends by Race

From 2007 to 2011, 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 4.9% and 7.3%, respectively.

See Appendix I, Table 5.

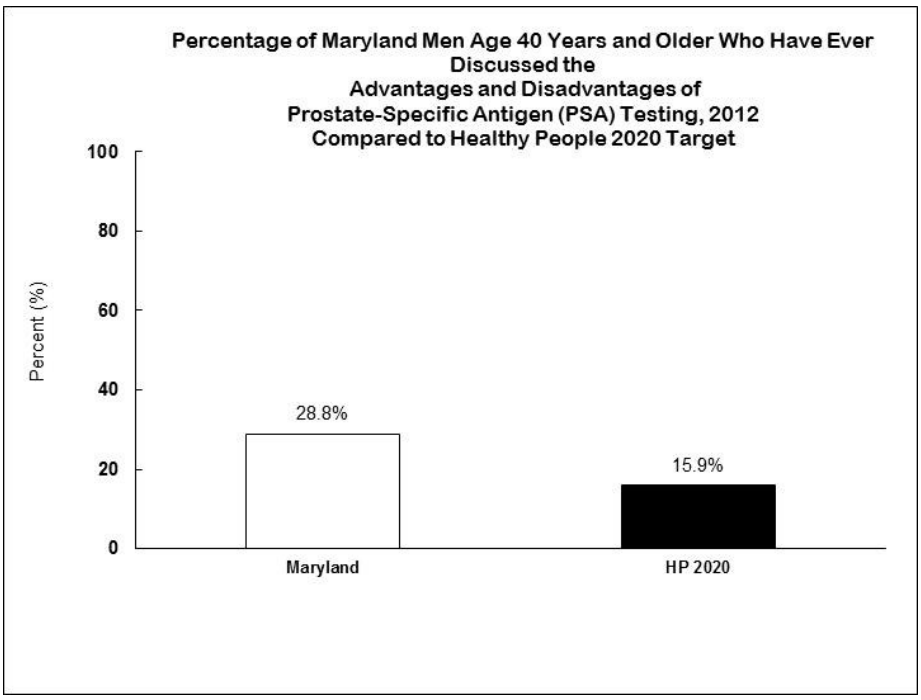


Source: Maryland Cancer Registry

Stage at Diagnosis

Of prostate cancers diagnosed in Maryland in 2011, 69.5% were detected at the local stage, 8.8% were found at the regional stage, and 3.5% were diagnosed at the distant stage. The proportion of prostate cancers reported as unstaged decreased in 2011 to 18.3% of cases.

See Appendix J, Table 5.



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

Prostate-Specific Antigen Test

In 2012, 28.8% of Maryland men age 40 years and older reported that they had discussed both the advantages and the disadvantages of a prostate-specific antigen (PSA) test with a health care provider, which surpasses the Healthy People 2020 target of 15.9%.

In 2012, 58.3% of Maryland men age 40 years and older reported that they had ever had a PSA test and 39.8% reported that they have had a PSA test within the past year.

Public Health Evidence (quoted from NCI PDQ, 2/15/2013 and 1/31/2014, and USPSTF, 5/2012)

Primary Prevention

The Selenium and Vitamin E Cancer Prevention Trial failed to demonstrate that selenium and vitamin E 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 to 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 (DHMH Prostate Medical Advisory Committee, 2012)

- 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, 2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	3,961	2,359	1,341	84
Allegany	51	44	6	0
Anne Arundel	398	307	79	6
Baltimore City	368	96	264	0
Baltimore County	493	338	139	<6
Calvert	63	50	11	0
Caroline	24	17	6	0
Carroll	92	77	7	0
Cecil	58	s	<6	0
Charles	92	58	28	<6
Dorchester	39	31	8	0
Frederick	153	125	19	<6
Garrett	10	10	0	0
Harford	173	137	30	<6
Howard	211	144	52	7
Kent	26	19	7	0
Montgomery	642	395	123	46
Prince George's	615	108	470	13
Queen Anne's	36	32	<6	0
Saint Mary's	43	34	8	0
Somerset	19	12	7	0
Talbot	38	34	<6	0
Washington	78	69	7	<6
Wicomico	99	71	24	0
Worcester	56	47	7	0

*Total includes cases reported as unknown race

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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, 2011

Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	131.7	110.2	191.4	64.3
Allegany	104.4	94.9	**	0.0
Anne Arundel	137.5	123.5	248.1	**
Baltimore City	134.0	93.7	160.7	0.0
Baltimore County	110.2	96.4	182.8	**
Calvert	132.9	125.6	**	0.0
Caroline	132.1	106.2	**	0.0
Carroll	92.8	82.4	**	0.0
Cecil	101.2	105.9	**	0.0
Charles	140.2	127.2	155.8	**
Dorchester	169.3	173.5	**	0.0
Frederick	133.5	118.2	319.2	**
Garrett	**	**	0.0	0.0
Harford	128.0	114.2	258.9	**
Howard	143.5	130.2	274.9	**
Kent	173.0	150.9	**	0.0
Montgomery	128.4	106.6	185.5	71.9
Prince George's	161.7	95.8	190.5	**
Queen Anne's	121.9	117.3	**	0.0
Saint Mary's	76.5	72.9	**	0.0
Somerset	118.2	**	**	0.0
Talbot	126.2	127.6	**	0.0
Washington	90.6	85.9	**	**
Wicomico	195.9	180.4	250.6	0.0
Worcester	122.9	112.7	**	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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 41.
Number of Prostate Cancer Deaths
by Jurisdiction and Race, Maryland, 2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	475	302	170	<5
Allegany	<5	<5	0	0
Anne Arundel	37	30	s	<5
Baltimore City	67	14	53	0
Baltimore County	65	54	11	0
Calvert	9	7	<5	0
Caroline	<5	<5	<5	0
Carroll	10	10	0	0
Cecil	6	s	<5	0
Charles	10	<5	6	0
Dorchester	5	5	0	0
Frederick	21	15	6	0
Garrett	<5	<5	0	0
Harford	21	17	<5	0
Howard	17	10	7	0
Kent	<5	<5	0	0
Montgomery	67	52	13	<5
Prince George's	66	19	47	0
Queen Anne's	11	9	<5	0
Saint Mary's	6	<5	<5	0
Somerset	<5	<5	0	0
Talbot	10	7	<5	0
Washington	10	10	0	0
Wicomico	13	11	<5	0
Worcester	12	8	<5	0

*Total includes deaths reported as unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 42.
Prostate Cancer Age-Adjusted Mortality Rates* by Jurisdiction and Race, Maryland, 2011

Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	20.2	17.0	36.6	**
Allegany	**	**	**	**
Anne Arundel	18.0	16.8	**	**
Baltimore City	29.1	**	40.1	**
Baltimore County	16.1	15.5	**	**
Calvert	**	**	**	**
Caroline	**	**	**	**
Carroll	**	**	**	**
Cecil	**	**	**	**
Charles	**	**	**	**
Dorchester	**	**	**	**
Frederick	24.7	**	**	**
Garrett	**	**	**	**
Harford	23.0	**	**	**
Howard	**	**	**	**
Kent	**	**	**	**
Montgomery	15.4	15.0	**	**
Prince George's	28.1	**	36.1	**
Queen Anne's	**	**	**	**
Saint Mary's	**	**	**	**
Somerset	**	**	**	**
Talbot	**	**	**	**
Washington	**	**	**	**
Wicomico	**	**	**	**
Worcester	**	**	**	**

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

** Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Table 43.
Number of Prostate Cancer Cases by Jurisdiction and Race, Maryland, 2007-2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	20,992	13,133	6,662	411
Allegany	323	295	24	<6
Anne Arundel	2,069	1,688	336	14
Baltimore City	2,051	542	1,433	7
Baltimore County	2,713	1,890	687	26
Calvert	276	218	53	0
Caroline	116	96	18	0
Carroll	523	465	31	<6
Cecil	325	304	17	0
Charles	486	274	190	6
Dorchester	144	106	38	0
Frederick	680	581	71	10
Garrett	98	97	0	0
Harford	935	773	127	11
Howard	907	633	188	34
Kent	126	99	27	0
Montgomery	3,610	2,476	654	229
Prince George's	3,165	649	2,346	61
Queen Anne's	215	193	19	0
Saint Mary's	298	239	52	0
Somerset	103	66	33	0
Talbot	256	226	27	0
Washington	513	467	37	<6
Wicomico	428	297	123	<6
Worcester	374	311	54	0

*Total includes cases reported as unknown race

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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

Source: Maryland Cancer Registry

Table 44.
Prostate Cancer Age-Adjusted Incidence Rates* by Jurisdiction and Race, Maryland, 2007-2011

Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	148.7	129.3	206.8	63.4
Allegany	142.8	135.1	388.6	**
Anne Arundel	151.7	143.7	221.6	**
Baltimore City	150.1	104.6	173.7	**
Baltimore County	127.2	111.3	198.7	33.3
Calvert	131.0	120.9	197.4	0.0
Caroline	131.5	125.9	158.1	0.0
Carroll	114.1	106.4	202.7	**
Cecil	123.9	122.3	144.2	0.0
Charles	158.3	129.4	223.6	**
Dorchester	139.7	132.6	159.6	0.0
Frederick	128.2	121.0	206.8	**
Garrett	97.3	97.0	0.0	0.0
Harford	149.9	138.6	249.4	**
Howard	132.0	121.3	210.3	43.1
Kent	176.8	162.0	278.2	0.0
Montgomery	151.6	140.3	228.1	72.4
Prince George's	180.4	112.4	220.8	82.2
Queen Anne's	150.2	147.6	177.1	0.0
Saint Mary's	120.2	113.7	160.1	0.0
Somerset	144.2	123.3	194.8	0.0
Talbot	175.9	175.0	164.2	0.0
Washington	132.7	128.3	220.1	**
Wicomico	180.5	159.8	269.3	**
Worcester	185.2	171.4	270.8	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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 45.
Number of Prostate Cancer Deaths
by Jurisdiction and Race, Maryland, 2007-2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	2,606	1,642	936	28
Allegany	26	24	<5	0
Anne Arundel	201	161	38	<5
Baltimore City	413	90	321	<5
Baltimore County	411	323	s	<5
Calvert	37	24	13	0
Caroline	17	13	<5	0
Carroll	70	s	<5	0
Cecil	48	42	6	0
Charles	53	25	28	0
Dorchester	22	14	8	0
Frederick	86	72	s	<5
Garrett	14	14	0	0
Harford	96	79	s	<5
Howard	80	s	24	<5
Kent	25	23	<5	0
Montgomery	350	274	59	17
Prince George's	360	101	256	<5
Queen Anne's	30	27	<5	0
Saint Mary's	46	29	17	0
Somerset	12	8	<5	0
Talbot	40	34	6	0
Washington	65	62	<5	0
Wicomico	58	46	12	0
Worcester	46	33	13	0

*Total includes deaths reported as unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 46.
Prostate Cancer Age-Adjusted Mortality Rates* by Jurisdiction and Race, Maryland, 2007-2011

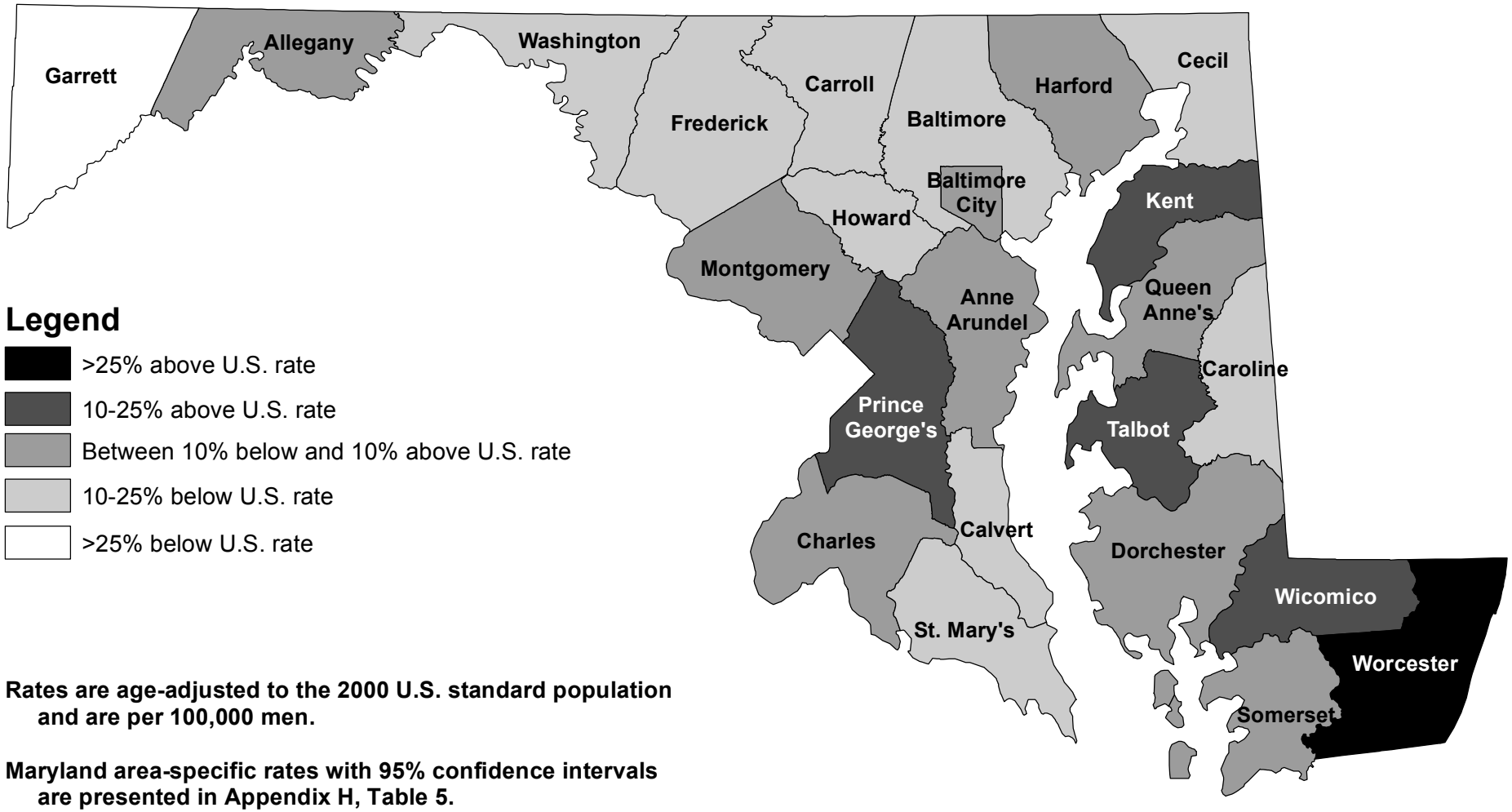
Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	24.6	20.4	46.3	6.1
Allegany	13.1	12.4	**	**
Anne Arundel	21.4	19.8	38.4	**
Baltimore City	37.6	20.8	50.1	**
Baltimore County	22.4	20.3	43.6	**
Calvert	25.7	19.3	**	**
Caroline	**	**	**	**
Carroll	21.3	21.9	**	**
Cecil	27.7	26.1	**	**
Charles	24.9	18.4	47.8	**
Dorchester	24.3	**	**	**
Frederick	22.7	21.1	**	**
Garrett	**	**	**	**
Harford	22.8	21.1	**	**
Howard	20.1	18.5	44.7	**
Kent	40.7	42.1	**	**
Montgomery	17.9	17.7	32.9	**
Prince George's	34.0	21.3	53.0	**
Queen Anne's	30.7	30.3	**	**
Saint Mary's	28.6	23.0	**	**
Somerset	**	**	**	**
Talbot	31.8	30.4	**	**
Washington	20.7	20.5	**	**
Wicomico	32.3	32.5	**	**
Worcester	26.8	21.4	**	**

* 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/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Maryland Prostate Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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

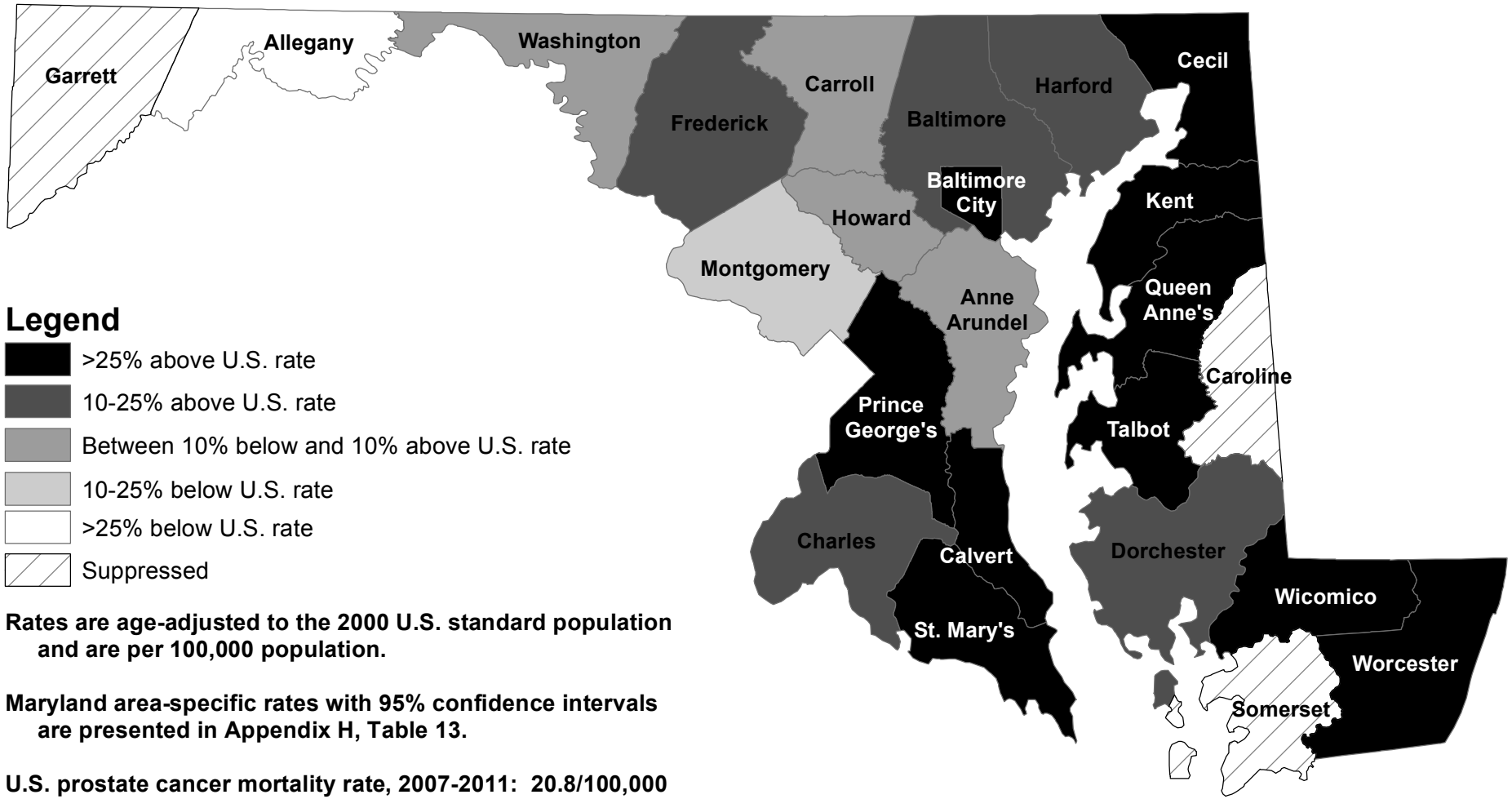
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 5.

U.S. prostate cancer incidence rate, 2007-2011: 147.8/100,000

Maryland prostate cancer incidence rate, 2007-2011: 148.7/100,000

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

Maryland Prostate Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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 13.

U.S. prostate cancer mortality rate, 2007-2011: 20.8/100,000

Maryland prostate cancer mortality rate, 2007-2011: 20.2/100,000

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

Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

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E. Oral Cancer

Incidence (New Cases)

In 2011, a total of 670 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 2011 was 10.2 per 100,000 population (9.4-11.0, 95% C.I.), which is similar to the 2011 U.S. SEER age-adjusted oral cancer incidence rate of 11.0 per 100,000 population (10.8-11.2, 95% C.I.).

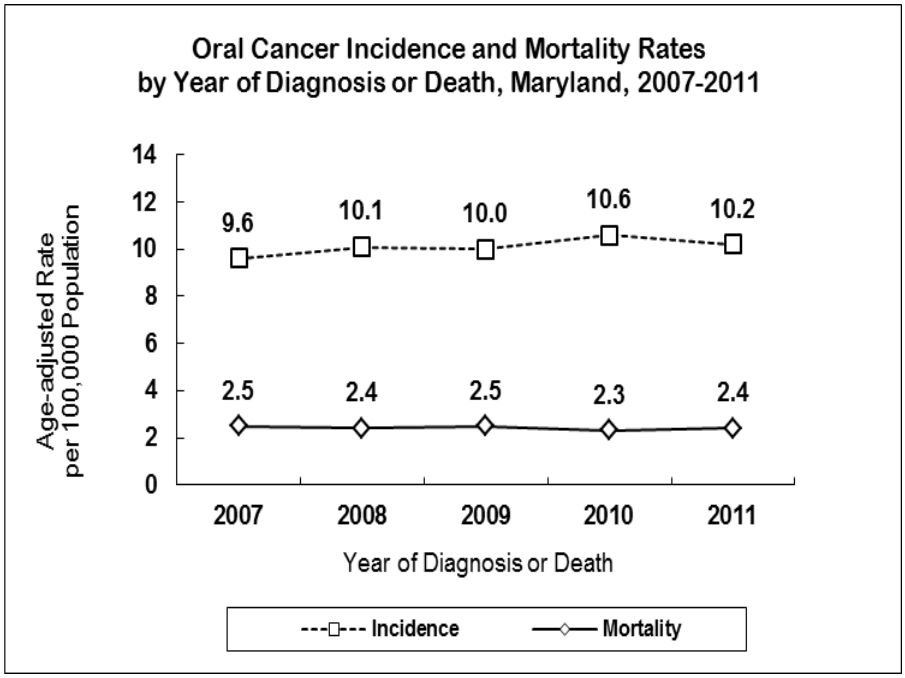
Mortality (Deaths)

In 2011, 148 persons in Maryland died of oral cancer. The 2011 age-adjusted mortality rate for oral cancer in Maryland was 2.4 per 100,000 population (2.0-2.8, 95% C.I.), which accounted for 1.4% of Maryland cancer deaths in 2011. This rate is similar to the U.S. oral cancer mortality rate of 2.5 per 100,000 population (2.4-2.5, 95% C.I.). Maryland had the 27th highest oral cancer mortality rate among the states and the District of Columbia for the period 2007-2011.

Table 47.
Oral Cancer Incidence and Mortality Rates
by Gender and Race, Maryland and the United States, 2011

Incidence 2011	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*A/PI*
New Cases (count)	670	487	183	508	126	28
MD Incidence Rate	10.2	16.0	5.3	11.4	7.3	8.5
U.S. SEER Rate	11.0	16.6	6.1	11.5	8.8	6.9
Mortality 2011	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*A/PI*
Deaths (count)	148	105	43	97	45	6
MD Mortality Rate	2.4	3.7	1.2	2.3	2.7	**
U.S. Mortality Rate	2.5	3.9	1.3	2.4	3.1	N/A

Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population
Total also includes cases reported as transexual, hermaphrodite, unknown gender, and unknown race
** MD mortality rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration
U.S. SEER, Cancer Statistics Review



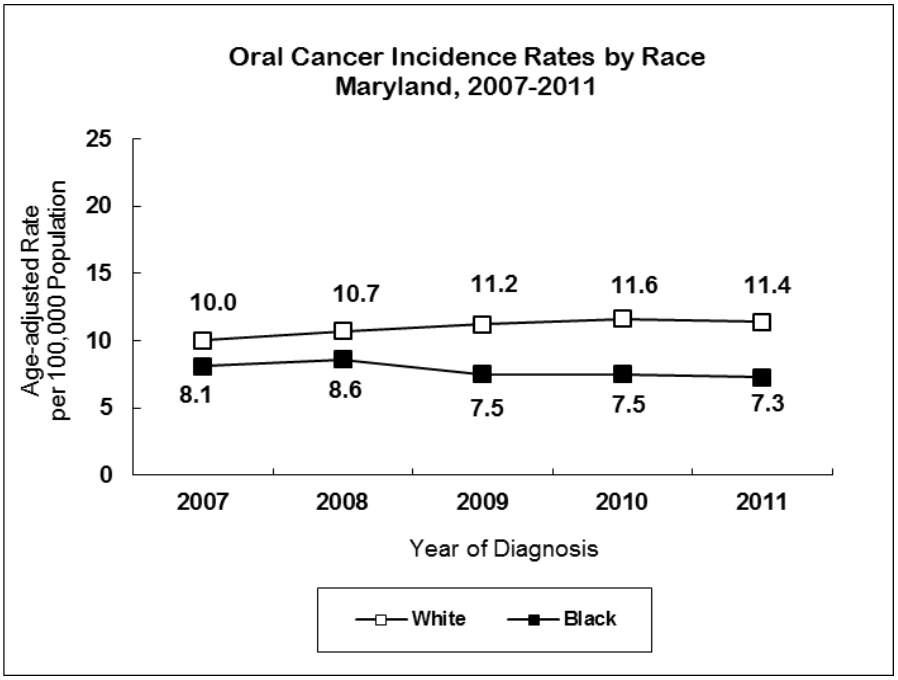
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Incidence and Mortality Trends

The incidence of oral cancer in Maryland increased at a rate of 1.7% per year from 2007 to 2011.

Oral cancer mortality rates have decreased from 2007 to 2011, with a rate decrease of 1.2% annually.

See Appendix I, Tables 1 and 2.

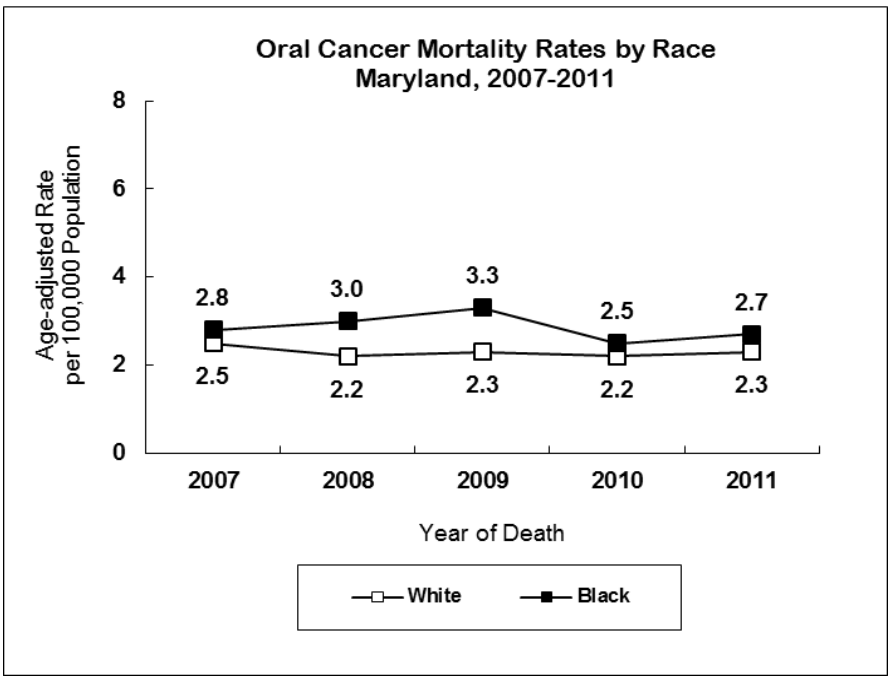


Source: Maryland Cancer Registry

Incidence Trends by Race

Over the 5-year period from 2007 to 2011, oral cancer incidence rates in Maryland decreased at a rate of 3.4% per year for blacks, and increased 3.5% per year for whites.

See Appendix I, Table 3.

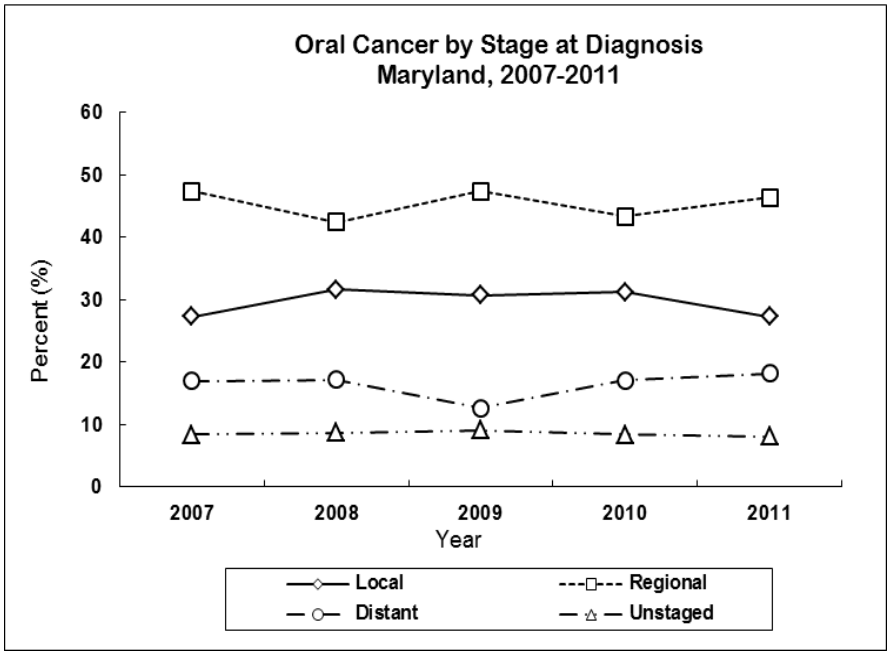


Source: NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Mortality Trends by Race

Over the 5-year period from 2007 to 2011, oral cancer mortality rates decreased at a rate of 2.5% per year for blacks and 1.7% per year for whites.

See Appendix I, Table 5.

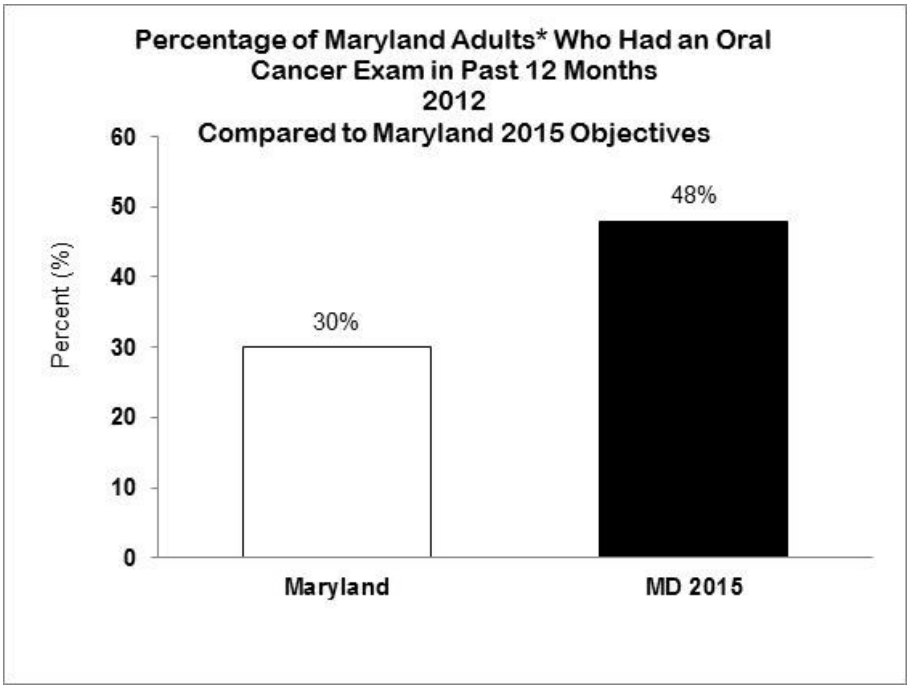


Source: Maryland Cancer Registry

Stage at Diagnosis

In 2011, 27.3% of oral cancers in Maryland were diagnosed at the local stage, 46.4% were diagnosed at the regional stage, and 18.2% were diagnosed at the distant stage. From 2007 to 2011, the proportion of oral cancers reported as unstaged gradually decreased.

See Appendix J, Table 6.



* Adults age 40 years and older
Source: Maryland BRFSS
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 an oral cancer screening examination in the past 12 months.

In 2012, only 30% 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%.

Public Health Evidence (quoted from NCI PDQ, 2/15/2013 and 2/21/2014, and USPSTF, 11/26/2013)

Primary Prevention

People who use tobacco in any of the commonly available forms (cigarettes, cigars, pipes, and smokeless tobacco) or have high alcohol intake are at elevated risk of oral cancer (that is, cancer of the lip, oral cavity, and oropharynx). They are at particularly high risk if they use both tobacco and alcohol. People who chew betel nut (whether mixed with tobacco or not)—a common practice in south central Asia and Melanesia—are also at high risk. 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. Smoking avoidance and smoking cessation result in a decrease in incidence and mortality from oral cancer. 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.

The number of oral cancer cases related to tobacco and alcohol use has been going down, as fewer adults now smoke or drink heavily. However, human papilloma virus (HPV)-related cancer of the oropharynx has been increasing. Based on solid evidence, there is a strong association between oral HPV infection and oral cancer, particularly HPV type 16. Given the known causal association between HPV infections and cancer of the cervix, the established strong association between infection by carcinogenic strains of HPV and oral cancer may also be causal. 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. Although infection with specific carcinogenic strains of HPV is a risk factor for (and likely causes) a subset of oral cancers and, by inference, its avoidance would lead to fewer cases, there is inadequate evidence that strategies to avoid infection decrease the risk of oral cancer.

Intake of fruits and vegetables may lower the risk of development of oral cancer by 30% to 50%. The evidence is inadequate, however, of reduced oral cancer among people who have made changes in their diet.

Based on fair evidence, carcinoma of the lip, predominantly the lower lip, is associated with sun exposure. Although there is inadequate evidence to determine whether reducing sun exposure or use of sunscreens would prevent lip cancer, lip balm with sun protection is widely available and may lower the risk.

Screening

The routine oral examination of asymptomatic patients may 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 may increase the likelihood of earlier detection of oral cancer. However, the USPSTF concluded that the current evidence is insufficient to assess the balance of benefits and harms of screening for oral cancer in asymptomatic adults. It is unlikely that controlled trials of screening for oral cancer willever be conducted in the general population because of the very low incidence of oral cancer in the U.S.

Public Health Intervention for Oral Cancer (DHMH Oral Cancer Medical Advisory Committee, 2014)
➢ Avoidance or cessation of smoking and other tobacco use. Eliminate chewing betel nut. ➢ Avoidance or reduction of alcohol consumption. ➢ Avoidance of sun exposure and use of ultraviolet (UV) light blocking lip balm. ➢ A diet that includes a high proportion of fruits and vegetables. ➢ Screening adults for oral cancer during routine dental and medical visits; screening (in public health settings) adults at increased risk who are unlikely to have routine dental or medical care.

Table 48.
Number of Oral Cancer Cases
by Jurisdiction, Gender and Race, Maryland, 2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	670	487	183	508	126	28
Allegany	12	7	<6	s	<6	0
Anne Arundel	68	51	17	61	<6	<6
Baltimore City	84	59	25	30	52	<6
Baltimore County	89	64	25	79	s	<6
Calvert	11	7	<6	s	<6	0
Caroline	<6	<6	<6	<6	0	0
Carroll	19	12	7	19	0	0
Cecil	16	s	<6	13	<6	<6
Charles	16	12	<6	12	<6	0
Dorchester	9	<6	<6	s	<6	0
Frederick	25	22	<6	s	<6	0
Garrett	7	<6	<6	7	0	0
Harford	33	27	6	30	<6	<6
Howard	29	18	11	24	<6	<6
Kent	<6	<6	<6	<6	0	0
Montgomery	94	63	31	68	10	14
Prince George's	57	47	10	22	31	<6
Queen Anne's	<6	<6	0	<6	0	0
Saint Mary's	14	9	<6	12	<6	0
Somerset	<6	<6	<6	<6	0	0
Talbot	9	6	<6	s	<6	0
Washington	28	24	<6	s	<6	0
Wicomico	17	11	6	14	<6	0
Worcester	8	8	0	s	<6	0

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

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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, 2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	10.2	16.0	5.3	11.4	7.3	8.5
Allegany	**	**	**	**	**	0.0
Anne Arundel	11.4	18.1	5.4	12.2	**	**
Baltimore City	13.0	20.5	7.1	15.1	12.2	**
Baltimore County	9.0	14.5	4.8	10.7	**	**
Calvert	**	**	**	**	**	0.0
Caroline	**	**	**	**	0.0	0.0
Carroll	9.7	**	**	10.0	0.0	0.0
Cecil	13.3	**	**	**	**	**
Charles	11.0	**	**	**	**	0.0
Dorchester	**	**	**	**	**	0.0
Frederick	9.2	16.6	**	10.1	**	0.0
Garrett	**	**	**	**	0.0	0.0
Harford	10.8	18.4	**	11.3	**	**
Howard	9.4	12.3	**	10.2	**	**
Kent	**	**	**	**	0.0	0.0
Montgomery	8.5	12.3	5.3	8.7	**	**
Prince George's	6.9	12.7	**	9.7	5.6	**
Queen Anne's	**	**	0.0	**	0.0	0.0
Saint Mary's	**	**	**	**	**	0.0
Somerset	**	**	**	**	0.0	0.0
Talbot	**	**	**	**	**	0.0
Washington	15.5	27.9	**	16.3	**	0.0
Wicomico	15.5	**	**	**	**	0.0
Worcester	**	**	0.0	**	**	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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 50.
Number of Oral Cancer Deaths
by Jurisdiction, Gender and Race, Maryland, 2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	148	105	43	97	45	6
Allegany	<5	<5	0	<5	0	0
Anne Arundel	13	11	<5	11	<5	<5
Baltimore City	26	15	11	8	18	0
Baltimore County	15	10	5	11	<5	<5
Calvert	<5	<5	<5	<5	0	0
Caroline	<5	0	<5	<5	0	0
Carroll	<5	<5	<5	<5	0	0
Cecil	<5	<5	0	<5	0	0
Charles	7	<5	<5	5	<5	0
Dorchester	0	0	0	0	0	0
Frederick	<5	<5	<5	<5	<5	0
Garrett	<5	<5	0	<5	0	0
Harford	8	6	<5	s	<5	0
Howard	<5	<5	<5	<5	0	0
Kent	<5	<5	0	<5	0	0
Montgomery	13	8	5	10	<5	<5
Prince George's	24	20	<5	6	18	0
Queen Anne's	<5	0	<5	<5	0	0
Saint Mary's	5	<5	<5	5	0	0
Somerset	0	0	0	0	0	0
Talbot	<5	<5	<5	<5	<5	0
Washington	<5	<5	0	<5	0	0
Wicomico	5	5	0	<5	<5	0
Worcester	<5	<5	0	<5	0	0

*Total includes deaths reported as transexual, hermaphrodite, unknown gender, and unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 51.
Oral Cancer Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	2.4	3.7	1.2	2.3	2.7	**
Allegany	**	**	**	**	**	**
Anne Arundel	**	**	**	**	**	**
Baltimore City	4.1	**	**	**	**	**
Baltimore County	**	**	**	**	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	**	**	**	**	**	**
Cecil	**	**	**	**	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	**	**	**	**	**	**
Garrett	**	**	**	**	**	**
Harford	**	**	**	**	**	**
Howard	**	**	**	**	**	**
Kent	**	**	**	**	**	**
Montgomery	**	**	**	**	**	**
Prince George's	3.0	5.2	**	**	**	**
Queen Anne's	**	**	**	**	**	**
Saint Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	**	**	**	**	**	**
Wicomico	**	**	**	**	**	**
Worcester	**	**	**	**	**	**

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

** Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Table 52.
Number of Oral Cancer Cases
by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	3,145	2,205	938	2,375	616	103
Allegany	58	42	16	s	<6	0
Anne Arundel	359	259	100	319	28	<6
Baltimore City	409	288	119	153	248	<6
Baltimore County	451	311	140	384	58	9
Calvert	59	40	19	53	6	0
Caroline	19	12	7	s	<6	0
Carroll	93	69	24	89	<6	0
Cecil	67	48	19	61	<6	<6
Charles	73	55	18	60	12	0
Dorchester	26	20	6	21	<6	0
Frederick	117	85	32	109	s	<6
Garrett	17	10	7	17	0	0
Harford	146	112	34	134	9	<6
Howard	144	94	50	112	9	19
Kent	12	<6	8	s	<6	0
Montgomery	419	283	136	316	42	46
Prince George's	313	220	93	138	155	9
Queen Anne's	32	21	11	s	<6	0
Saint Mary's	55	36	19	50	<6	0
Somerset	16	12	<6	11	<6	0
Talbot	33	20	13	28	<6	0
Washington	93	68	25	89	<6	<6
Wicomico	51	38	13	46	<6	0
Worcester	49	36	13	41	<6	<6

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

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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

Source: Maryland Cancer Registry

Table 53.
Oral Cancer Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	10.1	15.5	5.6	11.0	7.8	6.7
Allegany	12.9	19.6	6.2	13.2	**	0.0
Anne Arundel	12.7	19.5	6.8	13.4	7.7	**
Baltimore City	12.4	20.3	6.3	13.3	11.7	**
Baltimore County	9.7	15.0	5.5	10.7	6.8	**
Calvert	12.1	17.5	7.4	12.9	**	0.0
Caroline	10.7	**	**	12.0	**	0.0
Carroll	9.5	14.6	4.6	9.4	**	0.0
Cecil	12.0	17.4	7.0	11.8	**	**
Charles	10.7	16.8	5.6	12.9	**	0.0
Dorchester	11.4	20.6	**	12.2	**	0.0
Frederick	9.5	14.6	5.0	9.9	**	**
Garrett	9.0	**	**	9.1	0.0	0.0
Harford	10.6	17.3	4.8	10.9	**	**
Howard	9.7	12.9	6.7	10.3	**	11.3
Kent	**	**	**	**	**	0.0
Montgomery	7.9	11.9	4.7	8.1	6.0	5.9
Prince George's	7.8	12.4	4.3	11.1	6.0	**
Queen Anne's	10.5	15.0	**	11.2	**	0.0
Saint Mary's	10.2	13.9	6.8	11.1	**	0.0
Somerset	10.4	**	**	**	**	0.0
Talbot	10.9	15.1	**	10.7	**	0.0
Washington	11.0	17.5	5.4	11.2	**	**
Wicomico	9.9	16.0	**	11.8	**	0.0
Worcester	13.7	21.8	**	12.6	**	**

* 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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 54.
Number of Oral Cancer Deaths
by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	734	493	241	494	215	24
Allegany	12	6	6	12	0	0
Anne Arundel	86	60	26	75	7	<5
Baltimore City	121	81	40	34	87	0
Baltimore County	106	58	48	84	18	<5
Calvert	14	11	<5	s	<5	0
Caroline	<5	<5	<5	<5	0	0
Carroll	14	9	5	12	<5	0
Cecil	12	s	<5	12	0	0
Charles	18	13	5	15	<5	0
Dorchester	5	<5	<5	<5	<5	0
Frederick	14	10	<5	10	<5	0
Garrett	<5	<5	<5	<5	0	0
Harford	39	30	9	36	<5	<5
Howard	20	14	6	s	0	<5
Kent	6	<5	<5	6	0	0
Montgomery	84	49	35	61	11	11
Prince George's	93	67	26	28	63	<5
Queen Anne's	7	5	<5	5	<5	0
Saint Mary's	11	9	<5	11	0	0
Somerset	<5	<5	0	0	<5	0
Talbot	6	<5	<5	s	<5	0
Washington	22	15	7	19	<5	<5
Wicomico	20	16	<5	16	<5	0
Worcester	13	11	<5	11	<5	0

*Total includes deaths reported as transexual, hermaphrodite, unknown gender, and unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 55.
Oral Cancer Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2007-2011

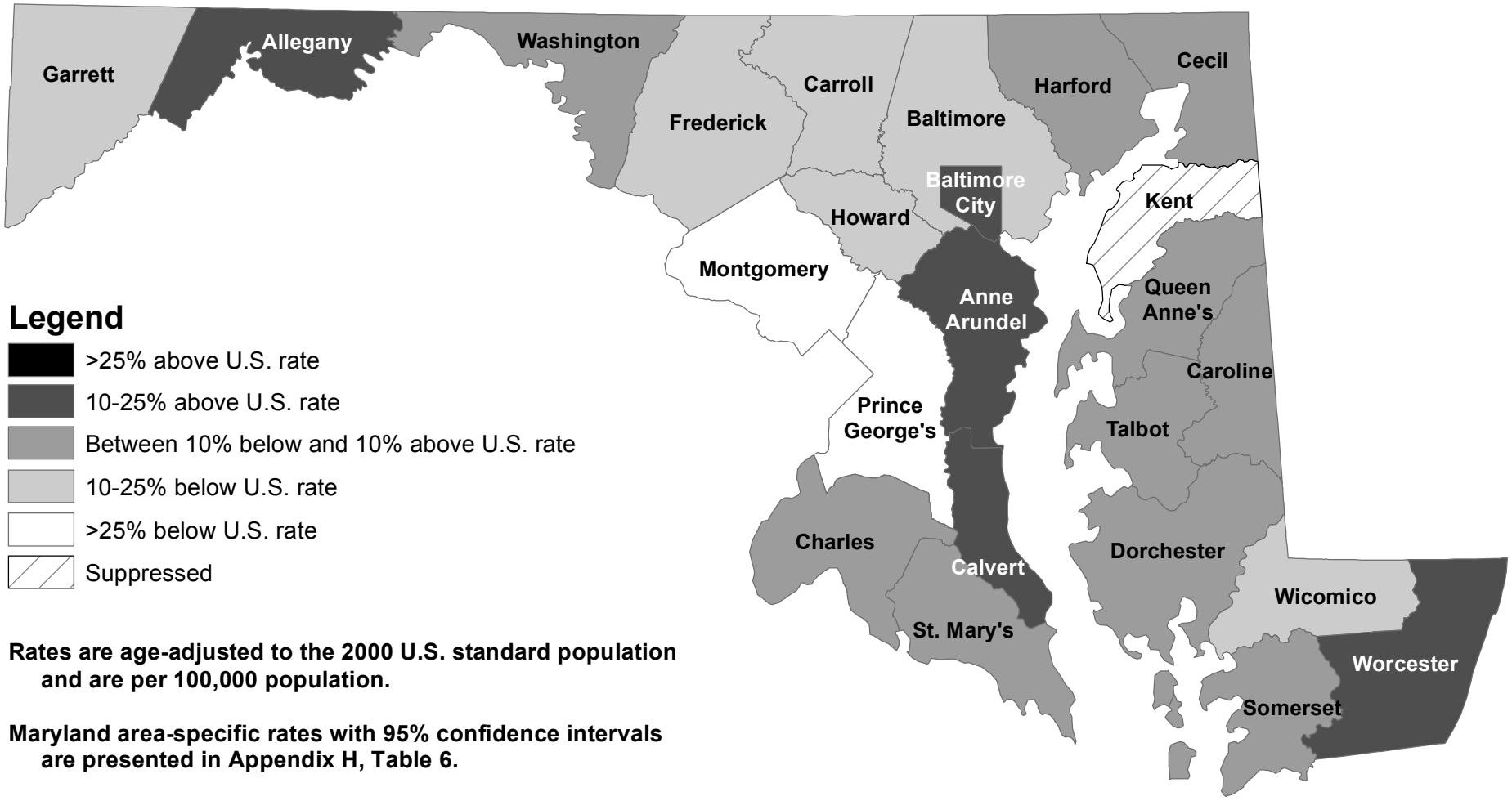
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	2.4	3.7	1.4	2.3	2.9	1.7
Allegany	**	**	**	**	**	**
Anne Arundel	3.2	5.1	1.7	3.3	**	**
Baltimore City	3.7	6.0	2.0	2.9	4.1	**
Baltimore County	2.3	2.9	1.8	2.2	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	**	**	**	**	**	**
Cecil	**	**	**	**	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	**	**	**	**	**	**
Garrett	**	**	**	**	**	**
Harford	3.0	5.2	**	3.2	**	**
Howard	1.5	**	**	**	**	**
Kent	**	**	**	**	**	**
Montgomery	1.6	2.3	1.2	1.6	**	**
Prince George's	2.5	4.1	1.3	2.2	2.9	**
Queen Anne's	**	**	**	**	**	**
Saint Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	2.6	**	**	**	**	**
Wicomico	3.8	**	**	**	**	**
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/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Maryland Oral Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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.

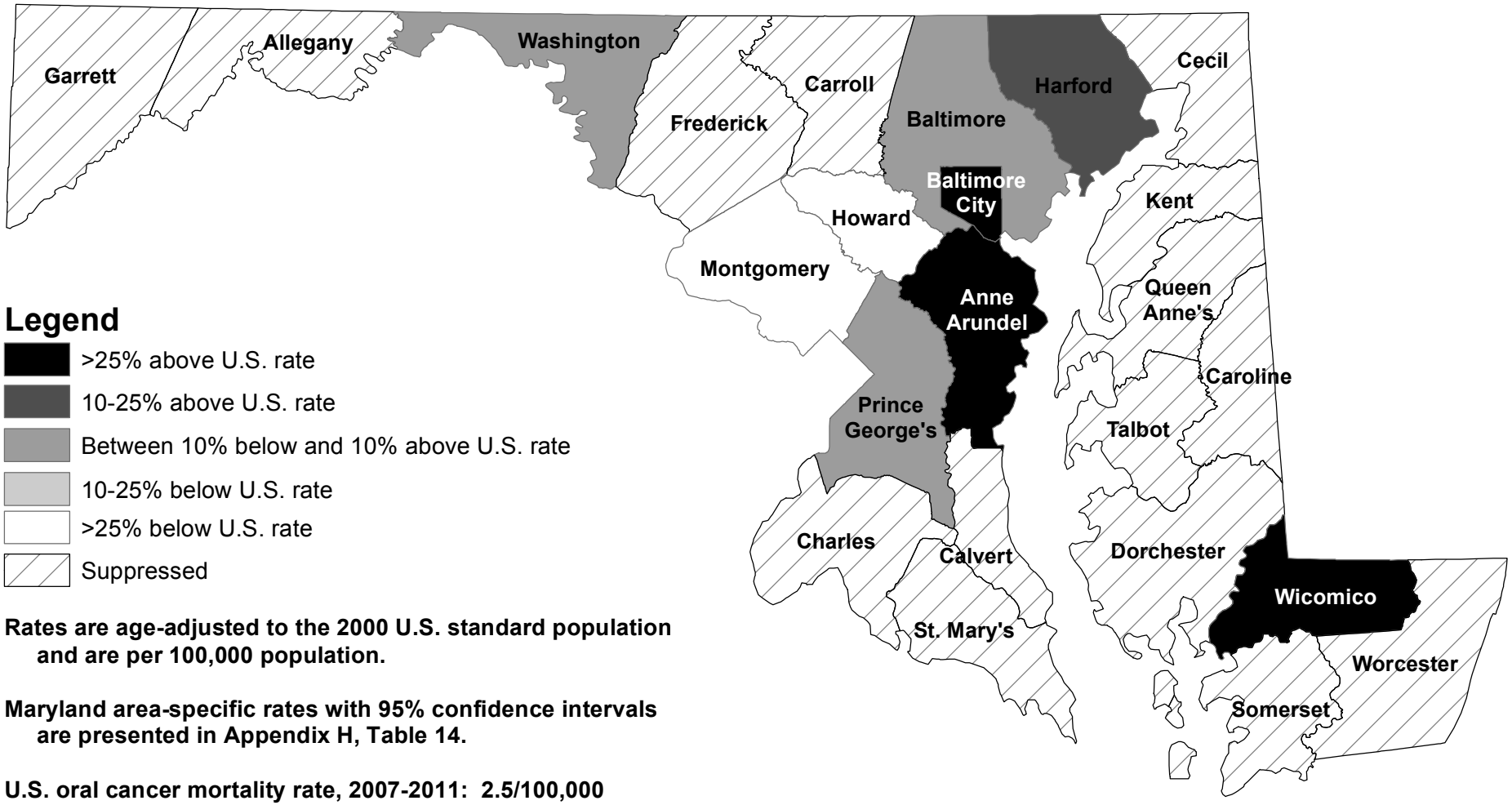
U.S. oral cancer incidence rate, 2007-2011: 11.0/100,000

Maryland oral cancer incidence rate, 2007-2011: 10.1/100,000

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

Rates based on case counts of 1-15 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy and Procedures

Maryland Oral Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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, 2007-2011: 2.5/100,000

Maryland oral cancer mortality rate, 2007-2011: 2.4/100,000

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

Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

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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 and is reportable to the MCR.

Incidence (New Cases)

In 2011, a total of 1,292 cases of melanoma of the skin were reported in Maryland. The age-adjusted incidence rate for melanoma for 2011 was 20.6 per 100,000 population (19.5-21.8, 95% C.I.), which is similar to the 2011 U.S. SEER age-adjusted melanoma incidence rate of 21.1 per 100,000 population (20.8-21.4, 95% C.I.).

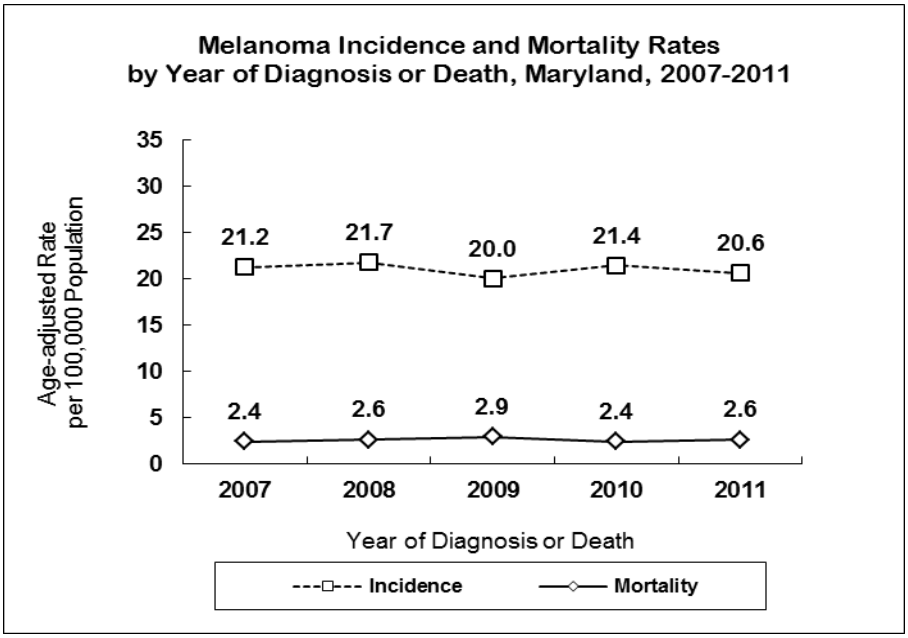
Mortality (Deaths)

In 2011, a total of 159 persons died of melanoma in Maryland. The 2011 age-adjusted mortality rate for melanoma in Maryland was 2.6 per 100,000 population (2.2-3.0, 95% C.I.). This rate is similar to the 2011 U.S. melanoma of the skin mortality rate of 2.7 per 100,000 population (2.6-2.7, 95% C.I.). Maryland had the 35th highest melanoma cancer mortality rate among the states and the District of Columbia for the period 2007-2011.

Table 56.
Melanoma Incidence and Mortality Rates
by Gender and Race, Maryland and the United States, 2011

Incidence 2011	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*A/PI*
New Cases (count)	1,292	767	525	1,213	21	<6
MD Incidence Rate	20.6	27.8	15.5	28.4	1.3	**
U.S. SEER Rate	21.1	27.7	16.2	24.8	0.9	1.4
Mortality 2011	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*A/PI*
Deaths (count)	159	98	61	152	7	0
MD Mortality Rate	2.6	3.9	1.8	3.5	**	**
U.S. Mortality Rate	2.7	4.0	1.7	3.1	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 transexual, hermaphrodite, unknown gender, and unknown race
<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy
** MD incidence rates based on case counts of 1-15 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy and Procedures; MD mortality rates based on death counts of 0-19 are suppressed per DHMH/ Center for Cancer Prevention and Control Mortality Data Suppression Policy
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration
U.S. SEER, Cancer Statistics Review



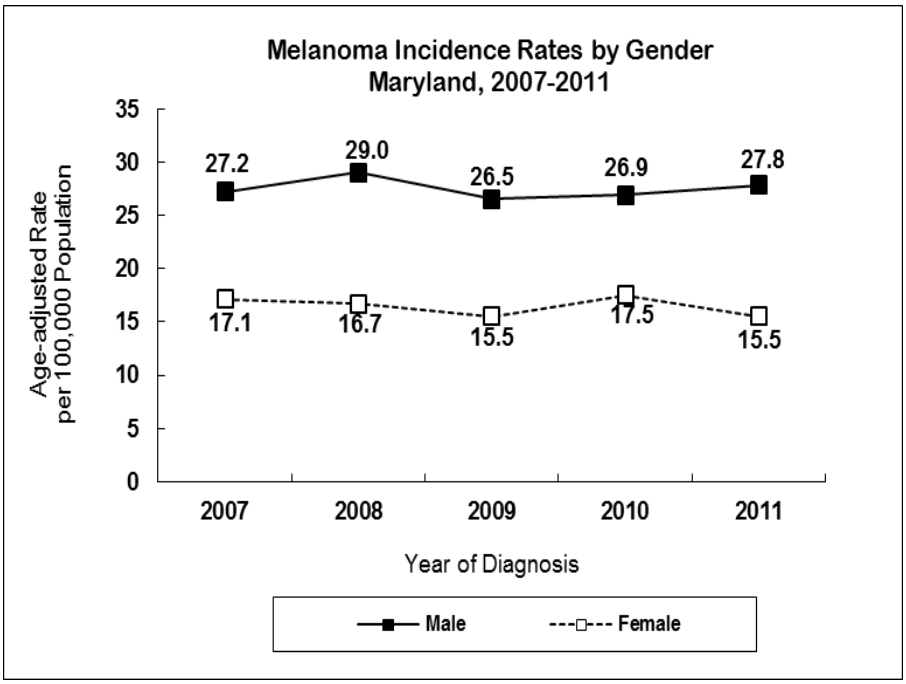
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Incidence and Mortality Trends

Melanoma incidence rates in Maryland decreased at a rate of 0.7% per year from 2007 to 2011.

Melanoma mortality rates increased at a rate of 0.8% per year from 2007 to 2011.

See Appendix I, Tables 1 and 2.

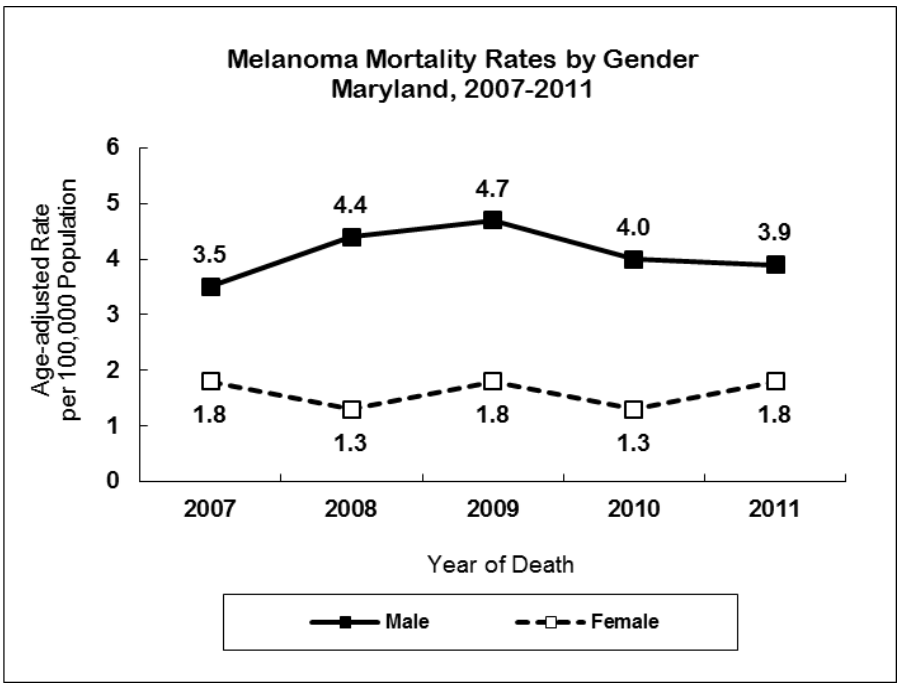


Source: Maryland Cancer Registry

Incidence Trends by Gender

Over the period 2007 to 2011, incidence rates for males decreased at a rate of 0.3% per year, and rates among females decreased at a rate of 1.5% per year. In 2011, melanoma incidence rates were 79% higher among males than females in Maryland.

See Appendix I, Table 4.

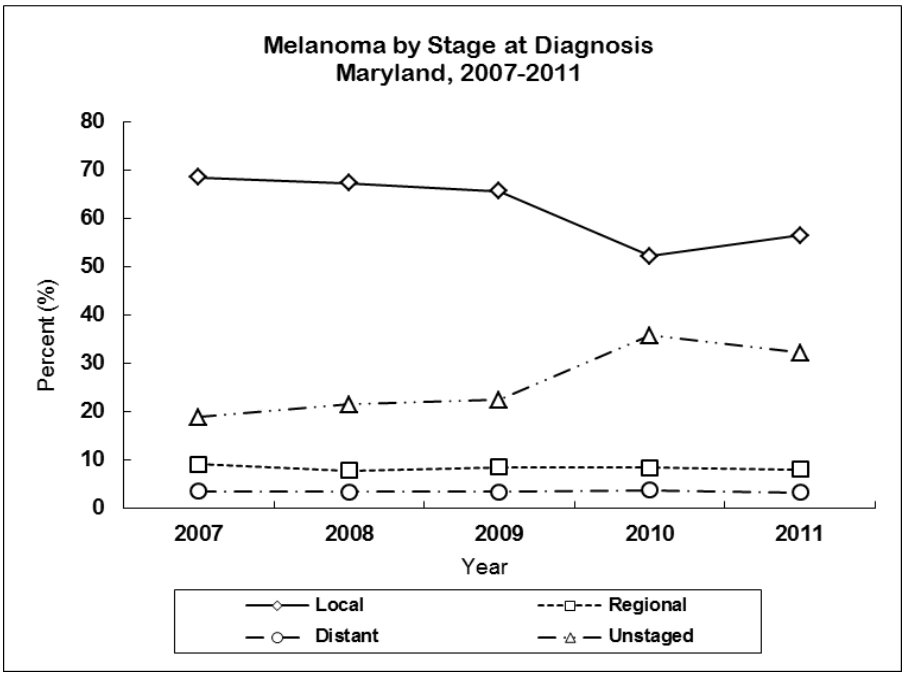


Source: NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Mortality Trends by Gender

Melanoma mortality rates in males increased at a rate of 1.2% per year from 2007 to 2011. Female melanoma mortality rates remained stable with 0% change per year.

See Appendix I, Table 6.

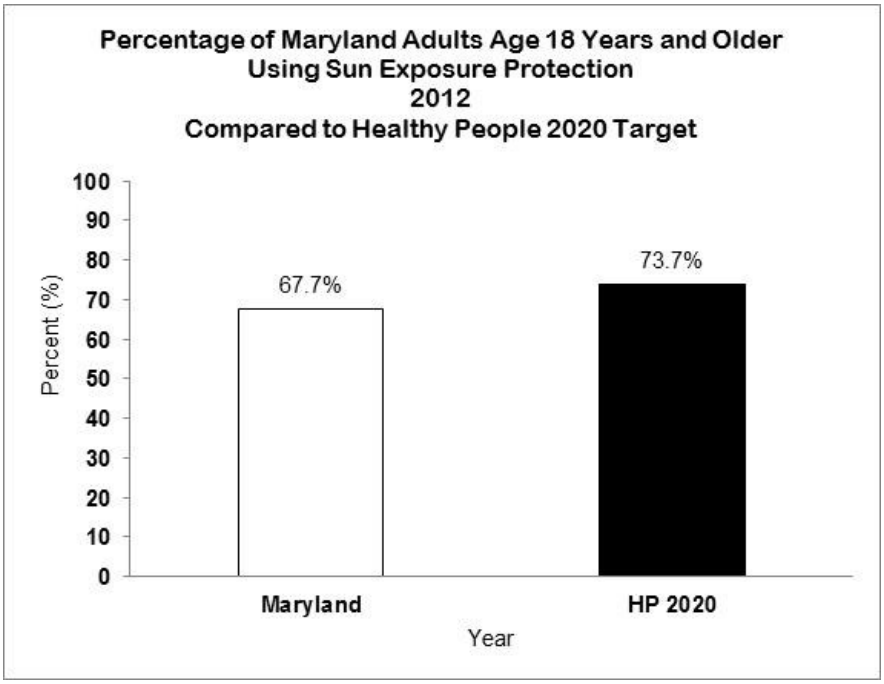


Source: Maryland Cancer Registry

Stage at Diagnosis

In 2011, 56.4% of all melanoma was diagnosed at the local stage, 8.1% was found at the regional stage, and 3.3% was found at the distant stage. The proportion of melanoma reported as unstaged decreased slightly in 2011.

See Appendix J, Table 7.



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 73.7% the percentage of persons age 18 years and older who follow sun exposure protective measures that may reduce the risk of skin cancer.

In 2012, 67.7% of adults age 18 years and older used at least one method of protection against sun exposure.

Public Health Evidence (quoted from NCI PDQ, 7/25/2013 and 2/21/2014, 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 and squamous cell carcinoma, 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. Based on solid evidence, sun and ultraviolet (UV) radiation exposure are associated with increased risk of nonmelanoma skin cancer. Organ transplant recipients receiving immunosuppressive drugs are at an elevated risk of skin cancer, particularly squamous cell carcinoma. Arsenic exposure also increases the risk of cutaneous squamous cell carcinoma. Based on fair evidence, intermittent acute sun exposure leading to sunburn (especially during childhood or adolescence) is associated with an increased risk of melanoma skin cancer, and intermittent acute sun exposure 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.

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.

The International Agency for Research on Cancer classifies tanning devices as a Class I carcinogen to humans. The World Health Organization recommends a restriction of use of tanning beds by persons under 18 years as well as banning of unsupervised facilities. As of October 2008, an owner, employee, or operator of a tanning facility in Maryland may not allow a mi- nor 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 squamous cell carcinoma or basal cell carcinoma of the skin.

Screening

The 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 and sun lamps). ➢ 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, 2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	1,292	767	525	1,213	21	<6
Allegany	14	9	<6	14	0	0
Anne Arundel	197	115	82	185	0	0
Baltimore City	60	36	24	54	<6	0
Baltimore County	248	153	95	237	<6	0
Calvert	34	16	18	33	0	0
Caroline	8	<6	<6	8	0	0
Carroll	63	34	29	60	0	0
Cecil	28	17	11	27	0	0
Charles	15	12	<6	13	<6	0
Dorchester	8	<6	<6	8	0	0
Frederick	53	36	17	52	0	0
Garrett	<6	<6	<6	<6	0	0
Harford	91	60	31	85	0	0
Howard	81	44	37	80	0	0
Kent	<6	<6	0	<6	0	0
Montgomery	182	101	81	161	<6	<6
Prince George's	51	32	19	41	8	<6
Queen Anne's	16	11	<6	16	0	0
Saint Mary's	29	14	15	29	0	0
Somerset	8	s	<6	8	0	0
Talbot	10	7	<6	10	0	0
Washington	26	14	12	25	0	0
Wicomico	23	9	14	23	0	0
Worcester	32	23	9	30	0	0

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

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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, 2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	20.6	27.8	15.5	28.4	1.3	**
Allegany	**	**	**	**	0.0	0.0
Anne Arundel	34.0	45.1	26.3	38.2	0.0	0.0
Baltimore City	9.5	13.9	6.4	25.4	**	0.0
Baltimore County	25.8	36.6	18.0	32.7	**	0.0
Calvert	35.9	37.4	35.8	41.7	0.0	0.0
Caroline	**	**	**	**	0.0	0.0
Carroll	34.5	43.3	30.1	34.6	0.0	0.0
Cecil	26.8	33.9	**	27.5	0.0	0.0
Charles	**	**	**	**	**	0.0
Dorchester	**	**	**	**	0.0	0.0
Frederick	20.3	29.1	13.1	22.4	0.0	0.0
Garrett	**	**	**	**	0.0	0.0
Harford	33.3	50.2	20.3	35.5	0.0	0.0
Howard	27.7	33.9	23.2	39.0	0.0	0.0
Kent	**	**	0.0	**	0.0	0.0
Montgomery	16.6	21.0	13.6	20.5	**	**
Prince George's	6.5	10.0	4.1	17.3	**	**
Queen Anne's	26.3	**	**	28.7	0.0	0.0
Saint Mary's	27.6	**	**	33.2	0.0	0.0
Somerset	**	**	**	**	0.0	0.0
Talbot	**	**	**	**	0.0	0.0
Washington	15.7	**	**	16.5	0.0	0.0
Wicomico	22.4	**	**	29.9	0.0	0.0
Worcester	39.6	58.1	**	42.8	0.0	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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 59.
Number of Melanoma Cancer Deaths
by Jurisdiction, Gender and Race, Maryland, 2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	159	98	61	152	7	0
Allegany	<5	<5	0	<5	0	0
Anne Arundel	16	11	5	16	0	0
Baltimore City	8	6	<5	s	<5	0
Baltimore County	27	15	12	25	<5	0
Calvert	<5	<5	<5	<5	0	0
Caroline	0	0	0	0	0	0
Carroll	7	5	<5	7	0	0
Cecil	<5	<5	<5	<5	0	0
Charles	<5	<5	<5	<5	0	0
Dorchester	0	0	0	0	0	0
Frederick	6	<5	<5	6	0	0
Garrett	<5	<5	0	<5	0	0
Harford	5	<5	<5	5	0	0
Howard	6	s	<5	6	0	0
Kent	0	0	0	0	0	0
Montgomery	27	14	13	s	<5	0
Prince George's	10	6	<5	8	<5	0
Queen Anne's	6	<5	<5	6	0	0
Saint Mary's	<5	<5	<5	<5	0	0
Somerset	<5	<5	0	<5	0	0
Talbot	<5	<5	<5	<5	0	0
Washington	5	<5	<5	5	0	0
Wicomico	10	6	<5	s	<5	0
Worcester	6	<5	<5	6	0	0

*Total includes deaths reported as transexual, hermaphrodite, unknown gender, and unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 60.
Melanoma Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	2.6	3.9	1.8	3.5	**	**
Allegany	**	**	**	**	**	**
Anne Arundel	**	**	**	**	**	**
Baltimore City	**	**	**	**	**	**
Baltimore County	2.7	**	**	3.2	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	**	**	**	**	**	**
Cecil	**	**	**	**	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	**	**	**	**	**	**
Garrett	**	**	**	**	**	**
Harford	**	**	**	**	**	**
Howard	**	**	**	**	**	**
Kent	**	**	**	**	**	**
Montgomery	2.6	**	**	3.3	**	**
Prince George's	**	**	**	**	**	**
Queen Anne's	**	**	**	**	**	**
Saint Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	**	**	**	**	**	**
Wicomico	**	**	**	**	**	**
Worcester	**	**	**	**	**	**

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

** Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Table 61.
Number of Melanoma Cases
by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	6,302	3,626	2,671	6,000	78	8
Allegany	77	46	31	76	0	0
Anne Arundel	899	549	349	858	6	<6
Baltimore City	321	174	147	301	13	0
Baltimore County	1,145	645	500	1,092	15	0
Calvert	150	89	60	147	0	0
Caroline	47	26	21	s	<6	0
Carroll	291	156	135	281	0	0
Cecil	121	65	56	117	0	0
Charles	79	54	25	71	<6	0
Dorchester	51	33	18	s	0	0
Frederick	258	153	105	249	<6	0
Garrett	31	20	11	31	0	0
Harford	401	231	170	388	0	0
Howard	390	219	169	379	<6	0
Kent	19	14	<6	19	0	0
Montgomery	916	521	395	858	13	<6
Prince George's	263	150	113	230	20	<6
Queen Anne's	79	49	30	76	0	0
Saint Mary's	124	54	70	122	0	0
Somerset	42	25	17	41	0	0
Talbot	79	49	30	78	0	0
Washington	168	95	73	165	0	0
Wicomico	171	94	76	165	<6	0
Worcester	138	90	48	126	0	0

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

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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

Source: Maryland Cancer Registry

Table 62.
Melanoma Age-Adjusted Incidence Rates*
by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	21.0	27.5	16.5	29.1	1.1	**
Allegany	17.3	22.3	14.4	18.4	0.0	0.0
Anne Arundel	32.4	43.2	24.0	37.1	**	**
Baltimore City	10.0	13.1	8.0	26.7	**	0.0
Baltimore County	25.4	32.5	20.6	32.1	**	0.0
Calvert	34.1	44.5	26.2	39.9	0.0	0.0
Caroline	26.7	31.4	22.6	31.0	**	0.0
Carroll	32.3	38.5	28.9	32.9	0.0	0.0
Cecil	23.0	27.1	20.6	23.8	0.0	0.0
Charles	11.5	18.0	6.8	16.1	**	0.0
Dorchester	23.4	34.1	15.8	29.7	0.0	0.0
Frederick	22.2	29.2	17.0	24.1	**	0.0
Garrett	18.2	24.2	**	18.4	0.0	0.0
Harford	31.2	40.4	24.9	34.3	0.0	0.0
Howard	26.9	34.1	21.2	36.2	**	0.0
Kent	15.0	**	**	17.9	0.0	0.0
Montgomery	17.5	22.8	13.8	22.8	**	**
Prince George's	7.3	10.9	5.1	19.0	1.0	**
Queen Anne's	28.3	37.0	21.0	29.9	0.0	0.0
Saint Mary's	24.7	22.8	27.0	29.5	0.0	0.0
Somerset	30.1	34.3	29.6	44.2	0.0	0.0
Talbot	29.5	41.1	19.5	33.7	0.0	0.0
Washington	20.8	25.5	17.3	22.0	0.0	0.0
Wicomico	34.1	43.2	29.2	43.2	**	0.0
Worcester	37.3	49.1	27.9	38.0	0.0	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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 63.
Number of Melanoma Deaths
by Jurisdiction, Gender and Race, Maryland, 2007-2011

Jurisdiction	Total*	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	763	495	268	728	32	<5
Allegany	17	11	6	17	0	0
Anne Arundel	90	63	27	88	<5	0
Baltimore City	46	25	21	39	7	0
Baltimore County	137	89	48	133	<5	0
Calvert	10	6	<5	10	0	0
Caroline	8	6	<5	8	0	0
Carroll	29	17	12	29	0	0
Cecil	20	14	6	20	0	0
Charles	14	10	<5	12	<5	0
Dorchester	5	<5	<5	5	0	0
Frederick	37	20	17	37	0	0
Garrett	6	6	0	6	0	0
Harford	39	24	15	s	<5	0
Howard	33	24	9	s	<5	0
Kent	5	<5	<5	5	0	0
Montgomery	112	72	40	104	5	<5
Prince George's	48	30	18	40	8	0
Queen Anne's	18	12	6	18	0	0
Saint Mary's	14	9	5	14	0	0
Somerset	6	s	<5	6	0	0
Talbot	6	s	<5	6	0	0
Washington	27	18	9	27	0	0
Wicomico	20	11	9	18	<5	0
Worcester	16	12	<5	16	0	0

*Total includes deaths reported as transexual, hermaphrodite, unknown gender, and unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 64.
Melanoma Age-Adjusted Mortality Rates*
by Jurisdiction, Gender and Race, Maryland, 2007-2011

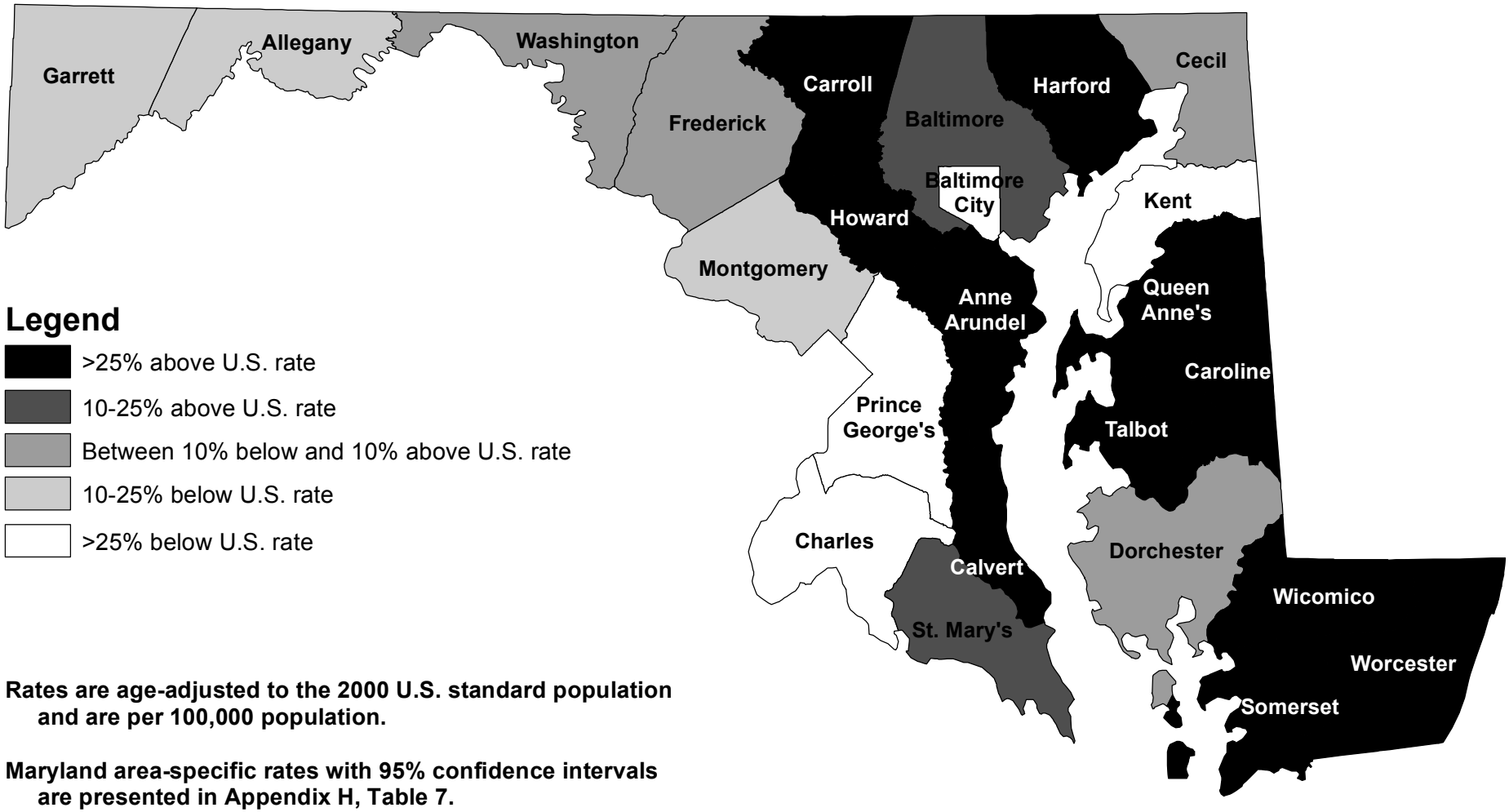
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	A/PI
Maryland	2.6	4.1	1.6	3.5	0.5	**
Allegany	**	**	**	**	**	**
Anne Arundel	3.5	6.0	1.8	4.1	**	**
Baltimore City	1.5	2.0	1.2	3.5	**	**
Baltimore County	3.0	4.6	1.8	3.6	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	3.1	**	**	3.3	**	**
Cecil	3.9	**	**	4.1	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	3.5	4.6	**	3.8	**	**
Garrett	**	**	**	**	**	**
Harford	3.1	4.5	**	3.3	**	**
Howard	2.7	4.5	**	3.5	**	**
Kent	**	**	**	**	**	**
Montgomery	2.2	3.5	1.3	2.6	**	**
Prince George's	1.3	2.1	**	3.2	**	**
Queen Anne's	**	**	**	**	**	**
Saint Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	3.2	**	**	3.4	**	**
Wicomico	3.8	**	**	**	**	**
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/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Maryland Melanoma Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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

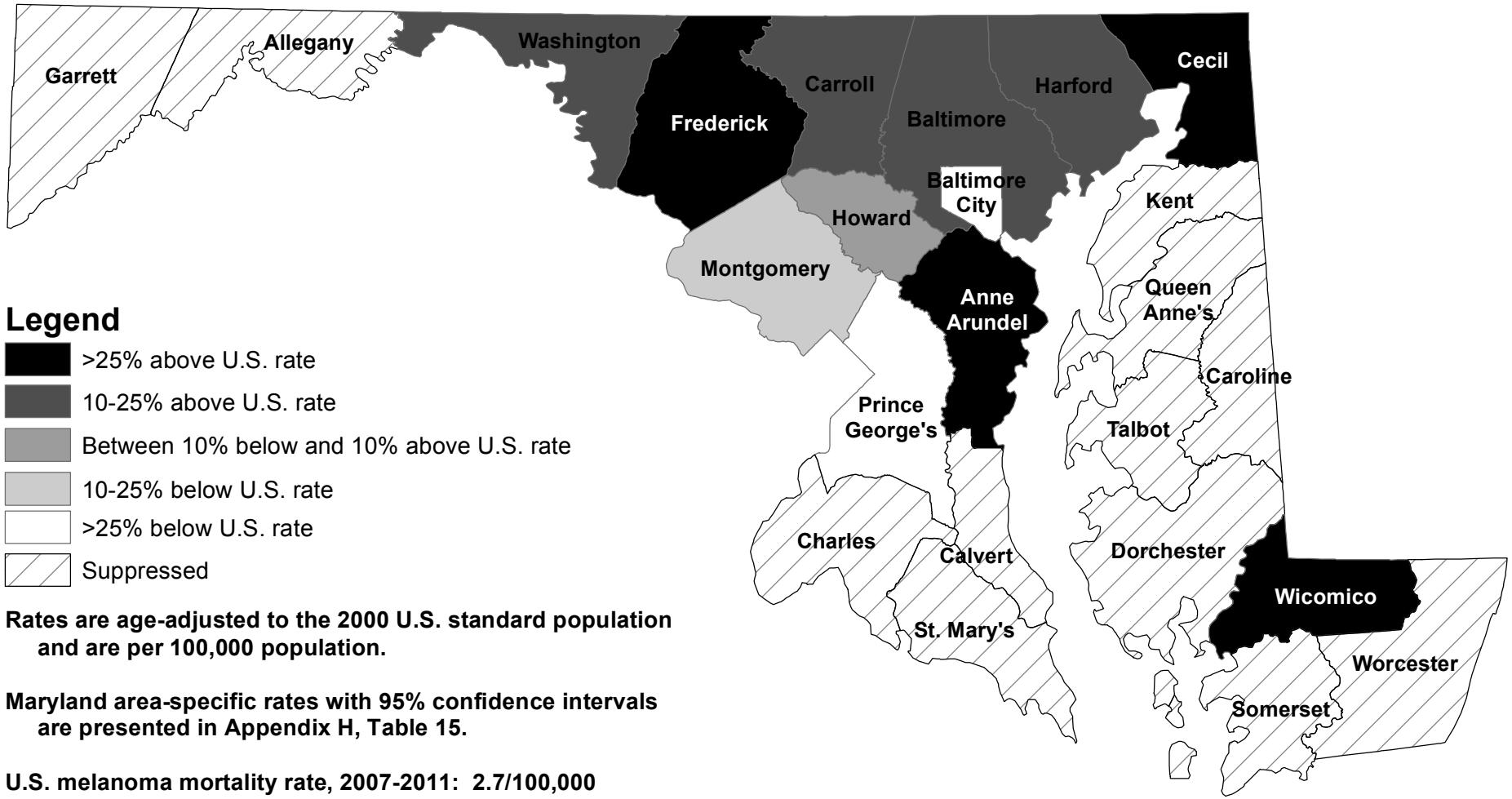
Maryland area-specific rates with 95% confidence intervals are presented in Appendix H, Table 7.

U.S. melanoma incidence rate, 2007-2011: 21.3/100,000

Maryland melanoma incidence rate, 2007-2011: 21.0/100,000

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

Maryland Melanoma Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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, 2007-2011: 2.7/100,000

Maryland melanoma mortality rate, 2007-2011: 2.6/100,000

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

Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

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G. Cervical Cancer

Incidence (New Cases)

A total of 199 cases of cervical cancer among women in Maryland were reported in 2011. The age-adjusted incidence rate for cervical cancer in Maryland in 2011 was 6.4 per 100,000 women (5.5-7.3, 95% C.I.), which is similar to the 2011 U.S. SEER age-adjusted cervical cancer incidence rate of 7.4 per 100,000 women (7.1-7.6, 95% C.I.).

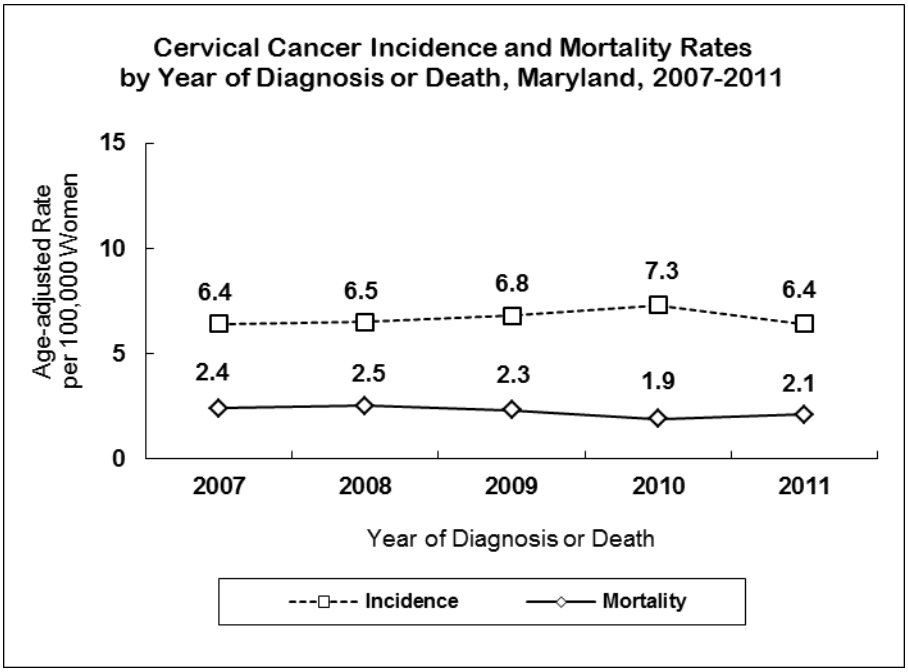
Mortality (Deaths)

In 2011, a total of 68 women died of cervical cancer in Maryland. The age-adjusted cervical cancer mortality rate in Maryland in 2011 was 2.1 per 100,000 women (1.6-2.6, 95% C.I.). This rate is similar to the 2011 U.S. cervical cancer mortality rate of 2.3 per 100,000 women (2.3-2.4, 95% C.I.). Maryland had the 24th highest cervical cancer mortality rate among the states and the District of Columbia for the period 2007-2011.

Table 65.
Cervical Cancer Incidence and Mortality Rates
by Race, Maryland and the United States, 2011

Incidence 2011	*Total*	*Whites*	*Blacks*	*A/PI*
New Cases (count)	199	116	69	9
MD Incidence Rate	6.4	6.1	7.4	**
U.S. SEER Rate	7.4	7.5	8.3	5.7
Mortality 2011	*Total*	*Whites*	*Blacks*	*A/PI*
Deaths (count)	68	35	30	<5
MD Mortality Rate	2.1	1.7	3.2	**
U.S. Mortality Rate	2.3	2.1	4.0	N/A

Rates are per 100,000 women and are age-adjusted to 2000 U.S. standard population
Total includes unknown race
<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy
** MD incidence rates based on case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy and Procedures; MD mortality rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy
Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
Maryland Vital Statistics Administration
U.S. SEER, Cancer Statistics Review



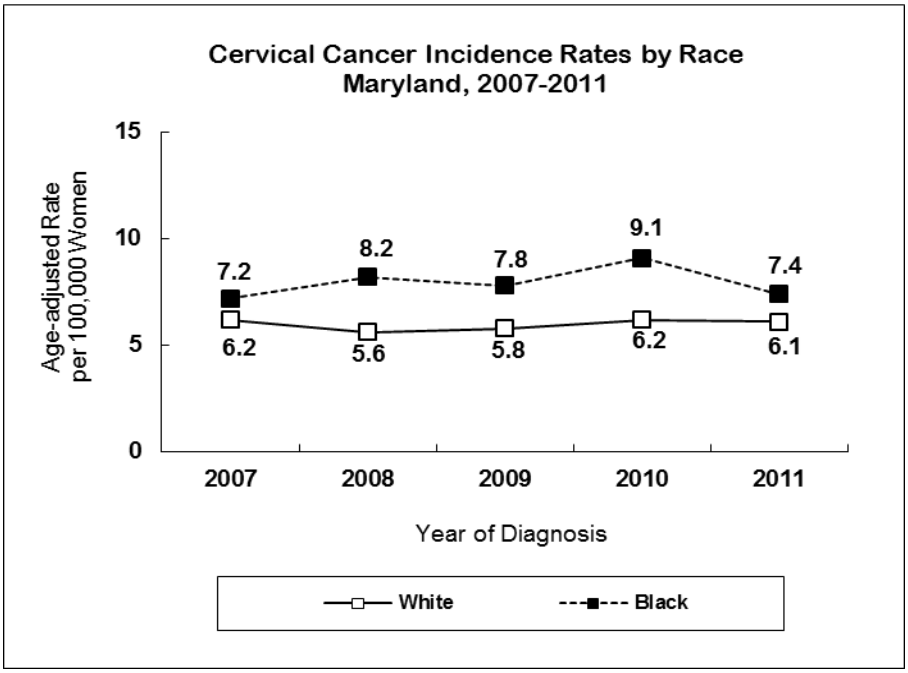
Source: Maryland Cancer Registry
NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Incidence and Mortality Trends

Cervical cancer incidence rates among Maryland women increased at a rate of 1.2% per year from 2007 to 2011.

Cervical cancer mortality rates decreased at a rate of 5.3% per year from 2007 to 2011.

See Appendix I, Tables 1 and 2.

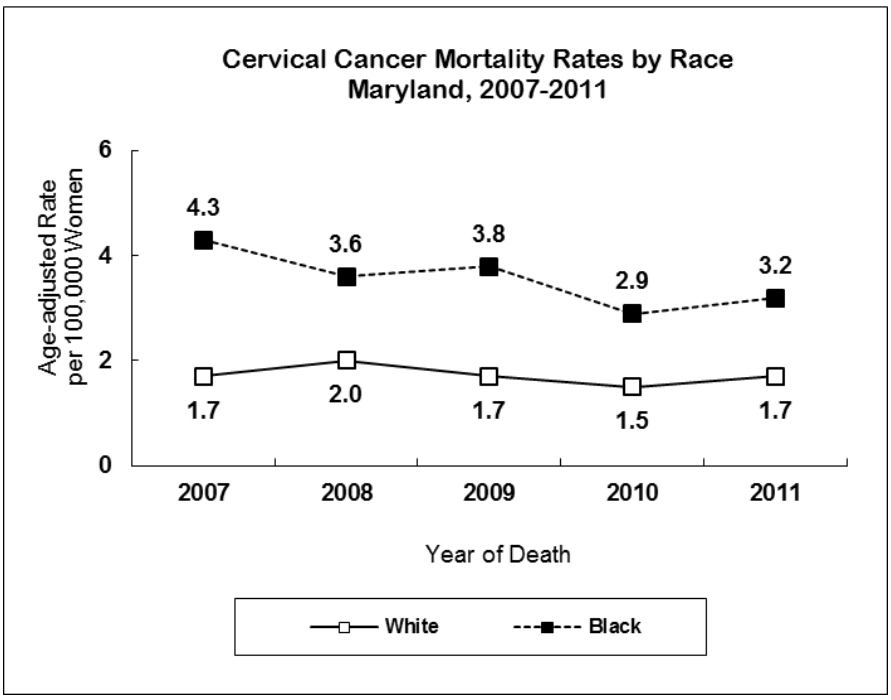


Source: Maryland Cancer Registry

Incidence Trends by Race

From 2007 to 2011, cervical cancer incidence rates among black females increased at a rate of 1.6% per year, compared to an increase of 0.7% per year among white females.

See Appendix I, Table 3.

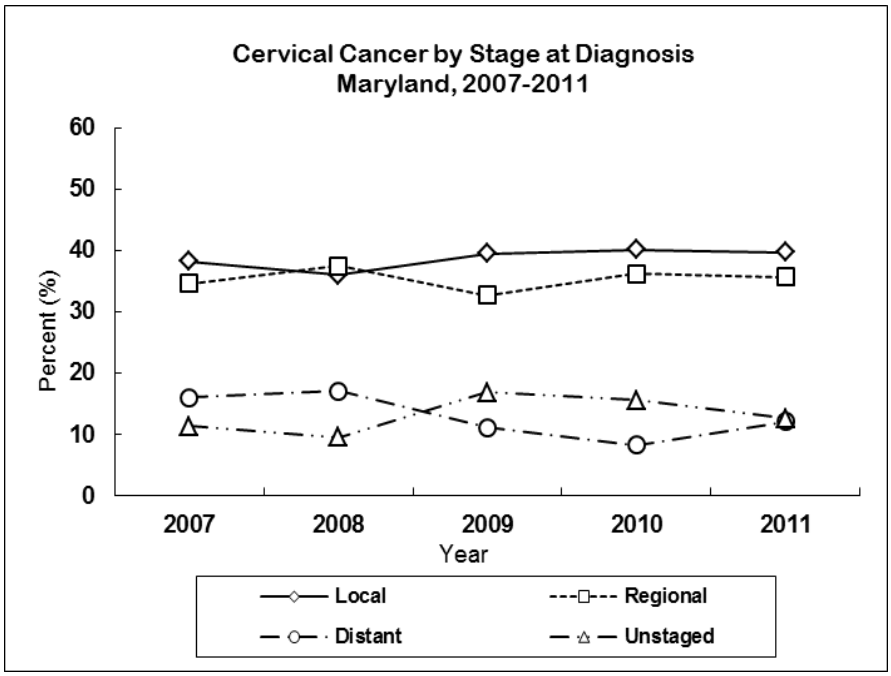


Source: NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

Mortality Trends by Race

From 2007 to 2011, mortality rates for black females decreased at a rate of 7.8% per year, while mortality rates for white females decreased at a rate of 2.8% per year.

See Appendix I, Table 5.

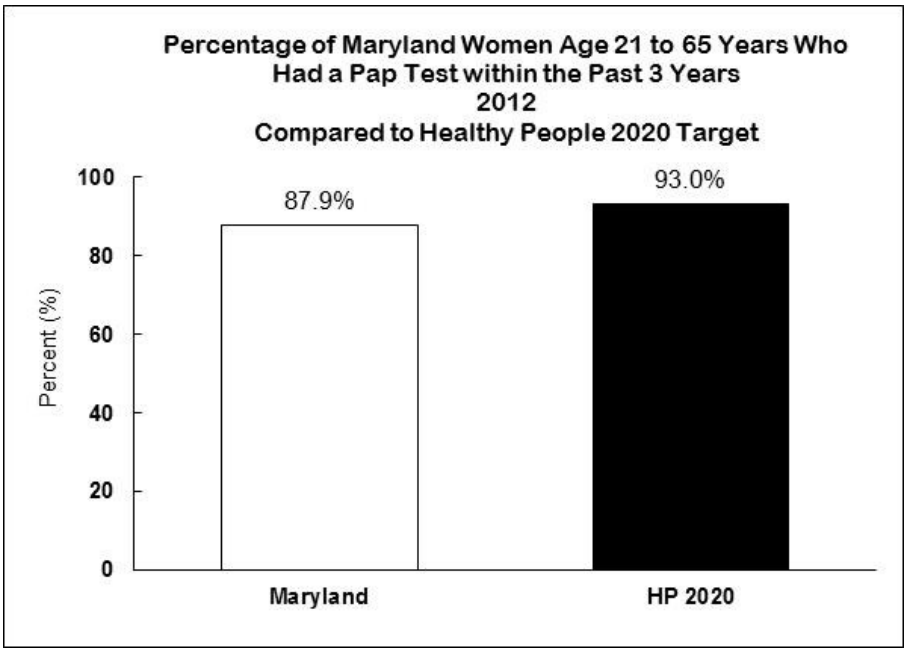


Source: Maryland Cancer Registry

Stage at Diagnosis

In 2011, 39.7% of all cervical cancer cases in Maryland were diagnosed at the local stage, 35.7% were diagnosed at the regional stage, and 12.1% were found at the distant stage. The proportion of cervical cancer cases reported as unstaged continued to decrease in 2011 from a high 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 USPSTF 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 2012, 87.9% 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, 9/6/2014 and 2/26/2014; 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 is the etiologic agent of cervical cancer and related premalignant disease. HPV is transmitted by sexual contact. At least 12 cancer-associated (high-risk or carcinogenic) HPV genotypes cause virtually all cases of cervical cancer and precursor lesions; HPV types 16 and 18 are most often associated with invasive disease. 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; and based on fair evidence, vaccination against HPV-16/HPV-18. The Advisory Committee on Immunization Practices (ACIP) recommends routine vaccination against HPV (with three doses of vaccine that protects against two types or four types of HPV) 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 vaccination against HPV (with three doses of vaccine that protects against four types of HPV) 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 three-dose series; males age 22-26 years may be vaccinated.

Based on solid evidence, the following factors are associated with increased risk of cervical cancer: cigarette smoking (both active and passive), having multiple full-term pregnancies, and long-term use of oral contraceptives.

Screening

Benefits: Based on solid evidence, screening of appropriate women via regular gynecologic examinations and cytology test (Pap test, either conventional Pap smear or liquid-based cytology), with treatment of precancerous abnormalities, reduces mortality from cervical cancer. The USPSTF recommends screening for cervical cancer in women age 21-65 years who have a cervix with a cytology test every 3 years, or, for women age 30-65 years who want to lengthen the screening interval, screening with cytology test *and* HPV test every 5 years. The USPSTF 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 cytology test leads to additional diagnostic procedures and treatment for low-grade squamous intraepithelial lesions with long-term consequences for 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 a cytology test every 3 years, or for women age 30-65 years who want to lengthen the screening interval, screen with a cytology test *and* HPV test every 5 years. ➢ Vaccinate females and males according to ACIP recommendations.

Table 66.
Number of Cervical Cancer Cases by Jurisdiction and Race, Maryland, 2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	199	116	69	9
Allegany	<6	<6	<6	0
Anne Arundel	19	15	<6	0
Baltimore City	26	<6	19	<6
Baltimore County	34	17	13	<6
Calvert	<6	<6	0	0
Caroline	0	0	0	0
Carroll	<6	<6	0	0
Cecil	<6	<6	<6	<6
Charles	<6	0	<6	0
Dorchester	<6	0	<6	0
Frederick	10	s	<6	0
Garrett	<6	<6	0	0
Harford	9	7	<6	0
Howard	8	s	<6	0
Kent	<6	<6	0	0
Montgomery	29	18	7	<6
Prince George's	26	8	15	<6
Queen Anne's	<6	<6	0	0
Saint Mary's	<6	<6	<6	0
Somerset	<6	<6	0	0
Talbot	0	0	0	0
Washington	7	7	0	0
Wicomico	<6	<6	<6	0
Worcester	<6	<6	0	0

*Total includes cases reported as unknown race

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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, 2011

Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	6.4	6.1	7.4	**
Allegany	**	**	**	0.0
Anne Arundel	6.7	**	**	0.0
Baltimore City	7.8	**	8.5	**
Baltimore County	8.1	6.1	**	**
Calvert	**	**	0.0	0.0
Caroline	0.0	0.0	0.0	0.0
Carroll	**	**	0.0	0.0
Cecil	**	**	**	**
Charles	**	0.0	**	0.0
Dorchester	**	0.0	**	0.0
Frederick	**	**	**	0.0
Garrett	**	**	0.0	0.0
Harford	**	**	**	0.0
Howard	**	**	**	0.0
Kent	**	**	0.0	0.0
Montgomery	5.4	5.4	**	**
Prince George's	5.4	**	**	**
Queen Anne's	**	**	0.0	0.0
Saint Mary's	**	**	**	0.0
Somerset	**	**	0.0	0.0
Talbot	0.0	0.0	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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 68.
Number of Cervical Cancer Deaths
by Jurisdiction and Race, Maryland, 2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	68	35	30	<5
Allegany	0	0	0	0
Anne Arundel	8	s	<5	0
Baltimore City	15	5	9	0
Baltimore County	7	<5	<5	0
Calvert	<5	<5	0	0
Caroline	0	0	0	0
Carroll	0	0	0	0
Cecil	<5	<5	0	0
Charles	<5	0	<5	0
Dorchester	0	0	0	0
Frederick	<5	<5	0	0
Garrett	0	0	0	0
Harford	<5	<5	<5	0
Howard	<5	<5	<5	0
Kent	<5	<5	0	0
Montgomery	6	<5	<5	<5
Prince George's	12	<5	s	<5
Queen Anne's	0	0	0	0
Saint Mary's	<5	<5	0	0
Somerset	0	0	0	0
Talbot	0	0	0	0
Washington	<5	<5	0	0
Wicomico	<5	<5	<5	0
Worcester	0	0	0	0

*Total includes deaths reported as unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 69.
Cervical Cancer Age-Adjusted Mortality Rates*
by Jurisdiction and Race, Maryland, 2011

Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	2.1	1.7	3.2	**
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 age-adjusted to 2000 U.S. standard population

** Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Table 70.
Number of Cervical Cancer Cases
by Jurisdiction and Race, Maryland, 2007-2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	1,033	578	362	51
Allegany	15	13	<6	0
Anne Arundel	91	73	16	<6
Baltimore City	157	46	103	<6
Baltimore County	152	85	48	12
Calvert	10	s	<6	0
Caroline	<6	<6	0	0
Carroll	19	s	<6	<6
Cecil	24	19	<6	<6
Charles	21	7	10	<6
Dorchester	<6	<6	<6	0
Frederick	35	s	<6	<6
Garrett	<6	<6	0	0
Harford	46	37	8	0
Howard	38	27	<6	<6
Kent	<6	<6	0	0
Montgomery	148	87	31	18
Prince George's	165	41	110	6
Queen Anne's	8	8	0	0
Saint Mary's	14	9	<6	0
Somerset	6	<6	<6	0
Talbot	<6	<6	0	0
Washington	31	29	<6	0
Wicomico	17	9	7	0
Worcester	10	7	<6	0

*Total includes cases reported as unknown race

<6 = Case counts of 1-5 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy

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

Source: Maryland Cancer Registry

Table 71.
Cervical Cancer Age-Adjusted Incidence Rates*
by Jurisdiction and Race, Maryland, 2007-2011

Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	6.7	6.0	8.0	5.9
Allegany	**	**	**	0.0
Anne Arundel	6.6	6.6	8.1	**
Baltimore City	9.1	9.0	9.1	**
Baltimore County	7.0	5.7	9.2	**
Calvert	**	**	**	0.0
Caroline	**	**	0.0	0.0
Carroll	3.8	3.6	**	**
Cecil	9.1	7.7	**	**
Charles	5.1	**	**	**
Dorchester	**	**	**	0.0
Frederick	5.7	6.2	**	**
Garrett	**	**	0.0	0.0
Harford	7.2	6.9	**	0.0
Howard	4.9	5.0	**	**
Kent	**	**	0.0	0.0
Montgomery	5.5	5.0	6.6	4.3
Prince George's	7.4	7.5	7.4	**
Queen Anne's	**	**	0.0	0.0
Saint Mary's	**	**	**	0.0
Somerset	**	**	**	0.0
Talbot	**	**	0.0	0.0
Washington	8.5	8.6	**	0.0
Wicomico	7.5	**	**	0.0
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/Maryland Cancer Registry Data Use Policy and Procedures

Source: Maryland Cancer Registry

Table 72.
Number of Cervical Cancer Deaths
by Jurisdiction and Race, Maryland, 2007-2011

Jurisdiction	Total*	Race		
		Whites	Blacks	A/PI
Maryland	363	186	156	16
Allegany	8	s	<5	0
Anne Arundel	30	22	s	<5
Baltimore City	78	20	56	<5
Baltimore County	44	26	16	<5
Calvert	5	<5	<5	0
Caroline	0	0	0	0
Carroll	<5	<5	0	0
Cecil	6	6	0	0
Charles	9	<5	7	0
Dorchester	<5	<5	0	0
Frederick	14	s	<5	0
Garrett	<5	<5	0	0
Harford	15	12	<5	0
Howard	8	<5	<5	<5
Kent	<5	<5	0	0
Montgomery	38	21	9	6
Prince George's	67	17	45	<5
Queen Anne's	<5	<5	0	0
Saint Mary's	5	<5	<5	0
Somerset	<5	<5	0	0
Talbot	0	0	0	0
Washington	10	10	0	0
Wicomico	14	7	s	<5
Worcester	0	0	0	0

*Total includes deaths reported as unknown race

<5 = Death counts of 1-4 are suppressed per DHMH/Center for Cancer Prevention and Control 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 73.
Cervical Cancer Age-Adjusted Mortality Rates*
by Jurisdiction and Race, Maryland, 2007-2011

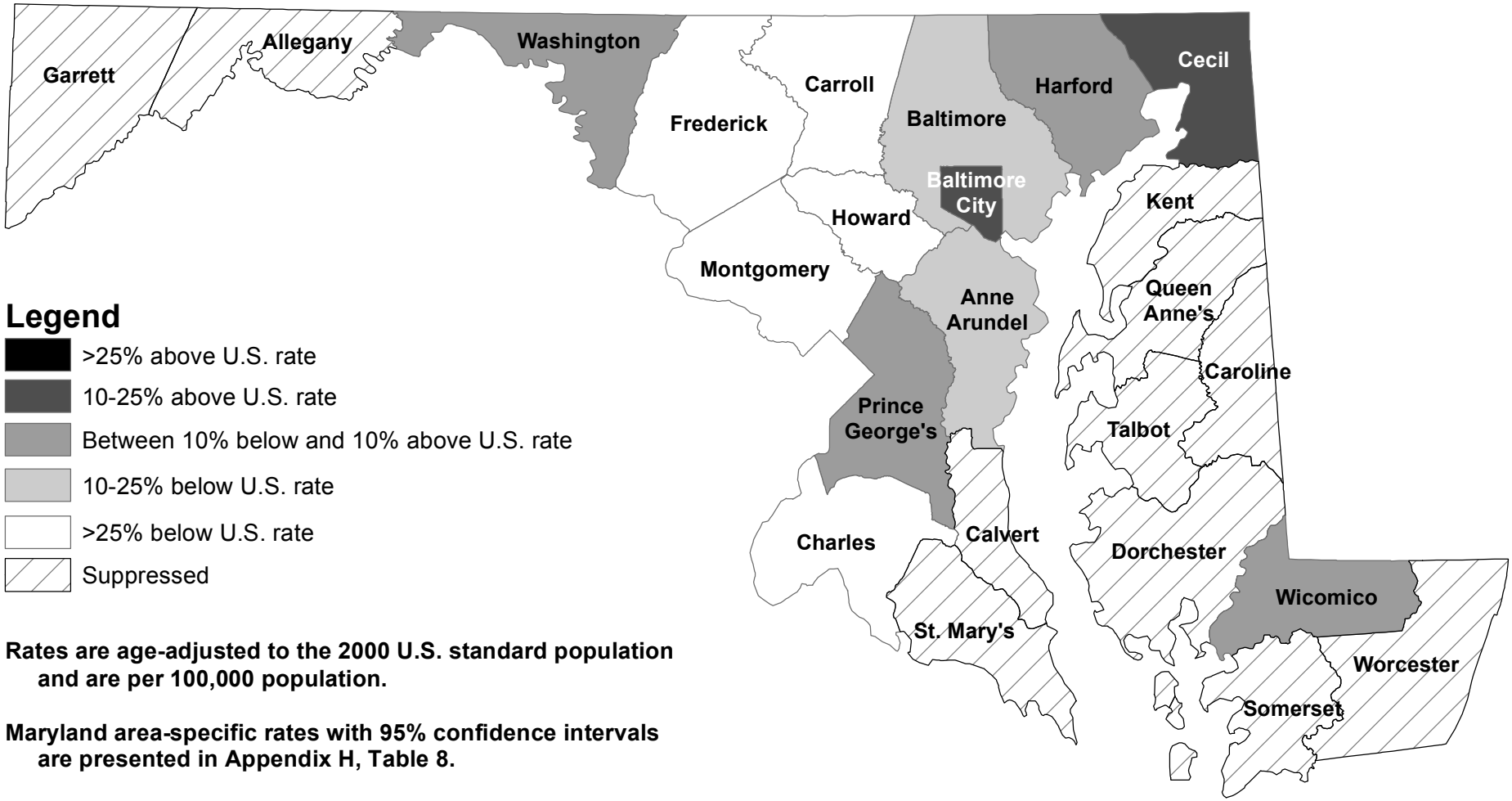
Jurisdiction	Total	Race		
		Whites	Blacks	A/PI
Maryland	2.2	1.7	3.6	**
Allegany	**	**	**	**
Anne Arundel	2.2	1.9	**	**
Baltimore City	4.5	3.6	5.0	**
Baltimore County	1.8	1.4	**	**
Calvert	**	**	**	**
Caroline	**	**	**	**
Carroll	**	**	**	**
Cecil	**	**	**	**
Charles	**	**	**	**
Dorchester	**	**	**	**
Frederick	**	**	**	**
Garrett	**	**	**	**
Harford	**	**	**	**
Howard	**	**	**	**
Kent	**	**	**	**
Montgomery	1.3	1.0	**	**
Prince George's	3.0	**	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/Center for Cancer Prevention and Control Mortality Data Suppression Policy

Source: Maryland Vital Statistics Administration

Maryland Cervical Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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 8.

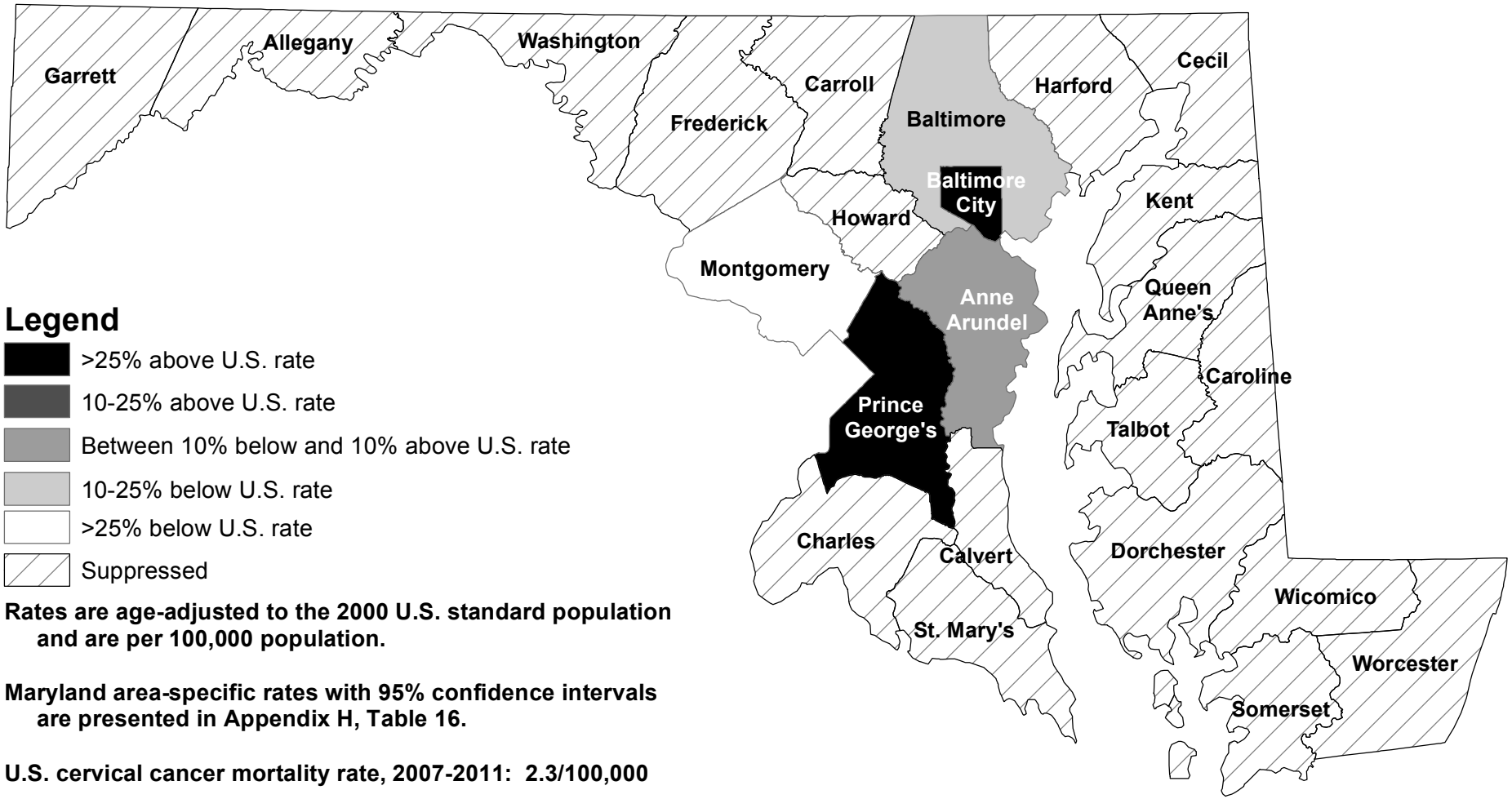
U.S. cervical cancer incidence rate, 2007-2011: 7.8/100,000

Maryland cervical cancer incidence rate, 2007-2011: 6.7/100,000

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

Rates based on case counts of 1-15 are suppressed per DHMH/Maryland Cancer Registry Data Use Policy and Procedures

Maryland Cervical Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2007-2011



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 16.

U.S. cervical cancer mortality rate, 2007-2011: 2.3/100,000

Maryland cervical cancer mortality rate, 2007-2011: 2.1/100,000

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

Rates based on death counts of 0-19 are suppressed per DHMH/Center for Cancer Prevention and Control Mortality Data Suppression Policy

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Appendix A

Cigarette Restitution Fund
Cancer Report Requirements

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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. Maryland Health General Article § 13-1104 requires the Maryland Department of Health and Mental Hygiene (DHMH) to conduct a baseline cancer study (2000) as well as cancer studies at least every other year thereafter.

The law requires that the study 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

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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 2014 CRF Cancer Report focuses on the most recent data (2011 and 5-year combined data for the period 2007-2011).

Section I of the 2014 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 (2012) 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 (2002-2011) in overall cancer incidence and mortality rates for Maryland and the U.S.; 5-year incidence and mortality trends (2007-2011) for all cancer sites (overall and by race); and trends in stage for all cancers diagnosed in Maryland (2007-2011).

Section III presents cancer incidence and mortality data for the seven cancers targeted under the CRF Program. Each chapter includes a comparison of the Maryland 2011 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 2007-2011; 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 2011 and for the 5-year period 2007-2011. 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 2007-2011, by geographical area (see Appendix H for map data).

Appendix A describes the legal basis for the Cancer Report and includes a comparison between each required component and its location in this report. Appendix C describes the sources of data used to prepare the 2014 Cancer Report and specific data considerations (e.g., data confidentiality and statistical methods). A glossary of terms used in the 2014 Cancer Report is included as Appendix D. Maryland population estimates for 2011, 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 (2007-2011). Appendix J tables show the distribution of cancer stage at diagnosis for all cancer sites and the targeted cancers, by year, from 2007 to 2011. Appendix K tables depict trends in incidence and mortality rates for all cancer sites from 2002 to 2011 in Maryland and the U.S.

Appendix C

Cancer Data Sources, References, and Data Considerations

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2014 Cigarette Restitution Fund (CRF) Cancer Report
Sources, References, and Data Considerations

I. DATA SOURCES

Data and information presented in the 2014 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 (CCPC)
  - 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 2014 CRF Cancer Report are described in the following sections.

A. Cancer Incidence and Stage Data

1. Maryland Cancer Registry

The Maryland Cancer Registry (MCR), CCPC, DHMH, is the source for all Maryland-specific cancer incidence and cancer stage data used. 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 13, 2014, for the diagnosis year 2011.

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.

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

The 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 2014 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 18 SEER registries throughout the U.S. (SEER 18 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 18 incidence data are used in this report for comparisons of national data with the most recent Maryland data (2007-2011) because they provide the broadest population coverage that is currently available. All SEER incidence rates were obtained by the MCR from SEER*Stat (version 8.1.2), 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 2011 presented in Appendix E were obtained from SEER*Stat.

B. Cancer Mortality Data

The Maryland mortality data for 2011 and the 5-year aggregate data (2007-2011) were obtained from the Maryland Vital Statistics Administration. The Maryland mortality single year data for 2008 through 2010, with the exception of colorectal cancer (CRC), are from MATCH; whereas, 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 was 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. 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 mortality due to the small number of deaths due to cancer of the trachea.

The Maryland mortality single year data through 2007 and the single year U.S. mortality data through 2008 presented in this report were obtained from the National Center for Health Statistics (NCHS) Compressed Mortality Files (CMF). The NCHS CMF is a county-level national mortality and population database spanning the years 1979-2010. 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 for the individual years 2002 to 2007 for Maryland and 2002 to 2008 for the U.S. were obtained from the 1999-2010 CMF using ICD Tenth Revision (ICD-10) codes. The NCHS CMF was accessed using the 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. The U.S. mortality rates for single year 2011 and 5-year aggregate data (2007-2011) were obtained from SEER, Cancer Statistics Review (CSR), which are provided by NCHS.

C. Behavioral and Risk Factor Data

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

1. Maryland Behavioral Risk Factor Surveillance System (BRFSS)

The BRFSS is used 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 DHMH, Prevention and Health Promotion Administration, Center for Chronic Disease Prevention and Control, provided risk behavior and cancer screening information for this report. Due to a methodology change in 2011, BRFSS survey data from prior years cannot be compared to 2011 surveys and newer. Therefore, only data from the 2011 and 2012 BRFSS surveys are included in 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 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 for Health Promotion, Education, and Tobacco Use 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. In 2013, the MYTS combined with the Youth Behavior Risk Survey and is now titled the Youth Tobacco and Risk Behavior Survey. Additional information can be obtained by calling 410-767-1362.

3. 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. 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 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.

4. 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 DHMH with broad input from a partnership of public and private stakeholders. Several of the targets were used 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://phpa.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 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 cohort or case-control studies;
    d. Evidence from ecologic and descriptive studies (e.g., international patterns studies, time studies);
    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 five Medical Advisory Committees to formulate guidelines for breast, cervical, colorectal, oral, and prostate cancer screening, diagnosis, and treatment. All guidelines are located at: http://phpa.dhmh.maryland.gov/cancer/SitePages/guidelines.aspx.

C. Additional Medical Literature

Lung and Bronchus Cancer

Centers for Disease Control and Prevention. *Best Practices for Comprehensive Tobacco Control Programs – 2014*). 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 February 27, 2014.

Screening for Lung Cancer, Topic Page. December 2013. U.S. Preventive Services Task Force. http://www.uspreventiveservicestaskforce.org/uspstf/uspslung.htm. Last accessed February 27, 2014.

Colorectal Cancer

Screening for Colorectal Cancer, Topic Page. October 2008. U.S. Preventive Services Task Force. http://www.uspreventiveservicestaskforce.org/uspstf/uspscolo.htm. Last accessed February 27, 2014.

Female Breast Cancer

Chemoprevention for Breast Cancer, Topic Page. September 2013. U.S. Preventive Services Task Force. http://www.uspreventiveservicestaskforce.org/uspstf/uspsbrpv.htm. Last accessed February 27, 2014.

Screening for Breast Cancer, Topic Page. December 2009. U.S. Preventive Services Task Force. http://www.uspreventiveservicestaskforce.org/uspstf/uspsbrca.htm. Last accessed February 27, 2014.

Prostate Cancer
Screening for Prostate Cancer, Topic Page. May 2012. U.S. Preventive Services Task Force. http://www.uspreventiveservicestaskforce.org/prostatecancerscreening.htm. Last accessed February 27, 2014.

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Screening for Oral Cancer, Topic Page. November 2013. U.S. Preventive Services Task Force. http://www.uspreventiveservicestaskforce.org/uspstf/uspsoral.htm. Last accessed February 27, 2014.

Skin Cancer
U.S. Preventive Services Task Force. *Screening for Skin Cancer,* Topic Page. February 2009. http://www.uspreventiveservicestaskforce.org/uspstf/uspsskca.htm. Last accessed February 27, 2014.

Cervical Cancer
Screening for Cervical Cancer, Topic Page. March 2012. U.S. Preventive Services Task Force. http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm. Last accessed February 27, 2014.

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 individual 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 release of non-confidential data. 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 Manual and Procedures* (October 2012; (http://phpa.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 this 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 CCPC developed the *Mortality Data Suppression Policy* (October 2012). 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) transexual; 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 2011 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 13, 2014. The individual year mortality data (2011) 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 2007-2011 data. Corresponding mortality rates were obtained from the Maryland Vital Statistics Administration as 5-year combined data from 2007-2011.

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 18 incidence rates, provided by the MCR, are developed from the SEER*Stat software. Confidence intervals for Maryland mortality rates were obtained from the Vital Statistics Administration and confidence intervals for U.S. mortality rates were queried using SEER's Cancer Query System. 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 U.S. rates) do not overlap, it can be stated with 95% confidence that the two rates are statistically significantly different. For example, Maryland's 2010 lung cancer incidence rate was 49.4 per 100,000, with a confidence interval of 48.6-50.2. The 2010 U.S. SEER-reported lung cancer incidence rate was 57.2 per 100,000 population, with a 95% confidence interval of 56.7 - 57.8. 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 2013) 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 18 incidence rates and U.S. mortality rates from NCHS (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 (2007-2011) 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 included with this data 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 (2007-2011) 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 include the following race categories: white, black, and Asian or Pacific Islander, regardless of Hispanic ethnicity. Although cases reported as American Indian or Alaskan Native, any other race category, and those cases with unknown or missing race are not shown, they are included in the total. In previous reports, a race category of "other" was shown that consisted of Asian or Pacific Islander, American Indian or Alaskan Native, and all other races. Due to race bridging methodology in the U.S. Census, there is not a population file available for "all other races", so accurate rates cannot be calculated. Data is shown for the race category Asian or Pacific Islander as that race group is the majority group in Maryland beyond whites and blacks. 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 4, "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 having a Hispanic surname (last or maiden name) and their country 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." To keep rates comparable between incidence and mortality, death counts and mortality rates

are only shown for white, black, and Asian or Pacific Islander. Native American or Alaskan Native and All Other Races are not shown due to the small number of deaths in these categories, but they are included in the total death counts and mortality rates. U.S. mortality data from SEER CSR are reported with only two race categories (white and black). As a result, single year 2011 and 5-year aggregate data (2007-2011) 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.3. Specifically, HP 2020 targets are compared to data from the Maryland BRFSS. The data from the Maryland BRFSS are weighted to the age, race, gender, education, marital status, tenure, and phone ownership of the Maryland population. Unlike the national data that serve as the basis for HP 2020 targets, Maryland BRFSS data are not age-adjusted to the 2000 U.S. standard population.

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, 2011 (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, 2007-2011 (Appendix H)
- Trends in Cancer Incidence and Mortality Rates in Maryland by Cancer Site, Race or Gender, and Year, 2007-2011 (Appendix I)
- Trends in Cancer Stage of Disease at Diagnosis in Maryland by Cancer Site and Year, 2007-2011 (Appendix J)
- Trends in All Cancer Sites Incidence and Mortality Rates in Maryland and U.S. by Year, 2002-2011 (Appendix K)

Appendix D

Glossary

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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 2011. Cancer incidence data are also presented in aggregated form as the average annual incidence for the 5-year period from 2007 through 2011.

- **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 cancer that has spread beyond the layer of cells where it first began and has grown into nearby tissues. 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 2011. Data for cancer mortality are also presented in an aggregated form, as the average annual mortality for the 5-year period from 2007 through 2011.

- **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, cancer in situ, or cancer 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.

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Appendix E

Maryland Population Estimates, 2011

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Maryland Population Estimates by Jurisdiction, 2011

	Total All Genders	Total Males	Total Females	Total Whites	White Males	White Females	Total Blacks	Black Males	Black Females
Maryland	**5,828,289**	**2,820,574**	**3,007,715**	**3,623,463**	**1,786,875**	**1,836,588**	**1,802,494**	**840,751**	**961,743**
Baltimore Metropolitan Area	**2,680,756**	**1,290,754**	**1,390,002**	**1,715,025**	**841,455**	**873,570**	**812,228**	**375,060**	**437,168**
Anne Arundel County	544,403	269,118	275,285	427,546	212,587	214,959	91,703	44,707	46,996
Baltimore City	619,493	291,990	327,503	198,045	98,464	99,581	401,225	183,597	217,628
Baltimore County	809,941	383,023	426,918	538,143	258,515	279,628	222,527	100,420	122,107
Carroll County	167,288	82,564	84,724	157,520	77,559	79,961	6,283	3,417	2,866
Harford County	246,489	120,422	126,067	204,106	100,145	103,961	34,034	16,415	17,619
Howard County	293,142	143,637	149,505	189,665	94,185	95,480	56,456	26,504	29,952
Eastern Shore Region	**450,945**	**220,640**	**230,305**	**363,053**	**177,919**	**185,134**	**78,415**	**38,123**	**40,292**
Caroline County	32,985	16,024	16,961	27,321	13,384	13,937	4,997	2,286	2,711
Cecil County	101,694	50,571	51,123	92,508	45,937	46,571	7,296	3,723	3,573
Dorchester County	32,640	15,647	16,993	22,695	11,035	11,660	9,421	4,375	5,046
Kent County	20,204	9,631	10,573	16,668	8,011	8,657	3,273	1,509	1,764
Queen Anne's County	48,354	24,012	24,342	43,857	21,815	22,042	3,618	1,785	1,833
Somerset County	26,339	14,146	12,193	14,569	7,567	7,002	11,416	6,401	5,015
Talbot County	38,025	18,123	19,902	32,021	15,311	16,710	5,316	2,503	2,813
Wicomico County	99,190	47,386	51,804	70,231	33,693	36,538	25,605	12,032	13,573
Worcester County	51,514	25,100	26,414	43,183	21,166	22,017	7,473	3,509	3,964
National Capital Area	**1,861,027**	**894,150**	**966,877**	**878,492**	**437,202**	**441,290**	**772,099**	**356,254**	**415,845**
Montgomery County	989,794	476,037	513,757	642,904	313,826	329,078	188,419	87,114	101,305
Prince George's County	871,233	418,113	453,120	235,588	123,376	112,212	583,680	269,140	314,540
Northwest Region	**489,691**	**245,531**	**244,160**	**427,443**	**210,849**	**216,594**	**46,274**	**26,975**	**19,299**
Allegany County	74,692	38,736	35,956	67,248	33,311	33,937	6,575	5,004	1,571
Frederick County	236,745	116,559	120,186	201,723	99,389	102,334	23,092	11,400	11,692
Garrett County	30,051	14,907	15,144	29,505	14,595	14,910	403	257	146
Washington County	148,203	75,329	72,874	128,967	63,554	65,413	16,204	10,314	5,890
Southern Region	**345,870**	**169,499**	**176,371**	**239,450**	**119,450**	**120,000**	**93,478**	**44,339**	**49,139**
Calvert County	89,256	43,864	45,392	74,254	36,803	37,451	12,832	6,152	6,680
Charles County	149,130	72,031	77,099	78,254	38,863	39,391	64,033	30,099	33,934
St Mary's County	107,484	53,604	53,880	86,942	43,784	43,158	16,613	8,088	8,525

Source: SEER*Stat static data as of July 1, 2011.

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Appendix F

U.S. Standard Population, 2000

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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

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Appendix G

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

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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 & Vital Statistics Administration)
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.

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Appendix H

Maryland Cancer Incidence and Mortality Rates by Geographical Area, 2007-2011

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Appendix H

Table 1: All Cancer Sites Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	451.8	449.3	454.2
Northwest Region	461.0	452.8	469.3
Allegany	518.1	497.6	539.3
Frederick	439.0	426.6	451.7
Garrett	415.7	386.9	446.3
Washington	469.7	454.9	484.8
Baltimore Metropolitan Area ^	466.1	462.0	470.2
Anne Arundel	479.2	470.8	487.6
Baltimore City	480.2	472.6	488.0
Baltimore County	468.6	462.3	475.0
Carroll	442.0	428.3	456.1
Harford	496.9	484.6	509.4
Howard	421.2	409.9	432.7
National Capital Area	401.3	397.1	405.5
Montgomery	399.4	393.9	405.0
Prince George's	403.5	396.9	410.2
Southern Region	438.9	428.3	449.7
Calvert	457.9	437.5	479.0
Charles	427.3	410.9	444.2
Saint Mary's	438.2	419.4	457.6
Eastern Shore Region	492.8	484.3	501.3
Caroline	454.9	424.1	487.4
Cecil	480.5	461.6	500.0
Dorchester	468.0	438.9	498.5
Kent	463.3	427.6	501.4
Queen Anne's	452.6	427.7	478.7
Somerset	524.8	487.8	563.9
Talbot	472.7	446.8	499.9
Wicomico	541.3	521.1	562.0
Worcester	518.6	495.5	542.7

* 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 Cancer Registry

Appendix H

Table 2: Lung and Bronchus Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	59.9	59.0	60.8
Northwest Region	65.5	62.4	68.7
Allegany	82.0	74.2	90.5
Frederick	57.4	52.8	62.2
Garrett	52.3	42.7	63.6
Washington	70.6	65.0	76.6
Baltimore Metropolitan Area ^	64.4	62.9	65.9
Anne Arundel	68.7	65.5	72.0
Baltimore City	77.5	74.5	80.7
Baltimore County	67.5	65.1	69.9
Carroll	60.3	55.3	65.7
Harford	67.7	63.1	72.5
Howard	46.2	42.3	50.3
National Capital Area	41.6	40.2	43.0
Montgomery	37.1	35.4	38.8
Prince George's	47.7	45.3	50.1
Southern Region	60.6	56.6	64.9
Calvert	58.9	51.5	67.0
Charles	54.5	48.5	60.9
Saint Mary's	69.7	62.0	77.9
Eastern Shore Region	73.6	70.5	77.0
Caroline	69.8	58.1	83.2
Cecil	77.4	69.9	85.6
Dorchester	68.8	58.3	80.9
Kent	69.1	56.2	84.4
Queen Anne's	66.6	57.2	77.1
Somerset	99.4	83.9	117.2
Talbot	49.6	42.2	58.3
Wicomico	86.7	78.8	95.2
Worcester	72.0	64.0	81.0

* 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 Cancer Registry

Appendix H

Table 3: Colorectal Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	39.3	38.6	40.0
Northwest Region	45.7	43.1	48.4
Allegany	52.7	46.5	59.7
Frederick	47.0	42.9	51.3
Garrett	38.0	29.9	47.9
Washington	41.8	37.5	46.5
Baltimore Metropolitan Area ^	39.4	38.2	40.6
Anne Arundel	35.7	33.4	38.1
Baltimore City	45.8	43.5	48.3
Baltimore County	41.4	39.5	43.3
Carroll	37.2	33.2	41.5
Harford	47.2	43.4	51.2
Howard	35.3	32.0	38.9
National Capital Area	33.1	31.9	34.4
Montgomery	30.4	28.9	32.0
Prince George's	36.7	34.7	38.8
Southern Region	38.9	35.7	42.3
Calvert	37.1	31.3	43.5
Charles	40.9	35.8	46.4
Saint Mary's	38.2	32.8	44.3
Eastern Shore Region	43.8	41.3	46.4
Caroline	41.1	32.2	51.8
Cecil	44.3	38.7	50.5
Dorchester	46.7	38.0	57.0
Kent	41.9	31.7	54.7
Queen Anne's	38.2	31.2	46.3
Somerset	53.2	41.8	66.8
Talbot	38.3	31.0	46.9
Wicomico	49.7	43.8	56.3
Worcester	39.8	33.8	46.8

* 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 Cancer Registry

Appendix H

Table 4: Female Breast Cancer Incidence Age-Adjusted Incidence Rates by Geographical Area, Maryland, 2007-2011

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	127.8	126.0	129.5
Northwest Region	120.0	114.2	125.9
Allegany	112.6	99.3	127.4
Frederick	122.2	113.6	131.3
Garrett	108.8	88.7	132.4
Washington	120.4	110.1	131.4
Baltimore Metropolitan Area ^	132.1	129.2	135.1
Anne Arundel	129.3	123.6	135.3
Baltimore City	121.8	116.7	127.1
Baltimore County	132.9	128.3	137.6
Carroll	131.3	121.3	141.9
Harford	138.1	129.5	147.2
Howard	128.2	120.1	136.7
National Capital Area	123.2	120.1	126.3
Montgomery	128.3	124.2	132.6
Prince George's	116.1	111.6	120.7
Southern Region	123.3	115.9	131.0
Calvert	142.0	127.2	158.1
Charles	116.5	105.5	128.3
Saint Mary's	116.0	103.1	130.0
Eastern Shore Region	129.1	123.1	135.3
Caroline	121.6	100.5	146.0
Cecil	123.1	110.3	137.0
Dorchester	131.4	110.4	155.4
Kent	115.6	91.1	145.2
Queen Anne's	122.5	105.0	142.2
Somerset	118.1	93.9	146.9
Talbot	147.6	127.0	170.8
Wicomico	128.7	115.5	142.9
Worcester	141.6	124.3	160.8

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

^ Area rate does not include Baltimore City

Source: Maryland Cancer Registry

Appendix H

Table 5: Prostate Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	148.7	146.6	150.7
Northwest Region	129.9	123.5	136.6
Allegany	142.8	127.6	159.5
Frederick	128.2	118.3	138.8
Garrett	97.3	78.7	119.5
Washington	132.7	121.3	144.8
Baltimore Metropolitan Area ^	135.5	132.2	138.7
Anne Arundel	151.7	145.0	158.6
Baltimore City	150.1	143.5	156.9
Baltimore County	127.2	122.4	132.2
Carroll	114.1	104.2	124.7
Harford	149.9	140.1	160.3
Howard	132.0	122.9	141.5
National Capital Area	163.1	159.1	167.2
Montgomery	151.6	146.6	156.8
Prince George's	180.4	173.7	187.3
Southern Region	138.0	129.4	147.1
Calvert	131.0	115.0	148.6
Charles	158.3	143.6	174.1
Saint Mary's	120.2	106.4	135.3
Eastern Shore Region	158.3	151.4	165.3
Caroline	131.5	108.1	158.6
Cecil	123.9	110.2	138.7
Dorchester	139.7	117.5	165.3
Kent	176.8	146.8	212.0
Queen Anne's	150.2	130.2	172.5
Somerset	144.2	117.0	176.0
Talbot	175.9	154.6	199.9
Wicomico	180.5	163.4	198.8
Worcester	185.2	166.6	205.6

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

^ Area rate does not include Baltimore City

Source: Maryland Cancer Registry

Appendix H

Table 6: Oral Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	10.1	9.7	10.5
Northwest Region	10.5	9.3	11.8
Allegany	12.9	9.8	16.9
Frederick	9.5	7.8	11.5
Garrett	9.0	5.2	14.8
Washington	11.0	8.9	13.5
Baltimore Metropolitan Area ^	10.6	10.0	11.2
Anne Arundel	12.7	11.4	14.2
Baltimore City	12.4	11.2	13.7
Baltimore County	9.7	8.8	10.7
Carroll	9.5	7.7	11.7
Harford	10.6	8.9	12.5
Howard	9.7	8.1	11.5
National Capital Area	7.9	7.3	8.5
Montgomery	7.9	7.1	8.7
Prince George's	7.8	6.9	8.8
Southern Region	10.9	9.4	12.7
Calvert	12.1	9.1	15.8
Charles	10.7	8.3	13.6
Saint Mary's	10.2	7.6	13.4
Eastern Shore Region	11.2	10.0	12.6
Caroline	10.7	6.4	16.8
Cecil	12.0	9.2	15.3
Dorchester	11.4	7.4	17.0
Kent	**	**	**
Queen Anne's	10.5	7.1	15.0
Somerset	10.4	5.9	17.2
Talbot	10.9	7.4	15.8
Wicomico	9.9	7.3	13.1
Worcester	13.7	10.0	18.6

* 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/Maryland Cancer Registry Data Use Policy

^ Area rate does not include Baltimore City

Source: Maryland Cancer Registry

Appendix H

Table 7: Melanoma Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	21.0	20.5	21.5
Northwest Region	20.6	18.8	22.4
Allegany	17.3	13.5	21.9
Frederick	22.2	19.5	25.2
Garrett	18.2	12.2	26.3
Washington	20.8	17.8	24.2
Baltimore Metropolitan Area ^	28.8	27.7	29.8
Anne Arundel	32.4	30.3	34.7
Baltimore City	10.0	8.9	11.2
Baltimore County	25.4	24.0	27.0
Carroll	32.3	28.6	36.3
Harford	31.2	28.1	34.5
Howard	26.9	24.2	29.8
National Capital Area	13.1	12.3	13.9
Montgomery	17.5	16.4	18.7
Prince George's	7.3	6.4	8.3
Southern Region	21.8	19.5	24.3
Calvert	34.1	28.6	40.2
Charles	11.5	9.0	14.5
Saint Mary's	24.7	20.5	29.6
Eastern Shore Region	28.6	26.5	30.7
Caroline	26.7	19.6	35.7
Cecil	23.0	19.0	27.5
Dorchester	23.4	17.3	31.2
Kent	15.0	8.6	24.7
Queen Anne's	28.3	22.2	35.5
Somerset	30.1	21.5	41.0
Talbot	29.5	22.9	37.5
Wicomico	34.1	29.1	39.7
Worcester	37.3	30.9	44.7

* 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 Cancer Registry

Appendix H

Table 8: Cervical Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	6.7	6.3	7.1
Northwest Region	6.8	5.4	8.5
Allegany	**	**	**
Frederick	5.7	4.0	8.0
Garrett	**	**	**
Washington	8.5	5.8	12.2
Baltimore Metropolitan Area ^	6.3	5.6	7.0
Anne Arundel	6.6	5.3	8.1
Baltimore City	9.1	7.7	10.7
Baltimore County	7.0	5.9	8.2
Carroll	3.8	2.2	6.0
Harford	7.2	5.2	9.6
Howard	4.9	3.4	6.8
National Capital Area	6.3	5.6	7.1
Montgomery	5.5	4.7	6.5
Prince George's	7.4	6.3	8.7
Southern Region	5.0	3.6	6.7
Calvert	**	**	**
Charles	5.1	3.2	7.9
Saint Mary's	**	**	**
Eastern Shore Region	7.0	5.5	8.8
Caroline	**	**	**
Cecil	9.1	5.8	13.6
Dorchester	**	**	**
Kent	**	**	**
Queen Anne's	**	**	**
Somerset	**	**	**
Talbot	**	**	**
Wicomico	7.5	4.3	12.0
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/Maryland Cancer Registry Data Use Policy

^ Area rate does not include Baltimore City

Source: Maryland Cancer Registry

Appendix H

Table 9: All Cancer Sites Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	175.8	172.3	179.2
Northwest Region	175.4	164.0	186.8
Allegany	182.5	156.0	209.1
Frederick	168.7	150.9	186.5
Garrett	173.1	131.7	214.4
Washington	182.5	162.0	203.0
Baltimore Metropolitan Area ^	178.3	172.6	184.0
Anne Arundel	183.4	171.4	195.3
Baltimore City	217.1	205.5	228.6
Baltimore County	186.2	177.4	195.0
Carroll	173.0	153.8	192.1
Harford	177.5	160.6	194.4
Howard	146.4	130.8	162.0
National Capital Area	148.2	142.4	154.1
Montgomery	129.5	122.5	136.6
Prince George's	174.4	164.1	184.6
Southern Region	186.5	170.3	202.8
Calvert	181.0	151.1	210.9
Charles	193.2	167.1	219.3
Saint Mary's	183.2	154.5	211.9
Eastern Shore Region	201.5	189.4	213.5
Caroline	195.2	148.9	241.6
Cecil	202.8	174.7	231.0
Dorchester	183.6	143.7	223.4
Kent	198.7	147.9	249.5
Queen Anne's	193.1	155.2	230.9
Somerset	223.7	168.6	278.8
Talbot	176.8	142.7	210.9
Wicomico	226.2	196.9	255.5
Worcester	198.9	167.1	230.8

* 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 10: Lung and Bronchus Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	47.7	45.9	49.5
Northwest Region	50.2	44.1	56.3
Allegany	53.8	39.4	68.1
Frederick	46.9	37.4	56.3
Garrett	49.0	27.0	71.0
Washington	53.5	42.3	64.6
Baltimore Metropolitan Area ^	50.8	47.7	53.8
Anne Arundel	55.2	48.6	61.7
Baltimore City	61.2	55.1	67.4
Baltimore County	52.9	48.2	57.7
Carroll	48.6	38.5	58.8
Harford	53.4	44.2	62.6
Howard	33.9	26.3	41.5
National Capital Area	33.5	30.7	36.3
Montgomery	28.1	24.8	31.4
Prince George's	41.3	36.3	46.2
Southern Region	51.9	43.3	60.4
Calvert	51.2	35.5	67.0
Charles	50.7	37.3	64.1
Saint Mary's	54.0	38.4	69.6
Eastern Shore Region	60.8	54.2	67.3
Caroline	58.5	33.2	83.7
Cecil	59.9	44.7	75.0
Dorchester	56.5	34.6	78.5
Kent	61.6	33.4	89.7
Queen Anne's	57.6	37.1	78.2
Somerset	72.4	40.9	103.9
Talbot	48.1	30.9	65.4
Wicomico	69.3	53.1	85.4
Worcester	62.3	45.0	79.7

* 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 11: Colorectal Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	16.0	15.0	17.1
Northwest Region	17.3	13.7	20.9
Allegany	18.1	9.9	26.3
Frederick	17.0	11.3	22.6
Garrett	17.4	4.1	30.6
Washington	17.2	10.9	23.5
Baltimore Metropolitan Area ^	15.2	13.5	16.9
Anne Arundel	14.5	11.1	17.9
Baltimore City	21.5	17.8	25.1
Baltimore County	16.2	13.6	18.8
Carroll	16.5	10.5	22.4
Harford	14.4	9.5	19.3
Howard	13.2	8.5	17.8
National Capital Area	13.9	12.1	15.7
Montgomery	10.8	8.8	12.9
Prince George's	18.2	14.9	21.5
Southern Region	17.3	12.4	22.3
Calvert	17.3	7.9	26.7
Charles	19.4	11.1	27.7
Saint Mary's	14.8	6.7	22.9
Eastern Shore Region	17.7	14.2	21.3
Caroline	20.6	5.4	35.7
Cecil	17.6	9.2	26.0
Dorchester	12.5	2.3	22.8
Kent	13.2	0.5	25.9
Queen Anne's	14.6	4.4	24.8
Somerset	27.0	7.9	46.1
Talbot	15.7	5.3	26.1
Wicomico	22.0	12.9	31.2
Worcester	16.4	7.5	25.3

* 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

Appendix H

Table 12: Female Breast Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	24.0	22.4	25.7
Northwest Region	N/A	N/A	N/A
Allegany	20.3	8.1	32.5
Frederick	22.9	14.4	31.5
Garrett	29.2	5.6	52.8
Washington	20.0	10.9	29.1
Baltimore Metropolitan Area ^	N/A	N/A	N/A
Anne Arundel	23.0	17.4	28.5
Baltimore City	28.1	22.7	33.6
Baltimore County	25.7	21.3	30.2
Carroll	21.9	12.9	30.9
Harford	23.8	15.7	32.0
Howard	22.8	14.9	30.7
National Capital Area	N/A	N/A	N/A
Montgomery	20.0	16.3	23.7
Prince George's	28.2	23.1	33.4
Southern Region	N/A	N/A	N/A
Calvert	23.3	9.2	37.5
Charles	25.0	13.2	36.9
Saint Mary's	22.9	9.6	36.2
Eastern Shore Region	N/A	N/A	N/A
Caroline	21.9	1.1	42.8
Cecil	24.0	11.2	36.8
Dorchester	22.2	2.9	41.5
Kent	**	**	**
Queen Anne's	23.7	5.9	41.5
Somerset	**	**	**
Talbot	22.2	4.0	40.4
Wicomico	20.7	8.9	32.6
Worcester	25.1	9.7	40.6

* 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/Center for Cancer Prevention and Control Data Suppression Policy

^ Area rate does not include Baltimore City

N/A = Data were not available

Source: Maryland Vital Statistics Administration

Appendix H

Table 13: Prostate Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	24.6	22.4	26.7
Northwest Region	N/A	N/A	N/A
Allegany	13.1	1.8	24.5
Frederick	22.7	11.7	33.8
Garrett	**	**	**
Washington	20.7	9.3	32.1
Baltimore Metropolitan Area ^	N/A	N/A	N/A
Anne Arundel	21.4	14.5	28.3
Baltimore City	37.6	29.4	45.9
Baltimore County	22.4	17.6	27.3
Carroll	21.3	9.9	32.7
Harford	22.8	12.2	33.4
Howard	20.1	10.0	30.3
National Capital Area	N/A	N/A	N/A
Montgomery	17.9	13.7	22.2
Prince George's	34.0	25.4	42.7
Southern Region	N/A	N/A	N/A
Calvert	25.7	6.5	44.9
Charles	24.9	8.7	41.1
Saint Mary's	28.6	9.1	48.1
Eastern Shore Region	N/A	N/A	N/A
Caroline	**	**	**
Cecil	27.7	9.5	45.9
Dorchester	24.3	1.3	47.4
Kent	40.7	4.8	76.6
Queen Anne's	30.7	5.6	55.7
Somerset	**	**	**
Talbot	31.8	9.6	53.9
Wicomico	32.3	13.3	51.3
Worcester	26.8	9.2	44.4

* 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/Center for Cancer Prevention and Control Data Suppression Policy

^ Area rate does not include Baltimore City

N/A = Data were not available

Source: Maryland Vital Statistics Administration

Appendix H

Table 14: Oral Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	2.4	2.0	2.8
Northwest Region	1.9	0.8	3.1
Allegany	**	**	**
Frederick	**	**	**
Garrett	**	**	**
Washington	2.6	0.2	4.9
Baltimore Metropolitan Area ^	2.4	1.8	3.1
Anne Arundel	3.2	1.7	4.8
Baltimore City	3.7	2.2	5.2
Baltimore County	2.3	1.3	3.2
Carroll	**	**	**
Harford	3.0	0.9	5.2
Howard	1.5	0.0	3.1
National Capital Area	2.0	1.3	2.7
Montgomery	1.6	0.8	2.4
Prince George's	2.5	1.3	3.7
Southern Region	2.9	0.9	4.9
Calvert	**	**	**
Charles	**	**	**
Saint Mary's	**	**	**
Eastern Shore Region	2.8	1.4	4.2
Caroline	**	**	**
Cecil	**	**	**
Dorchester	**	**	**
Kent	**	**	**
Queen Anne's	**	**	**
Somerset	**	**	**
Talbot	**	**	**
Wicomico	3.8	0.0	7.6
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/Center for Cancer Prevention and Control Data Suppression Policy

^ Area rate does not include Baltimore City

Source: Maryland Vital Statistics Administration

Appendix H

Table 15: Melanoma Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	2.6	2.2	3.0
Northwest Region	3.4	1.8	4.9
Allegany	**	**	**
Frederick	3.5	0.9	6.0
Garrett	**	**	**
Washington	3.2	0.5	6.0
Baltimore Metropolitan Area ^	3.1	2.3	3.8
Anne Arundel	3.5	1.9	5.2
Baltimore City	1.5	0.5	2.4
Baltimore County	3.0	1.8	4.1
Carroll	3.1	0.5	5.7
Harford	3.1	0.9	5.2
Howard	2.7	0.6	4.7
National Capital Area	1.9	1.2	2.5
Montgomery	2.2	1.3	3.1
Prince George's	1.3	0.5	2.2
Southern Region	2.5	0.7	4.4
Calvert	**	**	**
Charles	**	**	**
Saint Mary's	**	**	**
Eastern Shore Region	4.0	2.2	5.7
Caroline	**	**	**
Cecil	3.9	0.0	7.7
Dorchester	**	**	**
Kent	**	**	**
Queen Anne's	**	**	**
Somerset	**	**	**
Talbot	**	**	**
Wicomico	3.8	0.1	7.6
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/Center for Cancer Prevention and Control Data Suppression Policy

^ Area rate does not include Baltimore City

Source: Maryland Vital Statistics Administration

Appendix H

Table 16: Cervical Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2007-2011

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	2.2	1.7	2.8
Northwest Region	N/A	N/A	N/A
Allegany	**	**	**
Frederick	**	**	**
Garrett	**	**	**
Washington	**	**	**
Baltimore Metropolitan Area ^	N/A	N/A	N/A
Anne Arundel	2.2	0.4	4.0
Baltimore City	4.5	2.2	6.7
Baltimore County	1.8	0.6	3.0
Carroll	**	**	**
Harford	**	**	**
Howard	**	**	**
National Capital Area	N/A	N/A	N/A
Montgomery	1.3	0.4	2.3
Prince George's	3.0	1.4	4.7
Southern Region	N/A	N/A	N/A
Calvert	**	**	**
Charles	**	**	**
Saint Mary's	**	**	**
Eastern Shore Region	N/A	N/A	N/A
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/Center for Cancer Prevention and Control Data Suppression Policy

^ Area rate does not include Baltimore City

N/A = Data were not available

Source: Maryland Vital Statistics Administration

Appendix I

Trends in Cancer Incidence and Mortality Rates in Maryland by Cancer Site, Race or Gender, and Year, 2007-2011

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Appendix I

Table 1: Cancer Incidence Rates by Cancer Site and Year
Maryland, 2007-2011

Cancer Site	2007	2008	2009	2010	2011	APC 2007-2011	MD Trend
All Cancer Sites	455.3	470.8	443.7	449.8	440.7	-1.1%	↓
Lung	62.5	64.6	58.6	57.6	56.8	-3.0%	↓
Colorectal	41.6	42.5	38.0	37.4	37.3	-3.4%	↓
Female Breast	123.2	132.7	127.4	129.0	126.6	0.3%	↑
Prostate	162.5	163.0	148.4	140.6	131.7	-5.5%	↓
Oral	9.6	10.1	10.0	10.6	10.2	1.7%	↑
Melanoma	21.2	21.7	20.0	21.4	20.6	-0.7%	↓
Cervical	6.4	6.5	6.8	7.3	6.4	1.2%	↑

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, 2007-2011

Cancer Site	2007	2008	2009	2010	2011	APC 2007-2011	MD Trend
All Cancer Sites	180.4	180.6	177.7	170.9	165.7	-2.2%	↓
Lung	50.1	50.0	48.7	46.0	43.7	-3.5%	↓
Colorectal	17.5	16.6	16.6	14.9	14.3	-5.0%	↓
Female Breast	24.8	25.1	23.5	24.2	22.4	-2.4%	↓
Prostate	26.6	25.1	25.5	22.3	20.2	-6.5%	↓
Oral	2.5	2.4	2.5	2.3	2.4	-1.2%	↓
Melanoma	2.4	2.6	2.9	2.4	2.6	0.8%	↑
Cervical	2.4	2.5	2.3	1.9	2.1	-5.3%	↓

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2008-2010 (Colorectal); 2011

Appendix I

Table 3: Cancer Incidence Rates by Race and Year
Maryland, 2007-2011

Cancer Site	Race	2007	2008	2009	2010	2011	APC 2007-2011
All Cancer Sites	White	460.5	472.2	446.5	449.0	444.1	-1.2%
	Black	444.0	467.9	431.8	451.5	437.7	-0.6%
Lung	White	64.3	66.1	60.7	58.5	59.7	-2.7%
	Black	60.3	63.0	55.6	59.2	53.4	-3.0%
Colorectal	White	40.6	41.0	36.0	35.9	36.6	-3.3%
	Black	44.8	47.5	42.4	43.0	39.9	-3.3%
Female Breast	White	125.4	130.7	127.8	127.6	128.3	0.2%
	Black	117.2	132.4	121.7	129.4	124.0	0.9%
Prostate	White	146.5	142.9	127.2	122.0	110.2	-7.0%
	Black	209.0	225.5	217.9	195.0	191.4	-3.2%
Oral	White	10.0	10.7	11.2	11.6	11.4	3.5%
	Black	8.1	8.6	7.5	7.5	7.3	-3.4%
Cervical	White	6.2	5.6	5.8	6.2	6.1	0.7%
	Black	7.2	8.2	7.8	9.1	7.4	1.6%

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, 2007-2011

Cancer Site	Gender	2007	2008	2009	2010	2011	APC 2007-2011
Melanoma	Male	27.2	29.0	26.5	26.9	27.8	-0.3%
	Female	17.1	16.7	15.5	17.5	15.5	-1.5%

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, 2007-2011

Cancer Site	Race	2007	2008	2009	2010	2011	APC 2007-2011
All Cancer Sites	White	176.6	175.0	176.6	166.1	161.3	-2.3%
	Black	207.7	212.8	193.0	197.0	190.0	-2.5%
Lung	White	51.4	51.1	50.6	46.5	44.2	-3.9%
	Black	51.2	51.8	46.2	48.5	47.2	-2.3%
Colorectal	White	15.7	15.4	15.2	12.9	13.0	-5.4%
	Black	24.1	21.8	21.8	21.9	19.0	-4.6%
Female Breast	White	22.8	22.0	22.6	21.1	19.9	-3.1%
	Black	32.4	35.3	27.1	34.1	29.5	-2.2%
Prostate	White	23.0	20.6	20.7	17.6	17.0	-7.3%
	Black	45.3	48.1	49.6	44.4	36.6	-4.9%
Oral	White	2.5	2.2	2.3	2.2	2.3	-1.7%
	Black	2.8	3.0	3.3	2.5	2.7	-2.5%
Cervical	White	1.7	2.0	1.7	1.5	1.7	-2.8%
	Black	4.3	3.6	3.8	2.9	3.2	-7.8%

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2008-2010 (Colorectal); 2011

Table 6: Melanoma Mortality Rates by Gender and Year
Maryland, 2007-2011

Cancer Site	Gender	2007	2008	2009	2010	2011	APC 2007-2011
Melanoma	Male	3.5	4.4	4.7	4.0	3.9	1.2%
	Female	1.8	1.3	1.8	1.3	1.8	0.0%

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: NCHS Compressed Mortality File in CDC WONDER, 2007
Maryland Vital Statistics Administration from MATCH, 2008-2010
Maryland Vital Statistics Administration, 2011

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Appendix J

Trends in Cancer Stage of Disease at Diagnosis in Maryland by Cancer Site and Year, 2007-2011

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Appendix J

Table 1: All Cancer Sites
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2007-2011

Stage	2007	2008	2009	2010	2011
	%	%	%	%	%
Local	45.9	45.8	43.8	43.6	44.6
Regional	21.1	21.0	20.2	19.8	20.6
Distant	20.9	21.1	20.7	21.9	22.0
Unstaged	12.1	12.1	15.2	14.8	12.8

Source: Maryland Cancer Registry

Table 2: Lung Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2007-2011

Stage	2007	2008	2009	2010	2011
	%	%	%	%	%
Local	18.7	20.2	20.5	18.3	19.3
Regional	23.7	24.8	23.8	23.1	25.2
Distant	47.8	45.6	46.9	47.0	46.7
Unstaged	9.8	9.4	8.8	11.5	8.8

Source: Maryland Cancer Registry

Table 3: Colorectal Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2007-2011

Stage	2007	2008	2009	2010	2011
	%	%	%	%	%
Local	39.3	38.3	35.8	36.0	36.0
Regional	32.8	33.7	33.5	31.7	32.1
Distant	18.1	19.5	19.4	19.8	19.1
Unstaged	9.8	8.5	11.3	12.5	12.8

Source: Maryland Cancer Registry

Table 4: Female Breast Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2007-2011

Stage	2007	2008	2009	2010	2011
	%	%	%	%	%
Local	58.4	58.0	59.4	57.4	60.4
Regional	31.6	30.8	29.3	29.7	28.7
Distant	5.8	5.8	4.8	5.1	5.1
Unstaged	4.2	5.4	6.6	7.8	5.8

Source: Maryland Cancer Registry

Appendix J

Table 5: Prostate Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2007-2011

Stage	2007	2008	2009	2010	2011
	%	%	%	%	%
Local	69.1	68.6	57.7	67.3	69.5
Regional	10.0	9.8	8.0	8.3	8.8
Distant	2.7	2.4	3.1	3.2	3.5
Unstaged	18.1	19.1	31.2	21.2	18.3

Source: Maryland Cancer Registry

Table 6: Oral Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2007-2011

Stage	2007	2008	2009	2010	2011
	%	%	%	%	%
Local	27.3	31.6	30.8	31.2	27.3
Regional	47.4	42.5	47.4	43.4	46.4
Distant	17.0	17.2	12.7	17.0	18.2
Unstaged	8.4	8.7	9.1	8.4	8.1

Source: Maryland Cancer Registry

Table 7: Melanoma
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2007-2011

Stage	2007	2008	2009	2010	2011
	%	%	%	%	%
Local	68.4	67.3	65.6	52.1	56.4
Regional	9.2	7.8	8.6	8.4	8.1
Distant	3.6	3.4	3.4	3.8	3.3
Unstaged	18.8	21.5	22.4	35.7	32.2

Source: Maryland Cancer Registry

Table 8: Cervical Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2007-2011

Stage	2007	2008	2009	2010	2011
	%	%	%	%	%
Local	38.1	36.0	39.4	40.1	39.7
Regional	34.5	37.5	32.7	36.2	35.7
Distant	16.0	17.0	11.1	8.2	12.1
Unstaged	11.3	9.5	16.8	15.5	12.6

Source: Maryland Cancer Registry

Appendix K

Trends in All Cancer Sites Incidence and Mortality Rates in Maryland and U.S. by Year, 2002-2011

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Appendix K

Table 1: All Cancer Sites Incidence Rates by Year
Maryland and U.S., 2002-2011

	2002	2003	2004	2005	2006 †	2007	2008	2009	2010	2011	APC 2002-2011	Trend
Maryland	495.8	494.5	462.6	457.4	426.3	455.3	470.8	443.7	449.8	440.7	-1.1%	↓
U.S.	482.6	468.3	470.0	465.9	468.2	474.6	468.5	464.8	451.9	443.7	-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
U.S. SEER, SEER*Stat

Table 2: All Cancer Sites Mortality Rates by Year
Maryland and U.S., 2002-2011

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	APC 2002-2011	Trend
Maryland	201.7	195.7	189.9	190.2	186.7	180.4	180.6	177.7	170.9	165.7	-1.9%	↓
U.S.	193.5	190.1	185.8	183.8	180.7	178.4	175.3	173.1	171.8	168.7	-1.5%	↓

Rates are age-adjusted to 2000 U.S. standard population

APC = Annual Percent Change (%)

Source: NCHS Compressed Mortality File in CDC WONDER, 2002-2007 (MD)
Maryland Vital Statistics Administration from MATCH, 2008-2010 (MD)
Maryland Vital Statistics Administration, 2011 (MD)
NCHS Compressed Mortality File in CDC WONDER, 2002-2008 (U.S.)
U.S. SEER, Cancer Statistics Review, 2009-2011 (U.S.)

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